ESA - TOA - AAPOS 2025

JUNE 11-14

Hilton Bosphorus Hotel and Convention Center, Istanbul

www.esa2025.org

CONTENT

ESA - TOA - AAPOS 2025

JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul

www.esa2025.org

Dear Colleagues and Friends,

It is a great pleasure and honor for us to welcome you in İstanbul, Türkiye and host the 44th Annual Congress of the European Strabismological Association (ESA) and AAPOS and Turkish Ophthalmological Association Joint Meeting. Istanbul is a very special place to have this meeting as it is at meeting point of two continents, forming a bridge between east and west. The great cultural heritage of the city will embrace you as well as the modern and youthful facilities.

“Pediatric Ophthalmology Perspective” will give the opportunity of updating your knowledge and also meeting the experts. The scientific programme of 44th ESA congress will be at the highest level as the previous ones and all aspects of childhood and adulthood strabismus will be covered by the experienced colleagues and experts from all over the world.

The congress will be in Hilton Bosphorus Congress Center in the center of city. Connected to the congress center Hilton Hotel that is one of the iconic buildings of İstanbul will be a perfect spot tos tay in İstanbul. Around this area there are many hotels with a wide range of budget. Istanbul has high number of restaurants that will give you th eopportunity of tasting local Turkish cuisine as well as international. Around the congress center Istanbul has many daily connections to European cities and Turkish Airlines is one of the airlines with highest number of connections and direct flights all over the world. You can find a hotel easily.

Huban Atilla, MD
President of Turkish Ophthalmological Association

ESA - TOA - AAPOS 2025

JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul

www.esa2025.org

Dear friends, colleagues, and strabismus enthusiasts,

It is my great pleasure to invite you all to attend the 44th Annual Congress of the European Strabismological Association held in Istanbul, Türkiye from 12th - 14th June 2025. After the spectacular ESA Meeting in Izmir 2004 and ISA Meeting in Istanbul 2010 we return to Turkiye to enjoy Turkish hospitality.

The Scientific Programme will be organised jointly with AAPOS – as we did very successfully 2017 in Porto – and the Turkish Ophthalmological Society. A big thank you to Huban Atilla, Şule Ziylan and Seyhan Özkan who will be the local organizers.
We will have our traditional 2½ day ESA program including our usual favourite sessions such as Round Table, Orthoptic Symposium, Early Morning Surgery Course, and our ever-popular John Lee rapid fire Poster session and "A Case I have learnt from...". The 7th pre-meeting Strabismus workshop "What you always wanted to ask about strabismus ..." invites especially beginners in strabismology and people who start to come to ESA meetings. The Toulouse workshop 2024 was very interactive, instructive, and good fun for presenters and participants as well.

Last and by no means least, we invite you to submit abstracts of your own work. Presenting and discussing your research as talk or poster will form a major part of the programme.

For the first time there will be an extra day of Paediatric Ophthalmology sessions organized by AAPOS and the Turkish society. Because ESA by-laws clearly state that we promote strabismology in all its aspects - but not paediatric ophthalmology in general - there must be a separate registration for this extra day on Wednesday 11th June. I strongly recommend joining.

On Wednesday we will also host the EBO Subspeciality exam Strabismus and Paediatric Ophthalmologie together with the EPOS (European Paediatric Ophthalmological Society). More informations can be found at. www.ebo-online.org
Transport links to Istanbul are excellent. So again, as in Toulouse we expect participants from countries all over the world.
As ESA President it is my immense pleasure to meet you all at the congress in the vibrant city of Istanbul.

Oliver Ehrt, MD
President of European Strabismological Association

ESA - TOA - AAPOS 2025

JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul

www.esa2025.org

Dearest Colleagues and Future Friends,

On behalf of the entire American Association of Pediatric Ophthalmology and Strabismus, I am excited to help co'host the combined ESA/AAPOS/TOA meeting in the wonderful city of Istanbul, Turkey.

For many of us, this will be the first opportunity we have had to attend an international meeting since the pandemic ended, and I personally am very excited to see Istanbul and Turkey for the first time.

We expect to have many attendees from all over the world. The wonderful advantage of an international symposium and meeting like this is to share the diverse views, and learn from the best experts in strabismus treatment and binocular vision development. One of the highlights will be the Knapp lecture, which is sponsored by AAPOS in memory of Dr Phillip Knapp, a famous strabismologist from the USA. More details about the named lecturer and the lecture title are forthcoming. AAPOS will also have a symposium that will feature topics of pediatric ophthalmology, including pediatric retina, pediatric cornea, and pediatric glaucoma featuring experts from the USA. This can't be missed!

I can guarantee that we will have a high-standard scientific program, that will not only allow us to have exciting scientific discussions, but also rekindle old friendships, and establish new ones.

I promise that your attendance will be rewarded with an increase in knowledge and skills, and memories of a wonderful city, and making new friendships.

Sean P. Donahue, MD
President of American Association for Pediatric Ophthalmology and Strabismus

LOCAL ORGANIZATION COMMITTEE

Dr. Huban Atilla

Dr. Seyhan B. Özkan

Dr. Fatih Mehmet Mutlu

Dr. Şule Ziylan

SCIENTIFIC COMMITTEE

Dr. Oliver Ehrt
(President of ESA)

Dr. Huban Atilla
(President of TOA)

Dr. Sean Donahue
(President of AAPOS)

Dr. Daniela Cioplean

Dr. Helena Buch Hesgaard

Dr. Seyhan B. Özkan

Dr. Faruk Örge

Dr. Emmanual Bui Quoc

Dr. Saurabh Jain

Dr. Şule Ziylan

ESA EXECUTIVE COMMITTEE

President
Oliver Ehrt (Germany)

Vice-Presidents
Daniela Cioplean (Romania)
Emmanuel Bui-Quoc (France)
Helena Buch-Hesgaard (Denmark)

Councillors
Andrea Piantanida (Italy)
Pilar Gomez de Liano (Spain)
Saurabh Jain (UK)

Secretary-Treasurer
Miryana Bjelos (Croatia)

Co-opted Members
Dominique Thouvenin (France)

Editor
Sule Ziylan (Turkey)

TOA EXECUTIVE COMMITTEE

President:
Huban Atilla, MD

Secretary General / Next President:
Kıvanç Güngör, MD

Financial Secretary:
Fatih Mehmet Mutlu, MD

TOA Administrative Board:
Suzan Güven, MD
Onur Konuk, MD
S. Feyza Önder, MD
Hakan Özdemir, MD
Banu Turgut Öztürk, MD
Gamze Uçan Gündüz, MD
Tekin Yaşar, MD
Gürsel Yılmaz, MD

AAPOS EXECUTIVE COMMITTEE

President:
Sean P. Donahue, MD, PhD

Vice President:
David G. Hunter, MD, PhD

Vice President-Elect:
Faruk H. Örge, MD

Immediate Past President:
D. M. Alcorn, MD

Secretary / Treasurer:
Barry N. Wasserman, MD

Secretary for Program:
Yasmin S. Bradfield, MD

Executive Vice President:
Christie L. Morse, MD

International Director-at-Large:
Andrea Molinari, MD

Public Director-at-Large:
Dorothy Weinstein

Director-at-Large:
Catherine O. Jordan, MD
David L. Rogers, MD
Erick Bothun, MD
Councilor to AAO:
Scott A. Larson, MD
Stacey J. Kruger, MD

CEF of AAPOS Advisory Board Chair:
Pamela E. Williams, MD

SCIENTIFIC PROGRAMME

08:00 - 18:00	Registration
08.00 - 09.00	Poster set up for AAPOS TOA Day

PS-02 Incidence of Retinopathy of Prematurity Between 2021 and 2024:Results from a Single Center
Serap Karaca, Bilge Batu Oto, Osman Kızılay
Istanbul Goztepe Prof. Dr. Suleyman Yalcin City Hospital, İstanbul Türkiye

PS-03 Challenges of First ROP Screening Program in Albania
Eglantina Bulica Sinamati, Vilma Mema, Alketa Tandili, Ilir Arapi, Spiro Dama, Amarilda Hysenshahaj
Health Center, Tirane, Albania

PS-04 Evaluation of Play-Age Eye Findings in Babies at Risk for the Development of Retinopathy of Prematurity
Pınar Eröz, Veysel Atasoy, Ayça Sarı
Tarsus State Hospital, Department of Ophthalmology, Türkiye

PS-06 Morning Glory Disc Anomaly in Children: Optical Coherence Tomography as a Prognostic and Management Tool
Mariana Akemi Matsura Misawa, Michael J. Wan, Kamiar Mireskandari
Department of Ophthalmology and Vision Sciences, Hospital for Sick Children, University of Toronto
Toronto, Canada

PS-07 Could It Be a Linear Choroidal Coloboma?
Gökhan Çelik, Armağan Özgür
Mersin Tarsus Devlet Hastanesi, Mersin Türkiye

PS-08 Effectiveness of Low-concentration Atropine Eye Drops for Myopia Progression
Aysel Galbinur
Azerbaijan Medical University, Department of Ophthalmology, Bakü, Azerbaycan

PS-09 Evaluating the Effectiveness of Different Treatment Methods on Myopia Progression
Aysel Pelit, Zeynep Kunt, Caner Incekaş
Başkent University, Faculty of Medicine, Department of Ophthalmology, Adana, Türkiye

PS-10 Defocus Incorporated Multiple Segments Spectacles for Myopia Control; One Year Results
Asli Cetinkaya Yaprak
Akdeniz University, Ophthalomology Department, Faculty of Medicine, Antalya, Türkiye

PS-11 One-Year Clinical Outcomes of Defocused Multi-Segment Spectacle Lenses in School-Age Children with Myopia
Fahri Onur Aydın, Havva Kaldırım, Idil Celen
Basaksehir Cam ve Sakura City Hospital, Department of Ophthalmology, İstanbul, Türkiye

PS-13 Effect of Defocus Incorporated Multiple Segments Spectacle Lenses on Myopia Control, Anterior Segment, and Higher-Order Aberrations After One Year
Pinar Orenc, Ece Guler, Hulya Gungel
İstanbul Training and Research Hospital, İstanbul, Türkiye

PS-14 Low Dose 0.02% of Atropine to Reduce Rrogression of Myopia in Children
Alketa Ajazi Tandili, Holgena Cepani, Orjada Agalliu, Etleva Balla
University Hospital Center Mother Tereza Tirane, Albania, Health Center Tirane, Albania

PS-15 The Long Term Results of One Eye Ortho K Fitting
Chih Yu Chen, Ko Jo Lin, Hsin Wei Huang, Chien Liang Wu
Department of Ophthalmology, Taipei Municipal Wanfang Hospital, Taipei, Taiwan

PS-18 Is Surgical Intervention Avoidable in Congenital Nasolacrimal Duct Obstruction (CNLDO) ?
Sameera Irfan
Envision, Squint & Oculoplastics Centre, Lahore, Pakistan

PS-19 Postoperative Outcomes of Pediatric Canalicular Lacerations and Evaluation with Anterior Segment Optical Coherence Tomography
Asli Cetinkaya Yaprak, Çisil Erkan Pota, Hat
Akdeniz University, School of Medicine, Department of Ophthalmology, Antalya, Türkiye

PS-20 Sudden Vision Loss in Patient with Tuberous Sclerosis
Gökhan Çelik, Fatma Yülek
Ministry of Health, Tarsus State Hospital, Mersin, Türkiye

PS-21 A Combined Treatment of Debulking and Sclerotherapy for Orbital Lymphangioma
Arda Okcu, Sebastian Böttger, Michael Gräf, Lyubomyr Lytvynchuk, Hans Peter Howaldt
Department of Ophthalmology, Justus-Liebig-University Giessen, Giessen, Germany
Department of Oral and Maxillofacial Surgery, Justus-Liebig-University Giessen, Giessen, Germany

PS-22 Metastatic Ewing Sarcoma to the Orbit Presenting After Trivial Trauma
Arwa Alkhuraiji, Maryam Alkhayat, Shatha Alfreihi, Sameh Soliman
Ophthalmology Department, King Abdulaziz Medical City (KAMC), Ministry of National Guard Health Affairs (MNGHA), Riyadh, KSA
Pediatric Ophthalmology Department, King Abdullah Specialized Children Hospital (KASCH), Ministry of National Guard Health Affairs (MNGHA), Riyadh, KSA
Ophthalmology Department, Salmaniya Medical Complex, Government Hospitals, Manama, Kingdom of Bahrain
Ophthalmology Department, Faculty of Medicine, Alexandria University, Alexandria, Egypt

PS-23 A Ruptured Dumbbell Dermoid Cyst Masquerading as Peri-orbital Cellulitis
Cyrielle Chalencon, Elisabeth De Smit, Nausheen Hayat, Gulunay Kiray, Kaveh Vahdani
Moorfields Eye Hospital NHS Foundation Trust, London, England

PS-24 Multidisciplinary Management of Paediatric Orbital Inflammatory Myofibroblastic Tumor Involving the Medial Rectus Muscle: A Case Report

Elpida Kollia, Anne Cook, Bhamy Hariprasad Shenoy, Haya Razzouk
Moorfields Eye Hospital NHS Foundation Trust
Manchester Royal Eye Hospital NHS Foundation Trust
Warrington Hospital NHS Foundation Trust

11 JUNE 2025, WEDNESDAY

09:00 - 16:00	FEBOS Strabismus and Paediatric Ophthalmology Exam (Room 1)
13:00 - 16:30	Strabismus Workshop "What you always wanted to ask about strabismus ..." Oliver EHRT (Germany) Saurabh JAIN (UK) Daisy GODTS (Belgium)
	AAPOS - TOA DAY Pediatric Ophthalmology (Hall A)
08:45 - 09:00	Opening Remarks Sean DONAHUE (USA) Huban ATİLLA (Türkiye)
	Update in diagnosis and management of pediatric retinal diseases Moderator: Faruk ÖRGE (Türkiye), Huban ATİLLA (Türkiye)
09:00 - 09:10	AI/Deep learning applications in pediatric retinal diseases Peter CAMPBELL (USA)
09:10 - 09:20	AI + future imaging innovations Peter CAMPBELL (USA)
09:20 - 09:30	AAO KTEF ROP Virtual Reality platform Faruk H. ÖRGE (USA)
09:30 - 09:40	ICROP 3 Şengül ÖZDEK (Türkiye)
09:40 - 09:50	Persistent Fetal Vasculature: The Full Spectrum Şengul ÖZDEK (Türkiye)
09:50 - 10:00	Differential Diagnosis of Leucocoria Tuba ATALAY (Türkiye)
10:00 - 10:10	Retinoblastoma update Carol SHIELDS (USA)
10:10 - 10:20	Q&A panel session
10.20 - 10.50	COFFEE BREAK

11 JUNE 2025, WEDNESDAY

10.50 - 11.20	**HOYA SATELLITE SYMPOSIUM** **Exploring New Frontiers in Myopia Management with MiYOSMART** **MiYOSMART Range Extension** Pascal Blaser (Switzerland) **Why Should We Fight Against Myopia?** Prof. Pei-Chang Wu (Taiwan) **How to Manage High Myopic Children?** Prof. U. Emrah Altıparmak (Türkiye)
	Hot Topics in Pediatric Ophthalmology Moderator: Arif KHAN (UAE), İlknur TUĞAL TUTKUN (Türkiye)
11:35 - 11:45	**Genetics topics every pediatric ophthalmologist should know** Arif KHAN (UAE)
11:45 - 11:55	**Vernal keratoconjunctivitis** Yi Ning STRUBE (Canada)
11:55 - 12:05	**Pediatric anterior uveitis** İlknur TUĞAL TUTKUN (Türkiye)
12:05 - 12:15	**Management of complex dermoids** Seo Wei LEO (Singapore)
12:15 - 12:25	**Peds neuro-oph emergencies** Mays EL-DAIRI (USA)
12:25 - 12:35	**Infantile Nystagmus: An Optokinetic Tug-of-War** Michael BRODSKY (USA)
12:35 - 12:45	**Q&A panel session**
12.30 - 13.15	**ESSILOR LUNCH SYMPOSIUM** **Latest Updates in Myopia Management - Clinical Studies of Essilor Stellest and Best Practices** Moderator: Prof. Dr. Nazan Bengudeniz Speaker: Dr. Dominique Bremond-Gignac
	Update in pediatric anterior segment Moderator: Edward WILSON (USA), Fatih Mehmet MUTLU (Türkiye)
13.30 - 13:40	**Pediatric Cataract Surgery Update** Edward WILSON (USA)
13:40 - 13:50	**Perioperative complication in pediatric cataract surgeries** Fatih Mehmet MUTLU (Türkiye)

13:50 - 14:00	**Lens subluxation** Hala ELHILALI (Egypt)
14:00 - 14:10	**Keratoconus** Erin STAHL (USA)
14:10 - 14:20	**Pediatric glaucoma surgery** Bibiana Jin REISER (USA)
14:20 - 14:30	**Anterior segment imaging** Faruk H. ÖRGE (USA)
14:30 - 14:40	**IATS /TAPS studies** Hande TAYLAN ŞEKEROĞLU (Türkiye)
14:40 - 14:50	**Q&A panel session**
14:50 - 15:20	**COFFEE BREAK**
	AAPOS Myopia Symposium Moderator: Jason YAM (Hong Kong), Hikmet BAŞMAK(Türkiye)
15:20 - 15:30	**Red Light Therapy for Myopia Control** Jason YAM (Hong Kong)
15:30 - 15:40	**Approach to Pre-Myopia** Tamara WYGNANSKI-JAFFE (Israel)
15:40 - 15:50	**Approaches to the progression of myopia: A comparative study** Hikmet BAŞMAK (Türkiye)
15:50 - 16:00	**Atropine treattment for Myopia control** Wei-Yan NG (Singapore)
16:00 - 16:10	**Combined treatment: Atropine drops & Spectacles** Noemi GUEMES (Spain)
16:10 - 16:20	**Public Health Approach for Myopia Prevention** Pei Chang WU (Taiwan)
16:20 - 16:30	**A guided clinical framework for myopia** Li-Lian FOO (Singapore)

16:30 - 17:12 Pediatric Ophthalmology Free paper session

16:30 – 16:36 **FP-01 Posterior Segment Hemorrhage in Infants.**
Hatice Tuba Atalay, Nazgül Zhoroeva, Hüseyin Baran Özdemir, Merve Nur Yılmaz Şahin, Şengül Özdek
Ophthalmology, School of Medicine, Gazi University, Ankara, Türkiye

16:36 – 16:42 **FP-02 Is Anisomyopia Associated with Fundus Pathologies?**
Pınar Bingöl Kızıltunç, Huban Atilla
Ankara University, School of Medicine, Department of Ophthalmology, Ankara, Türkiye

16:42 – 16:48 **FP-03 Macular Sensitivity Assessment of Retinopathy of Prematurity With or Without Treatment**
Zeynep Seymen, Aslı Vural, Laden Altay
Istanbul Training and Research Hospital, İstanbul, Türkiye

16:48 – 16:54 **FP-05 Scleral-fixed Intraocular lens using Gore-Tex sutures in Children with Absence Capsular Support**
Shatha Alfreihi, Taghreed Alnajjar,
King Abdullah Specialist Children's Hospital, Riyadh, Saudi Arabia

16:54 – 17:00 **FP-06 Yamane Technique for The Management of Cataract in Children with Insufficient Capsular Support: A Prospective Study**
Ahmed Awadein, Christine Raef, Mohamed
Department of Ophthalmology, Faculty of Medicine, Cairo, Egypt

17:00 - 17:06 **FP-07 Amplitude Of Accommodation Measurements By Auto Refractometer in Myopic Children**
Burçin Çakır, Aleyna Nur Yetim, Semih Aydemir
Sakarya University, School of Medicine, Department of Ophthalmology, Sakarya, Türkiye

17:06 - 17:12 **FP-08 Controlling Progression of Myopia in Turkish Children and Adolescents With Multifocal Spectacles**
Serpil Akar, Arzu Güler, Sibel Oto
Baskent University, Faculty of Medicine, Ophthalmology Department, Istanbul
Baskent University, Faculty of Medicine, Ophthalmology Department, Ankara

RAPID FIRE PAPERS

17:12- 17:15 **RF-01 Influence Of Biometric And Keratometric Parameters In Myopia Progression In Patients Treated With Lenses For Myopia Control**
Ines Mendo, Mariana Vaz, Gonçalo Tardão,
ULSAS, Hospital Garcia de Orta, Almada, Portugal

17:15 – 17:18 **RF-02 Real world efficacy of atropine 0.01% in myopia management**
Jeremy Youwei Hu, Leticia Jing Yee Wong, Selene Si Ying Tan
Ophthalmology, Tan Tock Seng Hospital, National Healthcare Group, Singapore
Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore

17:18 – 17:21 **RF-03 Analyzing the increased public interest in myopia control: A Google Trends Analysis**
Halil Ibrahim Sönmezoğlu, Büşra Güner Sön
Hendek State Hospital, Ophthalmology, Sakarya, Türkiye

17:21 – 17:24 **RF-05 Refractive and Visual Outcomes After Intraocular Lens Implantation in Pediatric Congenital Cataract Surgery**
Gizem Taşkın, Gülay Yalçınkaya Çakır, Ahm
Beyoglu Eye Training and Research Hospital, İstanbul, Türkiye

17:24 – 17:27 **RF-06 The Effect of Methylphenidate Use on Optical Coherence Tomography Angiography in Attention Deficit Hyperactivity Disorder Patients**
Levent Doğan, Ömer Özer, Zeki Baysal
Niğde Ömer Halisdemir University, School of Medicine, Department of Ophthalmology, Niğde, Türkiye

17:27 – 17:30 **RF-07 Analysis of Choroidal Parameters in Pediatric Patients with Neurofibromatosis Type 1**
Caner Öztürk, Selim Cevher, Mustafa Duran
Hitit University, School of Medicine, Department of Ophthalmology, Çorum, Türkiye

17:30 – 17:33 **RF-08 Miyopic Shift in Case with Congenital Cataract**
Beyza Gürpınar, Gizem Kutlutürk, Ceren Gürez
Beyoglu Eye Training and Research Hospital, İstanbul, Türkiye

16:30 - 18.00 **Poster set up ESA**

12 JUNE 2025, THURSDAY

08:00 - 18:00	Registration
	HALL A
08:30 – 09:00	**Opening Ceremony** Oliver EHRT (Germany) Sean DONAHUE (USA) Huban ATİLLA (Türkiye)
09:00 - 10:00	**Free papers Session I - Exotropia** Moderators: Helena BUCH HESGAARD (Denmark), Sılay CANTÜRK UĞURBAŞ (Türkiye)
	Assessment Of A Global Evaluation Score In Intermittent Exotropias (IXT) Dominique THOUVENIN (France)
	Effect of viewing at far versus near on the occurrence rate of intermittent exotropia measured with a wearable eye tracker Jonathan C HORTON (USA)
	Impact of Partial and Full Hyperopic Correction on Exotropia Management: A Comparative Analysis Barbaros Hayrettin ÜNLÜ (Türkiye)
	Non-surgical management of intermittent distance exotropia: a case series Rehana SADIA (UK)
	Risk Factors for Early and Late Onset Consecutive Exotropia After Esotropia Surgery Pınar AKKALE (Türkiye)
	Medial rectus re-advancement: more bang for your buck? Saurabh JAIN (UK)
10:00 - 11:00	**Coffee Break and Poster Session A** Moderators: Oliver EHRT (Germany), Chong Bin TSAI (Taiwan), Cem YILDIRIM (Türkiye), Vincent PARIS (BELGIUM)
	A-001 - Ophthalmic screening in Poland Ewa Malgorzata Grudzinska, Marta Kirkiewicz, Joanna Kot, Monika Modrzejewska
	A-002 - Improving Access to Visual Screening in 4-5-Year-Old Children in Deprived Areas of London Through School Nurse-Led Assessment Ameeta Kumar, Lucy Fox, Meena Arunakirinathan, Vivienne Kit, Kate Reed, Maria Theodorou
	A-003 - Comparison of corneal aberrometry parameters in amblyopic patients with strabismus Rym Maamouri, Hassen Azri, Slim Selmi, Jaafer Aouni, Monia Cheour
	A-004 - Associations between pattern VEP and microperimetry in adult patients with amblyopia Petra Killik, Mirella Telles Salguero Barboni, Angela Bernadett Sarga, Amarilla Barcsay Veres, Zoltán Zsolt Nagy, Otto Alexander Maneschg

A-005 - Short-term effect of topical atropine on anterior segment and higher-order aberrations in amblyopic children
Pınar Örenç, Ece Güler, Hülya Güngel

A-006 - Plantar Pressure Distribution and Postural Balance in Amblyopic Children
Duygu Güler, Murat Akkurt, Harun Çakmak

A-007 - Macular superficial vascular density on optical coherence tomography angiography in children with anisometropic monocular and bilateral hyperopic amblyopia
Hye Bin Yim, Sun Young Shin, Yeon Woong Chung

A-009 - The effectiveness of using liquid crystal glasses in the amblyopia treatment in children
Sati Agagulyan, Igor Aznauryan, Victoria Balasanyan, Natalia Kurysheva, Alexandr Laver, Ekaterina Nekrasova

A-010 - Update on Amblyopia Treatment: Penalization and/or Fusional Stimulation
Robert Benhamou, Eric Sarfati

A-011 - Dichoptic visual training in children with strabismic and anisometropic amblyopia could be a good alternative for patching
Nevena Kase, Marijana Tomc, Andreja Udovc

A-012 - Impact of gadgets on amblyopic therapy
Biljana Trajkovic, Milica Pajovic

A-013 - Education for children with amblyopia and their parents plays a crucial role in the treatment of visual impairment
Marijana Tomc, Andreja Udovc, Nevena Kase

A-016 - Preoperative adaptation and sensory integration through the application of combined sphero-prismatic correction
Oleksandra Mishchenko, Liudmyla Shevchuk, Nataliia Aleieva, Sergriy Rykov

A-017 - Functional Results of Surgical Treatment of Strabismus
Ismail Cem Türkeş, Mehmet Erhan Yumuşak, Fatih Mehmet Mutlu

A-019 - Refractive changes following strabismus surgery in children and adults
Serpil Akar, Arzu Guler, Sibel Oto

A-020 - Patterns in strabismus
Sana Nadeem

A-021 - Long-term outcomes of adjustable strabismus surgery at a Pakistani university hospital
Sana Nadeem

A-022 - Bridge Faden surgery in patients with residual Esotropia
Asli Cetinkaya Yaprak

A-023 - The evaluation of factors associated final surgical success in cases of residual and consecutive horizontal concomitant strabismus
Aslı Vural, Bengi Demirayak, Narmin Rasulzade

A-025 - Surgical outcomes of plication versus resection in basic horizontal strabismus
Aysel Pelit, Oğuzhan Oruz

A-027 - Success and complications of Botulinum Toxin A injection in strabismus treatment by resident doctors
Aslı Çetinkaya Yaprak, Ozan Özgül

A-028 - A retrospective review of the safety of extra-ocular muscle Botulinum toxin A in pregnant and breastfeeding patients at Moorfields Eye Hospital
Abbie Elizabeth Ewart, Dina Tadros, Aditi Das

A-029 - Evaluation of the botulinum toxin service to treat adult strabismus in Moorfields Eye Hospital, London, and the correlation of quality of life with those attending the service
Shiama Indu Balendra, Leena Patel, Charlotte Ho, Naz Raoof, Maria Theodorou

A-031 - A case to learn from: post-LASIK challenges in convergence and accommodation
Joseph Van Aerschot, Laura Van Hoof, Catherine Cassiman

A-032 - Anterior segment optical coherence tomography in strabismus surgery: benefits of implementation in preoperative evaluation and monitoring of healing process
Dunja Bajtl, Ivanka Maduna, Jelena Petrinovic Doresic, Darije Curzik, Dubravka Biuk, Josip Barac

A-034 - Evaluation of pupil size by pupillography after strabismus surgery
Silay Canturk Ugurbas, Neriman Selcuk, Serdar Bilici, Numan Kucuk, Suat Hayri Ugurbas

A-035 - Will emptying the filtration bleb improve ocular motility?
Lisanne Moree Robbers, Lieke Gouma

A-036 - Electromyographic Monitoring of Extraocular Muscles in Endoscopic Skull Base Surgery: Insights from a Tertiary Care Hospital
Blanca Casado Pelaez, Ángeles Ruth Bort Martí, Miguel ángel Merino Ramirez, Juan Antonio Simal Julian, Dora Fernandez Agrafojo

A-037 - Multidisciplinary Surgical Management of Complex Orbital and Strabismus Sequelae Following Severe Orbital Trauma
Aylin F. Taner, Leah Disse, Raphael Ferrari, Karla Chaloupka, Christina Gerth Kahlert

A-040 - Pain score in adjustable strabismus surgery
Sana Nadeem

A-045 - Assessing the performance of Large Language Models (ChatGPT-4, Gemini, and Copilot) on infantile esotropia-related questions
Esra Sahli, Özlem Biçer, Pınar Bingöl Kızıltunç, Huban Atilla

A-046 - Accuracy of the answers given by artificial intelligence to the questions asked in strabismus and strabismus surgery
Mehmet Yusuf Tahaoglu, Serife Gulhan Konuk

A-047 - Readability of the Strabismus Clinic's informed consent forms against those generated by ChatGPT
Tugce Horozoglu Ceran, Hamidu Hamisi Gobeka, Mustafa Dogan

12 JUNE 2025, THURSDAY

11:00 - 11:30	**Eye Movement Abnormalities: The significant and the insignificant** Mohamad EL SADA (Egypt) Introduction: Sean DONAHUE (USA)
11:35 - 12:35	**Symposium: Surgical nightmares of the strabismologist** Moderators: Daniel SALCHOW (Germany), Christie MORSE
	Overcorrections Huban ATİLLA (Türkiye)
	Slipped muscles and stretched scars Daniela CIOPLEAN (Romania)
	Sensory Fusion problems Saurabh JAIN (UK)
	Adherence Syndrome Pilar GOMEZ DE LIANO (Spain)
	If the anatomy is not as expected Seyhan Bahar ÖZKAN (Türkiye)
12:35 - 13:30	**Lunch**
13:30 - 14:30	**Round Table: Age Related Strabismus** Moderator: Dominique THOUVENIN (France), Daisy GODTS (Belgium) Panelists: Rosario GOMEZ DE LIANO (Spain), Joseph DEMER (USA), Jan Tjeerd DE FABER (Netherlands), Jonathan HOLMES (USA), Daniel SALCHOW (Germany)
14:30 - 15:30	**Free papers Session II – Medical Treatment** Moderators: Andrea MOLINARI (Equador), Seyhan B. Özkan (Türkiye)
	Results of a pragmatic, randomized, non-inferiority trial comparing the effectiveness of Botulinum toxin-based treatment with conventional strabismus surgery in acquired esotropia Mathias ABEGG (Switzerland)
	Could botulinum toxin be an effective primary treatment for infantile esotropia? Chong Bin TSAI (Taiwan)
	Botulinum toxin injections in patients with glaucoma drainage devices Alasdair KENNEDY (UK)
	Inferior rectus botulinum toxin injection in vertical strabismus Charlotte SHAN HO (UK)
	The effect of volume and concentration of bupivacaine injection in the extraocular muscle for strabismus Megan K WOOD (UK)
	Alignment outcomes after bupivacaine and botulinum toxin injection Ian Bruce MARSH (UK)

15:30 - 16:00	Coffee Break
16:00 - 16:50	Free papers Session III - Artificial Intelligence & Social Media Moderators: Saurabh JAIN (UK), Jonathan HOLMES (USA)

Revolutionizing Strabismus Management: The Transformative Role of Artificial Intelligence in Diagnosis and Treatment
Madina KAAMIL (Netherlands)

Evaluation of ChatGPT's Responses to Frequently Asked Questions and Case Scenarios about Strabismus: Is Artificial Intelligence Strong Enough?
Aynur DIRAÇOĞLU (Türkiye)

Evaluating AI Tools for Amblyopia Patient Education: A Comparative Analysis of ChatGPT, Copilot, and AAPOS Guidelines
Müge TOPRAK (Türkiye)

16:50 - 17:50	Symposium: Hot topics for Strabismologists in Thyroid Eye Disease (TED) Moderators: Anja ECKSTEIN (Germany), Hala ELHILALI (Egypt)

Influence of new medical treatment options on ocular motility in TED
Anja ECKSTEIN (Germany)

Strabismus surgery after teprotumumab treatment
Sean DONAHUE (USA)

Topical anesthesia is a good option for thyroid related strabismus
Helena BUCH HESGAARD (Denmark)

Overcorrections and undercorrections in TED
Sonal FARZAVANDI (Singapore)

Oblique muscle surgery in TED
Sera SARIM (Germany)

Q&A

13 JUNE 2025, FRIDAY

08:00 - 18:00	Registration
	HALL A
08:00 - 09:00	**Early Morning Surgery Course: Acquired Cranial nerve palsies** Moderators: Daniela CIOPLEAN (Romania), Yaşar DURANOĞLU (Türkiye)

III[rd] nerve plasy
Naz RAOOF (UK)

Lateral rectus transposition in III[rd] nerve palsy
Aslı İNAL (Türkiye)

IV[th] nerve palsy
Oliver EHRT (Germany)

VI[th] nerve palsy
Emmanuel BUI QUOC (France)

Multiple nerve palsies
Monte DEL MONTE (USA)

09:00 - 10:00	**Free papers Session IV - Surgical Treatment and Cyclovertical Deviations** Moderators: Piotr LOBA (Poland), Ayça SARI (Türkiye)

Effect of Y-splitting with graded recession on convergence and lateral gaze angles in esotropia patients
Jelena PETRINOVIC DORESIC (Croatia)

Efficacy of a Combined Recession-Resection Procedure on a Rectus Muscle for Incomitant Strabismus
Ken KAWAMOTO (UK)

The effectiveness of transposition applied in addition to plication or resection in pattern deviations
Gizem KUTLUTÜRK (Türkiye)

Effect Of Vertical Transposition Of The Horizontal Recti Muscles During Horizontal Muscle Surgery to Correct Secondary Vertical Deviation
Divya WIJESEKARA (UK)

Does single horizontal muscles transposition surgery induce symptomatic torsion?
Alice DI DOMENICO (UK)

Diagnostic value of objective ocular torsion in unilateral superior oblique palsy
François AUDREN (France)

10:00 - 11:00 **Coffee Break and Poster Session B**
Moderators: Pilar GOMEZ DE LIANO (Spain), Yi Ning STRUBE (Canada), Osman Melih CEYLAN (Türkiye), Monte DEL MONTE (USA)

B-049 - A Comparison of Refractive Status and Strabismus in Twin Siblings with Dissimilar and Similar Severity of Retinopathy of Prematurity
Ayse Ipek Akyuz Unsal, Sena Özmen, Duygu Güler, Sayime Aydin Eroglu, Imran Kurt Omurlu, Seyhan B. Özkan

B-050 - Ocular Motility and Visual Findings in Children with Periventricular Leukomalacia (PVL)
Sezin Akça Bayar, Zeynep Kayaarası Ozturker, Imren Akkoyun, Taner Sezer, Sibel Oto

B-051 - Characteristics of eyesight functioning and vision abnormalities in STXBP1 synaptopathy patients
Agnieszka Rosa, Dominika Nowakowska, Piotr Rosa, Justyna Simiera, Andrzej Gliniany, Michał Zawadka, Krzysztof Szczałuba, Łukasz Przysło, Krystyna Szymańska, Dorota Pojda-Wilczek

B-054 - From Infancy To Adolescence: An 11-Year Follow-Up On Strabismus In Infants Following Congenital Cataract Surgery
Uzay Temel, Elif Demirkılınç Biler, Onder Uretmen

B-055 - The development of strabismus and amblyopia after congenital cataract surgery
Fatma Gül Yılmaz Çınar, Umay Güvenç, Evin Şingar, Yasemin Topalak, Züleyha Yalnız Akkaya, Nurten Ünlü, Bekem Güvenir, Ayşe Burcu

B-056 - Lessons Learnt In Near Digital Screen Activity Induced Late Onset Acute Comitant Esotropia
Duygu Güler, Sena Özmen, Ayşe Ipek Akyüz Ünsal, Şule Ziylan, Seyhan B. Özkan

B-058 - Interaction of refraction and interventions in infantile esotropia:4-year results of comparison of bimedial recession and chemodenervation
Tülin Öğreden, Havvanur Bayraktar, Tarık Dinçer, Idil Çelen, Havva Kaldırım

B-059 - Restoration of Binocular Single Vision in Acute Acquired Comitant Esotropia
Oana Andrei, Irina Adriana Velcea, Adina Grigorescu

B-060 - Characteristics and management of cyclic esotropia: a scoping review protocol
Vaishali Lodhia, Alasdair Kennedy, Desta Bokre, Jonathan Marler

B-062 - Long-Term Outcomes of Infantile Esotropia Surgery: A Clinical Review
Selen Canan, Sabiha Güngör Kobat

B-063 - A retrospective comparison of combined bimedial recession and bilateral inferior oblique weakening versus bimedial recession alone, in the treatment of esotropia
Clea Southall, Ken Kawamoto, Elliott Taylor, Qasim Alarabiat, Naomi Tan, Rohit Jolly, Saurabh Jain

B-064 - Comparison of the results of three-muscle surgery with bimedial recession and faden operation in cases with convergence excess type esotropia
Aslı Inal, Ceren Gurez, Tolga Yılmaz, Gizem Kutlutürk

B-068 - Bupivacaine Injections for the Treatment of Age-Related Distance Esotropia
Megan K Wood, Ian B Marsh

B-069 - Unilateral lateral rectus resection in patients with acquired distance esotropia: a case series
Rehana Sadia, Wahid Ghaffari, Raheej Khan, Adam Budd, Tracy Sanderson, Anna Maino

B-070 - An atypical Saging eye syndrome with large angle esotropia
Osman Melih Ceylan, Elif Sena Özdemir, Fatih Mehmet Mutlu

B-075 - Convergence Exercises for Exotropia: A Clinical Pilot Study
Changzoo Kim, Hyojeong Kim, Seunguk Lee, Sangjoon Lee

B-076 - Virtual Reality Head-mounted Display Game for Intermittent Exotropia in a Randomized Controlled Trial
Dong Hyun Kim, Hee Kyung Yang, Je Hyun Kim, Jeong Min Hwang

B-077 - The Relationship of Refractive Errors and Intermittent Exotropia in a Tertiary Government Hospital in the Philippines
Michelle Garcia Dagta, Emilio Lopez Macias Iii, Angel Abanto Ancheta Jr., Sharlene Marie Javier Prile, Carlos Emmanoel Mossesgeld Chua, Dana Celine Cammayo Pang

B-079 - Factors Predicting Deterioration of Intermittent Exotropia without Surgery Over 5-year Period
Hee Young Choi, Hyeshin Jeon, Jae Hyun Kim

B-080 - Preoperative and Perioperative Factors Influencing the Strabismus Surgery Outcomes in Intermittent Exotropia
Zeynep Kirişci, Pınar Akkale, Pınar Bingöl Kızıltunç, Hüban Atilla

B-081 - Prism adaptation therapy: a preoperative strategy for enhanced surgical outcomes in patient with exotropia
Liudmyla Shevchuk, Oleksandra Mishchenko, Nataliia Aleieva, Sergriy Rykov

B-082 - Decompensated intermittent distant exotropia in adult patients
Rossitza Hristakieva Lolova

B-083 - Surgical outcomes of three different surgical techniques for treatment of convergence insufficiency intermittent exotropia in children
Ahmad Swelam Shahin, Khalid Abdelkhalik Ghaith, Mohamed Mostafa Diab

B-085 - Retrospective analyze: surgical treatment of congenital concomitant non accommodative, partially accommodative constant exotropia
Liudmyla Shevchuk, Nataliia Aleieva, Oleksandra Mishchenko, Sergriy Rykov

B-088 - Bilateral versus Unilateral Surgery in Reoperation for Consecutive Exotropia with or without Gaze Deficit
Azad Güçlü, Elif Demirkılınç Biler, Önder Üretmen

B-091 - Acquired progresive restrictive strabismus in childhood: a case report
Özgül Altıntaş, Ferhat Demir, Müslime Akbaba, Ayşe Ebru Bahadır

B-093 - A case of young adult esotropia with deprivation amblyopia treated with the Yokoyama procedure
Takashi Negishi, Takashi Negishi, Masumi Tobari, Shintaro Nakao

11:00 - 11:30 ESA Lecture
Giovanni MARCON (Italy)
Imaging in strabismology: a voyage into the muscles
Introduction: Rosario GOMEZ DE LIANO (Spain)

11:30 - 12:10 Free papers Session V - Imaging & Varia
Moderators: Emmanuel BUI QUOC (France), Aysel PELİT (Türkiye)

Comparative Analysis of Conjunctival-Scleral and Muscle Thickness After Horizontal Muscle Resection and Plication
Muhammed DARA TAŞ (Türkiye)

Abnormal counterrolling of rectus extraocular muscle pulleys in true and masquerading superior oblique (SO) palsy
Joseph Louis DEMER (USA)

Improving Visual Acuity and Anomalous Head Posture in albino patients with nystagmus by a new doublet lenses: Chromatic Aberration Reductive Lenses (C.A.R.L.). A preliminary report
Andrea Cristiano PIANTANIDA (Italy)

Consent for Resident Participation in Pediatric Strabismus Surgery
Stephanie DOTCHIN (Canada)

12:10 - 13:15 John Lee Rapid Fire Poster Session
Moderator: Jan Tjeerd DE FABER (Netherlands)

From blinking to monocular eye closure: delving into diagnostic challenges of rare syndromes
Mirjana BJELOS (Croatia)

Botulinum toxin injection in paediatric esotropia: does it work, does it last and does the aetiology matter?
Amrita SARAVANAN (UK)

Effect Of Conservative Treatments In Intermittent Exotropia Patients According To The Exotropia Control Score
Burcu ERDEM (Türkiye)

Early Postoperative Overcorrection and importance of Fusional Reserves Development in Recurrent Exotropia
Liudmyla SHEVCHUK (Ukraine)

Primary bilateral medial rectus resection vs. bilateral lateral rectus recession for the management of intermittent exotropia in children
Heba M. FOUAD (Egypt)

Outcomes of Nasal Nishida Surgery
Ian Bruce MARSH (UK

Surgical outcomes for incomitant vertical squint due to inferior rectus weakness
Zhihang CHENG (UK)

Linking fixation stability to retinal perfusion through a comprehensive assessment of microperimetry and OCT-A Parameters in Duane syndrome
Özlem URAL FATİHOĞLU (Türkiye))

08:00 - 18:00	Registration
	HALL A
08:00 - 09:00	**ESA Orthoptic Course: Tips and Tricks in Difficult Cases** Moderators: Daisy GODTS (Belgium) Kyle ARNOLDI-JOLLEY (USA)

Introduction
Daisy GODTS (Belgium)

Tips and tricks for the evaluation and management of adults with childhood onset strabismus
Kyle ARNOLDI-JOLLEY (USA)

Tips and tricks in examination and management of restrictive strabismus
Lien ANTOONS (Belgium)

Tips and tricks in diagnosis and non-surgical management of fourth nerve palsy
Ewa WİTOWSKA -JELEN (Poland)

Tips and tricks in examination and management of neurodegenerative disorders
Daisy GODTS (Belgium)

Tips and tricks in bedside assessment of the neurological patients
Fiona ROWE (UK)

Q&A panel session

09:00 - 10:00	**Free papers Session VI - Neurologic disorders** Moderators: Michael BRODSKY (USA), Sezin AKÇA BAYAR (Türkiye)

European Stroke Organisation Vision Guidelines: Recommendations for assessment and rehabilitation for eye movement disorders
Fiona J ROWE (UK)

Cyclic phenomenons: where do the oscillators stand?
Alain Claude SPIELMANN (France)

Asthenopia and normal cover test
Vincent PARIS (Belgium)

Case series of medial rectus periosteal fixation for large angle exotropia in third nerve paresis at Moorfields Eye Hospital
Charlie HENNINGS (UK)

True Muscle Transplantation for The Management of Third Nerve Palsy
Ahmed AWADEIN (Egypt)

New types of biomedical applications for extraocular muscles: Hybrid bioengineered scaffolds and decellularized bovine muscle
Fatma YÜLEK (Türkiye)

10:00 - 10:45 **Coffee Break and Poster Session C**
Moderators: Alain Claude SPIELMANN (France), Frederico VELEZ (USA), Aylin YAMAN (Türkiye), Betül TUĞCU (Türkiye), Mathias ABEGG (Switzerland)

C-094 - Comparison of Our Results According to Huber and The New Clinical Duane Retraction Syndrome Classification
Aslı Cetinkaya Yaprak, Ibrahim Basol, Yusuf Samet Atlıhan

C-096 - Modern surgical strategies for Türk-Duane-Stiling syndrome
Sati Agagulyan, Maia Dalalishvili, Igor Aznauryan, Victoria Balasanyan, Evgenii Kuznetsov

C-098 - Management of a Bilateral Type-1 Duane Retraction Syndrome with Esotropia and Dissociated Vertical Deviation
Müjdat Karabulut, Sinem Karabulut

C-099 - Discovery of a novel frameshift variant in MYF5 leading to congenital fibrosis of extraocular muscle with rib and vertebral anomalies (EORVA)
Vijay Kimal Tailor Hamblin, Paulina Ocieczek, Ngozi Olunye, Cécile Méjécase, Elena Schiff, Mariya Moosajee

C-100 - Early surgical intervention in CFEOM: emphasizing the role of timely management in motor development
Ana Curic, Mirjana Bjelos, Jelena Petrinovic Doresic

C-101 - Isolated palsies of extraocular muscles
Sana Nadeem

C-102 - Sudden Onset Sixth Nerve Palsy in a 4-Month-Old Infant Following COVID-19 Infection: An Unusual Presentation of Intracranial Aneurysm
Elpida Kollia, Natalie Waters, Bhamy Hariprasad Shenoy, Haya Razzouk

C-103 - Surgical management of unilateral abducens palsy in children
Selma Lukacevic, Ivana Mravicic, Anja Shumejko, Ivona Petrovska

C-104 - Sixth nerve palsy as the initial presenting sign of metastatic breast cancer: A case report
Pinar Orenc, Ugur Yayla

C-107 - Myasthenia Gravis Presented as Paralysis of Superior Division of The Oculomotor Nerve: A Case Report
Pınar Orenc, Ece Guler, Hulya Gungel

C-108 - A pediatric case of perinould syndrome with rare presentation and etiology
Tülin Öğreden

C-109 - Complex congenital gaze palsy - a case report
Ewa Zamojska, Piotr Loba

C-110 - Gaze deviation in unilateral visual neglect
Rym Maamouri, Nesrine Chaouach, Khalil Ghedira, Khansa Abderrahmen, Jaafer Aouni, Jihene Chaouach

C-111 - Strabismus surgery in nasopharyngeal carcinoma (NPC) patients after radiation therapy
Ho Min Chen, Chun Hsiu Liu, Ling Yuh Kao

C-112 - Accuracy of detecting ocular motility problems by brain injury screening tools
Fiona J Rowe, Lauren R Hepworth, Claire Howard

C-113 - Evaluation of Ocular Movements in Myelin Oligodendrocyte Glycoprotein Associated Disease
Burçin Çakır, Seren Kaplan Güngördü, Nilgün Özkan Aksoy

C-114 - Strabismus and ocular findings in WEST syndrome, a rare neurological entity
Tulin Ogreden, Elif Kedek Bilmez

C-115 - Results of incomitant strabismus surgery in patient with schizophrenia
Magdalena Sildatke Bauer

C-116 - Long term surgical outcome of superior oblique graded posterior tenectomy in patients with congenital Brown syndrome
Pinar Topcu Yilmaz, Emin Cumhur Sener

C-117 - Outcome of extended forced duction maneuver and intra-trochlear steroid injection in children with acquired Brown syndrome
Pinar Topcu Yilmaz, Emin Cumhur Sener

C-119 - Acquired Brown syndrome of unknown origin: a case report
Dunja Bajtl, Ivanka Maduna, Jelena Petrinovic Doresic, Ivana Strunje, Dubravka Biuk, Josip Barac

C-120 - Clinical Outcomes in Isolated Inferior Oblique Palsy
Bağım Ayçin Çakir İnce, Osman Melih Ceylan, Fatih Mehmet Mutlu

C-121 - The Rest is History: A Case of an Intra-orbital Cyst Masquerading as Brown's Syndrome
Arguello Cruz Leslie, Alves Cardoso Verônica, Hemptine Coralie, Demet Yuksel, Vereecken Melissa

C-123 - Long-term results of isolated inferior oblique muscle surgery in patients undergoing surgery on one eye
Aslı Çetinkaya Yaprak, Ozan Özgül

C-125 - The vertical shift of horizontal muscles for V- and A-pattern causes cyclotorsion
Ganna Lysenko, Michael Gräf, Lyubomyr Lytvynchuk

C-126 - Surgery for masquerading superior oblique (SO) palsy
Qingyu Meng, Veronika Yehezkeli, Joseph L. Demer

C-128 - Management of assymetrical DVD in a child with craniosynostosis
Margarita Papadopoulou, Georgios Markogiannakis, Anna Mourgela, Agathi S. Kouri

C-129 - Cyclic vertical deviation after glaucoma surgery - a case report
Sara Vetö, Elin Hansson

10:45 - 11:35	**Symposium: Basic Science and Clinical Aspects in Amblyopia** Moderators: Mirjana BJELOS (Croatia), Miho SATO (Japan)
	What can basic science tell us about Amblyopia John SLOPER (UK)
	Basic science and clinical aspects of crowding Sarah J WAUGH (UK)
	Compliance tracking in amblyopia Faruk ÖRGE (USA)
	The emerging treatment trends in amblyopia Özgül ALTINTAŞ (Türkiye)
11:35 - 12:15	**Free papers Session VII - Amblyopia** Moderators: Edward WILSON (USA), Şule ZİYLAN (Türkiye)
	Does amblyopia cause anisometropia by anisoaccommodation? Huibert J. SIMONSZ (Netherlands)
	Efficacy of active visual therapy and optical correction in the management of hyperopic anisometropic and mixed amblyopia in children and teenagers Aysel GALBINUR (Azerbaijan)
	Is amblyopia of any severity fully treatable, irrespective of a patient's age? Sameera IRFAN (Pakistan)
12:15 - 13:15	**Symposium: What's in new in Strabismology 2025?** Moderators: Andrea Cristiano PIANTANIDA (Italy), Andrea MOLINARI (Ecuador)
	What's new in amblyopia Casey SMITH (USA)
	Automated Covertest Mathias ABEGG (Switzerland)
	Virtual Hess/Harms screen Yaroslava WENNER (Germany)
	Combined recess-resect surgery confined to the area of palisade endings in convergence excess esotropia Deniz SOMER (Türkiye)
	What should be the optimum time for Botulinum toxin injection in Duane syndrome? E. Cumhur ŞENER (Türkiye)
13:15 - 14:15	**Lunch**
13:15 - 13.45	**ESA Business Meeting**

14:15 - 15:05	**Free papers Session VIII - Surgery** Moderators: Alasdair KENNEDY (UK), Sibel OTO (Türkiye)
	Surgical outcomes of large-angle strabismus: a retrospective study Dominika NOWAKOWSKA (Poland)
	Outcomes of adjustable recess-resect surgery for myopic esotropia: A 10-year retrospective study (2014-2024) by a single surgeon at a large tertiary eye hospital in the United Kingdom Vaishali LODHIA (UK)
	Dosing of Medial Rectus Recession for Superior Outcomes in Acquired Adult Esotropia Veronika YEHEZKELI (USA)
15:05 - 16:05	**Symposium: A case I've learnt from** Moderators: Branislav STANKOVIC (Serbia), Tülin BERK (Türkiye)
	Jon Peiter SAUNTE (Denmark) Miho SATO (Japan) Sibel OTO (Türkiye) Andrea MOLINARI (Equador) Şule ZİYLAN (Türkiye)
16:05 - 16:15	**Closing Ceremony and next ESA Meeting 2027**

AAPOS - TOA PEDIATRIC OPHTHALMOLOGY DAY RAPID FIRE ABSTRACTS

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

RF-01 Influence Of Biometric And Keratometric Parameters In Myopia Progression In Patients Treated With Lenses For Myopia Control

Ines Mendo[1], Mariana Vaz[1], Gonçalo Tardão[1], Pedro Carreira[1], Ana Melo Cardoso[1], Audrey Sampaio[1], João Heitor Marques[2], Tomás Loureiro[1], Nuno Campos[1], Ana Vide Escada[1]
[1]ULSAS, Hospital Garcia de Orta, Almada
[2]ULSSA, Centro Hospitalar Universitário de Santo António

Introduction: As myopia becomes more prevalent, progression control is crucial. Axial length (AL) and spherical variations serve as key biomarkers for initiating treatment and assessing disease progression. This study evaluates biometric and keratometric parameters to identify additional biomarkers for myopia progression.

Materials-Methods: Retrospective study that included myopic children treated with defocus-correcting spectacles or contact lenses. Biometric and keratometric data were collected before treatment and at 12-month follow-up appointment. Significant progression was defined as an increase in sphere of >= -0.5 diopters/year or an increase in AL of > 0.2 mm/year.

Results: A total of 94 eyes were included. Children's mean age was 11.55 ± 2.66 years. Significant myopia progression was observed in 37 eyes (39.36%). The mean baseline AL in the progression group was higher than in the no-progression group (25.16 ± 1.42 mm vs. 24.52 ± 0.98 mm, $p<0.05$) and the mean baseline keratometry (Km) was lower (43.44 ± 1.58 vs. 44.46 ± 1.26, $p<0.05$). A significant positive correlation was found between Km and spherical variation ($r = 0.343$, $p < 0.001$) and a significant negative correlation was found between AL and spherical variation ($r = -0.252$, $p < 0.05$).

Conclusion: Mean keratometry has proven to be an independent risk factor for myopia progression, as flatter corneas showed an increased risk of disease progression. Hence, keratometry should be considered alongside axial length in clinical evaluations of myopic children. These results challenge the pre-established view that axial length is the sole biomarker for myopia progression.

Keywords: myopia, axial length, keratometry, myopia progression, myopia treatment

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

RF-02 Real world efficacy of atropine 0.01% in myopia management

Jeremy Youwei Hu[1], Leticia Jing Yee Wong[2], Selene Si Ying Tan[2]
[1]Ophthalmology, Tan Tock Seng Hospital, National Healthcare Group, Singapore
[2]Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore

Introduction: Myopia prevalence has risen significantly, particularly in East Asia, posing a global public health challenge. Randomized controlled trials (RCTs) of low-dose atropine for myopia control report variable efficacy, with refraction changes (D/yr) of -0.14 to -0.59 and axial length changes (mm/yr) of 0.21 to 0.37. However, RCT conditions may not reflect real-world outcomes, and the optimal atropine concentration for myopia control remains debated. This study evaluates real-world effectiveness of atropine 0.01% in preventing myopia progression.

Setting: Tan Tock Seng Hospital (TTSH), Singapore.

Methodology: This retrospective study reviewed patients at TTSH from August 2022 to December 2023. Children on atropine 0.01% were included, with data on age at initiation, sex, refractive status, and axial length changes. Exclusions included those over 18, treatment discontinuation, or concurrent use of orthokeratology or other myopia control devices. For analysis, one eye was randomly selected unless only one eye was treated.

Results: The study included 188 children (mean age 11.2 years; 55.3% female). Atropine 0.01% was initiated at a mean age of 9.1 years, with a mean follow-up of 32.3 months. Mean pre-treatment SE progression was -1.76 D, compared to -0.85 D post-treatment ($p < 0.001$). SE change per year decreased from -1.1 D pre-treatment to -0.32 D on treatment. Mean AL change while on treatment was 0.17 mm/yr.

Conclusion: Atropine 0.01% demonstrates real-world effectiveness in managing myopia progression in older children and should be considered a viable option.

Keywords: myopia control, atropine, axial length

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

RF-03 Analyzing the increased public interest in myopia control: A Google Trends Analysis

Halil Ibrahim Sönmezoğlu[1], Büşra Güner Sönmezoğlu[2], Burçin Çakır[3]
[1]Hendek State Hospital, Ophthalmology, Sakarya
[2]Serdivan State Hospital, Ophthalmology, Sakarya
[3]Sakarya University Faculty of Medicine, Ophthalmology, Sakarya

Introduction: This study aimed to examine how public interest in information about myopia control has changed over time.
Materials-Methods: Using the Google Trends tool, a dataset was created by entering the keyword "Myopia Control" to calculate the world's relative search volume (RSV) from 2004 to the present. The 25 most relevant words on this topic and the regions of interest were analyzed. The four most popular treatment methods were also evaluated.
Results: Public interest in Myopia Control increased significantly over time ($R2 = 0.767$, $p < .001$ for the linear trend; $R2 = 0.939$, $p < .001$ for the quadratic trend). There were no significant differences between the RSV values between the month of the year ($p = 1.000$). Myopia control lenses, myopia lenses, myopia lens, atropine, and myopia control contact lenses were the top five search phrases. Singapur, Hong Kong, Trinidad and Tobago were the nations most interested in these subjects. There was a strong positive correlation between myopia control's RSV and all treatment modalities, with myopia control contact lenses showing the highest correlation.
Conclusion: Public interest in myopia control has increased over time. This growing interest reflects myopia's increasing prevalence and associated health concerns. More public awareness and education are needed to adapt to treatment strategies. Our study highlights the need for accessible, readable, understandable, and high-quality information about myopia control from reputable sources.

Keywords: atropine, contact lenses, Google, myopia control, ortho-k, trends

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

RF-05 Refractive and Visual Outcomes After Intraocular Lens Implantation in Pediatric Congenital Cataract Surgery

Gizem Taşkın, Gülay Yalçınkaya Çakır, Ahmet Kırgız, Nilay Kandemir Beşek, Seda Liman Uzun
Beyoglu Eye Training and Research Hospital

Introduction: This study aimed to evaluate the refractive and visual outcomes of pediatric patients undergoing congenital cataract surgery followed by primary or secondary intraocular lens (IOL) implantation.
Materials-Methods: A retrospective analysis was conducted on patients receiving IOL implantation (Zaraccom, Turkey) for congenital cataracts since 2019. Refractive errors, axial length (AL), corrected distance visual acuity (CDVA), prediction error (PE), and absolute PE (APE) were analyzed. Correlations between PE, APE, AL, and age were assessed using Pearson analysis.
Results: The study included 140 eyes from 89 patients, with a mean age of 6.9±3.5 years and follow-up of 30.5±26.9 months. Primary IOL implantation was performed in 93 eyes, and secondary implantation in 47 eyes, with a mean interval of 48.9±30.5 months between cataract surgery and secondary implantation. The mean IOL power, calculated using the SRK/T formula, was 25.2±5.2 diopters, and mean AL was 22.07±1.7 mm. At the final follow-up, CDVA was <=20/100 in 46 eyes (32.9%), 20/100–20/30 in 44 eyes (31.4%), and >=20/30 in 50 eyes (35.7%). The mean spherical equivalent was -0.7±2.3 diopters, PE was -1.1±2.2 diopters, and APE was 1.6±1.8 diopters. PE was within ±0.50 diopters in 25 eyes (17.9%) and was predominantly myopic in 66.4%. Age and AL were negatively correlated with APE ($r= -0.494$, $p<0.001$; $r= -0.303$, $p=0.002$, respectively) and positively correlated with PE ($r=0.422$, $p<0.001$; $r=0.244$, $p=0.01$, respectively).
Conclusion: Optimizing IOL timing and power selection is critical in pediatric congenital cataract surgery due to the high likelihood of postoperative myopic shift, necessitating meticulous surgical planning and follow-up.

Keywords: Absolute prediction error, congenital cataract, intraocular lens implantation, prediction error

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

RF-06 The Effect of Methylphenidate Use on Optical Coherence Tomography Angiography in Attention Deficit Hyperactivity Disorder Patients

Levent Doğan, Ömer Özer, Zeki Baysal

Niğde Ömer Halisdemir University

Introduction: The aim of this study was to evaluate the retinal microvascular structure using optical coherence tomography angiography (OCTA) in attention deficit hyperactivity disorder (ADHD) children using methylphenidate.

Materials-Methods: For this purpose, 40 patients aged 7-17 years with ADHD who were receiving methylphenidate treatment for at least 6 months were included in the study. 6x6 mm macula OCTA imaging was performed. The results were compared with 40 healthy children with similar age and gender distribution.

Results: The mean age was 12.1±3.4 years in the patient group and 13.0±4.1 years in the control group. The mean duration of methylphenidate use in the patient group was 52.7±30.4 months (8-96 months). Central, inner nasal and outer temporal vascular density was statistically higher in the patient group compared to the control group.

Conclusion: In conclusion, OCTA parameters in many quadrants were similar in both groups. Central, inner nasal and outer temporal quadrants were significantly different between the two groups, which may indicate possible effects of methylphenidate on retinal microvascular structures.

Keywords: Methylphenidate, Optical Coherence Tomography Angiography, Attention Deficit Hyperactivity Disorder

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

RF-07 Analysis of Choroidal Parameters in Pediatric Patients with Neurofibromatosis Type 1

Caner Öztürk1, Selim Cevher2, Mustafa Duran2, Cemile Büşra Ölçülü3

1Hitit University, Faculity of Medicine, Department of Ophthalmology,Erol Olçok Training and Research Hospital, Çorum

2Hitit University, Faculity of Medicine, Department of Ophthalmology, Çorum

3Hitit University, Faculity of Medicine,Division of Child Neurology, Department of Pediatrics,Erol Olçok Training and Research Hospital, Çorum

Introduction: Neurofibromatosis type 1 (NF1) is a rare neurocutaneous disorder. Choroidal abnormalities have been reported in NF1. The aim of this study was to evaluate central macular thickness (CMT) and choroidal parameters in pediatric patients with NF1.

Materials-Methods: Twenty-three pediatric patients with NF1 and 23 healthy children were included. Intraocular pressure (IOP) and spherical equivalent (SE) measurements were performed. Axial length (AL), anterior chamber depth (ACD) were measured by optical biometry. Central macular thickness (CMT) was measured with optical coherence tomography and choroidal thickness (CT) was measured with enhanced depth imaging mode. Choroidal images were binarised into luminal area (LA) and stromal area using Image-j software. The ratio of LA to total choroidal area (TCA) was calculated as choroidal vascular index (CVI).

Results: Age and gender distribution were similar between the groups (p=0.765,and p=0.453,respectively). The SE values were similar in both groups (p=0,874). Nine (39%) patients had Lisch nodules on anterior segment examination and 1 (4.35%) patient had optic disc glioma. Patients with NF1 had significantly longer ACD and shorter AL than the control group (p<0.01and p=0.44, respectively). No statistically significant difference was observed between the two groups for CMT, temporal and subfoveal CT, TCA, LA and CVI (p>0.05). Nasal CT was statistically higher in NF1 patients (p=0.02).

Conclusion: Patients with NF1 showed an increase in ACD and nasal CT and a decrease in AL compared to the healthy group. Other choroidal parameters (TCA, LA and CVI) did not differ between the two groups.

Keywords: Neurofibromatosis type 1, choroid, optical coherence tomography

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

RF-08 Miyopic Shift in Case with Congenital Cataract

Beyza Gürpınar, Gizem Kutlutürk, Ceren Gürez, Aslı Inal

Sağlık Bilimleri Üniversitesi, Beyoğlu Göz Eğitim Araştırma Hastanesi,Göz hastalıkları Ana Bilim Dalı, İstanbul,türkiye

Introduction: Our goal was to determine the long-term refractive outcomes of pediatric intraocular lens implantation (IOL).

Materials-Methods: 65 eyes of 41 pediatric cataract patients who underwent primary or secondary IOL implantation between 2014-2020 were included in the study. SRK/T formula was used to predict the IOL power. Spherical refraction at 1 month, 1st year and 5 years after surgery, implanted IOL power and axial length were measured.

Results:: Mean age was 108 months. The mean follow-up time was 69 months. The mean age at the time of cataract extraction was 29±14 months. Initially 40 eyes had undergone primary cataract surgery in our clinic and 27 of them were aphakic and had referred to us from an external center. The mean age was 42±14 months at IOL implantation. IOL implantation was performed to all eyes: 35 eyes were implanted in the bag, 30 in the ciliary sulcus and 2 eyes underwent scleral fixation IOL implantation. Mean axial length was 22.13 mm before IOL implantation. The implanted IOL power was on average 0.73 D lower than the power targeting emmetropia.

The mean spherical refraction was +0.70 at 1-month and -1.56 at last follow-up. %41 of patients remained myopic at 5 years.

Conclusion: Although there are many formulas for accurate IOL calculation in pediatric cataracts, long-term refraction is still very surprising,unsatisfactory. The young age at IOL implantation and low under correction were risk factors for myopic shift. Targeting a more hyperopic refraction may prevent the shift to myopia and provide us with target refraction.

Keywords: Congenital cataract, miyopic shift, iol implantation

AAPOS - TOA
PEDIATRIC OPHTHALMOLOGY DAY
FREE PAPER ABSTRACTS

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

FP-01 Posterior Segment Hemorrhage in Infants

Hatice Tuba Atalay, Nazgül Zhoroeva, Hüseyin Baran Özdemir, Merve Nur Yılmaz Şahin, Şengül Özdek
Ophthalmology, School of Medicine, Gazi University, Ankara, Türkiye

Introduction: Our aim is to investigate the etiology, management, visual and refractive outcomes in infants with posterior segment hemorrhage. Materials-Methods: Charts of 116 eyes from 78 infants with posterior segment hemorrhage between 2007 and 2023 were reviewed. Collected data included birth data, symptoms, etiology, hemorrhage localization and severity, treatment modalities, and follow-up period. The study compared different types of hemorrhages (vitreous, intraretinal, and preretinal) in terms of visual acuity and refractive outcomes.
Results: Infants admitted at a mean age of 17.2 weeks after birth underwent a mean follow-up of 26.2 months. Most were delivered vaginally (58.4%), including 15 difficult births, 31.2% by a cesarean section. 36% of hemorrhages were symptomatic, mainly presenting with strabismus. Half of asymptomatic cases were referred for routine pediatric ophthalmologic evaluation, 19.2% for ROP screening, and 7.7% due to intracranial hemorrhage. While etiology remained unidentified in 25.6% of cases, difficult vaginal delivery (41.4%) was the most prevalent identified causes. Vitreoretinal surgery was performed in 79.31% and 39.5% of eyes with vitreous and preretinal hemorrhage, respectively, while all eyes with intraretinal hemorrhage underwent follow-up. Visual acuity was significantly lower in the vitreous hemorrhage group ($p < 0.05$), with higher myopia at the final visit ($p < 0.05$).
Conclusion: Intraretinal hemorrhages in infants typically resolve spontaneously without impacting vision and refraction. However, vitreous and preretinal hemorrhages may persist and require timely surgical intervention. Therefore, regular ophthalmic evaluations in healthy infants are imperative for early detection and management to mitigate the risk of amblyopia and myopic shift.

Keywords: infant, vitreous hemorrhage, myopia, anisometropia

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

FP-02 Is Anisomyopia Associated with Fundus Pathologies?

Pınar Bingöl Kızıltunç, Huban Atilla
Department of Ophthalmology, Ankara University, Ankara, Türkiye

Introduction: To evaluate retinal changes in anisomyopic patients followed for amblyopia

Materials-Methods: Patients with amblyopia associated with anisomyopia were included. FFA was performed to assess retinal pathologies.

Results: Nine patients were included. The median age was 9 (4-17) years. Mean refractive error of more myopic eyes and fellow eyes were -8.16 (-3.25/-14.00) D and +0.14 (-2.00/+1.75) D, respectively. Fundus examination and FFA of the fellow eyes were normal in all patients. However, in the more myopic eyes, 4 (44.4%) patients exhibited changes on both fundus examination and FFA, while 1 (11.1%) patient showed tigroid retina on fundus examination alone.
One eye with FFA and fundus pathologies, tigroid retina was noted on fundus examination, while avascular areas were identified in the peripheral retina on FFA. Of the remaining 3 (33.3%) eyes, while initial fundus examinations were unremarkable, subsequent follow-up revealed fundus changes concurrent with a rapid progression of myopia. In the first patient, a fibrotic band involving the macula was observed on fundus examination, and FFA showed ischemia, telangiectasia, and neovascularization in peripheral retina. Second patient exhibited shunt vessels in peripheral retina on fundus examination, and FFA demonstrated avascular areas and shunt vessels in the peripheral retina. In the third patient, both fundus examination and FFA revealed ischemia, telangiectasia, and neovascularization in the peripheral retina.

Conclusion: Patients with amblyopia secondary to anisomyopia should be carefully monitored for underlying retinal pathologies. Rapid progression of myopia should also alert clinicians to the need for a thorough evaluation of retinal pathologies.

Keywords: Ambliyopia, Anisometropia, Fundus Fluorescein Angiography, Myopia, Retina

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

FP-03 Macular Sensitivity Assessment of Retinopathy of Prematurity With or Without Treatment

Zeynep Seymen[1], Aslı Vural[2], Laden Altay[2]
[1]Istanbul Training and Research Hospital
[2]Bakırköy Dr.Sadi Konuk Training and Research Hospital

Introduction: We evaluated the macular sensitivity and fixation patern in retinopathy of prematurity (ROP) with or without treatment
Materials-Methods: 76 eyes of 38 preterm children were enrolled in this prospective study. Patients were divided into 4 groups:spontaneously regressed ROP(Group 1; n=17); ROP treated with intravitreal bevacizumab (Group 2; n=28)(IVB); ROP treated with diode laser photocoagulation (Group 3; n=21)(laser); ROP treated with combination of bevacizumab and laser (laser+IVB) (Group 4; n=10). Retinal sensitivity and fixation stability were assessed by MP-1 microperimetry device (Nidek Technologies, Italy).
Results: The mean age was 8.5±2.37 years. Mean gestational age (GA) was 29.7±3.2 (23-37) weeks; mean birth weight (BW) was 1347±410 g (640-1900). Mean average treshold (AT) for macular sensitivity was 18.71±3.08 decibel in Group 1; 17.64±3.3 db in Group 2; 17.15±3.08 db in Group 3; 12.41±7.94 db in Group 4. There was a statistically significant difference between groups (p=0.0020). Mean sensitivity was found to be significantly higher in Group 1. Group 4 showed a significantly lower mean sensitivity compared to the other groups (p=0.0020). There was a statistically significant positive correlation between GA (p=0.0005, rho=0.319) and BW (p=0.0005, rho=0.390) with mean sensitivity. There was not a statistically significant difference for fixation patern between groups (p=0.164).
Conclusion: Macular sensitivity was higher in spontaneously regressed ROP patients than the treatment groups and seemed to be mostly affected in patients who were treated with combination of intravitreal bevacizumab and diode laser photocoagulation treatment. Even though macular sensitivity were affected in ROP requiring treatment, fixation patern were not affected.

Keywords: Anti vascular endothelial growth factor, Diode Laser Photocoagulation, Retinopathy of Prematurity, Microperimetry

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

FP-05 Scleral-fixed Intraocular lens using Gore-Tex sutures in Children with Absence Capsular Support

Shatha Alfreihi, Taghreed Alnajjar
King Abdullah Specialist Children's Hospital

Aim:
The purpose of this study is to evaluate and verify the visual outcome and stability of Gore-Tex fixated intra ocular lens (IOL) in children.
Methods:
This prospective case series study included patients with dislocated lenses or aphakia with absent capsular support, who were candidates for secondary or primary Gore-Tex fixated IOL, ranging in age from one to 14 years. The primary outcomes were visual acuity, refraction, and intraocular pressure (IOP). Secondary outcomes encompassed lens tilt or dislocation, extrusion of suture material, pupillary capture, uveitis and corneal edema. Patients with less than 6 months of follow-up were excluded from this study.
Results:
This study include 7 eyes from 6 patients with a mean age of 9.5 ± 3.1 SD. Lens dislocation was observed in four patients, with Marfan syndrome and homocystinuria each affecting two individuals. One patient presented with traumatic cataract, while another exhibited congenital cataract. Visual acuity improved from a preoperative mean of (0.15 ± 0.13 SD) to a postoperative mean of (0.42 ± 0.36 SD) log MAR (p= 0.08). The mean spherical equivalent shifted from -3.42 ± 0.91 preoperatively to 1.14 ± 0.50 postoperatively. Postoperative complications included elevated IOP in one patient, managed with Ahmed tube implantation, IOL tilt necessitating repositioning in another, and IOL capture addressed with dilating drops in a third. No instances of suture material extrusion or breakage, corneal edema, or retinal detachment were documented.
Conclusion:
Gore-Tex fixated IOL improved initial visual acuity with no suture erosion or breakage documented in short follow-up period.

Keywords: Gore-Tex fixated intra ocular lens, absent capsular support, Lens dislocation

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

FP-06 Yamane Technique for The Management of Cataract in Children with Insufficient Capsular Support: A Prospective Study

Ahmed Awadein[1], Christine Raef[2], Mohamed Abdelhamid[2], Magda Salah Eldeen[1], Nermeen Bahgat[1]
[1]Department of Ophthalmology, Faculty of Medicine, Cairo University
[2]Department of Ophthalmology, Faculty of Medicine, Suez University

INTROUDCTION: Management of aphakic children with insufficient/absent capsular support or those with significant lens subluxation is challenging. The aim of this study is to report the results of Yamane technique for scleral fixation of intraocular lenses (IOL) in these children.
Methods: A prospective study was conducted on 57 children <18 years with lens subluxation or insufficient capsular support. A Sensar AR40e or a Tecnis ZA9003 IOL was used (Johnson & Johnson, Jacksonville, Fl) for scleral fixation. The haptics were externalized using Yamane technique. Intraoperative and postoperative complications were documented. Postoperative refractive error, visual acuity, and intraocular pressure were recorded for 6 months after surgery. The degree of IOL tilt and decentration were measured using ultrasound biomicroscopy.
Results: Mean age was 6.2±3.5 years. Of the 57 cases, intraoperative haptic breakage occurred in 3 cases and were converted to suture fixation. Late haptic dislodgement occurred in 1 case, secondary glaucoma in 1 case, and severe anterior chamber reaction in 1 case. Conjunctival erosion over the externalized haptic occurred in 1 case. Significant IOL tilt (>7 degrees) and decentration (>1 mm) occurred in 10 cases. Intraoperative and postoperative complications as well as IOL tilt/decentration were associated with younger age, ocular comorbidities and early parts of the learning curve.
Conclusions: While Yamane technique is an option for the management of children with insufficient capsular support, the technique requires a steeper learning curve and is still associated with a relatively high rate of complications particularly in younger children and those with other ocular comorbidities.

Keywords: Yamane, lens subluxation, absent capsular support, aphakia, pediatric cataract, scleral fixation

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

FP-07 Amplitude Of Accommodation Measurements By Auto Refractometer in Myopic Children

Burçin Çakır[1], Aleyna Nur Yetim[1], Semih Aydemir[1], Büşra Güner Sönmezoğlu[2]
[1]Ophthalmology Department, Sakarya University Education and Research Hospital, Sakarya, Türkiye
[2]Eye Clinic, Serdivan Government Hospital, Sakarya

Introduction: A new closed-field auto refractometer dynamically and simultaneously measures the AA as well as the changes in pupil size in 30 seconds using an internally virtual object. The aim this study is to evaluate the amplitude of accommodation by the new auto refractometer in myopic children.
Materials-Methods: The records of myopic children (1,00 diopter and above) were investigated. Age, amplitude of accommodation (AA) values and pupil size (PS) changes measured by auto refractometer, and spherical equivalent (SE) were noted. Emmetropic children (refractive error between +0,50 and -0,25 diopter) were also evaluated as a control group. Comparison between groups were statistically performed.
Results: The mean ages of myopia (n:61) and control groups (n:22) were 9,32 ± 2,15 and 11,15 ± 2,34 (p:0,005). There were statistically significant difference in terms of mean SE, and AA difference (difference between two eyes of the child) between groups (p: 0,000, p:0,003). The mean AA between two groups was not different (p:0,089). Pupil size measurement was not different between groups (p:0,76).

Conclusion: Difference in amplitude of accommodation between two eyes, measured by a closed-field auto refractometer was found to be lower in myopic children. Accommodation amplitude was not different in myopic children compared to emmetropic children.

Keywords: myopia, amplitude of accommodation, closed-field auto refractometer

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

FP-08 Controlling Progression of Myopia in Turkish Children and Adolescents With Multifocal Spectacles

Serpil Akar1, Arzu Güler1, Sibel Oto2

1Baskent University, Faculty of Medicine, Ophthalmology Department, Istanbul

2Baskent University, Faculty of Medicine, Ophthalmology Department, Ankara

Introduction: The prevalence of myopia is increasing worldwide. Defocus incorporated multiple segments(DIMS) spectacle lenses are designed to slow myopia progression in child. The aim of this study are to evaluate the efficacy of a DIMS at slowing the progression of myopia in a population of Turkish children.

Materials-Methods: The study was a non-randomised, retrospective controlled study of individuals aged 6–18 years with progressing myopia but no ocular pathology. Participants were allocated DIMS (Essilor® Miyopilux plus®) spectacles or single vision(SV) spectacle lenses (control group). The key outcome variables, cycloplegic autorefraction spherical equivalent refraction(SER) and axial length(AL), were measured at baseline and after six, 12 and 18 months.

Results: Of the 48 participants (mean age 11,0 y ±1.2), 28 DIMS spectacles and 20 SV control spectacles. Average(SE) myopic progressions in the first year were -0.37±0.06 D in the DIMS group and -0.96±0.08 D in the SV group($p<0.05$). Mean axial elongation in the first year was 0.23±0.02 mm and 0.72±0.02 mm in the DIMS and SV groups, respectively($p<0.05$).

Generalized linear mixed model analysis revealed for SER, whilst controlling for age and SER at baseline, at each stage treatment group had significantly reduced progression compared with the control group(p=0,0001). For AL, whilst controlling for baseline age and AL, at 6,12 and 18 months treatment group had significantly less progression than the control group(p=0.001).

Conclusion: In a Turkish population, DIMS are effective at reducing myopia progression and axial elongation in progressing myopia. Our outcomes demonstrated simultaneous clear vision with constant myopic defocus can slow myopia progression.

Keywords: Myopia, Defocus incorporated multiple segments, spectacle, progression

AAPOS - TOA PEDIATRIC OPHTHALMOLOGY DAY POSTER ABSTRACTS

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-02 Incidence of Retinopathy of Prematurity Between 2021 and 2024:Results from a Single Center

Serap Karaca1, Bilge Batu Oto2, Osman Kızılay3, Gökhan Çelik3

1Istanbul Goztepe Prof. Dr. Suleyman Yalcin City Hospital, Ophthalmology Department

2Istanbul University-Cerrahpaşa, Cerrahpaşa Medical Faculty, Ophthalmology Department

3Zeynep Kamil Maternity and Children's Disease Training and Research Hospital, ROP Screening, Treatment and Training Center

Introduction: Retinopathy of prematurity (ROP) is a multifactorial disease characterized by abnormal vascularization of the immature retina. Although the most important risk factors are gestational age (GA) and birth weight (BW), the quality of neonatal intensive care affect the incidence of ROP. This study aimed to evaluate the incidence of ROP and the need for treatment in babies screened for ROP according to the retinopathy of prematurity screening guideline 2021 update in Turkey.

Materials-Methods: The records of premature babies who were screened for ROP at a single center between January 2021 and December 2024 were retrospectively evaluated.

Results: A total of 8503 premature infants were screened for ROP between 2021 and 2024 in our clinic. 1623 infants were diagnosed with ROP, and 147 babies were treated for ROP either with laser photocoagulation or intravitreal bevacizumab. The number of babies with a BW over 1700 grams who were screened for ROP was 6581, among these 738 (11.21%) developed ROP and 28 babies (0.42%) were treated. The number of babies who were born above the 34th GA and who were screened for ROP was 4029, among these 173 (4.29%) developed ROP and 1 baby (0.024%) was treated for ROP. Among 1623 patients who were diagnosed with ROP, 147 babies were treated, and 1476 babies had spontaneously regressed ROP.

Conclusion: Treatment requiring significant ROP may occur in infants born older than the 34th week of gestation and/or with a birth weight of more than 1700 grams.

Keywords: retinopathy of prematurity, gestational age, birth weight, screening guideline, pediatric ophthalmology

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-03 Challenges of First ROP Screening Program in Albania

Eglantina Bulica Sinamati1, Vilma Mema2, Alketa Tandili2, Ilir Arapi2, Spiro Dama3, Amarilda Hysenshahaj4

1Health Center, Tirane, Albania

2University Hospital Center Mother Tereza Tirane, Albania

3Obstetrics and Gynecology University Hospital Mbreteresha Geraldine, Tirane, Albania

4Public Health Institution, Tirane, Albania

Introduction: Retinopathy of prematurity (ROP) is a severe ophthalmological condition that can result in blindness in premature babies. In Albania, improvements in the survival rates of preterm infants have underscored the necessity for prompt examination and timely management of this condition. This study explores the epidemiology, associated risk factors, and clinical outcomes of ROP in Albania.

Materials-Methods: A retrospective analysis was conducted on preterm infants admitted to neonatal intensive care units (NICUs) across Albania over a year. Clinical data, including GA, BW, oxygen therapy duration, and adherence to screening protocols, were systematically gathered. Screening for ROP was conducted using standardized protocols, and disease severity was classified following the (ICROP). Also statistical analyses to identify correlations between risk factors and ROP.

Results: Among the preterm infants screened, 173 infant in total, were identified those with no ROP 88 cases and those having developed ROP 65 cases, and those requiring therapeutic intervention 15 cases in total. Key risk factors such as reduced GA, low BW, and prolonged oxygen therapy were significant contributors. Additionally, the study highlighted gaps in compliance with ROP screening protocols, which compromised early detection and timely treatment.

Conclusion: ROP remains a major public health concern in Albania, particularly among the most vulnerable preterm neonates. Despite advancements in neonatal care, this study emphasizes the critical need for comprehensive screening programs and timely interventions. It advocates for nationwide professional training, improved healthcare infrastructure, and implementation of protocols to be followed so to prevent avoidable blindness in Albanian neonates.

Keywords: babies, blindness, preterm, retinopathy, screening

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-04 Evaluation of Play-Age Eye Findings in Babies at Risk for the Development of Retinopathy of Prematurity

Pınar Eröz1, Veysel Atasoy2, Ayça Sarı3

1Tarsus State Hospital, Department of Ophthalmology,Mersin, Turkey

2Bursa Yenişehir State Hospital, Department of Ophthalmology, Bursa, Turkey

3Private Practice, Mersin, Turkey

Introduction: It was aimed to evaluate the ocular findings of children born prematurely and at risk for the development of retinopathy of prematurity and to detect possible ocular pathologies in these children.

Materials-Methods: Total of 40 patients who applied to Mersin University Hospital Ophthalmology Clinic between January 2020 and December 2020, whose detailed ophthalmological examinations were performed and examination findings were recorded, were evaluated retrospectively. According to the birth weeks of the cases; who were born 32 weeks and below were included in the study group (n: 20), and who were born 37 weeks and over were included in the control group. (n: 20).

Results: Comparisons were made between groups in terms of visual acuity, biometric measurement values, refraction values and the presence of additional eye diseases such as strabismus and nystagmus. Corrected visual acuity and biometric measurement values of the groups were similar. There was no significant difference between the two groups in terms of spherical equivalents. (p:0.166) When the distribution of cylindrical refraction values according to the groups was examined, the cylindrical refraction values of the babies in the study group were found to be statistically significantly higher than the babies in the control group. (p:0.004).

Conclusion: Long-term and regular follow-up of children with a history of premature birth is important for early detection and treatment of ocular complications due to prematurity. The families of prematurely born children should be informed in detail about the eye diseases they may encounter and their follow-up.

Keywords: Prematurity, Retinopathy of Prematurity, Strabismus, Visual Acuity

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-06 Morning Glory Disc Anomaly in Children: Optical Coherence Tomography as a Prognostic and Management Tool

Mariana Akemi Matsura Misawa, Michael J. Wan, Kamiar Mireskandari

Department of Ophthalmology and Vision Sciences, Hospital for Sick Children, University of Toronto, Toronto, Canada

Introduction: This study explores the role of Optical Coherence Tomography (OCT) in Morning Glory Disc Anomaly (MGDA) by assessing foveal involvement and its correlation with visual prognosis to guide amblyopia therapy.

Materials-Methods: We reviewed records of patients with MGDA from 2000 to 2024, using high-quality fundus photographs and imaging for diagnosis. Exclusion criteria included retinal detachment, inability to cooperate with visual acuity testing, and suboptimal imaging. OCT findings guided discussions on prognosis and amblyopia treatment, categorizing cases based on foveal involvement as minimal, partial, or absence of foveal pit.

Results: OCT findings predicted visual outcomes in all six cases (five unilateral, one bilateral). Two patients with visual acuity (VA) of 20/20 and 20/32+2 and minimal foveal involvement were observed. One patient with VA of 20/125 and partial foveal involvement improved to 20/80 with patching. Another patient with VA of 20/125 showed partial foveal involvement. Patching was initiated, but poor compliance led to stable vision. A bilateral case with VA of 20/160 in one eye and retinal detachment in the other (excluded) showed partial foveal pit involvement. Occlusion therapy was not required due to the poor prognosis in the other eye. Finally, a patient with light perception and absent foveal pit did not undergo occlusion therapy due to poor prognosis.

Conclusion: OCT effectively assesses foveal involvement in MGDA, guiding amblyopia management. In minimal/moderate cases, occlusion therapy is pursued; in severe cases, OCT informs decisions to discontinue therapy, reducing stress for families.

Keywords: Morning Glory Disc Anomaly, Morning Glory Syndrome, Morning glory disc, Optical Coherence Tomography, Amblyopia, Visual prognosis

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-07 Could It Be a Linear Choroidal Coloboma?

Gökhan Çelik[1], Armağan Özgür[2]
[1]Mersin Tarsus Devlet Hastanesi
[2]Ankara Bilkent Şehir Hastanesi

Introduction: Coloboma is a congenital eye condition caused by incomplete closure of the optic fissure during fetal development, leading to missing tissue in one or more structures of the eye. It can affect the iris, retina, choroid, or optic nerve, potentially impacting vision depending on the location and severity of the defect.

Material-Method: A 1-year-old girl presented with routine examination. Patient had a cleft lip and palate previous history. Both corneas were observed to be transparent in both eyes. Cycloplegic retinoscopy was observed as +2.00 (+1.00 x 90) in the right eye and +1.50 (+1.00 x 90) in the left eye. The lenses were observed to be clear. There was no lens coloboma. In the dilated fundus examination, thin, linear, white lesions extending from the optic disc towards the periphery were present at the optic disc margin.
Results: Coloboma can manifest in various forms in the eye, including eyelid coloboma, lens coloboma, chorioretinal coloboma, uveal coloboma, and optic disc coloboma. Chorioretinal colobomas can appear as small aborted colobomas or as large, broad, white lesions. For this reason, we referred our patient for genetic counseling. Genetic test results showed a positive CHD7 gene test.

Conclusion: Choroidoretinal colobomas can present in various forms. Sometimes, choroidal coloboma may also appear in a linear pattern. A detailed examination of the posterior pole in children presenting for routine check-ups is crucial to avoid missing such small lesions.

Keywords: linear retinal lesion, coloboma, choroidoretinal coloboma

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-08 Effectiveness of Low-concentration Atropine Eye Drops for Myopia Progression

Aysel Galbinur
Azerbaijan Medical University, Department of Ophthalmology, Baku, Azerbaijan

Introduction: To evaluate changes in ocular biometrics in groups with myopic progression and receiving 0.01% atropine.
Materials-Methods: The total of 35 children (18 (51.4%) girls, 17 (48.6%) boys) aged 4-15 years with progressive myopia were enrolled. It was defined as a spherical equivalent (SE) and axial elongation (AL).
GroupI of the primary examination; Group II examined after 8 months without treatment; GroupIII - 12 months after treatment; Group IV - 6 months after cessation of treatment. The duration was 1.5 months; total 4 courses took place.
Results: The rate of progression significantly decreased in almost all children in GroupII; and there was a statistically significant increase in the SE in 63 eyes (90%) by an average of 0.70 diopters (Pw=0.000) (Pw<0.001). The same dynamics were observed in the AL parameters with significantly greater results 0.35±0.09 mm (Pw=0.000) (Pw<0.001).
In Group III, the dynamics show stability. The difference between groups II and III in terms of SE (-(0.08) diopters) was not statistically significant (Pw=0.127) (Pw<0.050). 0.01% atropine also revealed a significant inhibitory effect on AL growth (0.04 mm) (Pw=0.034) (Pw<0.050).
In Group IV results demonstrated stable values in SE. There were no significant differences between groups III and IV in terms of SE (-(0.01) diopters) (Pw=0.012).
Conclusion: Introduction of topical 0.01% atropine for one year, implemented in 4 courses of 1.5 months each was well tolerated and stabilizes the myopia in children with progressive myopia. This method of treatment is an effective and acceptable method of controlling myopia in children of pre-school and school age.

Keywords: 0.01% atropine, axial length, progressive myopia, spherical equivalent

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-09 Evaluating the Effectiveness of Different Treatment Methods on Myopia Progression

Aysel Pelit[1], Zeynep Kunt[1], Caner Incekaş[2]
[1]Department of Ophthalmology, Faculty of Medicine, Başkent University, Adana, Turkey
[2]Department of Biostatistics, Faculty of Medicine, Başkent University, Ankara, Turkey

Introduction: Our aim was to evaluate the effectiveness of different treatments on the progression of myopia.

Materials-Methods: The study included 46 patients aged between 6 and 15 years with a diagnosis of myopia. The patients in the study were divided into three groups: those who used defocus-incorporated multisegment (DIMS) lenses (Group 1), those who received 0.01% atropine treatment with DIMS (Group 2), and the control group (Group 3) were those who could not afford DIMS lenses and wore monofocal lenses. Spherical equivalent refraction (SER), corneal topography and axial length (AL) were measured before and after six months of myopia treatment. Data were collected from both eyes in all patients except one who had a history of herpetic keratitis in one eye. Changes in AL, SER and corneal topography were compared between all groups.

Results: The study involved 91 eyes. The distribution of eyes included in the study was as follows: 25.27% were in Group 1, 35.16% in Group 2, and 39.56% in Group 3. No statistically significant difference was found between the three groups in terms of age and gender ($p=0.364$, $p=0.322$ respectively). The increase in AL was statistically significantly less in Groups 1 and 2 than in Group 3 ($p = 0.005$). Furthermore, Groups 1 and 2 had a statistically significant ($p<0.001$) lower increase in SER.

Conclusion: Our study showed that DIMS lenses were effective in reducing myopia progression and were more successful in reducing myopia progression when used in combination with 0.01% atropine treatment.

Keywords: myopia control, children, DIMS lenses, atropine

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-10 Defocus Incorporated Multiple Segments Spectacles for Myopia Control; One Year Results

Asli Cetinkaya Yaprak
Ophthalomology Department, Faculty of Medicine, Akdeniz University, Antalya, Turkey

Introduction: The purpose of this study is to determine the efficacy of Defocus Incorporated Multiple Segments (DIMSs) in slowing myopia progression in pediatric patients.

Materials Methods: This retrospective study included pediatric patients with progressive myopia but without ocular pathology. The criteria for progressive myopia were defined as a change in cycloplegic refractive error of more than -0.50 diopters after six months or a change in axial length of more than 0.30 mm after one year. All patients were prescribed DIMS glasses (Hoya MiyoSmart) spectacles. Refractive error (cycloplegic autorefraction) and axial elongation were measured at baseline, 6 months and 12 months.

Results: This study included 22 pediatric patients aged 6 – 14 years (mean ± SD: 8.21 ± 2.60) with progressive myopia between -2.00 and -9.50 D and astigmatism <= 1.50 D. After 12 months, the mean axial elongation was 0.21 ± 0.02 mm. The mean refractive error was -0.40 ± 0.05 D, with 18 (81.8%) patients showing no progression at the end of the 1-year period. Patients were consistently satisfied with the treatment and reported no side effects.

Conclusion: Daily DIMS lens wear significantly retarded axial elongation and myopia progression in myopic children during the first year. All patients continue to wear their DIMS lenses without any problems.

Keywords: pediatric ophthalmology, defocus incorporated multiple segments lenses, myopia

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-11 One-Year Clinical Outcomes of Defocused Multi-Segment Spectacle Lenses in School-Age Children with Myopia

Fahri Onur Aydın, Havva Kaldırım, Idil Celen Arabacı, Mehmet Emin Gozel, Seda Duran Guler
Basaksehir Cam ve Sakura City Hospital, Department of Ophthalmology, Istanbul, Turkiye

Introduction: To evaluate our 1-year clinical results in patients who were prescribed defocussed multi-segment spectacle lenses (DIMS).
Materials-Methods: School-age children aged 6-13 years with myopia of at least -1.00D, wearing DIMS for at least 1 year, who had not received any previous treatment or intervention for myopia were included in the study. Children with anisometropia greater than -1.5 D, low binocular vision or additional ocular pathology were excluded. Axial lengths (AL) and cycloplegic spherical equivalents (SE) at presentation, 3 months, 6 months, and 1 year were recorded.
Results: Twelve boys and 10 girls were included in the study. The mean age of the children was 8.5 ± 1.3 years. The mean screen time of the children was 3.2 ± 1.2 hours. At least one parent of 7 children had more than 4D myopia, while at least one parent of 3 children had less than 4D myopia. At the end of one year, 88.6% of patients wearing the DIMS lens had less than 0.50D improvement in myopia. Axial elongation was less than 0.1 mm in 52.3% of the eyes using DIMS, while elongation of more than 0.3 mm was seen in only 4.5%. At the end of 1 year, the mean AL change was 0.10±0.14 and the SE change was -0.25 (-0.75/0.00).
Conclusion: Studies have shown that myopia progression is slowed down in patients using DISM lenses without side effects. In our study, we observed that myopia progression slowed down in the first 1 year.

Keywords: Myopia Control, DIMS, Axial Elongation

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-13 Effect of Defocus Incorporated Multiple Segments Spectacle Lenses on Myopia Control, Anterior Segment, and Higher-Order Aberrations After One Year

Pinar Orenc, Ece Guler, Hulya Gungel
İstanbul Eğitim ve Araştırma Hastanesi

Introduction: To examine the effect of Defocus Incorporated Multiple Segments (DIMS) (www.hoya.com) glasses on myopia progression.
Materials-Methods: Twenty-five patients who used DIMS due to myopia were included in the prospective study. Data of patients who used DIMS with myopia values between -1.5 and -7.00 were compared at the end of one year. The evaluated data were analyzed for visual acuity, axial length, refractive changes, and topography values. Anterior segment parameters and HOAs were measured by Sirius corneal tomography.
Results: The mean age of the patients was 10.3±0.74 years. At the end of one year, no significant change was observed in the axial length, cycloplegic spherical equivalent refraction (SER), K values, central corneal thickness values, and higher-order aberration values of the patients using DIMS glasses. SER changes were -0.49±0.55D, and AL changes were 0.29±0,23mm. These changes were not statistically significant.
Conclusion: It can be considered that myopia control is achieved after one year with DIMS lenses, and there is no significant change in keratometry or HOA values.

Keywords: axial length, defocus incorporated multiple segments, myopia, refractive changes

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-14 Low Dose 0.02% of Atropine to Reduce Rrogression of Myopia in Children

Alketa Ajazi Tandili[1], Holgena Cepani[1], Orjada Agalliu[2], Etleva Balla[2]
[1]University Hospital Center Mother Tereza Tirane, Albania
[2]Health Center Tirane, Albania

Introduction:
to show efficacy of atropine 0.02% in preventing myopia progression
Materials-Methods:
This is a retrospective randomised study realized with 80 children, 40 of of who were treated with atropine 0.02% for a period of 2 years. The other 40 children that not took atropine served like control group. SE of the group with and without atropine at the first visit and after 2 years were analyzed in retrospective.
Results:
In beginning of treatment of the group with and without atropine was respectively -0.75 to to -14.375 (-4.56±3.16) and -0.875 to to -7 (-3.31±1.63). The age at the beginning of treatment was 8-14 years old in group without atropine (10.5±2.04) and 6-15 years (10.2±2.23) in the atropine group. The data were analyzed by ANOVA and it was observed that in group without atropine myopic progression after two years was -1.278 D, whereas in the atropine group myopic progression was -0.87D.
Conclusions:
Low dose of atropine 0.02% was effective in preventing myopic progression in children involved in study for a period of 2 years. The changes were significantly important compared to the control group.

Keywords: Myopia, atropine, progression

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-15 The Long Term Results of One Eye Ortho K Fitting

Chih Yu Chen, Ko Jo Lin, Hsin Wei Huang, Chien Liang Wu
Department of Ophthalmology, Taipei Municipal Wanfang Hospital, Taipei, Taiwan

Introduction:
Some children had uneven bare vision and not suitable for pair glasses. It is maybe due to high anisometropia difference that cannot tolerate pair glasses. Or exercise not suitable for pair glasses, or myopia progression rapidly just in one eye. One eye Ortho K fitting is suitable for these children. This study was to analyze the one eye Ortho K fitting long term results, and for better anisometropia and myopia control.
Methods: We review the 39 children fitting one eye Ortho K in our hospital during the past ten years (2014-2024). 28 children (age: 12.06 +/- 2.19 y/o) who had follow up over 1 years (3.82 +/- 2.37 years) were evaluated.
Results: 17 children (60 %) had both eyes fitting with Ortho K later, due to myopia progression and axial length increase (0.10+/- 0.05 mm / 3 months) in the contralateral good eye. And in the Ortho K eye, the axil length change (0.02+/- 0.015 mm / 3 months) and bare vision were relative stable.
The anisometropia difference decreased in most cases (63%). Two cases had anisometropia change reversed after one eye Ortho K fitting. And 31% the anisometropia difference were stable and had no change.
Conclusion: In the children who need one eye fitting with Ortho K, regular follow up is needed. The contralateral good eye especially need to care about the more rapid myopia progression and axial elongation. The atropine therapy or both eye fitting with Ortho K on time would be needed for the myopia control.

Keywords: Orthokeratology, Ortho K, Anisometropia, Myopia

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-18 Is Surgical Intervention Avoidable in Congenital Nasolacrimal Duct Obstruction (CNLDO) ?

Sameera Irfan
Envision, Squint & Oculoplastics Centre, Lahore, Pakistan

Objective:
A prospective, interventional study was conducted to determine whether surgical intervention can be avoided in infants with CNLDO by a proper conservative management.
Methods:
The study was conducted from March 2013 till Dec 2019. 338 prospective cases presenting with epiphora, eyelid discharge and regurgitation on lacrimal sac compression were included in the study. Out of these,166 were females (49.11%) and 172 males (50.88%). The age at enrolment was 1-47 weeks (median 23 weeks, mode 21 weeks), with 31 premature babies, (9.2%).The cases were divided into Primary (41 cases, 12.13%), who presented early with no prior therapy & Secondary categories (297, 87.86%), who presented late and had been using topical antibiotics and sac massage. Patients' care-takers were taught the proper technique of lacrimal sac compression with a cottontip. Topical Tobramycin eyedrops were prescribed 3 times daily for 5 days only to cases with a purulent discharge or eyelid swelling. Regular follow-up was conducted at 1, 3, and at 6 months after the initial visit.

Results: 316 cases (93.49%) had complete resolution of epiphora and discharge by lacrimal sac compression. 22 symptomatic cases (6.50%) at the end of study needed surgical probing. There was no significant difference amongst genders (p=0.684), or amongst primary versus secondary cases (p=0.062); they all responded to the correct conservative management.

Conclusion: CNLDO can be resolved conservatively by proper technique of sac compression and eyelid cleaning. This must be continued till the infant is one year old to avoid recurrent symptoms.

Keywords: Congenital Nasolacrimal Duct Obstruction, Epiphora, Lacrimation

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-19 Postoperative Outcomes of Pediatric Canalicular Lacerations and Evaluation with Anterior Segment Optical Coherence Tomography

Asli Cetinkaya Yaprak, Çisil Erkan Pota, Hatice Deniz Ilhan
Akdeniz University, Department of Ophthalmology, Antalya, Turkey

Introduction: To investigate the results of canaliculus lacerations in pediatric patients and to evaluate with anterior segment OCT Materials-Methods: We included 30 pediatric patients who had undergone repair of the canaliculus and were followed up for at least 3 years after surgery.Patient demographics, the type of injury, and the presence of epiphora were evaluated.In 15 patients who could adapt to anterior segment optical coherence tomography, measurements of the tear meniscus were taken and compared with the healthy eyeResults: The mean age at the time of injury was 8.4±5(1-18)years.The mean time between injury and surgery was 1.52±1.67days.In 4patients the upper,in 23 patients the lower and in 3 patients both eye canals were injured.Mini-Monoka stent was inserted in 27 patients and a bicanalicular silicone tube in 3 patients.Only 1 patient had epiphora.In the pediatric age group,lower canal injuries,male gender and indoor injuries were more common.The height of the tear meniscus in the eye with the repair of the canalicular laceration was 230±49µm,the depth 165±15µm and the area 16±9µm^2;in the healthy eye the TMH was 163±70µm,the depth 123±29µmand the area 9±6µm^2.All values were calculated to be higher for the operated eye than for the fellow eye,but only the TMD value was found to be significantly higher(p:0.024)Conclusion: In pediatric patients,a high rate of functional success was achieved after surgery(96.6%).Although there was no significant epiphora in these patients,we found that there were differences in tear meniscus measurements compared to the healthy eye.We believe that early intervention with stent-assisted surgery would minimize the problems that may occur in the future

Keywords: Anterior segment optical coherence tomography, Canalicular laceration, Mini monoka, Tear meniscus depth

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-20 Sudden Vision Loss in Patient with Tuberous Sclerosis

Gökhan Çelik[1], Fatma Yülek[2]
[1]Ministry of Health, Tarsus State Hospital, Mersin, Turkey
[2]Special Clinic, Ankara, Turkey

Introduction: Tuberous sclerosis is a phakomatosis that can present with both systemic and ocular findings. In this case, the cause of vision loss in a child with tuberous sclerosis will be investigated.

Material-Method: A 5-year-old girl presented with a 3-month history of decreased vision. She has a known diagnosis of tuberous sclerosis and is on antiepileptic medication for this condition.The cause of vision loss was evaluated by examining both the examination findings and imaging techniques.

Results: Visual acuity in the right eye was limited to light perception, while the left eye showed a visual acuity of 0.8 logMAR. Light reflexes were diminished in both eyes. Examination revealed a posterior chamber intraocular lens in the left eye, while the right lens appeared normal. The optic nerve margins in both eyes were blurred. Additionally, a flat, hamartoma-like lesion was observed in the superonasal region of the right optic disc. MRI imaging revealed obstructive increased intracranial pressure secondary to Subependymal Giant Cell Astrocytomas (SEGAs). The patient was referred to the pediatric neurosurgery clinic.

Conclusion: Decreased vision in a patient with tuberous sclerosis may be due to retinal astrocytoma, increased intracranial pressure secondary to SEGA, vigabatrin use, or lesions that may lead to cortical blindness.Therefore, it is essential to perform a detailed examination and careful imaging in such patients with regular ophthalmological follow up.

Keywords: tuberous sclerosis, sudden vision loss, sega

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-21 A Combined Treatment of Debulking and Sclerotherapy for Orbital Lymphangioma

Arda Okcu[1], Sebastian Böttger[2], Michael Gräf[1], Lyubomyr Lytvynchuk[1], Hans Peter Howaldt[2]
[1]Department of Ophthalmology, Justus-Liebig-University Giessen, Giessen, Germany
[2]Department of Oral and Maxillofacial Surgery, Justus-Liebig-University Giessen, Giessen, Germany

Introduction: We present the 18-month treatment course of a 7-year-old girl who presented with acute right-sided headache and exophthalmos, binocular diplopia and vomiting. We diagnosed orbital lymphangioma and monitored its regression in the course of 4 surgical interventions with combined treatment of debulking and doxycycline injections through a series of MRI scans.

Methods: Diagnosis was based on symptoms, clinical evaluation, MRI, and histology. Assessment included visual acuity, tonometry, pupil light reflexes, ocular motility, exophthalmometry, photo-documentation, and SD-OCT.

Results: Acute MRI revealed an orbital lesion. Since vision rapidly deteriorated, navigation-guided puncture was done for decompression. Despite, the lesion enlarged and caused optic nerve traction, requiring further procedures with doxycycline instillation 3 and 6 days later. Histological analysis confirmed the diagnosis. Regular ophthalmologic and radiologic follow-up showed significant regression of exophthalmos and improved vision. After 8 months relapse occurred requiring repeat intervention with satisfying aesthetic and functional result (BCVA 0.1 logMAR, good motility, orthotropia).

Conclusion: This case emphasizes the importance of early imaging and intervention for orbital lymphangioma and suggests a combined therapy of debulking and doxycycline as a possible therapeutic option. Orbital lymphangioma, common in childhood, presents with proptosis, periorbital masses, restricted ocular motility, ptosis, and optic neuropathy. Diagnosis bases on clinical symptoms and MRI. Treatment options include surgery and sclerotherapy. Doxycycline as a promising sclerosing agent, offers a relatively low-invasive option, especially for less severe cases, though its slower response and the risk of recurrence should be considered. Further studies are needed to confirm its long-term efficacy.

Keywords: Orbital lymphangioma, debulking, sclerotherapy, doxycycline

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-22 Metastatic Ewing Sarcoma to the Orbit Presenting After Trivial Trauma

Arwa Alkhuraiji[1], Maryam Alkhayat[3], Shatha Alfreihi[2], Sameh Soliman[4]
[1]Ophthalmology Department, King Abdulaziz Medical City (KAMC), Ministry of National Guard Health Affairs (MNGHA), Riyadh, KSA
[2]Pediatric Ophthalmology Department, King Abdullah Specialized Children Hospital (KASCH), Ministry of National Guard Health Affairs (MNGHA), Riyadh, KSA
[3]Ophthalmology Department, Salmaniya Medical Complex, Government Hospitals, Manama, Kingdom of Bahrain
[4]Ophthalmology Department, Faculty of Medicine, Alexandria University, Alexandria, Egypt

Orbital metastasis of Ewing sarcoma (ES) following incidental trauma is rare with only a few cases reported in the literature. We report a unique case of a thirteen-year-old boy who presented loss of vision in the left eye due to a gradual increase of left proptosis eye following an increase in the left shoulder lesion after minor trauma to the left shoulder. Pan-CT showed a left shoulder destructive soft tissue mass with metastasis to the lungs, vertebral, and facial bones. Orbital MRI detected metastasis causing mass effect on the left eye globe with severe exophthalmos involving the left optic nerve. Histopathology confirmed the diagnosis of small round cell sarcoma (ES). Laminectomy decompression was done, and chemotherapy and left shoulder radiotherapy were started to relieve the symptoms.

Keywords: Ewing sarcoma, Orbit, metastasis, proptosis

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-23 A Ruptured Dumbbell Dermoid Cyst Masquerading as Peri-orbital Cellulitis

Cyrielle Chalencon, Elisabeth De Smit, Nausheen Hayat, Gulunay Kiray, Kaveh Vahdani
Moorfields Eye Hospital NHS Foundation Trust

Introduction:
In young children, recurrent periorbital swelling is often attributed to infections like pre-septal cellulitis. However, more obscure causes are often forgotten, such as dermoid cysts. These can have atypical manifestations posing diagnostic challenges. Our case highlights the importance of considering alternative underlying diagnoses in recurrent periorbital swelling and the value of parental observations in guiding clinical management.

Case Description:
A 2-year-old girl presented with three episodes of right periorbital swelling over six months. Initial management involved oral and topical antibiotics for presumed pre-septal cellulitis, despite the absence of an obvious source of infection. Symptoms temporarily resolved but recurred repeatedly. Upon detailed history taking, the patient's mother reported an intermittently self-discharging opening on the patient's right temple.
This detail shifted the diagnostic focus to an atypical ruptured orbital dermoid cyst. An orbital CT scan confirmed a dumbbell-shaped lesion, causing bone remodelling and a cleft in the zygomatic bone. Surgical excision identified a fistula running through the bony cleft, connecting the skin and the orbital dermoid. All of these were fully excised, halting the recurrence of inflammation.

Conclusion:
Dumbbell orbital cysts are powerful masqueraders of peri-orbital inflammation and should be on the differential diagnosis list in children with unexplained recurrent orbital swelling. Detailed history taking and parental description of symptoms is crucial in diagnosing. CT imaging should be considered to identify the orbital bony defects which help make the diagnosis when the cyst has ruptured. Careful surgical excision is pivotal in achieving an excellent outcome.

Keywords: periorbital swelling, pre-septal cellulitis, dermoid cyst

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

PS-24 Multidisciplinary Management of Paediatric Orbital Inflammatory Myofibroblastic Tumor Involving the Medial Rectus Muscle: A Case Report

Elpida Kollia[1], Anne Cook[2], Bhamy Hariprasad Shenoy[2], Haya Razzouk[3]
[1]Moorfields Eye Hospital NHS Foundation Trust
[2]Manchester Royal Eye Hospital NHS Foundation Trust
[3]Warrington Hospital NHS Foundation Trust

Introduction: Inflammatory myofibroblastic tumors (IMTs) are rare, benign but potentially locally recurrent tumors that can present as orbital masses. They pose a diagnostic challenge due to their nonspecific clinical and radiological features. This case report describes a multidisciplinary approach involving combined orbital surgery and nasal endoscopy to diagnose and manage an orbital IMT in a pediatric patient.

Materials-Methods: A 12-year-old boy presented with a two-week history of left upper eyelid swelling and drooping following blunt orbital trauma. He also complained of intermittent pain and diplopia. MRI revealed a well-defined ovoid lesion (8 × 10 × 13 mm) along the medial wall of the left orbit, with homogeneous enhancement and no evidence of restricted diffusion. Multidisciplinary evaluation prompted combined orbital surgery and nasal endoscopy. During surgery, a right bulky turbinate was noted, while the left nasal passage was more patent. The orbital lesion was found to originate from the medial rectus muscle, which was split superiorly for lesion access. Tissue was excised and sent urgently for histopathological examination.

Results: Histopathological analysis confirmed the diagnosis of an inflammatory myofibroblastic tumor. No malignancy was identified. Postoperative recovery was uneventful. The patient remains under close clinical and radiological surveillance, given the risk of recurrence.

Conclusion: This case highlights the importance of a multidisciplinary approach, including imaging, endoscopic evaluation, and orbital surgery, in diagnosing and managing pediatric orbital IMTs. Histopathological confirmation remains the gold standard for diagnosis, and careful follow-up is essential due to the risk of local recurrence.

Keywords: myofibroblastic tumor, medial rectus muscle, paediatric ophthalmology, orbital trauma

ESA RAPID FIRE ABSTRACTS

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

From blinking to monocular eye closure: delving into diagnostic challenges of rare syndromes

Mirjana Bjelos1, Ana Curic2, Mladen Busic1, Biljana Kuzmanovic Elabjer1, Katja Roncevic3

1University Eye Department, Reference Center of the Ministry of Health of the Republic of Croatia for Pediatric Ophthalmology and Strabismus, Reference Center of the Ministry of Health of the Republic of Croatia for Inherited Retinal Dystrophies, Reference Center of the Ministry of Health of the Republic of Croatia for Standardized Echography in Ophthalmology, University Hospital "Sveti Duh", Zagreb, Croatia; Faculty of Dental Medicine and Health Osijek, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia; Faculty of Medicine, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia

2University Eye Department, Reference Center of the Ministry of Health of the Republic of Croatia for Pediatric Ophthalmology and Strabismus, Reference Center of the Ministry of Health of the Republic of Croatia for Inherited Retinal Dystrophies, Reference Center of the Ministry of Health of the Republic of Croatia for Standardized Echography in Ophthalmology, University Hospital "Sveti Duh", Zagreb, Croatia; Faculty of Dental Medicine and Health Osijek, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia

3School of Medicine of the Catholic University of Croatia, Zagreb, Croatia

Introduction: This report documents progression of neurological and ocular symptoms in male pediatric patient with monocular eye closure, exploring differential diagnoses, including blepharospasm, ocular neuromyotonia, cranial nerve V-VII co-contraction, and rare syndromes such as Ochoa and Halpern.

Materials-Methods: A male born in 2022 exhibited typical early development. Intermittent right-eye blinking was observed as early as two months, progressively becoming prolonged and accompanied by complete eye closure in response to eating, sunlight, windy conditions, snow, and vibratory stimuli. These episodes were associated with eye and forehead rubbing. By three years, the child experienced difficulty with screen use, frequently pausing to rub his forehead and rest his eyes. Ophthalmological examinations consistently revealed normal findings. Neuropediatric evaluations, including MRI, TOF angiography, and EMG, showed no abnormalities, and ictal tics were excluded. Developmental milestones remained within normal range.

Results: The symptoms suggest functional etiology, with differential diagnoses including essential blepharospasm, V-VII nerve co-contraction, and neuromyotonia. Rare syndromes such as Ochoa and Halpern were considered but excluded. Hereditary dystonia remains a possibility, given a family history of esophageal dysmotility. Management was challenging due to the patient's young age, limiting options such as botulinum toxin therapy.

Conclusion: This case underscores the complexity of diagnosing and managing pediatric neuromuscular and sensory disorders. The presentation of light sensitivity, episodic blinking, and periocular discomfort suggests a likely overlap of essential blepharospasm, cranial nerve V-VII co-contraction and neuromyotonia, with dystonia potentially playing a central role. The fluctuating nature of symptoms highlights the importance of ongoing multidisciplinary care and close monitoring.

Keywords: blepharospasm, blinking, dystonia, muscle contraction

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Botulinum toxin injection in paediatric esotropia: does it work, does it last and does the aetiology matter?

Amrita Saravanan, Hussein Ibrahim, Elisabeth De Smit, Lucy Barker, Alastair Kennedy
Paediatrics and Strabismus Dept, Moorfields Eye Hospital, London, United Kingdom

Introduction: Botulinum Toxin-A injection (BTXA) is used as an adjunct or alternative to surgery for children with strabismus with inconclusive results. We present the long-term outcomes (>6 months) of a series of patients who received BTXA as primary treatment for various esotropia.
Materials-Methods: Retrospective study of children undergoing medial rectus BTXA between April 2023-April 2024 with analysis of long-term effects (>6months). Patients were categorised by aetiology: Group 1 = Acute non-accommodative esotropia (ANAET) n=2, Group 2 = infantile esotropia (IET) n=7, Group 3 = other diagnosis, n=24.
Results: 33 of 53 children completed long-term follow-up. The mean deviation was reduced from 49.5^ BO to 19^ in Group 1, from 44^ to 22^ in Group 2 and from 34^ BO to 19 ^ BO in Group 3. 26% had long-term reduction in their deviation.
In the long-term 26% of patients maintained orthophoria (<10PD), with overall restoration of stereoacuity in 45.5% of the cohort. 85% had residual phoria or tropia with 72.8% of parents satisfied with their long-term outcome. 6.1% required further toxin treatment, and 30.8% proceeded to have surgery. Temporary side effects included Ptosis rate (26.4%) with 37.5% obstructing the visual axis and Consecutive exotropia (33.9%).
Conclusion: Toxin provides effective treatment in the short to medium term for childhood esotropia. It has minimal side effects, improves stereoacuity, and may reduce the need for surgery across a variety of diagnoses.

Keywords: Botulinum Toxins / therapeutic use, Esotropia / surgery, Paediatric Strabismus

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Effect Of Conservative Treatments In Intermittent Exotropia Patients According To The Exotropia Control Score

Burcu Erdem, Nihan Aksu Ceylan
İSTANBUL ÜNİVERSİTESİ,İSTANBUL TIP FAKULTESİ, GÖZ HASTALIKLARI ANA BİLİM DALI, İSTANBUL

Introduction: We aimed to evaluate demographic characteristics and response of intermittent exotropia(IXT) patients to conservative treatments.
Materials-Methods: Records of the patients were reviewed.Patients were categorized into 3 groups according to IXT control at first visit:well-controlled(Group1),moderately controlled(Group2),and poorly controlled(Group3).Conservative treatment methods included glasses, convergence exercises and patching,and were applied alone or in combination. Age,amblyopia,systemic diseases,distance-near prism cover/Krimsky tests and cycloplegic refractions were compared.The change of IXT control scores after conservative treatments were also evaluated.
Results: Sixty-one cases were included.The mean follow-up period was 47.54±41.80months.There were 23 patients in Group 1, 11 patients in Group2 and 27 patients in Group3.The mean age was 5.78±3.31years in Group1, 5.45±1.75years in Group2, and 12.66±13.38years in Group3($p<0.05$).The spherical equivalent(SE) of the groups at first and final visits were; +1.26±2.07Diopter(D) and +0.87±2.08D in Group1, -0.03 ± 2.29D and -0.37±2.14D in Group2, -0.50±2.30D and -0.67±2.14D in Group3, respectively. The first and final SE of Group 1 and Group 3 was significantly different($p<0.001$). All patients in Group 1 remained well-controlled with treatment.Of the patients in Group2 at final visit;5(45.45%) were well-controlled,5(45.45%) were moderately-controlled and 1(9.09%) was poorly controlled.In Group 1 and 2,a reduction in prism values was observed at final visit.In Group 3;22(81.5%) patients remained poor-controlled and 21 of them underwent surgery.5 (18.5%) patients had better controlled IXT with conservative treatments in Group 3.
Conclusion: Conservative treatments may improve IXT control and may reduce prism values in well- or moderately controlled cases. It may also be beneficial, although less so,in patients with poorly-controlled IXT.

Keywords: conservative treatments, intermittent exotropia, strabismus

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Early Postoperative Overcorrection and importance of Fusional Reserves Development in Recurrent Exotropia

Liudmyla Shevchuk, Sergriy Rykov, Oleksandra Mishchenko, Nataliia Aleieva

Department of Ophtalmology And Optometry of Postgraduate Education, Bogomolets National Medical University, Kyiv, Ukraine.

Introduction: To evaluate the surgical outcome in patients with recurrent exotropia based on the angle of deviation measured on the first postoperative day and assess significance of fusional reserves development.

Materials-Methods: Surgical outcome in patients with recurrent exotropia over at least 1 year was analyzed retrospectively. Patients were divided into three subgroups according to the angle of deviation at postoperative day 1: Overcorrection group (>= 4 prism diopter of esodeviation), Orthotropic group (orthotropia or less than <4 prism diopter of exodeviation), Undercorrection group (>=7 prism diopter of exodeviation). Success was defined as <=4 prism diopter of esodeviation or <=7 prism diopter of esodeviation.

Results: One hundred fifty-three patients were included in this study. The age at surgery ranged from 5 to 16 years, with a mean preoperative angle of deviation of 24,5 ±10,6 prism dioptres base-in at distance. Patients were followed-up for 12 ±6,5 months. The were 37 (24,2%), 112 (73.2%) and 5 (3.3%) of patients in overcorrection, orthotropic and undercorrection groups at postoperative day 1.

Conclusion: Early postoperative overcorrection (>= 4 prism diopter of esodeviation) is significant predictor of surgical success in recurrent exotropia, primarily due to its role in stimulating fusional reserves development. Patients in the overcorrection group demonstrated the highest success rates, while those with undercorrection had poorest outcomes.

Keywords: Deviation, surgery, exodeviation

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Primary bilateral medial rectus resection vs. bilateral lateral rectus recession for the management of intermittent exotropia in children

Heba M Fouad1 Ahmed Awadein1, Nehal Marei2, Amr Khafagy1

1Department of Ophthalmology, Faculty of Medicine, Cairo University

2Department of Ophthalmology, Cairo University Students Hosital

Introduction: While medial rectus resection (MRRs) is frequently used to manage residual or recurrent deviations after bilateral lateral rectus recession (LRRc) in intermittent exotropia, primary MRRs in surgically naïve children with intermittent exotropia is not well studied. The aim of this study is to compare the outcome of primary bilateral MRRs to standard bilateral LRRc in children with intermittent exotropia

Material-Methods: A prospective study was conducted on 40 children with intermittent exotropia scheduled for surgery. Patients were randomized into LRRc group (20 children) which had bilateral lateral rectus recession and MRRs group (20 children) which had bilateral medial rectus resection. Ductions, versions, distance and near angles of deviation, fusion, and near stereoacuity were evaluated before and 6 months after surgery.

Results: Mean age was 7.0±2.3 years. Mean preoperative distance and near angles of deviations were 27±4 and 28±4 PD. Surgical success rate, defined as <4PD esotropia to =<10 PD exophoria for distance and near, measured by prism and alternate cover, was slightly higher (P=0.29) in the LRRc group (80%) than in the MRRs group (65%). Postoperative distance-near disparity was <10 PD in both groups. Undercorrection was more common with MRRs and overcorrection was more common with LRRc. Sensory functions improved non-significantly in both groups.

Conclusions: While surgical success rate was slightly higher with LRRc, MRRs was still not associated with overcorrection, distance-near disparity, or incomitance. MRRs might be considered as an alternative for management of intermittent exotropia in children with smaller angles and better control of the deviation.

Keywords: intermittent exotropial, lateral rectus recession, medial rectus resection, undercorrection, overcorrection

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Outcomes of Nasal Nishida Surgery

Ian Bruce Marsh, Zhihang Cheng

University Hospital Liverpool NHS Trust

Introduction: Achieving a good ocular alignment in patients with multiple strabismus surgery with poor adduction or third nerve palsy with poor medial rectus function can be surgically challenging. We discuss the use of nasal Nishida surgery to improve primary eye position.

Materials-Methods: Using the senior authors surgical logbook, all patients undergoing a nasal Nishida procedure were identified over a 2 year period from 2022-4. The ocular deviation in the primary position pre and post operatively were collected along with any complications. Relief of symptoms was recorded along with time post op.

Results: There were 7 patients identified with an average age of 32 (7-53) 4/7 were consecutive exotropias with 2/7 having a good outcome. 3/7 were third nerve palsies with 2/3 having a good result. There were no complications. 4/7 had a Nishida alone, 1 had Foster sutures inserted, 1 had a MR plication and 1 had LR recession. Of the three failures, 2 had further surgery and 1 continues with regular LR botulinum toxin injections. The average pre op angle was 40.1PD (16-70) and average post op was 22.6PD (8-40) post op. There were no induced vertical deviations. 2/3 third nerve palsies were referred for ptosis surgery. 1 patient with consecutive exodeviation had releif of diplopia post operatively. Average post op follow up was 4.8 months.

Conclusion: MR underaction either post surgery or third nerve palsy is a difficult problem to manage. We report a small series treated with nasal Nishida with more than 50% achieving a good position post op.

Keywords: Nishida, nasal transposition, exotropia, surgery

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Surgical outcomes for incomitant vertical squint due to inferior rectus weakness

Zhihang Cheng, Ian Marsh

Department of Ophthalmology, Aintree University Hospital

Introduction: This study took place in a single tertiary referral adult strabismus service. It aims to assess the efficacy of two current surgical techniques, posterior superior oblique tenotomy and inferior rectus Scott procedure, in correcting incomitant vertical squint due to inferior rectus weakness.

Materials-Methods: All consecutive patients undergoing strabismus surgery for isolated inferior rectus weakness with vertical angle in down gaze and a small angle or orthophoria in primary position. Cases from June 1995 until November 2024 were included. Those without follow up data were excluded. Case notes were reviewed for pre-operative angle and post-operative outcomes.

Results: Of the 33 patients included in this study, 26 had undergone posterior superior oblique tenotomy, and 7 inferior rectus Scott procedure. In the tenotomy group, average pre-operative angle measured 8 prism dioptres (PD) and post operatively 4 prism dioptres, with 18 patients (70%) achieving a satisfactory field of binocular single vision (BSV). In the inferior rectus Scott procedure, average pre-operative angle measured 15 PD and post operatively 8 PD, with 6 patients (86%) achieving a satisfactory field of BSV, 2 patients required further augmentation with posterior superior oblique tenotomy. No patient had overcorrection in primary gaze.

Conclusion: Both posterior tenotomy of the superior oblique and inferior rectus Scott procedure can be utilised to treat incomitant vertical squint caused by inferior rectus weakness. Our data shows that inferior rectus Scott should be considered in large angle in down gaze, and this can be complemented with posterior superior oblique tenotomy.

Keywords: Vertical strabismus, Strabismus surgery, Incomitant deviation, Field of BSV

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Linking fixation stability to retinal perfusion through a comprehensive assessment of microperimetry and OCT-A Parameters in Duane syndrome

Özlem Ural Fatihoğlu1, Barbaros Hayrettin Ünlü2, Ayşe Bozkurt Oflaz3, Ali Devebacak1, Aylin Yaman4, Ayşe Tülin Berk4

1Ophthalmology Department, Dokuz Eylül University, Izmir, Turkey

2Ophthalmology Department, Menemen State Hospital, Izmir, Turkey

3Ophthalmology Department, Selcuk University, Konya, Turkey

4Private Practice, Izmir, Turkey

Introduction: This study investigates the structural and functional alterations associated with Type 1 Duane Syndrome(DS).

Materials-Methods: In this cross-sectional study, consisting of 22 patients with DS alongside 34 age- and sex-matched healthy controls, a comprehensive assessment of macular integrity(MI), fixation stability indexes(P1%, P2%), bivariate contour ellipse area(BCEA) for 95% and 63% of points, average retinal sensitivity thresholds(AT), and fixation location with microperimetry(MP) were performed. Furthermore, optic coherence tomography angiography(OCT-A) was used to evaluate the foveal avascular zone(FAZ) in superficial capillary plexus(SCP) and deep capillary plexus(DCP), vessel density(VD) in foveal, superior, temporal, inferior, and nasal quadrants across SCP, DCP, outer retina(OR), and choriocapillaris(CC).

Results: The DS group showed significantly lower P1% values($p=0.0086$) and higher degrees of eccentric fixation($p=0.037$), while no statistically significant differences were observed for P2%, BCEA63%, BCEA95%, MI, and AT($p=0.053$, $p=0.103$, $p=0.101$, $p=0.156$, $p=0.894$, respectively). Moreover, the study revealed a positive correlation between ocular movement restriction and eccentric fixation($p=0.023$), BCEA95%($p<0.001$), and BCEA63%($p<0.001$), while demonstrating a negative correlation with P1%($p<0.001$) and P2%($p<0.001$). Structurally, the DS group displayed smaller FAZ areas in SCP($p=0.017$), lower VD in temporal SCP($p=0.026$), and foveal OR($p=0.016$), as well as higher VD in inferior DCP($p=0.028$) and foveal SCP($p=0.049$).

Conclusion: This study highlights significant anatomical and functional visual differences in patients with DS. Functionally, fixation stability and centrality were notably compromised, evidenced by lower P1%, and increased eccentric fixation. Structurally, patients with DS demonstrated smaller FAZ areas in SCP and variations in retinal VD. Further comprehensive studies are needed to elucidate the underlying pathophysiology and develop targeted interventions.

Keywords: Duane Syndrome, microperimetry, optic coherence tomography angiography, fixation stability, eccentric fixation, retinal vessel density

ESA FREE PAPER ABSTRACTS

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Assessment Of A Global Evaluation Score In Intermittent Exotropias (IXT)

Dominique Thouvenin, Deboutte Isabel, Lequeux Leopoldine, Bonifas Christel, Alby Anne, Norbert Olivier

Clinique Rive Gauche - Toulouse - France

Introduction: Intermittency of deviation in IXT is well assessed by control scores. However, they do not reflect the impact of strabismus on the patient's life. We wanted to test a more global score, including control, but also functional signs (FS) and the impact on the quality of life (QOL) of patients; children or adults. Construction of this score has already been subject to a study. Here we judge the interobserver reliability and trends in different types of IXT. Our score, quantified from 0 to 24, includes

- control of deviation in Distance Vision and Near Vision (LACTOSE score) (8 points)

- impact on QOL by simplified questions, extracted from the IXTQ (8 points)

- FS linked to strabismus (8 points)

Materials-Methods: 98 patients aged 3 to 80 years, with IXT were included, from XT 0to50PD and X't 0to-45PD. 11 cases were pure convergence insufficiencies (CI), and 87 mixed IXT. All had normal BV. They were scored successively by an orthoptist and a strabismologist.

Results: Interexaminator variations, were minor for all items, reflected by high ICC scores (>0.75). There is a strong correlation between the score and angle of deviation, and it shows specificities in IXT and CI.

Conclusion: Apart from the clinical examination, the elements currently used to judge the state of XTI are most often subjective. We believe that our score allows a more global assessment and provides assistance in decision-making. It seems reliable and reproducible. Study of its evolution during the treatment of IXT will undoubtedly be interesting.

Keywords: ixt, intermittent exotropia, control score, qol, therapeutic decision, functional signs

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Effect of viewing at far versus near on the occurrence rate of intermittent exotropia measured with a wearable eye tracker

Jonathan C Horton, John R Economides

UCSF

Introduction: Eye tracking glasses permit measurement of the occurrence rate of intermittent exotropia, which is useful for deciding which patients need surgery. However, the rate is influenced by viewing distance, creating a potential confound. This study divides the overall rate into separate components, compiled during near viewing and far viewing. It also analyzes the convergence effort made by patients when exotropic.

Materials-Methods: In this prospective study, 35 patients with intermittent exotropia (age 3 – 79) wore eye tracking glasses while engaged in their customary daily activities. Scene video was reviewed to parse the data into epochs of near versus far viewing.

Results: In participants with a low occurrence rate, exotropia occurred mostly during distance viewing. As the occurrence rate increased, exotropia became more common during near viewing. For 28/35 patients, data segmentation into near versus far viewing had a negligible impact on the overall occurrence rate. However, in 7 patients it revealed a near exotropia peak hidden in the orthotropia far peak, resulting in a higher overall exotropia occurrence rate. Comparison of exotropia amplitude during near versus far viewing showed that convergence effort varied widely among deviated subjects, and surprisingly, bore no relationship to the overall exotropia occurrence rate.

Conclusion: Partitioning of data recorded with eye tracking glasses into near viewing versus far viewing allows more accurate assessment of the overall rate of exotropia occurrence. It also neutralizes the impact of different viewing distances associated with various activities, by providing separate exotropia occurrence rates for near and far.

Keywords: exophoria, prism cover test, eye tracker

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Impact of Partial and Full Hyperopic Correction on Exotropia Management: A Comparative Analysis

Barbaros Hayrettin Ünlü1, Özlem Ural Fatihoğlu2, Aylin Yaman3, A. Tülin Berk3

1Ophthalmology Department, Menemen State Hospital, İzmir, Turkey

2Ophthalmology Department, Dokuz Eylül University, İzmir, Turkey

3Private Practice, İzmir, Turkey

Introduction: This study aimed to evaluate the clinical characteristics of children with exotropia and high hyperopia and compare treatment outcomes using partial versus full hyperopic correction.

Materials-Methods: This retrospective study included 30 children (ages 3–12) diagnosed with exotropia and hyperopia of >=3.00 diopters (D), treated with spectacle correction (mean follow-up period: 3,93±3,24 years (6 months – 16 years)). Clinical features, treatment approaches, and outcomes were analyzed. A subgroup of 20 patients with hyperopia >=4.00D was also assessed.

Results: Among the 30 patients, 10 had additional medical conditions or developmental delays. Visual acuity was measurable in 27 patients, and amblyopia was present in 22 cases (15 unilateral, 7 bilateral). A full correction was prescribed for 11 patients, leading to exotropia improvement in 7 cases (63.6%). A partial correction was given to 19 patients, with improvement noted in 8 cases (42.1%). Patients who improved had a significantly lower mean age at diagnosis (5.53 ± 2.85 years) compared to those who did not improve (8.27 ± 2.96 years) (p=0.016). In the subgroup of hyperopia >=4.00D, full correction improved exotropia in 7 out of 10 cases (70%), while partial correction showed improvement in only 4 out of 10 cases (40%). Five patients with large-angle exotropia unresponsive to glasses required surgery.

Conclusion: Amblyopia is common in children with high hyperopia and exotropia. The full hyperopic correction appears more effective than partial correction in reducing exotropia. Early diagnosis and appropriate refractive management are crucial. Larger studies are needed to refine treatment protocols for this population.

Keywords: Exotropia, Hyperopia, refractive management

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Non-surgical management of intermittent distance exotropia: a case series

Rehana Sadia1, Wahid Ghaffari2, Raheej Khan1, Adam Budd3, Tracy Sanderson4, Anna Maino1

1Manchester Royal Eye Hospital, Manchester, UK

2Department of Medical Education, Stockport NHS Foundation Trust, Stockport, UK

3Stepping Hill Hospital, Stockport, UK

4Manchester Foundation NHS Trust, UK

Introduction: To report the outcomes of a consecutive series of paediatric patients with intermittent distance exotropia (IDEX) who were referred for strabismus surgery.

Materials-Methods: We retrospectively analysed data from 440 consecutive patients with IDEX and Newcastle control scores higher than 3, who were referred for strabismus surgery to the Paediatric Ophthalmology clinic. Children were either discharged, listed for strabismus surgery, managed with non-surgical methods or observed. Non-surgical methods include over-minussing lenses, alternate monocular occlusion for one hour a day and orthoptic exercises. Outcomes were having strabismus surgery or being discharged because of satisfactory alignment. Data were analysed with Kaplan-Meier survival analysis and Fisher's exact test.

Results: Out of 440 children, 102 were discharged after the first visit as their NCS had improved spontaneously. Ninety-seven children with poor control of deviation and/or deviation larger than 30 PD were listed for strabismus surgery after the first consultation.

The remaining 241 patients were either treated with non-surgical methods (77 children, divided into 32 who had overminussing lenses, 24 alternate occlusion, 14 orthoptics exercises and 7 more than one method) or observed by the orthoptics team (164 children). There was no significant difference in Kaplan-Maier curves (p=0.117). Patients who carried out exercises had better outcomes.

Conclusion: Our data show that non-surgical methods seem to have similar long-term results, even though a higher proportion of patients who used overminussed lenses ended up having surgery compared to those who had orthoptic exercises only.

Keywords: IDEX, overminussing, non-surgical management

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Risk Factors for Early and Late Onset Consecutive Exotropia After Esotropia Surgery

Pınar Akkale, Zeynep Kirişci, Pınar Bingöl Kızıltunç, Huban Atilla

Department of Ophthalmology, Ankara University Faculty of Medicine, Ankara, Türkiye

Introduction: To investigate the risk factors for the development of early and late-onset consecutive exotropia (XT) after esotropia (ET) surgery.

Materials-Methods: Patients who underwent strabismus surgery for ET between 1998 and 2024 and who developed consecutive XT were retrospectively examined. Patients who develop XT within the postoperative first week were considered as early-onset consecutive XT, while those who develop XT after the postoperative third month were considered as late-onset consecutive XT. Presence of additional systemic disease, preterm birth, anisometropia, nystagmus, and onset age of ET were noted. The amount of initial and preoperative deviation, and preoperative and postoperative motility were recorded. Possible risk factors, the rates of spontaneous recovery and reoperation after consecutive XT were compared between the two groups.

Results: A total of 37 patients developed consecutive XT. Among these, 8 (21.6%) had early-onset consecutive XT, while 29 (78.4%) had late-onset consecutive XT. Amount of initial ET and the presence of postoperative adduction restriction were significant risk factors for consecutive XT. The mean deviations were 48.7(25-80) PD and 34.6 (10-70) PD for early and late onset group, respectively (p=0,035). The spontaneous recovery rate was found to be statistically significantly higher in the early-onset group (62.5%) compared to the late onset group (3.4%) (p=0,000)

Conclusion: Initial angle of deviation and postoperative adduction deficiency were found to be significant risk factors in consecutive XT development.While a majority of early-onset consecutive XT patients resolved spontaneously, spontaneous resolution was rarely observed in patients that developed consecutive XT after the postoperative third month.

Keywords: Consecutive Exotropia, Esotropia, Strabismus Surgery

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Medial rectus re-advancement: more bang for your buck?

Saurabh Jain1, Khayam Naderi1, Nicole Qin Xian Quah1, Magdalena Adamowicz2

1Department of Ophthalmology, The Royal Free Hospital, London, UK

2University College London, UK

Introduction: There is a lack of consensus on the surgical gains in medial rectus re-advancement (MRR) for the management of consecutive exotropia. We compared the surgical outcomes of primary medial rectus resection-lateral recession (RR) surgery, to MRR in patients with consecutive exotropia.

Materials-Methods: Retrospective review of patients undergoing primary RR surgery for basic exotropia (RR group) and consecutive patients undergoing MRR (MRR group) for consecutive exotropia.

Results: There were 84 patients in the RR group and 27 in the MRR group. Post-operatively, there was a median exotropia reduction of 27.00 prism diopters (PD) (range +5, -65; p <.0001) for near, and 27.00 PD (+10, -51; p <.0001) for distance in the RR group. In the MRR group, the median exotropia reduction was 34.50 PD (2, -67; p <.0001) for near and 33.00 PD (1, -67; p <.0001) for distance. There was a greater reduction in the exotropia in the MRR group compared to the RR group for distance (p =.047), but this did not meet statistical significance for near (p = 0.10). The median dose-effect relationship (PD/millimeter) was higher in the MRR group both for near deviation (2.90 vs 2.15, p =.0073) and for distance deviation (2.91 vs 2.15, =0.0041).

Conclusion: Based on our study cohort, medial rectus re-advancement appears to have a greater dose-effect in reducing the distance angle of deviation for both near and distance compared to primary recess-resect surgery. Further prospective longitudinal studies would shed further light on the dose-effect relationship over time.

Keywords: exotropia, medial rectus, readvancement

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Results of a pragmatic, randomized, non-inferiority trial comparing the effectiveness of Botulinum toxin-based treatment with conventional strabismus surgery in acquired esotropia

Mathias Abegg1, Muriel Dysli2, Christina Gerth Kahlert1, Moritz Feil4, Hilary Grabe5, Eveline Gentile4, Pia Massatsch6, Andreas Limacher5, Nicolas Gravier7, Alice Bleriot7, Oliver Job3

1Department of Ophthalmology, University Hospital Zurich and University Zurich

2Kantonsspital Aarau, Switzerland

3Kantonsspital Luzern, Switzerland

4Onovis Augenpraxis, Switzerland

5Department of Ophthalmology, Inselspital and University of Bern, Switzerland

6machineMD AG, Switzerland

7Institut Ophtalmologique Sourdille-Atlantique, France

Introduction: No high level evidence is available comparing the efficacy of a single Botulinus-toxin injection as compared to a strabismus surgery in acquired esotropia.

Materials-Methods: We have made a randomized prospective multicentre clinical trial with a surgery arm and a Botulinus-toxin arm. We included children with concomitant esotropia but excluded children with infantile esotropia. We measured outcomes 1 year and 1.5 years after randomization.

Results: We randomized 63 children. 59 were examined in the 18month follow-up visit, 31 of them received a single Botox-injection and 28 children were in the surgery arm. 1.5 years after invervention the success rate was 84% in the Botox-arm and 89% in the surgery arm. Success was defined as presence binocular vision.

Conclusion: For children with esotropia and a chance for binocular vision, a single Botox-injection seems clinically equally effective as a surgery.

Keywords: botulinus toxin, strabismus, esotropia, acquired esotropia

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Could botulinum toxin be an effective primary treatment for infantile esotropia?

Chong Bin Tsai

Ditmanson Medical Foundation Chiayi Christian Hospital

Purpose: To report the long-term success rate of botulinum toxin as the primary treatment for infantile esotropia.

Methods: A single-center, retrospective review examined botulinum toxin use in children with esotropia onset before 12 months and presented by age 48 months. Success was defined as ocular alignment within 10 prism diopters (PD) of orthotropia.

Results: A total of 35 children received botulinum toxin as primary treatment (1 injection: 63%; 2 injections: 17%; 3 injections: 14%; 4 injections: 6%). Of these, 20 (57%) had only botulinum toxin (BT group), while 15 (43%) had both botulinum toxin and surgery (BT+OP group). The mean deviation at initial presentation was 46.5 ± 13.8 PD in the BT group and 47.3 ± 11.3 PD in the BT+OP group. The mean age for initial botulinum toxin treatment was 1.8 ± 0.8 years for the BT group and 1.5 ± 0.8 years for the BT+OP group. The average follow-up time was 37.3 ± 22.6 months for the entire group. The success rate was 75% (15 of 20) for the BT group and 53% (8 of 15) for the BT+OP group, with no significant difference in success rates between the groups.

Conclusions: Botulinum toxin demonstrated a notable long-term success rate as a primary treatment for infantile esotropia. These findings suggest botulinum toxin is an effective initial treatment option, with sustained results observed over an average follow-up of over three years.

Keywords: Botulinum toxin, Infantile esotropia, Long-term result

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Botulinum toxin injections in patients with glaucoma drainage devices

Alasdair Kennedy, Rathin Pujari, Meena Arun, Aditi Das, Joanne Hancox, Maria Theodorou, Gillian G W Adams

Moorfields Eye Hospital

Introduction: Strabismus in the presence of glaucoma drainage devices (GDD) is a well reported association. It is typically managed either conservatively, often yielding sub-optimal results, or surgically which is technically challenging and fraught with risk. Botulinum Toxin Type A (BTXA) injections to the extraocular muscle overlying the GDD may provide a lower risk alternative. We present a series of strabismus patients with GDDs who underwent BTXA injections.

Materials-Methods: We retrospectively examined the records of patients with glaucoma drainage devices who subsequently had a BTXA injection to the overlying muscle. Natural Language Processing using language model Mixtral-8x7B identified eligible patients. Included patients could have any GDD and had to have been assessed 2-4 weeks post-injection.

Results: 45 patients were identified. Aetiology was classified into sensory (n=27), restrictive (n=4), paradoxical (n=5), mixed (n=5) and other (n=4) strabismus. Overall, an improvement in symptoms was noted in 63.6% with the greatest improvement in the group of paradoxical aetiology (80%) and lowest in the group of restrictive aetiology (25%). The percentage of patients noting an improvement in the sensory group was 65.4%, the mixed group was 60% and the other group was 75%. Overall, the average improvement in deviation post-BTXA was 18.6 PD which was a 44.7% reduction from the initial deviation. There were no reported adverse effects, complications or cases of hypotony.

Conclusion: BTXA injections are a safe and effective treatment for patients with strabismus and GDDs. They represent an excellent alternative to surgery which carries a higher risk and is technically challenging.

Keywords: Strabismus, Botulinum Toxin Type A, Glaucoma Drainage Device

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Inferior rectus botulinum toxin injection in vertical strabismus

Charlotte Shan Ho, Nehal Youssef, Gillian Johnson, Leena Patel, Quang Nguyen, Nikolas Pontikos, Alasdair Kennedy

Moorfields Eye Hospital, London, United Kingdom

Introduction: Botulinum toxin type A (BTXA) injections to the extraocular muscles have been well described in the treatment of strabismus. However, evidence on inferior rectus (IR) injection is scarce. We present a series of 62 patients who underwent IR BTXA injection.

Materials-Methods: Retrospective review of patients who underwent IR BTXA between 2001 and 2024 for vertical strabismus. Natural Language Processing using language model, Mixtral-8x7B, identified eligible patients. Treatment was considered a success if patients reported complete resolution or satisfactory improvement in symptoms.

Results: Sixty-two patients (n=72 eyes) were identified, with 27 (43.5%) males. The mean age was 52.2±19.4 years. Cases were classified into comitant (n=33 eyes), incomitant, including fourth nerve palsy (n=24 eyes), and restrictive strabismus (n=15 eyes). The average pre-injection deviation at near was 14.1±7.2PD, 12.1±11.9PD and 13.6±8.2PD respectively, and 15.8±9.2PD, 13.5±7.9PD and 14.5±8.7PD respectively at distance. Post-injection deviations were measured two to four weeks after injections. The average reduction in deviation was 5.5±6.2PD at near and 6.0±9.9PD at distance for comitant strabismus, 2.8±2.6PD at near and 2.3±3.5PD at distance for incomitant strabismus, and 5.7±4.8PD at near and 7.9±6.1PD at distance for restrictive strabismus. Treatment success was reported in 22 (66.7%), 11 (45.8%) and 10 (66.7%) cases in the comitant, incomitant and restrictive strabismus groups respectively. There were no adverse effects or significant complications.

Conclusion: IR BTXA has the greatest effect and a high success rate in restrictive strabismus, followed by comitant strabismus, and lastly incomitant strabismus. It is a safe and effective option for patients with vertical strabismus.

Keywords: inferior rectus, botulinum toxin type A injection, vertical strabismus

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

The effect of volume and concentration of bupivacaine injection in the extraocular muscle for strabismus

Megan K Wood, Ian B Marsh

Ophthalmology department, Aintree University Hospital, Liverpool, UK

Introduction: Bupivacaine injections are used to strengthen extraocular muscles in strabismus management. Literature previously reported that small volumes of 1ml and less are not effective. The aim of the study is to investigate the effect of changing bupivacaine concentration and volume in patients with age-related distance esotropia (ARDE).

Material-Methods: All patient whom received bupivacaine injection as treatment for ARDE between 2012-2023 at Aintree University Hospital were identified. Data collected from electronic records included visual acuity, patient age, bupivacaine volume and concentration, and orthoptic measurements. Horizontal deviation in the primary position at distance and near was recorded preoperatively and 3 months post operatively. Complete success was defined as no post-op diplopia and no requirement for any further treatment.

Results: 14 injections of bupivacaine (BPX) and 13 patients were included in the study. 6 procedures were performed using 5ml of 0.5% BPX and 8 were performed with 1ml of 3% BPX. In the 5ml/0.5% group only one patient was defined as a complete success with the average horizontal deviation measuring 6.3 PD (1d.p) pre-operatively and 7.6 PD (1d.p) post-operatively (average follow up 117 days). In contrast the 1ml/3% BPX group had 5/8 procedures (63%) defined as a complete success and an average horizontal deviation reducing from 7.3 PD (1d.p.) to 4.1 PD (1d.p) (average follow up 143 days).

Discussion: In contrast to what has previously been reported, effective results can be demonstrated with small volumes (1ml) of bupivacaine. 1ml/3% was more effective than 5ml/0.5% bupivacaine in the treatment of ARDE.

Keywords: Bupivacaine, age-related distance esotropia, local anaesthetic

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Alignment outcomes after bupivacaine and botulinum toxin injection

Ian Bruce Marsh, Megan Kay Wood

University Hospital Liverpool NHS Trust

Introduction: Injection of botulinum toxin and bupivacaine into extra ocular muscles to produce a permanent change in eye position has been suggested previously. We report here a the outcomes in a series of patients we have treated using 3% bupivacaine and botulinum toxin

Materials-Methods: 3% bupivacaine was obtained in 2022. Patients deemed not suitable for surgical treatment or those who declined this option were treated from 2022 to 2024 with simultaneous injections of BT and bupivacaine. Measurements of deviation before treatment and at a minimum of 3 months post were analysed

Results: 15 patients underwent a total of 24 injection episodes. 1 patient was lost to follow up and 3 are awaiting review. 1 patient had 5 treatments, 2 had 3 treatments and 1 had 2 treatments. Average age was 41.6 yrs. Pre treatment average angle was 31.25PD with the post op being 22PD. There were no adverse events. No patient had worsening of their deviation

Conclusion: There is variability of response to treatment. Several of the patients had poor acuity due to previous ocular pathology which would predispose them to anterior segment ischaemia. Treatment reduced their deviation with a better appearance. Two patients with poor general health and fusional ability were aligned after one treatment episode and required no further intervention. Further work to define the optimal dosage of bupivicaine is required. It will be important to define if injecting both medications at the same time is optimal. It might be that initial treatment with botulinum toxin would be better

Keywords: Bupivacaine, strabismus, botulinum toxin, treatment

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Revolutionizing Strabismus Management: The Transformative Role of Artificial Intelligence in Diagnosis and Treatment

Madina Kaamil

Reinier de Graaf Gasthuis, Delft, The Netherlands

Introduction: Recent advancements in artificial intelligence (AI) have significantly enhanced the management of strabismus, a condition characterized by the misalignment of the eyes.

AI-driven platforms utilizing deep learning algorithms have demonstrated high accuracy in diagnosing strabismus through the analysis of corneal light-reflection photographs. These systems not only detect the presence of strabismus but also provide precise measurements of deviation angles, facilitating more accurate surgical planning.

Materials-Methods: A comprehensive literature review aimed at exploring the application and research of artificial intelligence within field of pediatric ophthalmology, with a particular focus on strabismus.

Results: Moreover, AI applications extend to the development of mobile applications capable of early detection of pediatric eye diseases, including strabismus, by analyzing ocular appearance photographs. Despite these advancements, challenges remain, such as the underrepresentation of diverse strabismus types and reliance on single-source data. Future research is directed towards integrating large model technologies and multimodal data to create comprehensive AI systems that can accommodate diverse patient demographics and complex clinical scenarios.

Conclusion: These developments underscore the transformative potential of AI in strabismus management, paving the way for more accurate diagnoses, personalized treatment plans, and improved patient outcomes.

While artificial intelligence is progressively being integrated into pediatric ophthalmology, particularly in the field of strabismus, there remains a clear need for further professional scrutiny and additional research to ensure the safe and effective application of AI in clinical practice.

Keywords: Artificial Intelligence (AI), strabismus, pediatric ophthalmology

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Evaluation of ChatGPT's Responses to Frequently Asked Questions and Case Scenarios about Strabismus: Is Artificial Intelligence Strong Enough?

Aynur Dıraçoğlu

Istanbul Haseki Training and Research Hospital, Department of Ophthalmology

Introduction: This study aims to test the usability and reliability of the answers given by chatGPT to frequently asked questions (FAQ) by patients and case scenarios about strabismus.

Materials-Methods: 29 of the patients' most FAQs about strabismus and 13 clinical scenarios were asked to chatGPT. The answers given by chatGPT were evaluated by three ophthalmologists experienced in strabismus in terms of accuracy, reliability, global quality, and usability.

Results: The mean scores given by ophthalmologists for (1) the chatGPT's answers to the FAQ were 5.52±1.1 for accuracy, 5.43±1.09 for reliability, and 4.36±0.64 for global quality and (2) the chatGPT's answers to the clinical scenarios were 4.77±0.98 for accuracy, 4.87±0.80 for reliability, and 5.03±0.90 for usability.

A strong inter-rater reliability was found between the three ophthalmologists' question evaluations and answers to clinical scenarios. For accuracy, reliability, and global quality intraclass correlation coefficient (ICC) values were 0.939, 0.923, and 0.905, respectively for the answers to the FAQ ($p<0.001$) and were 0.935, 0.903, and 0.912, respectively for answers to the clinical scenarios ($p<0.001$).

The mean score differences between the three ophthalmologists were not statistically significant for answers to the FAQ and clinical scenarios ($p=0.728$, $p=0.885$, $p=0.704$, $p=0.797$, $p=0.963$, and $p=0.971$, respectively)

Conclusion: Since it does not receive full evaluation score from ophthalmologists, it does not seem sufficient to provide accurate and reliable answers to patients' questions, or clinical scenarios. For chatGPT to be used in this field, its accuracy and reliability should be increased.

Keywords: Artificial Intelligence, ChatGPT, Strabismus, Frequently Asked Questions, Clinical Scenarios

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Evaluating AI Tools for Amblyopia Patient Education: A Comparative Analysis of ChatGPT, Copilot, and AAPOS Guidelines

Müge Toprak1, Enes Kesim2, Sebnem Kaya Ergen1

1Kocaeli City Hospital

2Okan University Medical School

Introduction: This study evaluated the ability of ChatGPT 4.0 and Copilot to produce amblyopia patient education materials, comparing their outputs to the amblyopia section on the American Association for Pediatric Ophthalmology and Strabismus (AAPOS) website.

Materials-Methods: A series of amblyopia-related questions was presented to ChatGPT and Copilot, and their responses were analyzed for scientific accuracy, comprehensiveness, and alignment with AAPOS guidelines, which served as the gold standard. Readability was assessed using Flesch Reading Ease (FRE) and Flesch-Kincaid Grade Level (FKGL) tests to evaluate suitability for various educational levels. Statistical analyses compared word count, readability, and content complexity across the three sources.

Results: ChatGPT produced content with the highest FKGL (10.95±1.01), followed by Copilot (9.75±1.44) and AAPOS (8.83±2.48), though these differences were not statistically significant ($p>0.05$). ChatGPT's responses were significantly longer, averaging 362.75±65.99 words, compared to Copilot (150±34.9, $p=0.004$) and AAPOS (130.75±62.71, $p=0.017$). AAPOS content was the most readable (FRE=63.75±12.31), followed by Copilot (51.84±5.04, $p=0.201$) and ChatGPT (38.19±4.22, $p=0.024$).

Conclusion: ChatGPT provided the most detailed content but was less readable, while AAPOS materials were the most accessible. Copilot offered a balance between complexity and readability. These findings highlight the need to optimize AI-generated materials for patient education to ensure accessibility and comprehension across diverse educational levels.

Keywords: Amblyopia, ChatGPT, AAPOS, Copilot, Patient Education

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Effect of Y-splitting with graded recession on convergence and lateral gaze angles in esotropia patients

Jelena Petrinovic Doresic1, Edita Kondza Krstonijevic1, Dunja Smidt1, Mirjana Bjelos2, Ana Curic3

1University Eye Department, Reference Center of the Ministry of Health of the Republic of Croatia for Pediatric Ophthalmology and Strabismus, Reference Center of the Ministry of Health of the Republic of Croatia for Inherited Retinal Dystrophies, Reference Center of the Ministry of Health of the Republic of Croatia for Standardized Echography in Ophthalmology, University Hospital “Sveti Duh”, Zagreb, Croatia

2University Eye Department, Reference Center of the Ministry of Health of the Republic of Croatia for Pediatric Ophthalmology and Strabismus, Reference Center of the Ministry of Health of the Republic of Croatia for Inherited Retinal Dystrophies, Reference Center of the Ministry of Health of the Republic of Croatia for Standardized Echography in Ophthalmology, University Hospital “Sveti Duh”, Zagreb, Croatia; Faculty of Dental Medicine and Health Osijek, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia; Faculty of Medicine, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia

3University Eye Department, Reference Center of the Ministry of Health of the Republic of Croatia for Pediatric Ophthalmology and Strabismus, Reference Center of the Ministry of Health of the Republic of Croatia for Inherited Retinal Dystrophies, Reference Center of the Ministry of Health of the Republic of Croatia for Standardized Echography in Ophthalmology, University Hospital “Sveti Duh”, Zagreb, Croatia; Faculty of Dental Medicine and Health Osijek, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia

Introduction: Y-splitting with graded recession is a surgical technique designed to modify both the position and rotational force of the eye. This study aims to evaluate its impact on convergence and lateral gaze angles in patients with esotropia.

Materials-Methods: Y-splitting of the medial recti was performed on 89 patients with primary esotropia between 2014 and the present. The degree of recession was determined by the basic distance deviation angle. Of these patients, 20 (9 female) were available for this study. Mean age at the time of the surgery was 6.8 years (range 4-12 y) and mean follow-up period was 3.5 years (1-6.5 y). Postoperative deviations were assessed in the primary position and in maximal lateral gazes using the alternate prism cover test. Near point of convergence (NPC) was measured with the RAF ruler. Statistical analysis was conducted using the Wilcoxon non-parametric test.

Results: Maximal recession was performed on most patients (14), while medium and minimal recession were conducted on 4 and 2 patients, respectively. The mean differences

between the deviation angles in the primary position and lateral gazes were 0.32° (right gaze) and 0.23° (left gaze), with no statistically significant differences (p=0.134 and p= 0.326 for right and left gaze, respect.). The mean NPC was 5.9 cm (range 4–10 cm).

Conclusion: Y-splitting of the medial recti with graded recession is an effective procedure for patients with dynamic angle esotropia. It does not result in lateral incomitance nor convergence insufficiency.

Keywords: Y-splitting, lateral incomitance, convergence, primary esotropia

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Efficacy of a Combined Recession-Resection Procedure on a Rectus Muscle for Incomitant Strabismus

Ken Kawamoto, Clea Southall, Saurabh Jain
Royal Free Hospital NHS Foundation Trust

Introduction: To evaluate the efficacy of combined recession-resection (Scott) procedure in managing incomitant strabismus where the deviation is more pronounced in a cardinal position of gaze compared to the primary.
Methods: A single-centre retrospective analysis was conducted on Scott procedures performed between 2012 and 2024. Recessions for the maximal deviation was combined with smaller resections using hang-back adjustable sutures. Pre-operative and post-operative orthoptic measurements were compared.
Results: 14 adult patients were included with a mean (SD) age at surgery of 40.3 (±14.0) years. Ten had prior strabismus surgery, and five had previous botulinum toxin treatment. 14 rectus muscles were treated; 5 medial, 4 inferior, 3 superior, and 2 lateral rectus muscles. Pre-operatively, the mean (SD, range) deviation in primary gaze was 6.1 prism dioptres (PD) (±5.7PD, 0-20PD), and the mean (SD, range) maximum deviation in eccentric gaze was 22.1PD (±17.5PD, 3-80PD). Post-operatively, the mean (SD, range) deviation in primary gaze was 1.6PD (±2.7 PD, 0-10PD), and the mean (SD, range) maximum deviation in eccentric gaze was 8.6PD (±17.5PD, 0-70PD). A reduction in incomitance of more than 50% was seen in 86% (n=12) of patients.
A paired t-test showed a significant improvement in deviation post-operatively both in primary gaze (mean -3.50PD; 95%CI: -1.60 - -6.66, $p=0.0035$) and in eccentric gaze (-14.30PD; 95%CI -10.4 - -18.2, $p<0.0001$).
Conclusion: The Scott procedure effectively reduces incomitance with minimal impact on primary gaze alignment. It demonstrates good outcomes in patients with paretic strabismus, residual childhood strabismus, and those with prior surgery or botulinum toxin treatment.

Keywords: Strabismus, Surgery, Adjustable, Incomitance, Technique

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

The effectiveness of transposition applied in addition to plication or resection in pattern deviations

Gizem Kutluturk, Selçuk Çetin, Ceren Gürez, Aslı Inal

Sağlık Bilimleri Üniversitesi, Beyoğlu Göz Eğitim ve Araştırma Hastanesi, İstanbul

Introduction: The aim of the study is to compare the results of simultaneous transposition surgery with plication or resection in pattern deviations.

Materials-Methods: Between 2020 and 2023, patients who underwent plication or resection with transposition for pattern deviation were retrospectively analyzed and divided into two groups. Plication or resection with transposition of the single horizontal rectus muscle was performed in all cases based on the angle and direction of the pattern deviation. 42 patients were included: 18 in the plication group, 24 in the resection group.

Results: Initial deviation angle was 27.6±8.4 PD in the plication group and 11.7±6.7 PD, 9.8±6.1 PD, 9.8±6.1 PD at 1st,6th,12th months respectively. Initial deviation angle in the resection group was 30.3±11 PD and 15.1±10.9 PD, 12.2±9.4 PD, 11.7±9.5 PD at 1st, 6th, 12th months respectively.

There was no statistically significant difference between the two groups in the angle of deviation preoperatively and at 1, 6, 12 months.

After a year, pattern deviation was resolved in 76% of the plication group and in 72% of the resection group. There was no statistically significant difference between the two groups in the efficiency on pattern deviation.

Conclusion: Transposition of the rectus muscles is an effective surgery method in pattern strabismus. Plication with transposition is effective and may also be an alternative to resection.

Keywords: transposition, pattern, plication, resection

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Effect Of Vertical Transposition Of The Horizontal Recti Muscles During Horizontal Muscle Surgery To Correct Secondary Vertical Deviation

Divya Wijesekara1, Elisabeth De Smit2, Gulunay Kiray2

1St George's University Hospitals NHS Foundation Trust, London, UK

2Moorfields Eye Hospital NHS Foundation Trust, London, UK

Purpose: To investigate the efficacy of vertically transposing horizontal recti muscles in correcting alphabet patterns and vertical misalignment whilst treating horizontal concomitant strabismus.

Material and Methods: We conducted a retrospective analysis of 1348 consecutive patients undergoing “recession and/or resection” surgery at Moorfields Eye Hospital between 1st October 2022 and 30th September 2024.

We included patients with either concomitant esotropia (ET) or exotropia (XT) plus a vertical deviation (VD). We excluded patients in whom the VD could be attributed to significant inferior oblique overaction (IOOA).

Our primary outcome measure was change in VD (prism dioptres, PD) based on the amount of tendon transposed.

Results: Fifty-four patients met the inclusion criteria, most had XT (n=42) and some had ET (n=12). Of the XT patients, 39 underwent unilateral recess-resect surgery, 2 underwent bilateral resection surgery, and 1 underwent bilateral recession surgery. All 12 ET patients underwent unilateral recess-resect surgery.

The mean reduction in horizontal deviation was 23.89 PD in XT and 24.41 PD in ET patients.

VD decreased by 4–6 PD with half-tendon-width transpositions, 8–12 PD with full-tendon-width transpositions, and 2–4 PD with transpositions within the insertion. Postoperatively, all patients demonstrated a significant reduction in VD. No cases of overcorrection or torsional disturbances were observed after surgery.

Conclusion: This study demonstrates that vertical transposition of the horizontal recti is effective in reducing VD of <12 PD and in collapsing pattern deviations. Proper patient selection and careful planning of the appropriate type of transposition surgery is essential in achieving optimal outcomes.

Keywords: Pattern strabismus, vertical deviation, muscle transposition

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Does single horizontal muscles transposition surgery induce symptomatic torsion?

Alice Di Domenico1, Sanil Shah1, Haneen Jasim2, Manoj Parulekar1

1Oxford Eye Hospital, Oxford University Hospitals NHS Foundation Trust, Oxford, United Kingdom

2Birmingham Women's and Children's Hospital NHS Foundation Trust, Birmingham, United Kingdom

Introduction: Vertical transposition of horizontal rectus muscles is commonly performed to correct pattern strabismus. Concerns about induced torsion and torsional diplopia, however, limit its broader application. The purpose of the study was to investigate the incidence of symptomatic torsion in adult patients resulting from single horizontal rectus muscle transposition surgery.

Materials-Methods: Retrospective review of 638consecutive squint procedures performed under the care of the same consultant at a single center between 2016 and 2024. Eighteen patients underwent one surgery to address simultaneously horizontal and small vertical misalignment(<=6PD) or pattern deviation. Within a unilateral recession/resection procedure, the recessed horizontal rectus was transposed superiorly or inferiorly by ¼ or ½ tendon width, using adjustable or fixed sutures. Post-operative follow up were performed at 2weeks and 3months.

Results: Fourteen patients underwent rectus muscle transposition to correct pattern deviation and four to address vertical misalignment. Successful outcomes were achieved in 15 patients, with mean residual deviation of 8 PD esodeviation(esotropia subgroup) and 4 PD exodeviation(exotropia subgroup). None of them complained symptomatic torsion following surgery.

Conclusion: Absence of symptomatic torsion in our study suggests that single horizontal muscle transposition surgery can be performed without any significant torsional complications. It may be considered in cases requiring simultaneous correction of horizontal and vertical misalignment; in Y or λ pattern strabismus, where transposing both horizontal recti poses a high risk of pattern reversal; and when both horizontal muscles are operated on but one undergoes plication or central tenotomy, allowing vertical transposition of the recessed muscle to address vertical deviation.

Keywords: horizontal transposition, torsion, torsional diplopia, pattern deviation

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Diagnostic value of objective ocular torsion in unilateral superior oblique palsy

François Audren1, Vincent Toanen1, Augustin Lecler2, Catherine Vignal Clermont1

1Département d'Ophtalmologie, Hôpital Fondation Adolphe de Rothschild, Paris, France

2Service d'Imagerie, Hôpital Fondation Adolphe de Rothschild, Paris, France

Introduction: To determine the diagnostic value of objective ocular torsion in primary position in unilateral superior oblique muscle palsy.

Materials-Methods: 46 patients who both met clinical and radiological criteria (unilateral hypoplasia of superior oblique muscle on MRI) for the diagnosis of unilateral superior oblique palsy and 94 controls (normal oculomotor examination and normal MRI) were included in a prospective case-control study. Ocular torsion was evaluated using eye fundus photographs. Quantitative torsion was measured in degrees while qualitative torsion evaluation was based on the analysis of the location of the optic disc relative to the fovea. The sensitivity and specificity of ocular torsion were calculated and compared to other clinical data.

Results: The quantitative torsion of the paretic eye (11,2°±4,8), greater than the non-paretic eye (7,6°±4,1) and also greater than those of controls (6.2° ±3.3) ($p<0,001$). A threshold of 8,1° of torsion in the paretic eye showed a sensitivity of 0,83 and a specificity of 0,72. Among patients, 52.2 % exhibited excyclotorsion in the paretic eye, and 13.0 % in the non-paretic eye ($p<0,001$). Qualitative excyclotorsion in either eye has a sensitivity of 0,59 and a specificity of 0,87. No correlation was found between ocular torsion and angle measurements of hypertropia in primary position, in lateral gazes and during head tilt test.

Conclusion: Objective ocular torsion is a valuable and autonomous clinical diagnostic indicator in unilateral superior oblique palsy assessment. Hence, its incorporation within the Parks 3-step test is warranted, increasing its diagnostic power.

Keywords: Superior oblique palsy, MRI, ocular torsion, sensitivity, specificity, prospective case-control study

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Comparative Analysis of Conjunctival-Scleral and Muscle Thickness After Horizontal Muscle Resection and Plication

Muhammed Dara Tas, Elif Demirkilinc Biler

Department of Ophthalmology,Ege University,Izmir,Turkiye

Purpose: To compare conjunctival-scleral thickness and muscle thickness measurements using anterior segment optical coherence tomography (AS-OCT) before and after extraocular horizontal muscle resection versus plication surgery.

Materials-Methods: The study included 21 eyes from 18 patients patients who underwent extraocular horizontal muscle resection or plication surgery. Conjunctival-scleral thickness and muscle thickness at the tendon region were measured using AS-OCT (DRI OCT Triton plus; Topcon, Tokyo, Japan) preoperatively and postoperatively at 4 months.

Results: The mean age of the patients was 16.2 ± 7.41 years, and the female to male ratio was 11/7. Surgery was performed on 9 eyes for exotropia and 12 eyes for esotropia. Resection procedures were performed on 10 muscles (6 lateral, 4 medial rectus), while plication was performed on 11 muscles (7 lateral, 4 medial rectus). It was observed that muscle thickness and conjunctival scleral thickness increased in post operative 4 month compared to preoperative measurements ($p < 0.001$). The mean change in conjunctival-scleral thickness was 38.7±26.2 µm in the resection group, 60.8 ±27.2 µm in plication group. The mean change in muscle thickness was 127.7+101.8 µm in the resection group and 186.5+74.2 µm in plication group. No significant differences were observed for either parameter, respectively ($p=0.067$ and $p=0.23$).

Conclusion: AS-OCT is a non-invasive and rapid imaging technique that allows evaluation of structural changes following strabismus surgery. In this study, no significant differences were found between plication and extraocular muscle resection, two commonly used strengthening procedures in strabismus surgery, in their effects on postoperative conjunctival-scleral and muscle thickness.

Keywords: Anterior Segment OCT, Plication, Resection, Strabismus surgery

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Abnormal counterrolling of rectus extraocular muscle pulleys in true and masquerading superior oblique (SO) palsy

Joseph Louis Demer1, Robert A. Clark2

1Departments of Ophthalmology, Neurology, and Bioengineering, University of California, Los Angeles, U.S.A.

2Department of Ophthalmology, David Geffen Medical School, University of California, Los Angeles, U.S.A.

Introduction: The 3-step pattern of hypertropia (HT) in SO palsy due to SO atrophy mimics “masquerading SO palsy” (mSOP), where the SO is normal. We examined counter-rolling of rectus pulleys in SOP and mSOP.

Materials-Methods: In 17 patients (mean age 41±17yrs, SD) with unilateral SO palsy, and 8 with mSOP aged 35±15 years, we performed high-resolution, quasicoronal MRI in decubitus positions equivalent to 90° head tits during central fixation. Oculocentric rectus pulley coordinates and maximum SO cross sections were computed.

Results: Maximum SO cross section in mSOP was bilaterally similar, averaging 20.5±3.2mm2 (P=0.5). In the hypotropic eye, counterrolling shifts were significant for medial (P=0.004), superior (P=0.001), and lateral rectus pulleys (P=0.011), and trending for inferior rectus (P=0.068), but there were no shifts for any hypertropic eye pulley (P>0.4). In SOP, SO cross section averaged 8.5±3.8mm2 in the palsied and 18.1±3.6mm2 in the fellow orbit (P<10-6). Pulley positions were normal in fellow orbits of SOP, counter-rotating by average 5.9° during tilt (P<0.03). In the palsied orbit, pulleys were excyclorotated relative to the fellow orbit, particularly by 4-5° for the horizontal rectus pulleys (P<0.03), but pulley counter-rotation with tilt was less, averaging only 3.4° (P=0.004 ANOVA).

Conclusion: Counter-rolling of rectus pulleys during head tilting is deficient in the hypertropic orbit in both SOP and mSOP. This implicates abnormality of central innervation to the hypertropic orbit, suggesting that mSOP is due to otolith-ocular reflex derangement. The 3-step test pattern is generally attributable to abnormal central innervation, rather than to specific cyclovertical muscle weakness.

Keywords: head tilt test, hypertropia, magnetic resonance imaging, ocular counter-rolling, pulley, superior oblique palsy

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Improving Visual Acuity and Anomalous Head Posture in albino patients with nystagmus by a new doublet lenses: Chromatic Aberration Reductive Lenses (C.A.R.L.). A preliminary report

Andrea Cristiano Piantanida1, Caterina Tramontana2, Alice Mentana3, Angelo Tramontana4, Giulia Gerosa1, Manuela Spera5, Giorgio Baiocco3

1Centro Oculistico Lariano Cernobbio (Como) Italy

2Faculty of Medicine and Surgery University of Pavia Italy

3Radiation Biophisics and Radiology Laboratory Physics Department University of Pavia Italy

4Faculty of Engineering University of Pavia Italy

5U.O.C. Oculistica, ASST Valtellina e Alto Lario, Presidio Ospedaliero di Sondrio, Italy

Introduction: The authors assembled a new doublet lenses that, through the reduction of longitudinal chromatic aberration (LCA) of the eye, modifies the quantity and the composition of light transmitted to the retinal fundus. An ad-hoc developed software and spectrophotometry measurements have been employed to identify the combination of lens materials and filters that grant the maximum correction of LCA.

Matherials and Methods: 10 albino patients with nystagmus were enrolled in the clinical trial. All underwent a full orthoptic and ophthalmological examination. The spherical refractive error of each patient was decomposed between two selected lenses. Visual acuity for far and for near, contrast sensitivity and glare were tested in all patients, with standard and CARL (Chromatic Aberration Reductive Lenses) glasses.

Results: After four months of wearing CARL glasses, the 50% of the patients showed an improvement in visual acuity for far (mean: from 0,7 to 0,65 LogMAR), the 60% of the patients an increase in near vision (mean: from 0.49 to 0.34 LogMAR), the 65% a higher contrast sensitivity (mean: from 14,09% to 9,1%), the 85% a better visual function in glare testing (mean: from 0.78 to 0.66 LogMAR). Among the patients with Anomalous Had Posture (AHP) the 80% reached the natural head posture (NHP)

Conclusions: Our study points out the utility of the new C.A.R.L lenses in various aspects of vision, ameliorating visual acuity, contrast sensitivity, photophobia, and AHP in patients with albinism and nystagmus.

Keywords: Albinism, Nystagmus, Anomalous Head Posture, Doublet Lenses

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Consent for Resident Participation in Pediatric Strabismus Surgery

Stephanie Dotchin1, Derek Waldner1, Chris Rudnisky2, Emi Sanders1

1Department of Surgery, Division of Ophthalmology, University of Calgary, Calgary, Alberta, Canada

2Department of Ophthalmology, University of Alberta, Edmonton, Alberta, Canada

Introduction: Informed consent is essential to shared decision-making in healthcare. While resident participation in ophthalmic surgery is common, the effect of disclosure on consent is debated. This study evaluates the proportion of parents consenting to resident participation in their child's strabismus surgery when fully informed.

Materials-Methods: Prospective observational case series of parents of children under 18 undergoing their first strabismus surgery. During the consent process, parents were read a script explaining resident roles: "I have residents that work with me in the operating room. A resident is a medical doctor training to be an ophthalmologist. Some may do very little, like just watch; others might do a lot, like maybe the whole thing. I'm always there supervising and guiding them, and I don't let anyone do surgery that they can't actually do. I never leave them alone in the operating room, and am there to guide and assist them so that we function like a team." At the first post-operative visit, parents were asked to explain their decision to consent or decline.

Results: Preliminary data from 83 parents revealed 89.2% (74/83) consented to resident participation. Themes associated with consent included trust in the primary surgeon, support for education, and personal experience with hands-on learning. Reasons for declining included preference for the experienced surgeon and concerns about surgical intricacy.

Conclusion: Full disclosure of resident participation in pediatric strabismus surgery does not significantly reduce parental consent. Transparent communication may enhance trust while preserving critical training opportunities for residents.

Keywords: residency, medical education, strabismus surgery, consent

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

European Stroke Organisation Vision Guidelines: Recommendations for assessment and rehabilitation for eye movement disorders

Fiona J Rowe1, Lauren R Hepworth1, Maria Begona Coc Martin2, Celine Gillbert3, Luis Leal Vega2, Anja Palmowski Wolfe4, Eleni Papageorgiou5, Stephen Ryan6, Karolina Skorkovska7, Anne Hege Aamodt6

1University of Liverpool

2University of Valladolid

3KU Leuven

4University of Basel

5University Hospital of Larissa

6Oslo University Hospital

7Masaryk University

Introduction: Visual problems after stroke are common. The purpose of this European Stroke Organisation guideline is to provide evidence-based recommendations to assist clinicians in decision making around diagnosis and treatment on visual problems after stroke. We report the recommendations for eye movement disorders.

Materials-Methods: Through international discussion, and with independent peer review, we identified PICOs (Population/Intervention/Comparison/Outcomes) for review. For each, we performed a systematic literature review search with subsequent title/abstract screen followed by full text screen, completed independently by two authors. Data was extracted and risk of bias completed for each included study. Quality of evidence for each outcome measure was evaluated by GRADE (Grading quality of evidence and strength of recommendations).

Results: There are two PICOs for screening and management of eye movement disorders for adult stroke survivors. Early vision screening should be undertaken to detect eye movement disorders. This is feasible/acceptable within 3-4 days post onset of stroke; most can be assessed within 1 week. Screening should be undertaken by specialist eye team assessment or at least by using a validated vision screening tool. Screening improves the detection rate of presence of eye movement disorders whilst specialist visual assessment further improves the accuracy of detection of visual impairment. W suggest individualised intervention targeted at the specific type of eye movement problem that has arisen. We suggest referral to specialist eye services for the targeted management of eye movement disorders.

Conclusions: The intention is that these guidelines will be of use to any clinician working with stroke survivors.

Keywords: Eye movement disorders, Stroke, Screening, Detection, Management

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Cyclic phenomenons: where do the oscillators stand?

Alain Claude Spielmann

Ravinelle Center

Introduction: Cyclic phenomena affecting the ocular motor system include cyclic esotropia, cyclic vertical deviation, periodic alternating skew deviation, cyclic SO palsy, third nerve palsy with cyclic spasm, periodic alternating nystagmus, periodic alternating gaze deviation, ping pong gaze. Some cyclic phenomena also affect the pupil and the lids. Patho-physiology usually remains rather mysterious. The location of the oscillators has not been clearly identified.

Materials-Methods: Analysis of clinical cases and review of the literature. Neuronal circuitry, frequency, intra-day periodicity, inhibitory inputs were analyzed.

Results: Suprachiasmatic nucleus is responsible for 24-48 hours cycles. High frequency oscillators stand in the upper part of the brainstem and some in the lower part. Some oscillators stand in various structures of the cerebellum. These oscillators can fire to different nucleus linked to the oculomotor system (third nerve nucleus, interstitial nucleus of Cajal, some other nucleus of the cerebellum, ...). These oscillators receive inhibitory inputs which can modify their frequency and in sometimes can completely annihilate the cycles.

Conclusion: Location of the oscillators affecting the ocular motor system can be more or less identified. The question remains whether these oscillators are congenital latent oscillators which have been disinhibited by some pathological processes or if these oscillators are acquired oscillators.

Keywords: cyclic strabismus, third nerve palsy with cyclic spasm, periodic alternating skew devaition, periodic alternating nystagmus, oscillator, inhibitory inputs

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Asthenopia and normal cover test

Vincent Paris

Vivalia Hospital, Marche en Famenne

Purpose: The cover test(CT) is considered as the gold standard for measuring heterophoria.This study demonstrates that strong tonic motor fusion(normal CT)can mask the real deviation and be confusing for the treatment.Method: All patients were wearing appropriate refraction.More dissociating methods of measurement such are Maddox Wing for near and striated glass fixing a light for distance.We proposed small prisms for a total amount never exceeding 4D.The prescription was almost asymmetric,the choice of the eye supporting the strongest prism was determined subjectively. For a still obscure reason the subjective response was systematically precise and of crucial importance.It was no need for long periods of trials to assess the benefit of small prism(s) in this category of patients.The prism(s) was (were) immediately introduced into the optical prescription. Results: From 2017 to 2023 we selected 142 successive patients meeting this criteria in our private practice.The amount of heterophoria was respectively between E'17 E15 / X'10 X8 / H 2-4.Esophoria was the master group (64%) followed by Exophoria (27%),mixed cases (E/X: 7%) and hyperphoria (2%).All patients without any exceptions recovered immediately a so called "global visual comfort" due to the release of fusional efforts.Conclusion: This particular cohort was classically complaining of headache,unstable or insufficient vision,fatigue by fixing,despite correct optical correction.The vast majority of them were resigned to accepting their symptoms because nobody was able to find an adapted solution.So many papers has been published on the prismatic efficacy in heterophoria but,to our knowledge,few has been written to the fantastic benefit of prisms in patients with normal CT.

Keywords: measuring heterophoria, Maddox Wing, Exophoria

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Case series of medial rectus periosteal fixation for large angle exotropia in third nerve paresis at Moorfields Eye Hospital

Charlie Hennings1, Katie Williams2, Jameel Mushtaq1, Aditi Das1, Maria Theodorou1, Gill Adams2, David Verity1

1Moorfields Eye Hospital, London, UK

2Moorfields Eye Hospital, London, UK; Great Ormond Street Hospital, London, UK

Introduction: Medial wall periosteal fixation treats severe divergent ocular misalignment by anchoring the globe to the medial orbital periosteum. It is reserved for managing large-angle deviations, and refractory strabismus when standard surgeries would fail. We present a large case series of its application in the treatment of third nerve palsy.

Materials-Methods: We performed a retrospective review of children and adults seen at our institution with a diagnosis of third nerve palsy who underwent periosteal fixation of the medial rectus muscle. We used free text search functions on our electronic medical records to identify cases. Presenting features including demographics, third nerve palsy aetiology, full orthoptic assessment with pre-operative deviation, surgical technique, and outcome was examined.

Results: We identified 35 patients who underwent surgery at a mean age of 39 years (4-80) for third nerve palsy with minimal medial rectus function. The majority of third nerve palsy aetiology were congenital. The mean angle of exodeviation pre-operatively was 70 D (30-180). 45 % had undergone previous surgery. The majority of cases saw the medial rectus insertion anchored to the periosteum of the posterior lacrimal crest via a retrocaruncular transconjunctival approach combined with lateral rectus fixation to temporal orbital soft tissue. Post-operative deviation at a median of 4 months gave an average residual deviation of 26 BI PD (SD 23) with an average reduction in deviation by 50PD (SD 33PD).

Conclusion: Large angle exodeviations, in particular those with residual deviations after previous surgery, can be successfully improved with this surgical approach.

Keywords: Third nerve palsy, incomitant exotropia, periosteal fixation

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

True Muscle Transplantation for The Management of Third Nerve Palsy

Ahmed Awadein, Christina Samir Farag, Sara Maher

Department of Ophthalmology, Faculty of Medicine, Cairo University

Introduction: The study describes and reports the results of 2 different techniques of true muscle transplantation for the management of exotropia in patients with third nerve palsy.

Methods: A retrospective chart review was conducted on patients with third nerve palsy in whom true muscle transplantation was performed. The resected segment of the medial rectus (MR) muscle was used to lengthen the lateral rectus (LR) muscle before recession. The transplantation was performed using either a free graft technique or a modified continuous graft technique. Ductions, versions, and angles of deviation were evaluated before and after surgery.

Results: A total of 7 patients were identified (mean age 32±17 years). Two patients had prior LR recession. The mean preoperative angle of deviation was 53±13 PD and the mean preoperative limitation of adduction was -4. The free graft and the continuous graft techniques were used in 3 and 4 cases, respectively. The median amount of LR recession was 8 mm and the amount of MR resection ranged from 6±8 mm. The mean follow-up was 6.0±4.2 months. Postoperatively 5 patients had residual exotropia <10 PD. The remaining 2 cases had residual exotropia 15 PD. The mean postoperative limitation of adduction improved to -2.3±0.5. The postoperative limitation of abduction was -1 or less in 6 patients.

Conclusions: True muscle transplantation can be used to correct large exotropia in partially recovered or recurrent third nerve palsy without causing significant limitation of abduction. Undercorrection is associated with smaller amounts of MR resection.

Keywords: muscle transplantation, third nerve palsy, oculomotor palsy, exotropia

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

New types of biomedical applications for extraocular muscles: Hybrid bioengineered scaffolds and decellularized bovine muscle

Fatma Yülek1, Özge Ekin Akdere2, Sena Koç Akbayrak3, Menemşe Gümüşderelioğlu2, Sevil Çaylı4, Ebru Alimoğulları4, Ayşen Erdem5, Meltem Tuncer5, Özbeyen Atalay5

11Yıldırım Beyazıt University Faculty of Medicine, Department of Ophthalmology, Ankara, Turkey

2Department of Bioengineering, Hacettepe University Institute of Science and Engineering, Ankara, Turkey

3Department of Chemical Engineering, Hacettepe University, Faculty of Engineering, Ankara, Turkey

4Department of Histology, Ankara Yıldırım Beyazıt University, Faculty of Medicine, Bilkent

5Department of Physiology, Hacettepe University Faculty of Medicine,Sıhhiye, Ankara, Turkey

Introduction: We aimed to develop ideal biomaterials suitable for practical use in pathological conditions such as severe muscle loss and thyroid ophthalmopathy.

Materials-Methods: Bovine extraocular muscles were decellularized, and new hybrid synthetic biomaterials composed of poly(caprolactone) (PCL), poly(lactic-co-glycolic acid) (PLGA) and extracellular matrix powder (ECM) were fabricated and characterized. The PLGA membranes were produced using the solvent casting method, and PCL nanofibers were collected onto these membranes via electrospinning (PCL-PLGA). Decellularized ECM was lyophilized to obtain it in powder form and then coated onto the PCL-PLGA membranes through gelation of ECM (ECM-PCL-PLGA). Potency of these biomaterials to support muscle regeneration was assessed by in vitro and in vivo analyses. In vivo experiments were conducted using 30 rabbits, and independent defects of 5 mm were created at the insertion site in both eyes of the rabbits. Muscle tissue samples were collected from the rabbits at the end of the 15th day to observe early healing and at the end of the 45th day to evaluate the late-stage regeneration response.

Results: In vitro experiments showed that these materials support attachment and proliferation of ouse myoblast cells (C2C12). Muscle tissue-forming potential of the developed biomaterials was confirmed through electrophysiological tests and immunohistochemical staining.

Conclusion: Decellularized bovine extraocular muscle and synthetic hybrid tissue scaffolds were found to promote muscle tissue regeneration. The decellularized muscle, being a natural material, offers convenience in surgical procedures and may serve as an alternative

to autografts by enhancing the development of regular muscle fibers in the later stages of regeneration.

Keywords: Extraocular muscle regeneration, extraocular muscle, polycaprolactone (PCL), poly(lactic-co-glycolic acid) (PLGA), decellularization

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Does amblyopia cause anisometropia by anisoaccommodation?

Huibert J. Simonsz1, Helena M. Van Minderhout2, Jordy S. Steltman1, Jan Roelof Polling1, Mourits V. Joosse2

1Ophthalmology, Erasmus University Medical Center, Rotterdam, Netherlands

2Ophthalmology, Haaglanden Medical Center Westeinde, the Hague, Netherlands

Introduction: In the Early Glasses Study, 5/601 children had anisometropia>1.5D at 14.5±1.7 months (10.1007/s00417-024-06621-8), in 3 of these anisometropia resolved. If anisometropia at age 1 is rare, could amblyopia cause anisometropia? As emmetropization is a local retinal process controlled by defocus (10.1016/j.visres.2024.108402) anisoaccommodation could impede emmetropization of the amblyopic eye.

Materials-Methods: Orthoptic patients aged 7-12 wearing glasses prescribed after retinoscopy in cycloplegia with visual acuity >0.63 were recruited (10.1111/aos.15016). Bilateral refraction was measured continuously at 50Hz. Arial 9pt text, to be read aloud, approached from 1m to 10cm in 10s. Isoaccommodation (IA) was defined as variation of difference in refraction >1D. Recordings were assessed with original videos to check for effects of glasses, lid twitches, saccades and eccentric gaze.

Results: Of recordings in 204 children, 145 included measurements from both eyes with 210 measurements in total. Most wore glasses. IA was not related to age. IA was not found if the highest hyperopia exceeded +5D, anisometropia exceeded 1D, or astigmatism exceeded 2D, or if current visual acuity was <0.7, but it was in treated amblyopes with initial worst visual acuity 0.5. Unfortunately, in several videos abrupt changes were found on saccades to and from >10° eccentric gaze positions.

Conclusion: The finding of anisoaccommodation correlating with current worst visual acuity and anisometropia seems compatible with image defocus in the retina of the amblyopic eye causing anisometropia, but conclusions can only be drawn from cases IA was positively found. While reading evokes good accommodation, eccentric gaze must be avoided in future measurements.

Keywords: amblyopia, anisometropia, accommodation, emmetropisation

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Efficacy of active visual therapy and optical correction in the management of hyperopic anisometropic and mixed amblyopia in children and teenagers

Aysel Galbinur

Azerbaijan Medical University, Department of Ophthalmology, Baku, Azerbaijan

Introduction: To compare visual outcomes and evaluate the effectiveness of maximum optical correction, patching, and dichoptic therapy in patients whose amblyopia was diagnosed after the age of 6 years.

Materials-Methods: The study retrospectively evaluated data from 32 isoametropic patient. Group I: 20 patients aged 6-10 years with mixed amblyopia (anisometropia combined with strabismus).

Group II: 12 patients aged 12-15 years with anisometropic amblyopia. Treatment outcomes were compared between the two groups. The effects of amblyopia severity, the cause of anisometropic amblyopia, and prior use of glasses were analyzed.

Results: The success rate was 100% in Group I and 66.7% in Group II. Patients with severe amblyopia showed better outcomes in Group I compared to those with moderate amblyopia across both groups. A statistically significant difference was observed between the two groups regarding positive results in patients with severe amblyopia (p=0.021). The improvement in visual acuity in Group I (0.42 ± 0.03; range 0.3–0.6) was significantly higher than in Group II (0.31 ± 0.04; 0.09–0.5) (p=0.021).

Patients who had not previously worn glasses achieved better success rates, though the difference was not statistically significant (p=0.207).

Conclusion: The efficacy of maximum optical correction, visual therapy, and occlusion therapy is lower in teenagers compared to early corrective and occlusive therapy, the results are still promising. A combined approach involving active visual therapy: perceptual learning, dichoptic stimulation; optical correction, and patching proves effective in treating anisometropic and mixed amblyopia in patients aged 6-15 years who had not undergone prior treatment.

Keywords: Anisometropic amblyopia, mixed amblyopia, visual therapy, patching, optical correction

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Is amblyopia of any severity fully treatable, irrespective of a patient's age?

Sameera Irfan

Envision, Squint & Oculoplastics Centre, Lahore, Pakistan

Objectives: 1: To find out the level of visual improvement and the time it takes in amblyopia of any severity, irrespective of a patient's age.

Methods: A prospective interventional study was conducted at a tertiary care centre. Only literate cases with poor vision were included.

After wearing the refractive correction constantly for 8-12 weeks (period of Refractive Adaptation) and no further improvement in the BCVA, amblyopia therapy was started comprising of full-time patching of good eye and active use of the amblyopic eye by reading/writing at least 6 hours daily. Follow-ups were two weekly. Endpoint of therapy was achieving BCVA equal to the good eye or 6/6. Post-patching follow-up was conducted for 1-3 years.

Statistical analysis comparing the visual acuity at the start and end of therapy was performed by a paired t-test for each group.

Results: 1701 consecutive cases were included with 896 males and 805 females. 1383 cases (81.3%) had previously failed amblyopia therapy. 49 cases (2.9%) dropped out of study due to poor compliance with therapy or incomplete follow-up.

For simplified analysis of results, the 1701 cases were divided into three age groups: Group A: age 4-7 years (473 cases), Group B: age 8-12 years (618 cases) and Group C: age 13-46 years (610 cases). The overall success of therapy in Group A and B cases was 98% and 96.9% in Group C cases.

Conclusion: Full visual recovery is possible in amblyopia of any severity and age. Patient's age at presentation should not preclude therapy.

Keywords: amblyopia, anisometropic amblyopia, occlusion therapy, occlusion amblyopia, eccentric fixation

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Surgical outcomes of large-angle strabismus: a retrospective study

Dominika Nowakowska1, Agnieszka Rosa2, Marta Kirkiewicz3, Piotr Loba4

1Chair and Department of General and Pediatric Ophthalmology Medical University of Lublin, Poland

2Orticus Center in Grodzisk Mazowiecki, Poland

3II Clinic and Department of Ophthalmology, Pomeranian Medical University in Szczecin, Poland

4Department of Pathophysiology of Binocular Vision and Treatment of Strabismus, University Clinical Hospital Norbert Barlicki in Łódź, Poland

Introduction, Materials-Methods: This retrospective study analyzed 90 patients (46 female, 44 male) with large-angle strabismus (LAS), defined as a deviation exceeding 45-50 prism diopters (PD). Reoperations, transpositions, and trauma cases were excluded. Data included sociodemographics, amblyopia presence, preoperative and postoperative near/distance deviations (PD), total muscle recession/resection, the dose-response ratio, and any vertical deviation. Six-month postoperative success was defined as deviation within ±5 PD of orthotropia.

Results: Preoperative deviation averaged 53 PD (near) and 59 PD (distance). Postoperative deviation averaged –4 PD (range, –45 to +10 PD), resulting in an 81% success rate irrespective of strabismus type (intermittent or constant). Associated conditions included V-pattern (17 patients), A-pattern (8), dissociated strabismus complex (3), amblyopia (26), and diplopia (5).

The most common procedure was unilateral lateral rectus recession with medial rectus resection (46.67%). Other procedures included bilateral lateral rectus recession with unilateral medial rectus resection (31.11%) or bilateral medial rectus resection with unilateral lateral rectus recession (15.56%), and bilateral lateral rectus recession (6.67%). The mean dose-response ratio was 4.17 PD/mm (range, 2.57–6.15), showing no statistically significant variation between procedures.

Conclusion: This study, the first to our knowledge on this scale, demonstrates high success (81%) in correcting LAS using tailored surgical approaches, further enhanced by addressing vertical components. These findings advance our understanding of surgical techniques and long-term outcomes, suggesting future research focus on optimizing strategies and extending follow-up durations.

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Outcomes of adjustable recess-resect surgery for myopic esotropia: A 10-year retrospective study (2014-2024) by a single surgeon at a large tertiary eye hospital in the United Kingdom

Vaishali Lodhia1, Charlotte Chu Hong Zheng2, Vivekka Nagendran1, Sarah Hull1, Kelly Mackenzie1, Joanne Hancox1

1Moorfields Eye Hospital, City Road, London

2Barts and The London, School of Medicine, Queen Mary University of London

Introduction: Patients with myopic esotropia are often working-age adults typically symptomatic with diplopia. Prisms are often poorly tolerated or inappropriate long-term. Our aim was to investigate the effectiveness of adjustable recess-resect surgery in these patients.

Materials-Methods: A retrospective review of patient records identified patients with myopic esotropias who underwent medial rectus recession surgery with adjustable suture and lateral rectus resection, (March 2014 - March 2024) under a single surgeon. Data collected included demographics, symptoms, refraction, orthoptic assessment and complications.

Results: 47 patients (F=32, M=15) with mean age 42.1 (range 21-74 years) were included. Myopia ranged from -0.75 to -25.00 dioptres with mean spherical equivalent (SE) of -5.2 dioptres. All patients had pre-operative diplopia (mean 4.5years). Pre-operatively, mean near and distance deviation in Prism Dioptres (PD) was 21.5 (range 2-70) base out (BO) and 25.2 PD (range 4-65) BO respectively. All patients underwent medial rectus recession on adjustable suture (mean 4.8 mm, range 2 to 5.5) and lateral rectus resection (mean 5.5mm, range 3 to 8), aiming for post-operative exophoria. 14 patients required adjustment.

At 2–3-week follow-up, 85% had no diplopia while the remaining 14% had improvement in diplopia mostly being intermittent. Post-operative mean near and distance deviation at 2-3-week follow-up was 2.4 PD BI and 4.2 PD BI respectively. At last follow-up, 91.5% were diplopia free and 81% had improvement in prism fusion range. No complications were reported.

Conclusion: Diplopia in myopic esotropia can be effectively managed with adjustable squint surgery.

Keywords: myopic esotropia, adjustable recess-resect surgery, diplopia

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

Dosing of Medial Rectus Recession for Superior Outcomes in Acquired Adult Esotropia

Veronika Yehezkeli1, Joseph Louis Demer2

1Stein Eye Institute and Department of Ophthalmology University of California, Los Angeles, California, USA

2Stein Eye Institute and Department of Ophthalmology University of California, Los Angeles, California, USA; Department of Neurology, University of California, Los Angeles, California, USA; Bioengineering Department, University of California, Los Angeles, California, USA; Neuroscience Interdepartmental Program, University of California, Los Angeles, California, USA

Introduction: Age-related distance esotropia (ARDE) is commonly caused by sagging eye syndrome in older adults. Decompensated esophoria (DE) is a progressive esotropia in younger adults. We evaluated medial rectus (MR) recession dosing to avert commonly-encountered surgical undercorrection in DE and ARDE.

Materials-Methods: We reviewed 115 consecutive bilateral MR recessions by a single surgeon for DE and ARDE from 2015 to 2024. Actual surgery performed was compared with Parks' tables and evaluated by linear regression against initial esotropia and total mm MR of recession.

Results: There were 54 patients with DE with a mean age of 31±12 years and 61 with ARDE aged 70±8 years. Preoperative esotropia was significantly greater in DE at 21±10Δ than 14±9Δ in ARDE (p=0.0003). Although most patients in both groups were orthotropic immediately following surgery, esotropia gradually recurred in 10 DE patients (22%) after a mean of 3±1.3 years, resulting in more decline in surgical effect than in ARDE (P=0.0022). Nine patients with ARDE (15%) required reoperation. Use of adjustable sutures did not influence reoperation rates (p=0.73). X-intercepts in regression analyses indicate that the initial 4.6 mm total MR recession in DE and 3.5 mm in ARDE had nil effect on final alignment, but each additional mm total MR recession corrected 3Δ esotropia in DE and 2.4Δ in ARDE, both less than predicted by Parks tables.

Conclusion: Current recommendations for larger than standard MR recession in ARDE are sufficient, but dosing must be further augmented to avoid undercorrections from early esotropia recurrence in DE.

Keywords: esotropia, sagging eye syndrome, strabismus surgery, decompensated esophoria

ESA POSTER ABSTRACTS

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-001 - Ophthalmic screening in Poland

Ewa Malgorzata Grudzinska1, Marta Kirkiewicz1, Joanna Kot1, Monika Modrzejewska2

12nd Ophthalmology Department, University Clinical Hospital No 2, Szczecin, Poland

22nd Ophthalmology Department, University Clinical Hospital No 2, Szczecin, Poland; 2nd Chair and Ophthalmology Clinic, Pomeranian Medical University in Szczecin, Poland

Introduction: Effective ophthalmic screening is the basis of pediatric ophthalmic care. The tests and examinations should be age-appropriate and have a high sensitivity in detecting the risk of developing amblyopia. The purpose of the survey was to determine how vision screening currently looks like in Poland.

Materials-Methods: A questionnaire was administered to physicians who perform ophthalmic screening in children. The questions asked about the tests and equipment used for screening in different age groups, the criteria used for referral for specialized ophthalmic examination, the technique of performing the examinations.

Results: 105 physicians from all over Poland (52/105 pediatricians and 53/105 family doctors) participated in the survey. 88% of doctors start ophthalmic screening <1 year of age of the patient. The most common tests performed were: the Hirshberg test (86%), external visual assessment (82%), cover test (80%) and visual acuity testing (72%). Red reflex evaluation was performed by 39% of respondents, Bruckner test 2%, Lang test 1%. For ophthalmic screening, doctors work with a pocket flashlight 90%, an ophthalmoscope 7%, duck picture boards 80%. 94% of respondents refer children with any screening deviation to an ophthalmologist, and 16.5% of doctors refer every child for an eye exam.

Conclusion: There is a high degree of discretion in the type of tests performed. Despite the fact that 39% of respondents said they perform the red reflex test, only 9% have an ophthalmoscope. Primary care offices are not equipped. There is a need to implement standardized and effective ophthalmic screening of children in Poland.

Keywords: ophthalmic sreening, vision screening, amblyopia prevention, child vision

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-002 - Improving Access to Visual Screening in 4-5-Year-Old Children in Deprived Areas of London Through School Nurse-Led Assessment

Ameeta Kumar1, Lucy Fox2, Meena Arunakirinathan1, Vivienne Kit3, Kate Reed1, Maria Theodorou1

1Paediatric & Strabismus, Moorfields Eye Hospital, London, UK

2Queen's Romford Hospital, London, UK

3Royal Free Hospital, London, UK

Introduction: Public Health England advocates visual screening for all 4–5-year-old children. Moorfields Eye Hospital receives a high number of referrals for children from deprived boroughs of West London, who present late and have not undergone screening. To increase access to eyecare, we implemented a visual screening pathway delivered by Moorfields orthoptist-trained school nurses in a cost-effective model under Ophthalmologists' supervision.

Method: The outcomes from West London's visual screening in 2019-2020 were compared with those of South London's Orthoptist-delivered screening in 2015-2016.

Results: Overall, 2914 children were screened, with 1.9% referred to local optometrists after recording visual acuities worse than 0.2 logMAR. Of these, 69% had a refractive error, 28% were referred to Ophthalmology, and 5.5% were already under Ophthalmology. The positive predictive value of this model was 84%, with a sensitivity of 96.2%.

As children with learning disabilities were not captured in this pathway, we

collaborated with a UK charity, 'SeeAbility', to screen these children in schools by specially trained Optometrists. From previous estimates, the average paediatric consultation utilised 98 minutes of clinic time, costing £70 per child. Consultations for children with learning disabilities can double clinic time, costing up to £140 per child. This combined model is a cost-effective approach to visual screening all children.

Conclusion: The effectiveness of school nurse-led visual screening was comparable to orthoptist-led programmes and inclusive of all children, with high parent satisfaction, faster access to eyecare and appropriate onward referral. Proven effectiveness of the programme has secured ongoing funding from UK Clinical Commissioning Groups.

Keywords: visual screening, children, public health

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-003 - Comparison of corneal aberrometry parameters in amblyopic patients with strabismus

Rym Maamouri, Hassen Azri, Slim Selmi, Jaafer Aouni, Monia Cheour

Department of Ophthalmology, Hospital Habib Thameur Tunis

Purpose: To compare high-order aberrations (HOA) between amblyopic eyes (AE) and non-amblyopic eyes (NAE) in patient with strabismus.

Methods: Prospective study conducted at a tertiary care hospital from June 2019 to December 2022. Ethical clearance and informed consent were obtained. Comprehensive ophthalmic evaluations, including cycloplegic refraction, dilated fundoscopy and aberrometry.

Results: The study enrolled 29 children (mean age 10 ± 2 years). Mean RMS of total aberrations was 5,91 (p=0,09), vertical trefoil 0,07 (p=0,03), horizontal trefoil 0,04 (p=0,67), vertical coma -0,06 (p=0,89), horizontal coma 0,03 (p=0,55), 4th order -0,02 (p=0,95). No significant differences were found in specific aberration types between AE and NAE groups.

Conclusion: Despite higher HOA rates in amblyopic eyes, these aberrations did not affect the do not appear to be the cause of amblyopia or strabismus in these patients.

Keywords: strabismus, Amblyopia, corneal aberrometry

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-004 - Associations between pattern VEP and microperimetry in adult patients with amblyopia

Petra Killik, Mirella Telles Salguero Barboni, Angela Bernadett Sarga, Amarilla Barcsay Veres, Zoltán Zsolt Nagy, Otto Alexander Maneschg

Department of Ophthalmology, Semmelweis University, Budapest, Hungary

Introduction: To investigate and compare the results of pattern VEP components and the fixation profile in adult patients with amblyopia and to determinate a correlation between brain response and macular sensitivity in a cross sectional study.

Materials-Methods: A total of 10 adult patients with amblyopia (mean age = 36 years, ±SD 14,98, min age18, max 66, 8 male, 2 female) were compared with 10 healthy adults (mean= 30 years, ±SD 9, min age 23, max 30, 5 male, 5 female). Best corrected distance visual acuity (BCDVA), microperimetric examination (Macular Integrity Assessment microperimeter, MAIA, CenterVue, Padova, Italy) and VEP recordings (Diagnosys LLC, Massachusetts, USA) were obtained and compared. The correlation between fixation and sVEP response was also considered in the evaluation.

Results: In the patient group, the mean fixation stability was 77.6% ±0.33 (BCEA 63%), the mean BCDVA was 0.5±0.18 vs 100% BCEA (63%) and BCDVA 1,0 in control group (p<0,05). The VEP results showed delayed positive VEP peaks (P100) in patients with amblyopia (mean: 107.2 ± 4.8 ms small checksand 109.4 ± 6.1 ms large checks) compared to the control group (mean: 103.4 ± 4.6 ms small checks and 106.1 ± 6.2 ms large checks).

Conclusion: This study highlights the importance of VEP responses and microperimetry findings to characterize amblyopia in adult patients. By emphasizing the importance of integrating high-precision diagnostic tools to rehabilitative strategies, this estudy may contribute to the development of personalized and effective protocols to treat amblyopia in adults.

Keywords: Amblyopia, Microperimetry, Visual Evoked Potential/Response, biofeedback fixation training, squint surgery

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-005 - Short-term effect of topical atropine on anterior segment and higher-order aberrations in amblyopic children

Pınar Örenç, Ece Güler, Hülya Güngel

İstanbul Education and Research Hospital, Sağlık Bilimleri University,İstanbul,Türkiye

Introduction: Evaluation of the short-term effects of topical atropine used 0.01% in myopic children and 1% in amblyopic children on anterior segment and high-order aberrations

Materials-Methods: Anterior segment parameters and HOAs were measured by Sirius corneal tomography before and 45 minutes after topical atropine application at a rate of 1% in 50 hypmetropic amblyopic children.

Results: There were statistically significant differences in the LCA, overall RMS, astigmatism RMS, and coma LCA after atropine use (p<0,05). Anterior segment parameters such as Kmax, Kavg, ACD, lens rise, CCT, iridocorneal angle, and spherical aberrations, one of the HOAs, did not change significantly under the respective pupil and scan sizes before and after atropine administration.

Conclusion: The use of atropine in amblyopia is a frequently preferred method, especially in the early stages, while changes occur in high-order abberation; no major changes are observed in the anterior segment parameters. The positive shift of HOAs induced by inhibition of accommodation in amblyopic children may have a possible effect on treatment. On the other hand, it did not affect corneal keratometry indices and anterior chamber. Therefore, it can be safely used in children without any side effects on the anterior segment in the short-term.

Keywords: amblyopia, atropine, HOAs

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-006 - Plantar Pressure Distribution and Postural Balance in Amblyopic Children

Duygu Güler1, Murat Akkurt2, Harun Çakmak1

1Ophthalmology, Adnan Menderes University, Aydın, Türkiye

2Ophthalmology, Demirci Hospital, Manisa, Türkiye

Introduction: To evaluate plantar pressure distribution and postural balance in amblyopic children.

Materials-Methods: The study was carried out with 36 children aged 8- 14 years who were

clinically diagnosed with amblyopia and 36 healthy controls selected similar to the age and gender distribution of these patients. Eye examination of all individuals was performed and BCVA was recorded with Snellen chart. Then, both groups were measured with a pressure platform device (Footscan, Belgium) for foot pressure measurements and balance analysis. Finally, a smartphone application (Recognise Hand®) was used to determine right/left hand discrimination in both groups and the results were recorded.

Results: Static right rearfoot pressure was found to be significantly higher in the study group

(p=0.015). Considering the dynamic pressures, RM3 (p=0.042) and RMF (p=0.021) pressures were found to be significantly higher in the study group. There was no significant difference between the two groups in terms of balance, except for one parameter (IGARA-Y was higher in the study group, p=0.028). Age-related balance parameters became more stable as age increased in all groups. In addition, it was observed that stabilization was better in the balance positions on both feet compared to the positions on one foot in all groups (p<0.001). When the hand discrimination test was examined, no significant difference was observed between the two groups.

Conclusion: According to this study, it was concluded that there may be changes in the foot pressures of children with amblyopia and there was no significant difference in terms of balance.

Keywords: Amblyopia, Foot Pressure, Balance

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-007 - Macular superficial vascular density on optical coherence tomography angiography in children with anisometropic monocular and bilateral hyperopic amblyopia

Hye Bin Yim1, Sun Young Shin2, Yeon Woong Chung3

1Incheon St. Mary's Hospital, The Catholic University of Korea, Incheon, Republic of Korea

2Seoul St. Mary's Hospital, The Catholic University of Korea, Seoul, Republic of Korea

3St. Vincent's Hospital, The Catholic University of Korea, Suwon, Republic of Korea

Introduction: To determine whether macular superficial vascular density (SVD) and foveal vascular zone (FAZ) on optical coherence tomography angiography (OCTA) can distinguish between bilateral ametropic and anisometropic amblyopia

Materials-Methods: We included 42, 33, and 50 eyes in the bilateral ametropic amblyopia, anisometropic amblyopia group, and normal control groups, respectively. Using macular swept-source optical coherence tomography followed by OCTA, we measured and analyzed the superficial FAZ areas and five sectoral macular SVDs after magnification correction.

Results: The anisometropic amblyopic eye group showed significantly increased foveal SVDs ($p < 0.001$) and significantly decreased superficial FAZ areas, compared with the remaining groups. Additionally, the bilateral ametropic amblyopia group had significantly decreased nasal SVDs.

Conclusion: SVDs and superficial FAZ areas differed among amblyopia types. These findings may reflect vascular distribution differences and macular changes in hyperopic amblyopia types compared with normal eyes.

Keywords: Hyperopic amblyopia, amblyopia type, macular superficial vascular density, ocular coherence tomography angiography

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-009 - The effectiveness of using liquid crystal glasses in the amblyopia treatment in children

Sati Agagulyan1, Igor Aznauryan1, Victoria Balasanyan1, Natalia Kurysheva2, Alexandr Laver2, Ekaterina Nekrasova1

1Pediatric Eye Clinics "Yasniy Vzor", Moscow, Russia

2MBU of ICE of Burnasyan FMBC FMBA of Russia, Moscow, Russia

Introduction: The study of the possibilities of using the principle of alternating presentation of visual stimuli using liquid crystal glasses in the treatment of amblyopia and strabismus continues to be one of the current trends in modern ophthalmology. The Purpose: to evaluate the effectiveness of using liquid crystal glasses in amblyopia treatment in children.

Materials-Methods: We observed 20 patients aged from 10 to 17 (average 14.4±0.3) years with amblyopia (dysbinocular amblyopia in 7 cases with convergent strabismus up to 5 degrees, in 2 cases with divergent strabismus up to 5 degrees, refractive amblyopia - 9 cases and deprivation - in 2). We used liquid crystal glasses. The duration of alternating darkening of the right and left glasses was 50 ms. The course of treatment included 15 sessions of 20 minutes per day. The magnitude of deviation and fusion reserves were assessed using the “Blade” computer program.

Results: As a result of the use of liquid crystal glasses, an increase in visual acuity was observed in the better-seeing eye from 0.85±0.03 to 0.98±0.01 ($p<0.001$), and in the worse-seeing eye from 0.59±0.06 to 0.78±0.05 ($p<0.001$) and binocular visual acuity from 0.85±0.03 to 0.99±0.01 ($p<0.001$). The deviation decreased from 1.7±0.4 to 0.5±0.2 degrees ($p=0.01$). Positive fusion reserves increased from 3.7±0.6 to 7.4±0.7 ($p<0.001$), negative - from 1.6±0.3 to 2.2±0.3 ($p<0.001$)).

Conclusion: Thus, the result demonstrate the positive dynamics of visual functions as a result of the use of liquid crystal glasses in the amblyopia treatment in children.

Keywords: amblyopia, liquid crystal glasses, digital patch, LCG, strabismus

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-010 - Update on Amblyopia Treatment: Penalization and/or Fusional Stimulation

Robert Benhamou1, Eric Sarfati2

1CHITS TOULON Avenue St Claire 83000 Toulon

2Ophtaliberte 165 Place de la Liberte 83000 TOULON

Introduction: This study evaluates penalization techniques (Opticlude patch and Atropine drops) versus fusional stimulation approaches (Ryser filters, haploptic stimulation, neurostimulation).

Materials-Methods: A survey of recent university publications and a prospective study involving 10 amblyopic patients assessed visual acuity improvement, binocular function, and compliance.

Results: Results highlight penalization's consistent efficacy in enhancing visual acuity but lower patient adherence, while fusional methods show superior compliance and binocular outcomes.

Conclusion: This research underscores the need for personalized hybrid strategies to optimize amblyopia treatment outcomes

Keywords: Amblyopia, Penalization, Fusional Stimulation, Visual Acuity, Neurostimulation

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-011 - Dichoptic visual training in children with strabismic and anisometropic amblyopia could be a good alternative for patching

Nevena Kase, Marijana Tomc, Andreja Udovc

University Eye clinic Ljubljana, Slovenia

Introduction: To compare the effectiveness and safety of a dichoptic amblyopia home-based software to conventional patching.

Materials-Methods: This clinical series included 60 children aged 4–12 years diagnosed with amblyopia (strabismic and/or anisometropic).Participants were evaluated at the University Eye Clinic in Ljubljana and divided into two groups:the intervention group of 30 children underwent vision training with dichoptic software for 30 minutes/day,6 days/week,and the control group of 30 children received patching 2 hours/day,7 days/week.The intervention lasted 12 weeks,with daily training sessions monitored for compliance.Children in the control group kept a diary for compliance that they brought on monthly visits.We compared visual acuity (logMAR) and stereopsis.

Results: The results demonstrated noninferiority in the group with dichoptic treatment compared to controls. Visual acuity in a group with dichoptic training improved by an average of 2,5 lines on the Snellen chart compared to the control group, where the visual acuity improved by 2,3 lines on the Snellens in 12 weeks. Contrast sensitivity showed gains across multiple spatial frequencies in the dichoptic treatment group, for the control group, we did not have contrast sensitivity data. Stereopsis improved in both groups with no significant differences. Adherence in the dichoptic training group was 96 %, and in the patching group, 74%.

Conclusion: Vision training with dichoptic amblyopia software could be a safe and good alternative for patching, especially in amblyopic children with poor compliance.The current study has some limitations that should be considered: self-logging compliance journal of the patching group, higher screen time,which should not significantly impact other physical and outdoor activities.

Keywords: Amblyopia, Dichoptic vision therapy, Patching, Visual acuity, Binocular function, Compliance

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-012 - Impact of gadgets on amblyopic therapy

Biljana Trajkovic, Milica Pajovic

KBC Zvezdara,Eye clinic "Prof. dr Ivan Stankovic"

Introduction: This prospective case report was carried out to investigate the effect of Cambridge Stimulator amblyopic therapy in a 6-year-old child with monocular high myopi

Materials-Methods: A 6-year-old child was examined in the KBC Zvezdara Eye Clinikc with a visual acuity of 0 Log MAR in the right eye (OD) and 1.0 logMAR in the left eye (OS). ETDRS chart was used to measure visual acuity of the child. Child was dilated using cylopentolate 1% Cycloplegic refraction revealed myopi of approximately -9,25 dsph -0,75 dcyl ax 5 in Right Eye and + 1.0 Dsph in Left Eye. The contact lens was prescribed and parents were instructed to patch the eye 4–6 hours a day and the child was use Cambridge Stimulator amblyopic therapy.

Visual acuity and refractive errors were assessed every three months.

Results: Over the three months of follow-up period, visual acuity in the OD improved signifcantly from 0 Log MAR to 0.7 Log MAR in six months visual acuity was 1.0 in right eye.

Results indicating successful amblyopic therapy

Conclusion: This case highlights the effectiveness of gadget-assisted patching therapy in improving visual acuity in amblyopic children. CAM visual stimulation along with conventional occlusion will further improve visual acuity and stereopsis in amblyopic children.

Further research is needed to better understand the relationship between gadget use and refractive changes in pediatric patients undergoing amblyopia treatment, allowing for the

optimization of therapy protocols and long-term visual outcomes

Keywords: ambliopia, CAM, stimulator tritment

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-013 - Education for children with amblyopia and their parents plays a crucial role in the treatment of

Marijana Tomc, Andreja Udovc, Nevena Kase

Eye clinic Ljubljana

Purpose: To compare children with amblyopia and their parents who have received educational interventions with those who have not received such interventions.

Methods: The clinical study of the educational treatment was evaluated at the University Eye Clinic in Ljubljana in duration of one year. It included 80 amblyopic children, aged 3 to 13 years, and their parents. By November 2024, 19 patients had completed the program, while 61 patients continued with the educational treatment.

Results: In 74% of the patients who completed the educational treatment we observed improved visual acuity and in 21% visual function remained unchanged. 14 out of 19 patients had improved visual function at the end of the treatment, as follows:visual acuity improved by 1-2 lines on the Snellen chart (SnC)– 3 patients (22%), by 3-4 lines – 7 patients (50%), by 5-6 lines – 2 patients (14%) and by 7-8 lines – 2 patients (14%). The remaining 61 children continued with the educational treatment, and the results of the progress in improving visual function will be known by June 2025.

Conclusion: The results of this study show the significant importance of education in the treatment of children with amblyopia and their parents, despite the ever growing quantity of software and pharmacentical treatment options. The majority of patients who completed the educational treatment showed an improvement in visual acuity, with 74% of patients achieving better visual function to varying degrees, including significant improvements of 3-4 lines on the SnC in 50% of patients.

Keywords: Amblyopia, education session, children/parents, improve visual acuity, ortoptic, motivation

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-016 - Preoperative adaptation and sensory integration through the application of combined sphero-prismatic correction

Oleksandra Mishchenko, Liudmyla Shevchuk, Nataliia Aleieva, Sergriy Rykov

Department of Ophthalmology And Optometry of Postgraduate Education, Bogomolets National Medical University, Kyiv, Ukraine.

Introduction: To evaluate the role of comprehensive spherical and prismatic correction, along with the development of fusion reserves during preoperative period, in the formation of stereovision in children with partially accommodative exotropia combined with myopia.

Materials-Methods: A retrospective analysis was performed on three distinct study groups. Patients from various age categories (6-15 years) were assigned to the following groups: Group 1 received comprehensive myopic and prismatic correction in addition to supplementary sessions aimed at developing fusion reserves; Group 2 underwent myopic correction alone while engaging in fusion reserve training; Group 3 consisted of patients who exclusively relied on myopic correction without any supplementary interventions.

Results: 153 patients were included. On the first day after surgery, all 86 (56.2%) patients in Group 1 had binocular vision, with 52 (60.5%) having fine stereopsis and 34 (39.5%) having coarse stereopsis.

In Group 2, consisting of 39 patients (25.5%), 28 (71.8%) had binocular vision and 11 (28.2%) had simultaneous vision. Among those with binocular vision, 24 (85.7%) had fine stereopsis and 4 (14.3%) had coarse stereopsis.

In Group 3, 28 patients (18.3%), 21 (75%) had simultaneous vision, and 7 (25%) had binocular vision. Among the 7 with binocular vision, 1 (14.3%) had coarse stereopsis and 6 (85.7%) had no stereovision(p=0,01).

Conclusion:

1. Ensuring patient comfort and optimal visual outcomes after surgery.

2. Preventing recurrence, overcorrection, and undercorrection by optimizing preoperative dosing.

3. Enhancing postoperative effect prediction and modeling.

Keywords: Myopia, stereopsis, binocular, vision, exotropia

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-017 - Functional Results of Surgical Treatment of Strabismus

Ismail Cem Türkeş, Mehmet Erhan Yumuşak, Fatih Mehmet Mutlu

Health Sciences University, Gülhane Training and Research Hospital

Introduction: To evaluate significant functional benefits to the patient, after strabismus surgery.

Materials-Methods: Fourty four patients who underwent strabismus surgery were included in the study. Our surgical success criteria was horizontal angle of deviation <=10 prism diopter (PD), vertical angle of deviation <=4 PD. The preoperative and postoperative 3. month results for fusion, stereopsis, and binocular visual field (BVF) were prospectively compared.

Results: Four patients among the 33 patients already had fusion preoperatively. Considering the 40 patients without preoperative fusion, 29 (72.5%) achieved fusion postoperatively ($p < 0.001$). Thirty two of the 44 patients (72.7%) showed improvement in stereopsis ($p < 0.001$). A significant correlation was observed between improvements in fusion and stereopsis ($p = 0.011$). Twenty two patients underwent the Esterman BVF preoperatively and they demonstrated statistically significant differences in terms of median values postoperativly ($p = 0.026$). Patients with postoperative heterotropia and deviations of 4 PD or less exhibited significantly greater stereopsis improvement compared to those with deviations exceeding 4 PD ($p = 0.034$). However, age, preoperative angle of deviation, duration of strabismus had no statistically significant effect on fusion and stereopsis.

Conclusion: A successful strabismus surgery will provide significant functional benefits to the patient, including the development of fusion, improvement in stereopsis, and expansion of the BVF beyond cosmetic advantages.

Keywords: Strabismus Surgery, Functional Changes, Fusion, Stereopsis, Binocular Vision, Binocular Visional Field

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-019 - Refractive changes following strabismus surgery in children and adults

Serpil Akar1, Arzu Guler1, Sibel Oto2

1Baskent University Istanbul Hospital, Ophthalmology Department, Istanbul, Turkiye

2Baskent University School of Medicine, Ophthalmology Department, Ankara, Turkiye

Introduction: Several studies have described induced refractive errors, which may be transient or permanent, following strabismus surgery. However, there is no consensus on surgically induced myopic shift or vector changes in astigmatism after strabismus surgery. In this study we aimed to investigate the changes in spherical equivalent and vector changes following strabismus surgery.

Materials-Methods: We reviewed the data of 342 patients who underwent strabismus surgery at Başkent University Istanbul Hospital between 2013 and 2023. Patients who had undergone previous strabismus surgery were excluded. A total of 99 patients who underwent unilateral or bilateral surgery were included in the study. The refractive status was evaluated preoperatively and postoperative at 1st month,3rd month,6th month,1st year,2nd year,3rd year, and 5th year. Changes in spherical equivalent and astigmatic axis were compared during the follow-up period.

Results: A total of 99 patients (52.5% male and 47.5% female) were included in the study.The mean age at surgery was 15.08±6.00 years (range:2–74 years). The mean follow-up period was 44.34±36.00 months (range:1–108 months). Among the patients, 28(28.2%) underwent bilateral surgery, while 71(71.7%) underwent unilateral surgery.This study included 26 unilateral recession-resection surgeries, 12 bilateral recession + Faden + inferior oblique anteriorization surgeries, and 10 unilateral or bilateral recession + inferior oblique anteriorization surgeries.No statistically significant differences were observed in spherical equivalent or vector changes in astigmatism during the follow-up period.

Conclusion: None of the surgeries showed a significant effect on axis or spherical equivalent. With a larger sample size, we may achieve statistically significant findings in future studies.

Keywords: strabismus surgery, refractive error, astigmatism, spherical equivalent, vector change

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-020 - Patterns in strabismus

Sana Nadeem

Ophthalmology, Foundation University Islamabad, Pakistan

Introduction: To study the different types of pattern strabismus and their surgical outcomes after adjustable strabismus surgery.

Materials-Methods: A total of 40 consecutive patients with pattern strabismus were included in the study. After complete orthoptic assessment, the patients underwent either rectus muscle transposition or oblique muscle surgery, by adjustable squint surgery. The pre-operative evaluation of different strabismus patterns, deviations, and post-operative results were measured and analyzed. The amount of postoperative pattern change was measured at 6 weeks postoperatively, to assess the success of the surgeries.

Results: Out of 40 patients, 33 were females and 7 were males. The age ranged from 7 to 69 years (mean 18.05 ± 9.6). All patients were operated by using adjustable suture technique."V" pattern was seen in 26 cases (65%) and "A" pattern was seen in 12 (30%) cases. The mean preoperative pattern was 13.2 ± 8.09 PD (prism diopters), and the mean postoperative pattern was 2.05 ± 2.96 PD. Surgical success was defined as the amount of pattern collapse at 6 weeks, the period at which a stable alignment was achieved. The difference between the preoperative and postoperative pattern deviation was statistically significant (p=0.000). Correction of the pattern was seen in 92.5% of patients at average follow up of 50.87±14.02 days.

Conclusion: Pattern Strabismus can be corrected by varying rectus muscle transpositions or oblique muscle surgery during routine adjustable strabismus surgery.

Keywords: Strabismus, V pattern, A pattern, Y pattern, X pattern, muscle surgery

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-021 - Long-term outcomes of adjustable strabismus surgery at a Pakistani university hospital

Sana Nadeem

Ophthalmology, Foundation University Islamabad, Pakistan

Introduction: Strabismus, whether congenital or acquired, is a common visual and cosmetic problem, especially for the young. Adjustable suture strabismus surgery is not in vogue in our country. This technique gives the surgeon a second attempt to provide a better outcome for the patients. Our objective was to assess the long-term success of adjustable strabismus surgery in terms of postoperative alignment.

Materials-Methods: We carried out a prospective study utilising the fornix approach for adjustable strabismus surgery, in mainly horizontal, but also vertical strabismus in adults and cooperative children, to enhance the postoperative outcomes. The patient characteristics, preoperative deviation, type and pattern of strabismus, were evaluated and analyzed. The postoperative alignment was evaluated at 1 year and beyond, to assess the success of this adjustable surgery.

Results: This study recruited 50 adults and children. The mean preoperative horizontal deviation was 48.76 ± 20.35 prism diopters (PD) and the mean postoperative horizontal deviation was 2.73 ± 3.63 PD. The mean preoperative vertical deviation was 4.8 ± 8.54 PD whereas the mean postoperative vertical deviation was 0.86 ± 1.73 PD. The Wilcoxon Signed Ranks test analysed the difference between the two which was statistically significant (p=0.000). Surgical success, defined as postoperative horizontal alignment within <= 10 PD of orthotropia at the end of one year or more of follow up, was achieved in 49 (98%) cases. The average follow up was 21.47±8.7 months.

Conclusion: Adjustable strabismus surgery has very good long-term outcomes in terms of postoperative alignment and patient satisfaction.

Keywords: long term, success, adjustable suture strabismus surgery, fornix approach, alignment, strabismus

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-022 - Bridge Faden surgery in patients with residual Esotropia

Asli Cetinkaya Yaprak

Ophthalomology Department, Faculty of Medicine, Akdeniz University, Antalya, Turkey

Introduction: The aim of this study is to evaluate the results of bilateral bridge Faden operation on the medial rectus muscles without recession in the treatment of patients with residual esotropia who previously had bimedial rectus recession.

Materials Methods: This retrospective study was conducted using the medical records of 12 patients who previously had bimedial rectus recession and underwent the bridge Faden operation on both medial rectus muscles without recession to treat residual esotropia. Preoperative and postoperative near and far deviations and complications were recorded.

Results: Four (33.3%) female and 8 (66.7%) men participated in this study. The mean age was 13 years (range: 5 to 36 years) and the mean follow-up time was 12.25 ± 2.1 years. The mean preoperative level of esotropia at near was 34.21 ± 4.12 prism dioptrie (PD) and at distance was 31.63 ± 3.13 PD. In all patients, the postoperative level of esotropia at near and at far distance was below 10 PD. Revision was only performed in one patient on the first postoperative day due to a restriction of medial rectus movement.

Conclusion: The bridge Faden operation on both medial rectus muscles without recession was a successful surgical procedure in patients with residual esotropia.

Keywords: Bridge Faden, residual esotropia, strabismus

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-023 - The evaluation of factors associated final surgical success in cases of residual and consecutive horizontal concomitant strabismus

Aslı Vural, Bengi Demirayak, Narmin Rasulzade

Department of Ophthalmology, Bakırköy Dr Sadi Konuk Research and Training Hospital, Istanbul, Turkey

Introduction: We aimed to investigate the incidence of residual or consecutive horizontal concomitant strabismus and to evaluate the factors associated final surgical success in these cases.

Materials-Methods: The patients undergone surgery for residual or consecutive horizontal strabismus between June 2019 and June 2024 were reviewed retrospectively. Age, diagnosis, angle of deviation and fusion status pre- and postoperatively, surgery type and amblyopia existence were recorded. Patients whom deviation was 12 prism diopter or under at 6 months postoperatively made group 1 and higher 12 prism diopter made group 2.

Results: Forty-eight patients (7,6 %) of total 624 strabismus surgery were included. Twenty one patients were residual exotropia, 20 were residual esotropia, 5 were consecutive exotropia and 2 were consecutive esotropia. The mean age was 16,14 (2-53 years). Botulinum toxin injection was performed in 33 patients, additional recession was done in 9 patients and fellow eye operated in 6 patients for treatment. Unilateral amblyopia was recorded in 18 patients and bilateral amblyopia in 6 patients. Fusion was detected in 16 patients pre operatively and in 24 patients postoperatively. Thirty patients inclueded in Group 1 and 18 patients in Group 2. Amblyopia existence was significantly lower in Group 1(p=0.01) and the mean age of primary surgery was significantly higher in Group 1 (p=0.03). The angle deviation, fusion status and surgery type wasn't found significant for final surgical success.

Conclusion: Amblyopia and younger age was found unfavorable for surgical success in patients undergone surgery for residual or consecutive strabismus.

Keywords: consecutive deviation, residual deviation, re-operation

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-025 - Surgical outcomes of plication versus resection in basic horizontal strabismus

Aysel Pelit, Oğuzhan Oruz

Department of Ophthalmology, Faculty of Medicine, Başkent University, Adana, Turkey

Introduction: To evaluate the success rates of plication versus resection surgery in patients with basic horizontal strabismus.

Materials-Methods: The medical records of patients with basic horizontal strabismus who underwent a rectus muscle plication or resection combined with an antagonist muscle recession were reviewed retrospectively.

Patients who were followed up for at least 6 months were included in the study. Patients were divided into 2 groups as those with esotropia (Group 1) and those with exotropia (Group 2). In both groups, the amount of postoperative deviation was compared between patients who underwent resection and those who underwent plication surgery. Patients with a near and distance deviation of less than 10 PD were considered successful. Patients with previous ocular surgery, binocular surgery, and simultaneous oblique or vertical extraocular muscle surgery were excluded from the study.

Results: The study included 63 patients, 28 girls and 35 boys. The mean age of the patients was 15.92 years. There were 28 patients in Group 1 (15 resection, 13 plication) and 35 patients in Group 2 (17 resection, 18 plication). The follow-up period was similar for two methods in Group 1 and in Group 2. (p=0.569, p=0.053, respectively). The study found no statistically significant difference in success between the two methods in Group 1 and Group 2 (p=0.088, p=0.952, respectively). Postoperative early or late cosmetic complications were not observed in any patients who underwent plication surgery.

Conclusion: The findings from this study demonstrate that recession/plication is a valid alternative to recession/resection in basic horizontal strabismus.

Keywords: Plication, resection, horizontal strabismus

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-027 - Success and complications of Botulinum Toxin A injection in strabismus treatment by resident doctors

Aslı Çetinkaya Yaprak, Ozan Özgül

Akdeniz University Faculty of Medicine

Introduction: We aimed to evaluate the outcomes and complication rates of patients who received Botulinum Toxin A (BTA) injections to extraocular muscles for strabismus treatment by our resident doctors at our clinic.

Materials-Methods: The data of 72 patients who received BTA injections by resident doctors for strabismus treatment at Akdeniz University Hospital between 2022 and 2024 were retrospectively reviewed.

Results: A total of 72 patients with a mean age of 15.83 ± 21.23 years (35 [48%] female, 37 [52%] male; 19 [26%] adults, 53 [73%] pediatric) were included in the study. BTA was injected into the medial rectus muscle in 56 patients (77%), lateral rectus muscle in 11 patients (15%), and inferior rectus muscle in 5 patients (6%). Ezotropia was present in 53 patients (73%), exotropia in 14 patients (19%), and inferior oblique overaction in 5 patients (6%). Paralytic strabismus was observed in 15 patients (20%). At the first-week follow-up, 23 patients (31%) were evaluated as orthophoric on the Hirschberg test. Repeated BTA injections were required in 18 patients (25%), and surgical intervention was needed in 29 patients (40%) after BTA injection. Ptosis was observed in 7 patients (10%) after the procedure. No infections or scleral perforations occurred in any of the patients after the injection.

Conclusion: BTA injections performed by resident doctors were effective with low complication rates, similar to those reported in the literature. Therefore, we believe that BTA injections, compared to strabismus surgery, are easier to learn and apply, making them a safer option.

Keywords: Strabismus, Botulinum Toxin Type A, Botulinum Toxin Injection, Complications

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-028 - A retrospective review of the safety of extra-ocular muscle Botulinum toxin A in pregnant and breastfeeding patients at Moorfields Eye Hospital

Abbie Elizabeth Ewart, Dina Tadros, Aditi Das

Department of Paediatric Ophthalmology and Strabismus, Moorfields Eye Hospital, London, United Kingdom

Introduction: Whilst Botulinum toxin A (BT) is routinely offered to patients with strabismus who are pregnant or breastfeeding, there is limited data on the potential adverse risks of this drug in this group. We present the results of a large cohort of patients who have undergone extraocular muscle BT in pregnancy or during breastfeeding.

Methods: Electronic medical records were used to retrospectively identify all the pregnant or breastfeeding patients who underwent BT injections for strabismus between 2017 – 2024. We included patients who consented or declined botulinum toxin injections. We noted the timing of pregnancy, outcomes, reported adverse effects, reasons for refusal and adjustments made in those who underwent treatment.

Results: 57 patients were referred to the Botox clinic during this period. 31 patients underwent BT injection whilst pregnant (21/31 or 68%) or breastfeeding (10/31 or 32%). 26 patients declined treatment following advice from health professionals (5/26), the patient information leaflet (10/26) or other causes (11/26).

3/21 pregnant patients underwent injection without adrenaline (33%). 7/21 (33%) were <=12 weeks pregnant and 5 (71%) had treatment in the first trimester.

27/31 (87%) of patients reported no adverse reactions. 1/31 (3%) patient reported overcorrection and subsequent diplopia and 3/31 (10%) did not attend their follow-up appointment.

Conclusion: We reported no adverse reactions in a large cohort of pregnant or breastfeeding women receiving BT. We also explored several other complexities surrounding BT, including a high rate of treatment refusal and adjustments required to empower women to make more informed choices regarding BT treatment.

Keywords: Botulinum toxin A, BT, pregnancy, breastfeeding, strabismus management

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-029 - Evaluation of the botulinum toxin service to treat adult strabismus in Moorfields Eye Hospital, London, and the correlation of quality of life with those attending the service

Shiama Indu Balendra, Leena Patel, Charlotte Ho, Naz Raoof, Maria Theodorou

Moorfields Eye Hospital, London

Moorfields Eye Hospital provides the highest volume Botulinum Toxin (BTX) clinic service to treat adult strabismus in the UK. We evaluated the service in terms of demographics and clinical need, including Quality of Life (QoL).

Prospective observational study of the 6 consecutive BTX clinics in 2025. All patients attending were included and asked to complete an Adult Strabismus questionnaire (AS-20). Data collected included: demographics, indication for BTX, aetiology and strabismus size and number and interval of previous injections.

83 patients attended. 2 were excluded (lack of notes, incorrect clinic booking). Median age was 52 years. 61.7% were female. Mean of 13.5 patients attended each clinic; 12.4% were new cases. 71.6% of all patients underwent a toxin injection. Mean number of prior injections was 7 (range 0-44). Mean of 53 weeks following their previous injection.

Reasons for BTX were: diplopia in 45(55.6%), psychosocial in 35(43.2%) and preoperative work-up in 1(1.2%). Common aetiologies were: secondary exotropia(15,18.5%), residual esotropia(10, 12.4%) and consecutive exotropia(8,9.9%).

The mean overall QoL score of 55.6, psychosocial 53.8 and functional 53.7. This did not differ significantly between small/large angle squints (<20 v >20 prism dioptres).

The study provides a ‘snapshot’ of the demographics and clinical need for BTX in a busy strabismus service and will allow us to develop guidelines to optimally utilise clinic slots. AS-20 scores correlate well with other published reports, but not with size of the deviation. Strabismus patients have higher rates of personality disorders. Further work may include personality testing to correlate this with QoL.

Keywords: strabismus, botulinum toxin, botox, quality of life, AS-20, Moorfields

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-031 - A case to learn from: post-LASIK challenges in convergence and accommodation

Joseph Van Aerschot, Laura Van Hoof, Catherine Cassiman

Department of Ophtalmology, University Hospital Leuven, Leuven, Belgium

Introduction: A 31-year-old female with a history of childhood esotropia surgery and pre-existing refractive errors (OD: -1.5 (-1.0 at 80°); OS: -1.25 (-0.75 at 110°)) consulted for refractive laser treatment. Preoperative orthoptic evaluation showed a 4Δ exophoria at distance and 2Δ esophoria at near without glasses. With full myopic correction, a 4Δ exophoria at 6 meters and a 27Δ convergent squint at 30 cm were observed. The Bagolini test confirmed fusion with normal retinal correspondence but no stereopsis. She reported no diplopia but mentioned habitually reading without glasses.

Results: Post-LASIK, the patient achieved optimal uncorrected distance vision but experienced blurred vision and diplopia at near. This outcome is attributed to a disruption of her convergence-accommodation system. Preoperatively, removing glasses allowed her to compensate for hypo-accommodation and diplopia during near tasks. The elimination of myopia via LASIK necessitated active accommodation, leading to diplopia. Using Horwood's classification, the patient fits Pattern D, characterized by a high AC/A ratio and reliance on blur for accommodative cues.

Discussion: Options to manage her near vision issues included reading glasses, which the patient rejected, and trial occlusion to evaluate monocular accommodation. If successful, strabismus surgery could be considered; otherwise, reading glasses would remain necessary.

Conclusion: This case underscores the critical importance of preoperative orthoptic assessment in patients with strabismus. LASIK-induced changes in accommodative demands can exacerbate latent binocular vision issues, emphasizing the need for thorough evaluation and tailored patient counseling to prevent postoperative complications.

Keywords: Convergence, Accomodation, LASIK

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-032 - Anterior segment optical coherence tomography in strabismus surgery: benefits of implementation in preoperative evaluation and monitoring of healing process

Dunja Bajtl1, Ivanka Maduna2, Jelena Petrinovic Doresic3, Darije Curzik4, Dubravka Biuk1, Josip Barac1

1University Eye Department, University Hospital Centre Osijek, Osijek, Croatia'Faculty of Medicine, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia

2Osijek-Baranja County Healthcare Centre, Osijek Croatia'Faculty of Medicine, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia

3University Eye Department, Reference Centre of the Ministry of Health of the Republic of Croatia for Paediatric Ophthalmology and Strabismus, Reference Centre of the Ministry of Health of the Republic of Croatia for Inherited Retinal Dystrophies, University Hospital "Sveti Duh", Zagreb, Croatia

4University Eye Department, University Hospital Centre Osijek, Osijek, Croatia

Introduction: We sought to present ongoing research including optical biometry (OB) and anterior segment optical coherence tomography (AS-OCT) in uncomplicated resection and recession strabismus surgery.

Materials-Methods: OB analyzed parameters included: axial length (AX,mm), anterior chamber depth (ACD,mm), lens thickness (LT,mm), anterior corneal curvature (K1 and K2,D). AS-OCT is used for preoperative visualization and follow-up of ocular structures one month postoperatively. Following parametres are measured for medial and lateral rectus muscle (MR and LR): conjunctival epithelium thickness (ET,µm), conjunctiva+Tenon capsule thickness (CTT,µm), extraocular muscle thickness (EOMT,µm), scleral thickness (ST,µm).

Results: Seven patients (7 eyes) median age 10 years operated by a single surgeon were included in the study. One patient had unexpectedly high AX (26.03mm) with a mild myopic refractive error. Median of OB parameters were as follows: AX 22.99 (IQR:22.34-23.34)mm, ACD 3.71 (IQR:3.59-3.84)mm, LT 3.58 (IQR:3.34-3.64)mm, K1 42.49 (IQR:41.52-44.02)D, K2 44.85 (IQR:42.87-45.75)D. Preoperative median of AS-OCT parametres for MR were as follows: ET 52 (IQR:47-61)µm, CTT 438 (IQR:349.5-517.5)µm, EOMT 144.5 (IQR:103.25-182)µm, ST 404 (IQR:342.5-427.5)µm; in LR: ET 46 (IQR:41.5-59.5)µm, CTT 429 (IQR:383-446)µm, EOMT 178 (IQR:152-220)µm, ST 402 (IQR:372-427.5)µm. One month postoperatively median of AS-OCT parametres for MR were as follows: ET 88 (IQR:76.5-90)µm, CTT 562 (IQR:533-663.5)µm, EOMT 120 (IQR:108-181.5)µm, ST 371,5 (IQR:356.25-404.75)µm; in LR: ET 84 (IQR:71.5-85)µm, CTT 567 (IQR:380-723.5)µm, EOMT 213 (IQR:187.5-231)µm, ST 323 (IQR:305-361.5)µm.

Conclusion: OB is useful in detecting miopic eyes and surgical dosage adjustment. AS-OCT is a helpful tool for preoperative evaluation and follow-up of ocular structures' healing process.

Keywords: anterior eye segment, ophthalmologic surgical procedures, optical coherence tomography, strabismus

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-034 - Evaluation of pupil size by pupillography after strabismus surgery

Silay Canturk Ugurbas, Neriman Selcuk, Serdar Bilici, Numan Kucuk, Suat Hayri Ugurbas

Department of Ophthalmology, Zonguldak Bulent Ecevit University, Zonguldak, Türkiye

Introduction: The diameter of pupil stems from an interplay of sympathetic and parasympathetic innervation. The purpose of this study is to evaluate the effects of strabismus surgery on pugil diameter using pupillography.

Materials-Methods: A prospective study analyzed 28 eyes of 16 patients undergoing strabismus surgery at Zonguldak Bülent Ecevit University Hospital between 2023 and 2024.. Pupil diameters under scotopic, mesopic, photopic, and illumination conditions were recorded using the Sirius Topography System on the 1st day, 3rd week, and 3rd month postoperatively. Groups included one-muscle surgery (Group 1), two-muscle surgery (Group 2), and inferior oblique surgery (Group 3).

Results: The study included 4 females and 12 males, with an average age of 19.4 ± 14 years. Group 1 consisted of 15 eyes and Group 2 of 13 eyes, with 9 eyes in Group 3. No significant pupil diameter changes were observed postoperatively for Groups 1 and 2 ($p>0.05$). However, in Group 3, mesopic and photopic pupil diameters showed increases at postoperative 1st day and 3rd week, returning to preoperative values at 3rd month for photopic conditions ($p<0.05$).

Conclusion: Isolated rectus muscle surgeries did not affect pupil diameters, while surgeries involving the inferior oblique muscle resulted in transient increases in mesopic and photopic pupil diameters, likely due to parasympathetic pupillomotor fiber damage.

Keywords: Strabismus surgery, pupillography, inferior oblique muscle

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-035 - Will emptying the filtration bleb improve ocular motility?

Lisanne Moree Robbers, Lieke Gouma

Orthoptic Department of the Rotterdam Eye Hospital, The Netherlands

Introduction: Emptying the filtration bleb as a diagnostic test to decide whether revision of the bleb will improve ocular motility in patients with double vision due to their glaucoma Paul-implant.

Materials-Methods: Two patients, a 51-year-old male and a 74-year-old female, visited the orthoptic department with diplopia after the implantation of the Paul-implant in their right eye. The first patient got diplopia three weeks after removing the prolene sutures. The second patient got diplopia two and a half weeks after the placement of the implant, prolene sutures were not yet removed. Both patients underwent an orthoptic evaluation and both had restrictions in the eye movement in abduction, adduction and elevation of the right eye and the first patient also in depression of the right eye. To evaluate if the bleb was the cause of the diplopia and the restrictions, the ophthalmologist extracted 0.2-0.5cc with a 27G-needle/25G-needle. Before and after this procedure, the patients underwent full orthoptic examination with extra focus on motility and limitations of ductions.

Results: After emptying the filtration bleb the abduction improved 5-10 degrees, the adduction 4-5 degrees, the elevation 2-4 degrees and the depression >1 degree. This was a temporary effect, due to the bleb filling up again after a few hours.

Conclusion: In these cases emptying the filtration bleb was a good diagnostic test to decide if revision of the bleb will decrease the diplopia and improve the ocular motility. With the outcome of this diagnostic test, the patient and ophthalmologist can decide further management.

Keywords: Bleb, diplopia, ductions, diagnostic test

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-036 - Electromyographic Monitoring of Extraocular Muscles in Endoscopic Skull Base Surgery: Insights from a Tertiary Care Hospital

Blanca Casado Pelaez1, Ángeles Ruth Bort Martí1, Miguel ángel Merino Ramirez2, Juan Antonio Simal Julian3, Dora Fernandez Agrafojo4

1Department of Ophthalmology, University and Polytechnic Hospital La Fe de Valencia, Spain

2Department of Neurophysiology, University and Polytechnic Hospital La Fe de Valencia, Spain.

3Department of Neurosurgery, University and Polytechnic Hospital La Fe de Valencia, Spain

4Centro INOF, Centro Médico Teknon, Barcelona, Spain

Introduction: Free Running Electromyographic (f-EMG) monitoring of extraocular muscles during Endoscopic Skull Base Surgery (ESBS) enhances precision and safety by detecting neurotonic discharges, highly predictive of nerve injury. Despite its potential, standardization and robust evidence are limited. This study evaluates the feasibility and utility of f-EMG using literature and institutional data

Materials-Methods: We present a case series of 30 patients, from 180 undergoing ESBS (January 2022–December 2024), with oculomotor cranial nerves surgically exposed and at risk of injury. Diagnoses included sphenoidal/clival meningiomas and chordomas, excluding pituitary adenomas. EMG recordings during surgery and ocular deviations at weeks 1, 12, and 24 post-surgery were evaluated by the same strabologist

Results: Two patients (6%) had preoperative oculomotor palsy. Neurotonic discharges occurred in one case. Postoperative oculomotor palsy was observed in 18 patients (60%), with one recovering fully within six months. Strabismus surgery was required in 11 cases.

Conclusion: At our institution, f-EMG monitoring is protocolized to prioritize safety, yet its impact on oculomotor outcomes remains unclear. The absence of neurotonic discharges suggests a high negative predictive value but cannot fully exclude nerve injury, risking overconfidence and aggressive approaches. Prospective case-control studies face ethical and logistical challenges, including small sample sizes and variability in protocol. We propose implementing multicenter registries and standardized protocols to enhance data quality and evidence. These initiatives would support integrating f-EMG monitoring in ESBS and optimize resource allocation for these techniques.

Keywords: Electromyographic Monitoring, Extraocular Muscles, Endoscopic Skull Base Surgery

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-037 - Multidisciplinary Surgical Management of Complex Orbital and Strabismus Sequelae Following Severe Orbital Trauma

Aylin F. Taner1, Leah Disse1, Raphael Ferrari2, Karla Chaloupka1, Christina Gerth Kahlert1

1Department of Ophthalmology, University Hospital Zurich, Zurich, Switzerland

2Department of Cranio-Maxillo-Facial and Oral Surgery, University Hospital Zurich, Zurich, Switzerland

We present the case of a 28-year-old female who sustained a left orbital contusion from a ski pole, causing severe trauma with lateral midface fractures and a complex motility disorder, presenting with diplopia and blurred vision. Imaging revealed a comminuted orbital floor fracture with entrapment, suspected partial rupture of the medial rectus muscle, peri- and intraconal hemorrhage, and traumatic telecanthus. Initial orbital floor reconstruction was performed at a regional hospital, followed by a combined surgical intervention by oculoplastic and maxillofacial surgeons at our centre including tear duct intubation and secondary orbital floor reconstruction with a patient-specific implant.

A partial oculomotor nerve palsy caused paralysis of the medial rectus muscle with restricted depression, suspected to be ischemic or traumatic in origin. Strabological surgery involved a modification of Kaufmann's technique, transposing half of the superior and the lateral rectus muscle to a medial-inferior position posterior to the equator. A second intervention on the medial rectus muscle was complicated by spontaneous intraoperative detachment but succeeded in reattachment and further reduction of exotropia.

Lid reconstruction was performed in subsequent procedures. Ultimately, the patient achieved a visual acuity of 0.8, binocular single vision in primary and slight left gaze with prism diopters, along with residual motility restrictions and mild lid asymmetry.

Six surgeries over two years achieved a good functional and aesthetic outcome. This case underscores the importance of a stepwise, interdisciplinary approach in managing complex orbital trauma. Innovative techniques, such as muscle transposition and customized implants, were essential to restoring both function and appearance.

Keywords: orbital trauma, strabological surgery, traumatic motility disorder

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-040 - Pain score in adjustable strabismus surgery

Sana Nadeem

Ophthalmology, Foundation University Islamabad, Pakistan

Introduction: To assess the pain experienced by patients at the time of suture adjustment using topical proparacaine hydrochloride 0.5% anesthesia, in adjustable suture strabismus surgery.

Materials-Methods: A prospective study was carried out to assess the pain experience of patients undergoing suture adjustment under topical proparacaine hydrochloride 0.5% anesthesia, during routine adjustable squint surgery. All surgeries were performed under general anesthesia with suture adjustment done 1 hour or more after surgery when the effects of general anesthesia had worn off. Horizontal and vertical muscle recessions and resections were included along with inferior oblique surgeries, and transposition procedures. The patients were given the 'Wong-Baker FACES® Pain rating Scale'; along with a 'Numeric Pain Rating Scale' from 0 to 10 (0 signifying 'no pain' and 10 signifying 'worst possible pain') on a proforma. The response of the patients was noted.

Results: Thirty three patients who underwent adjustable strabismus surgery were included in this study. The mean age was 19.1 ± 11.1 years. The average number of muscles operated upon for each patient were 2.87 ± 1.08. The patients' response to the 'Wong-Baker FACES® Pain rating Scale' ranged from 0 to 8, with a mean of 2.03 ± 1.81 SD. On the 'Numeric Pain Rating Scale' a similar response was obtained with a mean of 2.0 ± 1.82 SD. Augmentation of anesthesia was not needed in any patient.

Conclusion: Adjustment of sutures under topical proparacaine hydrochloride 0.5% anesthesia after strabismus surgery is a practical, comfortable and safe procedure.

Keywords: Adjustable suture, Strabismus, Pain score, Pain scale, Topical anesthesia

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-045 - Assessing the performance of Large Language Models (ChatGPT-4, Gemini, and Copilot) on infantile esotropia-related questions

Esra Sahli1, Özlem Biçer2, Pınar Bingöl Kızıltunç1, Huban Atilla1

1Department of Ophthalmology, Ankara University, Ankara, Turkey

2Graduate School of Health Sciences, Ankara University, Ankara, Turkey

3Elmadag Dr. Hulusi Alatas State Hospital, Ankara, Turkey

Introduction: The aim is to evaluate the accuracy and readability of three large language models (LLMs), ChatGPT-4, Gemini, and Copilot, in responding to common inquiries about infantile esotropia.

Materials-Methods: Frequently asked 20 questions about infantile esotropia were identified using the Google search tool, posed to LLMs, and evaluated by a board-certified pediatric ophthalmologist using a five-point Likert scale (1–5). Responses from LLMs were analyzed for readability using the Flesch Reading Ease Score (FRES) and Flesch-Kincaid Grade Level (FKGL) tests. Also, response length including the sentence and word count of each LLM response was noted.

Results: ChatGPT-4 demonstrated good performance, with 95% of responses rated as 'highly or mostly accurate', while the rates were 70% and 80% for Gemini, and Copilot, respectively. The mean accuracy scores for ChatGPT-4, Gemini, and Copilot were 4.65, 3.8, and 4.15, respectively ($p = 0.031$). ChatGPT-4 scored 27.65 for the FRES and 12.66 for the FKGL, Gemini scored 34.05 for the FRES and 12.2 for the FKGL, and Copilot scored 37.75 for the FRES and, 12.3 for the FKGL. ChatGPT-4 exhibited statistically the longest responses compared to Gemini, and Copilot ($p< 0.001$).

Conclusion: The LLMs can provide accurate answers to questions on various topics related to infantile esotropia. However, the LLMs' responses were generally difficult to read and suitable for readers educated at the high school or college level. With the advancements in technology, patients and their families can now get answers to their inquiries from LLMs in cases where they cannot reach a healthcare professional.

Keywords: ChatGPT-4, Copilot, Gemini, infantile esotropia, large language models

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-046 - Accuracy of the answers given by artificial intelligence to the questions asked in strabismus and strabismus surgery

Mehmet Yusuf Tahaoglu1, Serife Gulhan Konuk1

1Tokat Gaziosmanpasa University Faculty Of Medicine, Opthalmology Dep.

Introduction/ Aim: Increasing technology - artificial intelligence and people's use of these tools are seen to be increasing, and there is misinformation as well as correct information. To evaluate the suitability, readability and quality of the answers given by chat robots to frequently asked questions (FAQ) about strabismus and strabismus surgery.

Materials-Methods: 30 questions about strabismus and strabismus surgery, which are frequently asked and wondered by patients, were asked to 2 chatbots that are widely used and have high accuracy of answers. The appropriateness of the answers was evaluated by an experienced surgeon and with up-to-date textbooks.

Results: Based on the answers generated by the chatbots, ChatGPT 4.0 had 86.6% accuracy and relevance rates, while Gemini had 93.3%. In terms of readability, it was observed that all chatbots were moderately difficult to read (requiring a certain sociocultural level) and the answers were at a university level.

Conclusion: Chatbots, which have started to take their place in our daily lives, make our lives easier, but they can rarely give inappropriate and misleading answers. At the same time, these chatbots, which are partly easy and partly difficult to read, have been found to be similar to each other in terms of content, readability, accuracy of answers and providing detailed information.

Keywords: strabismus, strabismus surgery, artificial intelligent, FAQ

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

A-047 - Readability of the Strabismus Clinic's informed consent forms against those generated by ChatGPT

Tugce Horozoglu Ceran, Hamidu Hamisi Gobeka, Mustafa Dogan

Afyonkarahisar Health Sciences University

Introduction: This study aims to evaluate and compare the readability of the preoperative informed consent forms currently used in strabismus department with those generated by ChatGPT.

Materials-Methods: In this study, the Bezirci-Yilmaz and Atesman formulas, which are Turkish translation of the Flesch Reading Ease formula, were used to evaluate the readability of the consent forms.

Results: The Atesman readability score of the consent form currently used in the clinic was 49.47, requiring an educational level equivalent to grades 13-15 (university level) for comprehension. The Bezirci-Yilmaz score of the same form was 11.72, indicating the need for an educational level equivalent to 11th grade (high school) to understand the content. The informed consent form generated by ChatGPT had an Atesman readability score of 64.61, requiring an educational level equivalent to grades 9-10 (high school) for comprehension. The Bezirci-Yilmaz score of the ChatGPT-generated form was 5.61, suggesting that it could be understood by individuals with an educational level equivalent to 5th grade (primary school).

Conclusion: This study highlights the potential benefits of artificial intelligence-based models in improving the readability of informed consent forms. However, it is essential to critically evaluate AI-generated texts for medical accuracy and detail to ensure patient safety and informed decision-making.

Keywords: Artificial intelligence, ChatGPT, informed consent, readability, strabismus

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-049 - A Comparison of Refractive Status and Strabismus in Twin Siblings with Dissimilar and Similar Severity of Retinopathy of Prematurity

Ayse Ipek Akyuz Unsal1, Sena Özmen1, Duygu Güler1, Sayime Aydin Eroglu2, Imran Kurt Omurlu3, Seyhan B. Özkan4

1Department of Ophthalmology, Aydin Adnan Menderes University, Aydın, Turkey

2Deparment of Ophthalmology, Izmir Bakircay University Cigli Training and Research Hospital, Izmir, Turkey

3Department of Biostatistics, Aydin Adnan Menderes University, Aydın, Turkey

4Aydin Private Practice, Aydin, Turkey

Aim: The aim of this study is to compare the development of refractive errors and strabismus as amblyogenic factors in twin siblings with dissimilar and similar retinopathy of prematurity (ROP) severity.

Materials-Methods: This retrospective study analyzed 289 children (including 3 sets of triplets and 20 pairs of identical twins) aged 4–9 years who were screened for retinopathy of prematurity (ROP). Among these, 55 were classified as dissimilar in ROP severity, while 234 were similar. Dissimilarity in ROP severity was defined as at least one-stage difference between twins or the presence of avascular retinal areas in one twin versus ROP at any stage in the other. Twins with dissimilar ROP severity were further categorized into subgroup 1 (mild) and subgroup 2 (moderate). All participants underwent cycloplegic refractive and ocular motility examinations.

Results: The median refractive values were significantly different between the dissimilar (median: -0.25 D) and similar groups (median: +1.0 D, $p < 0.001$). There were no significant difference between subgroups regarding refraction, anisometropia, ocular alignment, or ROP risk factors. The dissimilar group included 2 cases of exotropia and 2 of exophoria, while all twins in the similar group were orthophoric.

Conclusion: The results of this study reveals that the presence or severity of ROP did not have a significant impact on refraction and strabismus development in prematures contrary to literature, except very severe ROP patients necessitating laser treatment. So. there seems no need to change the follow-up schedule in premature individuals with mild or moderate ROP.

Keywords: amblyopia, retinopathy of prematurity, refraction, strabismus, twins

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-050 - Ocular Motility and Visual Findings in Children with Periventricular Leukomalacia (PVL)

Sezin Akça Bayar1, Zeynep Kayaarası Ozturker3, Imren Akkoyun1, Taner Sezer2, Sibel Oto1

1Baskent University Hospital, Department of Ophthalmology, Ankara

2Baskent University Hospital, Department of Pediatric Neurology, Ankara

3Baskent University Hospital, Department of Ophthalmology, Istanbul

Introduction: The study aimed to evaluate the ocular motility and visual and optic disc abnormalities in children diagnosed with periventricular leukomalacia.

Materials-Methods: A retrospective analysis was performed on 81 consecutive children were diagnosed with PVL by using MRI. The patients were assessed for visual function, strabismus, cycloplegic refraction, fundus examination, and visual field testing were applied.

Results: The mean age was 5.8±23.2 years (range;1-16), median birth weight was

2.820±320 g (range.1.200-3.500), and median gestational age was 34 weeks (range; 28-

38). In total, 38 patients (46.9 %) had neurological deficit, 29 (35.8 %) had intellectual

disability. 23 patients had >3.0 D myopia, 26 had >3.0 D hyperopia, and 13 had >2.50 D astigmatism. Twenty-four (29.6 %) children had a BCVA between 20/40 and 20/20 for Snellen card, while 19 (23.4 %) had strabismic amblyopia and 16 (19.7 %) had anisometropic amblyopia. Manifest strabismus

was present in 48 patients (59.2 %); of whom 21 had esotropia (25.9 %), 27 had exotropia

(33.3 %) and 12 had vertical deviation (14.8 %). Manifest or latent nystagmus was detected in

24 patients (29.6 %). Three (3.7 %) patients had hypoplastic disc, 19 (23.3 %) had optic disc pallor, 11 (13.5 %) had large cupping, and 7 (8.6 %) had total optic atrophy. Thirty-seven (45.6 %) subjects underwent reliable visual field (VF) examinations, and all 18 (48.6 %) had abnormal VFs.

Conclusion: Ocular motility disorders, optic nerve abnormalities, VF defects are common findings in this cohort of PVL patients and maybe the only presenting signs of the dsease.

Keywords: Periventricular leukomalacia, chidren, strabismus, optic disc anomaly

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-051 - Characteristics of eyesight functioning and vision abnormalities in STXBP1 synaptopathy patients

Agnieszka Rosa1, Dominika Nowakowska2, Piotr Rosa3, Justyna Simiera4

1Department of Binocular Vision Pathophysiology and Strabismus, Medical University of Lodz, University Barlicki Hospital No.1, Lodz, Poland; Orticus Center for the Treatment of Strabismus and Vision Disorders, Stawowa, Poland

2Chair and Department of General and Pediatric Ophthalmology Medical University of Lublin

3Orticus Center for the Treatment of Strabismus and Vision Disorders, Grodzisk Mazowiecki,Poland

4Department of Binocular Vision Pathophysiology and Strabismus, Medical University of Lodz, University Barlicki Hospital No.1, Lodz, Poland;

Introduction: An attempt was made to describe the specificity of children's visual functioning with developmental epileptic encephalopathy resulting from mutations in the STXBP1 gene.

Methods: The study included 26 patients from the Polish STXBP1 population (11 men and 16 women; mean age: 7 years and 4 months; SD 4.03; range: 2–16 years). Data were collected from medical records: ophthalmological, neurological and genetic information. Comprehensive orthoptic and ophthalmological examinations were carried out.

Results: The average prevalence of hyperopia was 94.3%, with hyperopia above 4.25 D occurring in 21.2% of participants. Astigmatism was present in all patients, with values exceeding 2.75 D observed in 26.9% of the group. No major eye diseases were identified during the ophthalmological evaluation. The mean disc-foveal angle (DFA) across all subjects was 7.23° ± 6.85° (range: -10.34° to 19.77°). Convergence was absent in 53.8% (n = 14). The mean of both eyes accommodation responses (MEM) >=+1.0 D were obtained by 90.5%. The mean AC/A ratio was 1.16 (SD 1.05; range 0 to 3.3). Fusion (20 base out prism test) was diagnosed in 77% (n=20) of patients, of which 85% (n=17) had a positive response.

Conclusions: This study is the first attempt to comprehensively assess visual functioning in children with STXBP1 synaptopathy. Binocular vision development in individuals with STXBP1 differs significantly from the general population. Considering the high prevalence of refractive errors and hypoaccommodation and a low AC/A ratio, the use of corrective eyewear is recommended and provide early visual diagnostics.

Keywords: STXBP1 synaptopathy, hypoaccommodation, rare genetic mutation, epilepsy

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-054 - From Infancy To Adolescence: An 11-Year Follow-Up On Strabismus In Infants Following Congenital Cataract Surgery

Uzay Temel1, Elif Demirkılınç Biler1, Onder Uretmen2

1Ege University, Faculty of Medicine, Department of Ophthalmology, Izmir, Turkiye

2Kaskaloglu Eye Hospital, Izmir, Turkiye

Introduction: The purpose of this study is to determine the incidence and characteristics of strabismus at long-term follow-up of congenital cataract surgery in infants.

Materials-Methods: A total of 64 patients who underwent congenital cataract surgery before the age of 12 months and followed for over 7 years were included in the study. Data regarding patient age, gender, laterality, age at surgery, follow-up duration, best corrected visual acuity (BCVA), presence of strabismus, alternans, nystagmus, were retrospectively obtained from the records.

Results: The mean follow-up was 11,7±3,2 years with a female-to-male ratio of 0,64. The average age at the time of surgery was 4,19±2,84 (1-12 months). 10 Patients had unilateral, and 54 patients had bilateral congenital cataracts. In the last follow-up, average BCVA of 93 eyes which can be obtained was 0,42 ± 0,25(0,05–1,0). Postoperatively, strabismus was observed in 44 (68.8%) patients, 27 (42.2%) with esotropia and 17 (26.6%) with exotropia. Strabismus was present in all unilateral cases whereas 35 bilateral cases (%64.8) had strabismus. Additional factors such as age at the time of cataract surgery, gender, presence of glaucoma or nystagmus were not significantly associated with the occurrence of strabismus.

Conclusion: Strabismus occurs more often in infants who have undergone congenital cataract surgery compared to the general population. Infants with unilateral cataracts face a greater risk of amblyopia whereas more than half of the bilateral cases also had strabismus. Long-term follow-up for strabismus and amblyopia in congenital cataract cases is essential for ensuring the proper visual development of these infants, especially in unilateral cases.

Keywords: congenital cataract surgery, strabismus, aphakia, nystagmus, aphakic glaucoma

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-055 - The development of strabismus and amblyopia after congenital cataract surgery

Fatma Gül Yılmaz Çınar1, Umay Güvenç1, Evin Şingar1, Yasemin Topalak1, Züleyha Yalnız Akkaya1, Nurten Ünlü1, Bekem Güvenir2, Ayşe Burcu1

1Ankara Training and Research Hospital, Ankara, Turkey

2Burhan Nalbantoğlu State Hospital, Lefkoşa, Cyprus

Introduction: According to World Health Organization (WHO), congenital cataract is one of the preventable causes of childhood blindness. It's important that early diagnosis of cataract, preventing the development of strabismus and amblyopia for visual rehabilitation. This article objective is to investigate the development of strabismus and amblyopia in patients who had congenital cataract surgery

Materials-Methods: Between January 2000 and October 2024 records of patients who underwent congenital cataract surgery were evaluated. Type of surgery, surgery time, visual acuity, follow up time, onset of strabismus and amblyopia and presence of stereopsis were recorded.

Results: 285 eyes of 169 patients (116 bilateral, 53 unilateral) who underwent surgery for congenital cataract were examined. Mean age at surgery for 169 patients (53.2% male, 46.8% female) is 23.4 months. 52.8% cases had undergone surgery under 12 months. Deviation developed in 48.7% of patients, esodeviation was more often than exodaviation (26.3%, 22.4%, respectively). Strabismus development was higher in early surgery (under 12 months) and unilateral surgery group but this wasn’t statistically significant. Aphakic surgery group had a 52.8% strabismus development rate, while it was 44.6% in the primary pseudophakic group. Amblyopia and nistagmus were significantly higher in strabismus group. Stereopsis was better in patient without strabismus. Unilateral surgery group had a higher rate of amblyopia than those bilateral surgery group and this was statistically significant.

Conclusion: Patients who underwent earlier surgery for bilateral cataract were less likely to develop amblyopia. Early diagnosis and management are important for visual development in congenital cataract.

Keywords: Congenital cataract, Strabismus, Amblyopia

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-056 - Lessons Learnt In Near Digital Screen Activity Induced Late Onset Acute Comitant Esotropia

Duygu Güler1, Sena Özmen1, Ayşe Ipek Akyüz Ünsal1, Şule Ziylan2, Seyhan Bahar Özkan3

1Department of Ophthalmology, Adnan Menderes University, Aydın, Türkiye

2Private Eye Clinic, İstanbul, Türkiye

3Private Eye Clinic, Aydın, Türkiye

Introduction: In an attempt to clarify the risk factors and management outcomes we investigated a group of patients with acute comitant esotropia (ACE) initiated following near digital activities.

Materials-Methods: The study population included 72 patients >=5 years of age with a history of sudden onset esotropia following excessive near digital screen use. Age, family history, duration of digital device use, MRI, ophthalmological and orthoptic examination findings were analysed. Near digital activities were restricted in all patients, refractive errors were corrected and either botulinum toxin (BTX) injection (32 cases) or strabismus surgery (9 cases) was performed. Follow up period was 20± 22 months (6-96).

Results: The mean age of the patients were 15± 9 (5- 48). The duration of near digital device activity was 6±2 hours (4-15h). Diplopia was reported in 85% of the patients. In 57 patients who underwent brain MRI no neurological abnormality was reported. In 65 cases (90,28%) the symptoms disappeared and the deviation was within <=5 PD with conservative methods alone in 26 (36,1%), with BTX injection in 30 (41,68%) and with surgery in 9 (12,5 %). Evaluation for monofixation syndrome was possible in 61 cases after alignment and 24 (39%) of them demonstrated signs of monofixation syndrome.

Conclusion: BTX offers effective long term alignment, while conservative methods remain fundamental for all cases. Surgical intervention should be reserved for patients with large, long-standing deviations or those unresponsive to BTX treatment. The high rate of monofixation syndrome following treatment suggests that it may be a major underlying risk factor.

Keywords: Acute comitant esotropia, Botulinum toxin, Digital screen, Monofixation syndrome, MRI, Strabismus surgery

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-058 - Interaction of refraction and interventions in infantile esotropia:4-year results of comparison of bimedial recession and chemodenervation

Tülin Öğreden, Havvanur Bayraktar, Tarık Dinçer, Idil Çelen, Havva Kaldırım

Başakşehir Çam and Sakura City Hospital,Ophthalmology Department,İstanbul

Introduction: In infantile ET, high hypermetropia is not uncommon.The aim of this study is to evaluate the relationship between hyperopia and different treatments in infantile esotropia(IE).

Materials-Methods: Nonrandomized, retrospective case series.The records of patients who underwent bimedial rectus recession(MRR) and bimedial chemodenervation(MCD) between 2020 and 2024 were analysed.The cases were divided into two groups according to preoperative spherical equivalent(SE):+3.0 diopters(D) and less in group1,+3.0D above in group2.The angle of deviation was evaluated in the first and sixth months.

Results: 70 cases were analyzed.The average age was 26.9±18.2 months.There were 52 case(74.3%) in group1;and 18 case(25.7%) in group2.The number of patients who underwent MMR and MCD was 35 each.

The SE in group1 were;+1.31±0.98 before procedure,+1.40±1.21 in the first and +1.44±1.48 in the 6th month.These values were as follows in group2 in respectively:+4,43±1,14/+3.63±1,31 and +2,74±1,70.

In group1, no significant difference was observed in the SE value between the preoperative and follow-ups(p=0.650, p=0.611,respectively).

In group2, SE values tended to decrease during the follow-ups.The change was showed a significant decrease in the 6th month(p=0.01).

The deviation was as follows in group1:29.25±8.50 before procedure, 4.48±8.54 in the 1st month and 5.37±10.49 in the 6th month. In Group2, the values were as follows:33.67±9.71/12.17±16.43 and 10.89±16.89,respectively.

In group1 the rate of orthophoria and microtropia was 78.8% in final fallow-up. The consecutive XT was 11.5% and residual ET was 9.7%.In group2, these rates were 61%, 5.6% and 33.4%, respectively.

Conclusion: After the procedures,high hyperopic values tend to decrease faster than low values. However, high initial hyperopic values may increase residual ET.

Keywords: hyperopia, infantile esotropia, chemodenervation, bimedial rectus recession

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-059 - Restoration of Binocular Single Vision in Acute Acquired Comitant Esotropia

Oana Andrei, Irina Adriana Velcea, Adina Grigorescu

Oftapro Ophthalmology Clinic, Bucharest, Romania

Introduction: Acute Acquired Comitant Esotropia (AACE) is characterized by acute onset of large angle esotropia usually with diplopia in older children and adults.

Materials-Methods: We analyzed retrospectively 30 cases with AACE (ages 3-47 y.o) who underwent surgery between 2020-2024.

Follow-up was between 2 months and 4 years. Surgery was performed between 4 months and 10 years after the onset. The age of onset, refractive error, angle of deviation, duration of esodeviation, presence of diplopia, motor alignment, stereoacuity and fusional status were assessed.

Results: 27 patients presented good alignment after surgery (0-8 PD esotropia). 1 patient had 30 PD residual esotropia and necessitated second surgery. 2 patients had 10-12 PD residual esotropia but binocularity was restored, In 27 patients stereoacuity was restored and in the remaining 3 patients, only fusion was restored.

Conclusion: Age of onset, duration of esodeviation and the presence of suppression before surgery did not affect the regaining of binocularity in AACE.

Although early surgery is recommended in AACE, the majority of patients recovered good stereopsis, even in the cases where the time between surgery and the onset of strabismus was longer.

Keywords: AACE, surgery, stereopsis

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-060 - Characteristics and management of cyclic esotropia: a scoping review protocol

Vaishali Lodhia1, Alasdair Kennedy1, Desta Bokre1, Jonathan Marler2

1Moorfields Eye Hospital, 162 City Road, London, EC1V 2PD, United Kingdom

2Sussex Eye Hospital, University Hospitals Sussex, Eastern Road, Brighton, BN2 5BF, United Kingdom

Introduction: Cyclic esotropia is a rare form of strabismus characterized by alternating periods of esodeviation, typically occurring in a predictable cycle. Its etiology and treatment remain incompletely understood. This review aims to synthesize current evidence on the epidemiology, clinical features and treatment for cyclic esotropia.

Materials-Methods: Systematic searches were conducted in Ovid Medline Embase, Cochrane Registered Trials, Web of Science and Scopus databases. The key concepts used for searches are "Cyclic Esotropia" and "Treatment". Two independent reviewers screened title and abstract of studies against pre published protocol to select relevant studies. No language restrictions were applied.

Results: A total of 55 studies met inclusion encompassing case reports, case series, and observational studies. 83 cases were identified. Diagnosis was primarily clinical based on cyclic patterns of deviation. Average age was 7 years with a 50:50 male:female ratio. 85% of cases had a 24 hour pattern, with the majority of the remainder being 48 hours. 12% of cases reported amblyopia. Average refraction was +0.7 sphere. Average deviations were similar for both near (36PD) and far (37PD). 28 cases reported surgery with bimedial recessions, 95% of which were successful in correcting the esotropia within 6 months. 10 cases were successfully treated with botox.

Conclusion: Cyclic esotropia remains an enigmatic condition requiring greater awareness and standardized diagnostic protocols. While surgery appears effective, more evidence is needed to optimize management and assess long-term stability. Further research should focus on pathophysiological mechanisms and therapeutic approaches.

Keywords: Cyclic, esotropia, scoping, protocol

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-062 - Long-Term Outcomes of Infantile Esotropia Surgery: A Clinical Review

Selen Canan, Sabiha Güngör Kobat

Department of Ophthalmology, Fırat University, Elazığ

Introduction: Infantile esotropia (IE) is a large-angle strabismus that typically presents within the first six months of life. Bilateral medial rectus recession (BMR) surgery is the most commonly performed surgical procedure for IE. This study aims to analyze the clinical characteristics, surgical outcomes, and long-term follow-up results of IE patients treated at our clinic.

Materials-Methods: This retrospective study included 50 patients with IE (26 females, 24 males) who underwent standard BMR surgery. Data were collected on age at presentation, refractive error, deviation angle, timing of surgery, and follow-up outcomes.

Results: The mean age at presentation was 14.6 ± 13.4 months, with refractive errors <=3.0 D. The mean deviation angle at presentation was 36.4 ± 7.7 Prism Diopters (PD). BMR surgery was performed at an average of 5.2 ± 5 months after presentation. The mean residual deviation was 3.8 ± 5 PD esotropia at two weeks postoperatively. Long-term orthophoria was achieved in 33 patients (66%). Inferior oblique overaction (IOOA) developed in 10 patients (20%), dissociated vertical deviation (DVD) in 11 patients (22%), and consecutive exotropia in 8 patients (16%) after an average follow-up of 5 years. The best-corrected visual acuity (BCVA) at the final visit was 0.83 ± 0.26 in decimal notation, which is approximately equivalent to 20/25 on the Snellen chart, based on data from 100 eyes.

Conclusion: IE is an early-onset strabismus requiring timely surgical intervention. BMR surgery is effective in achieving alignment, but long-term follow-up is crucial to monitor postoperative findings such as IOOA, DVD, and consecutive exotropia.

Keywords: Infantile Esotropia, Bilateral Medial Rectus Recession, strabismus

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-063 - A retrospective comparison of combined bimedial recession and bilateral inferior oblique weakening versus bimedial recession alone, in the treatment of esotropia

Clea Southall, Ken Kawamoto, Elliott Taylor, Qasim Alarabiat, Naomi Tan, Rohit Jolly, Saurabh Jain

Ophthalmology Department, Royal Free Hospital, London, United Kingdom

Introduction: Primary inferior oblique (IO) overaction is associated with childhood esotropia in nearly 30% of cases. Patients requiring surgical correction of both may have this performed concurrently or sequentially in a staged manner. Staging carries morbidity of two general anaesthetics, but mitigates uncertainty surrounding the effect of IO weakening on the dosage of surgery needed for esotropia.

We compared outcomes in patients undergoing simultaneous bimedial recession (BMR) and IO weakening with those undergoing BMR alone.

Methods: A retrospective case-control study was performed of 38 patients who underwent either BMR and IO or BMR alone, between 2010 and 2024. Groups were matched for age at operation and pre-operative angle of deviation in primary gaze. The primary outcome was amount of prism dioptre (PD) per mm of surgery performed.

Results: Each group had 19 patients, with a male to female ratio of 10:9. Mean (SD) age at operation was 4.1 years (BMR and IO: ±1.8; BMR: ±1.7). Median (IQR) follow-up was 28 months (±12.5-40) for BMR and IO and 9 months for BMR (±1.8-29.5). Mean (SD) post-operative outcomes for near, were 3.1PD/mm (±1.3) for BMR and IO and 2.9PD/mm (±1.4) for BMR (p =0.66). For distance, the mean (SD) was 2.5PD/mm (±1.2) for BMR and IO, and 2.8PD/mm (±1.1) for BMR (p = 0.56).

There was no statistically significant difference in outcomes between groups.

Conclusion: Combined BMR with IO yielded post-operative outcomes comparable to those of BMR alone, without requiring adjustments to the surgical dosage for MR recession.

Keywords: esotropia, inferior oblique overaction, paediatric

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-064 - Comparison of the results of three-muscle surgery with bimedial recession and faden operation in cases with convergence excess type esotropia

Aslı Inal, Ceren Gurez, Tolga Yılmaz, Gizem Kutlutürk

University of Health Sciences, Beyoglu Eye Education and Research Hospital, Istanbul, Turkey

Introduction: Comparison of the effects of bimedial recession and faden operation and bimedial recession and unilateral rectus resection surgery (three-muscle surgery) on the deviation measurements in cases with convergence excess type esotropia (ET)

Materials-Methods: The files of the cases who were operated on with the diagnosis of convergence excess type ET between 2009 and 2014 were retrospectively examined. Among these cases, those who underwent bimedial recession and faden operation (Group 1) and three-muscle surgery (Group 2) and whose follow-up period was longer than 5 years were included in the study. Preoperative and postoperative 1st year, 5th year and last follow-up deviation measurement values were determined in these cases. The two surgical groups were compared statistically and additional operations performed on the patients were evaluated.

Results: Twenty-one patients were included in group 1 and 20 patients were included in the group 2. In Group 1, mean preoperative near deviation was 49.3±9.99 PD, and mean distance deviation was 37.65±11.78 PD, while in Group 2 mean near deviation was 50.2 ± 9.90 PD, and mean distance deviation was 36.25±10.24 PD. A statistically significant difference was found between the two groups in terms of deviation measurements at the 1st year postoperatively ($p<0.05$). During the follow-up, 3 (14.2%) patients in Group 1 and 8 (40%) patients in Group 2 underwent reoperation.

Conclusion: In both groups, the deviation values decreased statistically significantly. In cases that underwent three muscle surgery, reoperation rates due to consecutive exotropia were found to be higher during the follow-up.

Keywords: Bimedial recession, convergence excess esotropia, faden, lateral rectus resection, strabismus surgery

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-068 - Bupivacaine Injections for the Treatment of Age-Related Distance Esotropia

Megan K Wood, Ian B Marsh

Ophthalmology department, Aintree University Hospital, Liverpool, UK

Introduction: Bupivacaine injection in the extraocular muscles is an emerging treatment for small angle strabismus. The aim of the study was to identify if it can be used as an effective alternative to surgery in patients with age-related distance esotropia (ARDE).

Materials-Methods: All patients receiving either strabismus surgery or bupivacaine injections for age-related distance esotropia at Aintree University Hospital in 2022-2024 were identified through surgical logbooks and electronic records. Electronic records were retrospectively analysed to collect data on the age, visual acuity, surgical details, complications and pre and post operative horizontal deviation in primary gaze at distance and near. Data was also collected on whether patients had any prior and subsequent treatment (prisms, surgery or bupivacaine) and whether they experienced diplopia at follow up. Complete success was determined as no symptoms of diplopia and no need for further treatment.

Results: 8 bupivacaine injections (BPX) and 11 lateral rectus resections (LRR) were performed on patients with ARDE. Average follow up length was 44 and 143 days in the LRR and BPX group respectively. The LRR group reduced the average horizontal distance deviation from 14PD (range 6-20) to 3.9 PD (range 0-8) (1d.p.). 7/11 (64%) of the procedures qualified as a complete success. The BPX group reduced the average horizontal distance deviation from 7.3PD(1d.p.) (range 6-10) to 4.1 PD (range 1-15) (1d.p.). 5/8 (63%) of the procedures were a complete success.

Conclusion: Bupivacaine injection can be used to successfully treat ARDE as an alternative or adjuvant to strabismus surgery.

Keywords: Bupivacaine, age-related distance esotropia, lateral rectus resection

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-069 - Unilateral lateral rectus resection in patients with acquired distance esotropia: a case series

Rehana Sadia1, Wahid Ghaffari2, Raheej Khan1, Adam Budd3, Tracy Sanderson4, Anna Maino1

1Manchester Royal Eye Hospital, Manchester, UK

2Department of Medical Education, Stockport NHS Foundation Trust, Stockport, UK

3Stepping Hill Hospital, Stockport, UK

4Manchester Foundation NHS Trust, UK

Introduction: To report the results of a series of patients with acquired distance esotropia (ET) who underwent lateral rectus resection.

Materials-Methods: We retrospectively analysed data from 30 symptomatic patients with acquired esotropia who did not tolerate prisms. Twelve patients had myopic ET, 6 patients decompensated esophoria and 12 patients age-related distance ET. Three patients with decompensated esophoria and 2 with myopic had surgery to medial recti muscles previously. Near and distance angles were measured over 2 visits. Data were analysed with paired t-test and one-way ANOVA.

Results: Average age was 49 (myopes), 28 (esophoria) and 65 years (age-related). Average lateral rectus resection was 7.25 mm (myopes), 6.5 mm (esophoria) and 7 mm (age-related).

Distance angle was reduced from 21 PD to 6 PD in myopes (mean difference 15 PD), from 21 to 5 in esophorias (mean difference 16 PD) and from 25 PD to 7 PD in age-related ET (mean difference 18 PD). There was no difference in postoperative near angle (p=0.705) or in reduction of distance angle among groups (p=0.500). Twenty-eight patients had complete resolution of diplopia after surgery, one myope needed a 6 PD prism and another myope went on to have medial rectus recession.

Conclusion: Unilateral lateral rectus resection is an effective procedure for acquired distance esotropia caused by several conditions. In our case series, it does not produce incomitance nor near esotropia and it corrected diplopia in 93% of cases.

Keywords: esotropia, surgery, incomitant strabismus

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-070 An atypical Saging eye syndrome with large angle esotropia

Osman Melih Ceylan, Elif Sena Özdemir, Fatih Mehmet Mutlu

Deparment of Ophthalmology,Gulhane School of Medicine,University of Health Sciences,Ankara,Türkiye

Introduction: We aimed to present an elderly patient with Sagging Eye Syndrome (SES).

Materials-Methods: Ophthalmic examination including eyelids appearance, ductions, versions and alternate prism cover test were evaluated. An orbital magnetic resonance imaging (MRI) was obtained. Patient underwent bilateral medial rectus (MR) recession, bilateral lateral rectus (LR) plication with left LR myopexy.

Results: Refractive error was +1.75x165 in diopters in the right eye and -0.50 diopters in the left eye. Alternate prism cover test revealed 60 prism diopter (PD) distance esotropia, and 45 PD near esotropia. Six prism hypotropia and excyclotorsion were present in the left eye. Bilateral ptosis with high eyelid creases and deepening of the superior sulcus were obtained. There was limitation in abduction -1 and supraduction -2 in both eyes. Orbital MRI demonstrated inferior displacement of the LR muscle and nasal displacement of superior rectus (SR) muscle on both eyes and rupture of the left LR-SR band ligament. The diplopia was eliminated postoperatively and the eyes were orthophoric at the 1 year follow-up.

Conclusion: Although acute esotropia requires investigation of systemic, neurological diseases, it should be kept in mind that connective tissue degeneration causes SES in elderly patients and may present with high angle of esotropia.

Keywords: Connective tissue, diplopia, esotropia

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-075 - Convergence Exercises for Exotropia: A Clinical Pilot Study

Changzoo Kim1, Hyojeong Kim2, Seunguk Lee1, Sangjoon Lee1

1Department of Ophthalmology, College of Medicine, Kosin University, Busan, Korea

2Department of Medical science, College of Medicine, Kosin University, Busan, Korea

Introduction: This study aims to evaluate the effectiveness of convergence exercises in patients with convergence insufficiency type exotropia.

Materials-Methods: A total of 30 patients with convergence insufficiency type exotropia(near-distance differences >=10) were included in the study. Among them, 20 patients performed convergence exercises, while the remaining 10 did not. The changes in the angle of deviation were compared between the two groups after 6 months.

Results: Total 30 patients were included and arranged into convergence exercises group and control group. The convergence exercise group consisted of 13 males and 7 females, while the control group included 6 males and 4 females. The average age of the convergence exercise group was 35.65 ± 10.44 years, and the control group was 32.50 ± 11.16 years. The group that performed convergence exercises showed significant improvements from 24.65 ± 5.46 prism diopter (PD) to 14.4 ± 5.71 PD in the angle of deviation at far and from 35.25 ± 5.36 PD to 23.85 ± 6.68 PD at near fixation ($p<0.05$). In contrast, the control group did not exhibit significant change at both far and near fixiations.

Conclusion: Convergence exercises were found to be effective in improving the angle of deviation in patients with convergence insufficiency type exotropia. These findings highlight the importance of convergence exercises in the treatment of exotropia and suggest their potential clinical application.

Keywords: Convergence Exercises, Convergence Insufficiency, Exotropia

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-076 - Virtual Reality Head-mounted Display Game for Intermittent Exotropia in a Randomized Controlled Trial

Dong Hyun Kim1, Hee Kyung Yang1, Je Hyun Kim2, Jeong Min Hwang1

1Department of Ophthalmology, Seoul National University College of Medicine, Seoul National University Bundang Hospital

2IT Department, Gachon University, Seongnam, Republic of Korea

Introduction: This study evaluated the effects of orthoptic training using a virtual reality (VR) head-mounted display game in patients with intermittent exotropia (IXT).

Materials-Methods: A prospective, randomized, double-blind study included 62 patients aged >=13 years with IXT of >=8Δ and a near >= distance angle, specifically basic and convergence insufficiency types. Patients were randomly assigned to an exercise group, which played a convergence-inducing VR game, or a control group, which played a non-convergence-inducing placebo game. Both groups completed 15 minutes of training daily for 4 weeks. Outcome measures included subjective symptom scores, angle of exodeviation, near point of convergence, stereoacuity, and fusional control scores using the Newcastle Control Score (NCS) and the Office Control Score (OCS). These were assessed after 4 weeks of training and after a 4-week washout.

Results: After 4 weeks, the exercise group showed a significant decrease in the near angle of exodeviation (29.6±9.5Δ to 25.3±9.0Δ, p<0.001), which persisted after 4 weeks of discontinuation (p=0.008). No significant changes were observed in the control group (p>0.05). Fusional control scores (NCS, OCS) significantly improved in the exercise group at both 4 weeks (p=0.001, 0.003) and 8 weeks (p=0.004, <0.001), while no improvements occurred in the control group.

Conclusion: VR-based orthoptic training significantly improved the near angle of exodeviation and fusional control scores in IXT, with effects sustained after discontinuation.

Keywords: intermittent exotropia, orthoptic exercise, virtual reality

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-077 - The Relationship of Refractive Errors and Intermittent Exotropia in a Tertiary Government Hospital in the Philippines

Michelle Garcia Dagta, Emilio Lopez Macias Iii, Angel Abanto Ancheta Jr., Sharlene Marie Javier Prile, Carlos Emmanoel Mossesgeld Chua, Dana Celine Cammayo Pang

Pediatric Ophthalmology and Strabismus Section, Department of Ophthalmology, Quirino Memorial Medical Center, Quezon City, Philippines

Introduction: Indications for surgical intervention in intermittent exotropia (IE) include poor control, diminishing stereoacuity, and aesthetic needs. Preoperative variables like age during surgery, lateral incomitance, amblyopia or anisometropia, stereopsis, and post-operative overcorrection influence the likelihood of surgical success and recurrence. Error of refraction (EOR) has been linked in the development and prognostication of the management of IE. However, this association remains contentious and conflicting.

Materials-Methods: A 4-year retrospective study in a tertiary hospital in the Philippines aims to determine the relationship between IE and EOR.

Results: 41 patients diagnosed with IE had a mean age of onset at 4.5 years, a mean age of consult of 8 years, and are mostly female (63.4%). 97.6% of these patients had a chief complaint of outward deviation. No known risk factors were seen in the majority of patients (65.9%). Patients mostly had equal visual acuity (63.4%) and mean deviation of 30PD and 29PD for distance and near fixation, respectively. Basic type IE was the most commonly seen (61%). Most IE patients were binocularly myopic (36.6%), followed by hyperopic (34.1%), and mixed (29.3%). Patients having basic (p-value 0.001) or divergence excess (p-value 0.01) type IE have better initial and final control after spectacle correction. Binocularly myopic (p-value 0.00) and mixed type (p-value 0.03) EOR have better control than binocularly hyperopic patients after spectacle correction.

Conclusion: Patients with basic and divergence excess types of IE, binocularly myopic and mixed EOR type, would likely benefit from spectacle correction, and hyperopic patients might eventually need surgical correction.

Keywords: Exotropia, Intermittent, Refraction

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-080 - Preoperative and Perioperative Factors Influencing the Strabismus Surgery Outcomes in Intermittent Exotropia

Zeynep Kirişci, Pınar Akkale, Pınar Bingöl Kızıltunç, Hüban Atilla

Department of Ophthalmology, Ankara University Faculty of Medicine, Ankara, Türkiye

Introduction: To investigate the potential factors influencing early and late surgical outcomes in intermittent exotropia (IXT).

Materials-Methods: Medical records of patients who underwent surgery for IXT from 2000 to 2024 were retrospectively studied. Early and late postoperative outcomes were evaluated, and the factors influencing these outcomes were investigated. The outcome for success was considered as <10 PD exotropia or <5 PD esotropia.

Results: Among the 60 patients, 33 (55%) experienced failure, whereas 27 (45%) were considered as successful, within the early postoperative period (mean: 118.9 days). Of the 27 patients who had early-success, 20 (74.1%) maintained success at long-term follow-up (mean: 49.8 months). However, 7 (25.9%) experienced recurrence at a mean of 31 (7-81) months.

In the failure group, the prevalence of amblyopia (23.3% vs 5%) (p=0.044) and the preoperative near deviation angle (42.53±10.08 PD) were significantly higher than the long-term success group (31.95±10.64 PD) (p=0.001). Initial best corrected visual acuity (BCVA) (logMAR) in the long-term success group (0.05±0.07) was statistically significantly lower than that in the failure group (0.16±0.20) (p=0.027).

Conclusion: In patients with IXT, the preoperative near deviation angle, BCVA, and presence of amblyopia may be predictive factors for surgical success.

Keywords: intermittent exotropia, strabismus, amblyopia, outcome, surgery, operation

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-081 - Prism adaptation therapy: a preoperative strategy for enhanced surgical outcomes in patient with exotropia

Liudmyla Shevchuk, Oleksandra Mishchenko, Nataliia Aleieva, Sergriy Rykov

Department of Ophthalmology and Optometry of Postgraduate Education, Bogomolets National Medical University, Kyiv, Ukraine.

Introduction: To highlight and analyze the role of prism adaptation therapy as a preoperative tool for improving surgical outcomes by enhancing visual-motor alignment, minimizing postoperative complications, and supporting neural adaptation in patients undergoing corrective eye surgeries.

Materials-Methods: 5 years of experience of the Ukraine. The study was carried out at the clinical hospital of the Bogomolets National Medical University:Kyiv, Ukraine. We have enrolled 124 children, 4 to 12 years old, with low and moderate myopia, astigmatism, refractive amblyopia. The patient was prescribed the permanent optical sphereocylindral prism correction with prisms between 15 to 25 prism diopters. The participants were divided into three groups based on the formation of binocular vision during the preoperative period following 2-4 months of prism adaptation. The groups included those who achieved:stable binocular vision, simultaneous or monocular vision, unstable binocular vision.

Results: Following 2-4 months of prism adaptation, the distribution of binocular vision outcomes among participants was as follows: 75% achieved stable binocular vision, 10% demonstrated simultaneous or monocular vision, and 15% exhibited unstable binocular vision.

Conclusion: By enhancing the fusion reserves and improving binocular function, this therapy can optimize the surgical outcomes and reduce the risk of postoperative complications.Each group reflected the degree of sensory adaptation achieved, which directly influences surgical outcomes and postoperative rehabilitation strategies. The further treatment strategy in the postoperative period for groups with simultaneous and monocular vision is aimed at expanding fusion reserves by +8 to +12 degrees. Orthoptic treatment has shown excellent results after 6 months, leading to the achievement of unstable binocular vision.

Keywords: Exotropia, binocular vision, surgery, adaptation

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-082 - Decompensated intermittent distant exotropia in adult patients

Rossitza Hristakieva Lolova

Department of Optics and Spectroscopy, Sofia University 'St. Kliment Ohridski', Sofia, Bulgaria

Introduction: Intermittent distant exotropia (IDEX) is the most common type of exotropia, starting in childhood. We usually follow many young patients with IDEX up to the age of 18 years as the condition get stable or they are operated. The control of the deviation depends on the angle and fusional reserves, refraction and individual factors.

We present a case series of six adult patients with concomitant exotropia that started gradually, their surgical treatment and binocular results.

Materials-Methods: Five of our patients are males, one – female, with a mean age 47 (28-82 yo). They have normal visual acuity and no pathological findings. The refraction is: 3 patients with myopic astigmatism, 1 – myopia, 1 - hyperopia, 1 - pseudophakic emmetropia. The mean exotropia is 53Δ (35-90Δ) for distant and 45.8Δ (20-90Δ) for near. Three patients have also hypertropia 9.6Δ (4-15Δ) of the exotropic eye. 2 patients are diplopic. None of them have neurological problems.

Results: Five patients have been operated: one bilateral LR recession, two recess/resect, one revision LR and resection MR, one IO recession. There was an improvement in binocularity for all of them and no double vision postoperative. The eldest patient is also planned for surgery.

Conclusion: Adult patients with gradual onset exotropia with or without double vision and no neurological problems are most probably decompensated IDEX. Distant exotropia more than 35Δ prisms and myopic refraction might be a predisposing factor. Preexisting binocularity helps to correct big deviations with minimal surgical procedures.

Keywords: decompensated intermittent exotropia, adults, binocularity, myopic astigmatism

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-083 - Surgical outcomes of three different surgical techniques for treatment of convergence insufficiency intermittent exotropia in children

Ahmad Swelam Shahin1, Khalid Abdelkhalik Ghaith2, Mohamed Mostafa Diab2

1Magrabi Eye hispital saudia arabia

2Ein shams unversity

Introduction: Convergence insufficiency intermittent exotropia is form if intermittent exotropia characterized by an exodeviation more at nearfixation than at distance by 10 prism diopters.

Materials-Methods: this orospective study included 58 children with Convergence insufficiency and was conducted between june 2018 to april 2020. fifty-eight children with CI-X(T) with near-distance disparity (NDD) >= 10 prism diopter (PD) were included in this 2-year follow-up prospective study and were randomly divided into three groups: bilateral LR recession (BLR) group in which 21 patients underwent bilateral recession of the lateral rectus (LR) muscle, the RR group with 20 patients who underwent unilateral medial rectus (MR) resection and LR recession with the amounts of resection and recession biased to near and distance deviation, respectively, and the MRR group with 17 patients who underwent bilateral MR resection based on the near deviation. Before surgery informed written consent was taken from child parents-guardians.with minimum age of 4 years and maximum 13 years.patient with previous strabismus surgery, amblyopia,paralytic or restrective strabismus was excluded from the study.

Results: The success rate of distant exodeviation, near exodeviation, and NDD in the three groups after 2 years was statistically insignificant (P = 0.054, 0.233, and 0.142, respectively). At the 2 years follow-up.

Conclusion: this study concluded that surgery for convergence insuffuciency is highly effective depending on near -distance disparity. Bilateral MR muscle resection for disparity more than 20 prism diopters depending on near angle of deviation gives good result.

Keywords: Convergence insufficiency exotropia, near-distance disparity, prosoective study, Magrabi eye hospital

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-085 - Retrospective analyze: surgical treatment of congenital concomitant non accommodative, partially accommodative constant exotropia

Liudmyla Shevchuk, Nataliia Aleieva, Oleksandra Mishchenko, Sergriy Rykov

Department of Ophthalmology And Optometry of Postgraduate Education, Bogomolets National Medical University, Kyiv, Ukraine.

Introduction: Congenital concomitant nonaccomodative, partially accommodative constant exotropia is the rare form of strabismus. Authors observed such type of squint only in 3,8 +_ 0,5% of 760 examined patients with congenital strabismus.

Materials-Methods: 8 years of experience of the Ukraine. The study was carried out at the clinical hospital of the Bogomolets National Medical University: Kyiv, Ukraine. This form of stabismus is characterized by a large deviation angle (30- 40 prism diopters BI in 57.4 % and 40-60 prism diopters BI in 42,6%) and the considerable strengthening of the lateral rectus muscle due to hyperplasia, hypertonus and abnormally closely located of the muscle's sclera insertion to the limbus. Therefore the medial rectus muscle's resection as a primary operation is low efficient in such patients. The operation of choice ithe lateral rectus muscle's recession (6-8mm), which in the case of large angle deviation (50 prism diopters BI and more) is combined simultaneously with the medial rectus muscle's resection (5-7 mm). Such surgery was performed in 51 patients aged 5-17 years.

Results: According to remote date (1-8 years after operations) the orthotropia achieved in 57,2% patiens, periodic exotropia remained in 33,3%. Hypoeffect (10-15 prism diopters BI) was in 9,5% patients with pre-operation deviation angles of 35-40 degree.

Conclusion: If the operation was performed in 1-6 years age, the orthotropia was restored in 85,7% of cases, those who had surgery in 7-14 years.

Keywords: Strabismus, congenital, surgery, exotropia

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-088 - Bilateral versus Unilateral Surgery in Reoperation for Consecutive Exotropia with or without Gaze Deficit

Azad Güçlü, Elif Demirkılınç Biler, Önder Üretmen

Department of Ophthalmology, Ege University, İzmir, Türkiye

Introduction: To compare unilateral and bilateral surgeries in reoperation for consecutive exotropia and evaluate the impact of associated adduction deficits on success.

Materials-Methods: The medical records of patients who underwent reoperation on previously operated muscles were retrospectively reviewed. The surgical outcomes of unilateral medial rectus advancement combined with lateral rectus recession (Group 1) were compared with bilateral medial rectus advancement (Group 2), considering the presence of adduction limitations. A postoperative deviation within 10 prism diopters (PD) was considered orthophoric.

Results: The study included 48 patients (27 females, 21 males). Mean age was 7.4±6.2 years at the time of the first surgery and 23.3±13.7 at the time of reoperation with the mean follow-up of 24.8±33.5 months. The preoperative mean deviation was 32.1 PD in Group 1 (n=30) and 30.6 PD in Group 2 (n=18). Adduction limitation was observed in 19 unilateral, 7 in bilateral cases. 16 patients (53.3%) in Group 1 and 15 patients (83.3%) in Group 2 achieved orthophoria. The mean improvement was 2.73±0.89 PD per mm (2.56±0.82 and 2.85±0.98 PD; with and without gaze restriction; p=0.07) in Group 1 and 2.32±0.94 PD per mm (2.01±0.93 PD and 2.82±0.78 PD; with and without gaze restriction; p=0.09) in Group 2. No significant difference in dose-effect ratios was observed (p=0.19).

Conclusion: The predictability of dose-response rates is lower in both unilateral and bilateral reoperations in consecutive exotropia. The surgical plan should be tailored to the patient based on the degree of deviation, gaze restrictions, and previous surgical history.

Keywords: Consecutive, Gaze Deficit, dose-effect

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-091 - Acquired progresive restrictive strabismus in childhood: a case report

Özgül Altıntaş1, Ferhat Demir2, Müslime Akbaba3, Ayşe Ebru Bahadır1

1Acıbadem Maslak Hospital, Department of Ophthalmology, Istanbul, Turkey

2Acıbadem Maslak Hospital, Department of Pediatric Rheumotolgy, Turkey

3Acıbadem Altunizade Hospital, Department of Ophthalmology, Turkey

We present a case of severely restricted motility, accompanied by a large angle progressive right hypertropia and exotropia, which first became apparent at the age of three.The patient had initially exhibited normal eye alignment and movement at birth, as well as during the first three years of her life.These changes manifested themselves at the age of 3 years, prompting her referral to our clinic at the age of 3.5 years. Ig G4 was found to be elevated in her country, and she underwent high-dose oral steroid treatment, which resulted in no alterations in her clinical presentation.A rheumatological disease consultation and magnetic resonance imaging were performed in our hospital, revealing thickening of the superior rectus and superior oblique muscles.All rheumatological markers were found to be normal.A muscle biopsy revealed myopathy, but no evidence of tumoral changes or IgG4 orbitopathy.Systemic azathioprine treatment was initiated, but there was no change.During strabismus surgery, a strong passive limitation to infraduction of the affected eye was observed.Lateral rectus muscle recessed 8 mm using the hang-back recession technique, and free tenotomy of the superior rectus muscle was performed.Postoperatively, there was still hypertropia in her rihgt eye.Anterior transposition of the inferior oblique muscle, near the inferior rectus muscle insertion, was applied one month later the first surgery, resulting in good eye alignment.Horizontal eye movements are free, with only -0.50 limitation for infraduction and supraduction.The interpalpebral distance was found to be narrower than in the left eye, due to the inferior oblique anterioposition.

Keywords: acquired strabismus, progressive, restrictive strabismus

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

B-093 - A case of young adult esotropia with deprivation amblyopia treated with the Yokoyama procedure

Takashi Negishi1, Takashi Negishi2, Masumi Tobari3, Shintaro Naka01

1Juntendo University Faculty of Medicine, Department of Ophthalmology

2Tokyo Higaeri Day Surgery Clinic

3Toho University Sakura Medical Center, Department of Ophthalmology

Introduction: The Yokoyama procedure is SR-LR union suture used to treat highly myopic esotropia and is performed on relatively elderly patients. We report a good outcome of the Yokoyama procedure performed on a 30-year-old woman with long-axis aphakia after a congenital cataract surgery.

Case: A 30-year-old woman underwent lens aspiration at the age of 4 years for congenital cataracts discovered at her 3-year-old child's physical examination. Her current visual acuity wass RV=(0.08x +8.0 cyl -2.5 ax160) LV=(1.2x -3.25 cyl -2.0 ax5). Right aphakic eye, showing 40Δesotropia and 25Δ hypotropia measured by Krimsky method. Impaired right abduction and no binocular vision were observed. The Yokoyama procedure on the right eye and 6mm recession of the right medial rectus muscle were performed. There was no limitation of postoperative eye movement, no horizontal strabismus and a slight right hypertropia at six months postoperatively.

Conclusion: Concerns about early surgery for deprivation esotropia include future recurrence and ocular motility disorders due to anomalous surgical adhesion. In this case, based on our extensive experience with the Yokoyama procedure in elderly patients, we concluded that less invasive surgery could be provided and have a lasting effect. In addition, since the patient desired early treatment in terms of cosmetic appearance, we chose the Yokoyama procedure, which has a high possibility of sustainable treatment, and has shown remarkable success in the short term.

Keywords: Yokoyama procedure, deprivation amblyopia, aphakic eye, highly myopic esotropia, SR-LR union surgery

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-094 - Comparison of Our Results According to Huber and The New Clinical Duane Retraction Syndrome Classification

Aslı Cetinkaya Yaprak2, Ibrahim Basol1, Yusuf Samet Atlıhan2,

1Antalya City Hospital, Department of Ophthalmology, Antalya, Turkey

2Akdeniz University, Department of Ophthalmology, Antalya, Turkey

Purpose: We aimed to analyze the characteristics of our patients with Duane Retraction Syndrome (DRS) according to both Huber classification and strabismus type and angle with a new classification (Lee at al.) and to compare the classifications.

Materials-Methods: Medical records of 58 DRS patients from Akdeniz University (2016–2024) were retrospectively analyzed. Patients were classified as Type 1, 2, or 3 (Huber) and as Exo-Duane, Ortho-Duane, or Eso-Duane based on primary gaze deviation (>3 prism diopters [PD] exotropia, <=3 PD deviation, or >3 PD esotropia, respectively).

Results: Among 58 DRS patients, the most common was Type 1 (79.3%), followed by Type 3 (12.1%) and Type 2 (8.6%). According to the new classification, the most common type was Ortho-Duane (55.2%), followed by Eso-Duane (22.4%) and Exo-Duane (22.4%). Isolated left eye involvement (55.2%) was higher than isolated right eye involvement (31%) and bilateral involvement (13.8%). Left eye involvement was dominant in the Ortho-Duane and Eso-Duane groups ($p<0.05$), while no differences were observed based on the Huber types. Abnormal head position was more common in Exo-Duane patients than the other patients ($p < 0.05$). According to the Huber types, there was no difference in abnormal head position. Surgery history was more common in Exo-Duane patients compared to Eso-Duane and Ortho-Duane patients ($p < 0.05$). Surgery-free follow-up was significantly more common in Type 1 Duane patients ($p = 0.014$).

Conclusion: The new classification offers clinical utility and may aid in surgical decision-making in daily practice.

Keywords: Duane retraction syndrome, restrictive strabismus, strabismus surgery, classification

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-096 - Modern surgical strategies for Türk-Duane-Stiling syndrome

Sati Agagulyan4, Maia Dalalishvili1, Igor Aznauryan2, Victoria Balasanyan3, Evgenii Kuznetsov5

1Igor Aznauryan, Ph. D., Professor

2Victoria Balasanyan, Ph.D.

3Maia Dalalishvili, M.D.

4Evgenii Kuznetsov, M.D.

5Sati Agagulyam, M.D.

Introduction: Türk-Duane-Stiling syndrome arises from the absence or incomplete development of the 6th cranial nerve nucleus, leading to anomalous innervation of the lateral rectus muscle. Working with this patients presents significant challenges, as no treatment or surgical intervention can restore normal eye movement in all directions, due to the inherent abnormality of paradoxical innervation. Aim of this work is to demonstrate the effectiveness of the surgical treatment strategy for patients with Türk-Duane syndrome, developed by Professor I.Aznauryan.

Materials-Methods: Surgical treatment of Türk-Duane syndrome is performed in two stages:

1) Deep recession of the horizontal rectus muscle on the affected eye to correct the angle of strabismus.

2) Massive transposition of the superior and inferior rectus muscles to increase the range of motion.

Results: Our approach to managing patients with Türk-Duane syndrome results in orthotropia in the primary eye position and an increased range of motion in the affected eye. Accurate determination of the strabismus angle is crucial in the treatment of Türk-Duane syndrome. Differentiating between primary and secondary strabismus angles is key, and our clinic utilizes a video-oculograph to precisely assess the angle of deviation and the range of eye movement.

The dosage for the first stage of treatment is calculated using a specific mathematical formula developed by Professor I.E. Aznauryan.

Conclusion: Correctly calculated initial strabismus angle and dosage for the first stage of treatment, based on this angle, minimize the likelihood of residual deviations and the need for further surgery.

Keywords: #strabismus, #Türk-Duane-Stiling syndrome, #surgery

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-098 - Management of a Bilateral Type-1 Duane Retraction Syndrome with Esotropia and Dissociated Vertical Deviation

Müjdat Karabulut, Sinem Karabulut

Mugla Training and Research Hospital

Introduction: Duane retraction syndrome (DRS) is a congenital, non-progressive, and restrictive oculomotor disorder caused by dysinnervation of extraocular muscles. Dissociated vertical deviation (DVD) is a component of the dissociated strabismus complex and occurs with binocular vision impairment.

Materials-Methods: A ten-year-old girl applied to our strabismus clinic with misalignment and restricted eye movement symptoms. The prism cover test with glasses showed 60 prism diopter (PD) and 65 PD esotropia (ET) at near and distance without any pattern and grade 2 DVD in both eyes. The oculomotor examination detected bilateral -6 abduction deficiency with 2-3 millimeters (mm) eyelid retraction. In adduction, bilateral grade 1-2 upshoot, 2-3 mm palpebral fissure narrowing, and globe retraction were detected. In the first surgery, we performed bilateral medial rectus muscles 6 mm hang-back recession by dissecting all the bands to make the muscles completely free and inferior oblique tendons disinsertion. The DVD disappeared bilaterally, and a 35 PD residual ET at near and distance was left. In the second step, we performed a bilateral modified Nishida muscle transposition procedure.

Results: An 8 PD esophoria at near and distance was left, and abduction deficiency bilaterally improved to -2. The globe's position in the primary gaze was not changed. The upper eyelid retraction in abduction also improved, but the upshoots and palpebral fissure narrowing in adduction remained.

Conclusion: In this case, a modified Nishida muscle transposition procedure improved ET, abduction deficiency, and eyelid position without causing glob retraction or restriction and inferior oblique tendon disinsertion fixed DVD.

Keywords: Dissociated

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-099 - Discovery of a novel frameshift variant in MYF5 leading to congenital fibrosis of extraocular muscle with rib and vertebral anomalies (EORVA)

Vijay Kimal Tailor Hamblin1, Paulina Ocieczek1, Ngozi Olunye3, Cécile Méjécase4, Elena Schiff1, Mariya Moosajee2

1Moorfields Eye Hospital NHS Foundation Trust, London, UK

2UCL Institute of Ophthalmology, London, UK

3Great Ormond Street Hospital for Children NHS Foundation Trust, London, UK

4Francis Crick Institute, London, UK

Introduction: Congenital fibrosis of extraocular muscles (CFEOM) is a non-progressive ophthalmoplegia with or without ptosis caused by fibrosis and muscle hypoplasia, linked to six genes - COL25A1, KIF21A2, PHOX2A, TUBA1A, TUBB2B, and TUBB3. We describe External Ophthalmoplegia with Rib and Vertebral Anomalies (EORVA), a CFEOM variant with MYF5 mutations, in a consanguineous Pakistani family.

Materials-Methods: A full case history and examination including ocular imaging was undertaken to ensure full phenotyping and molecular testing at Moorfields Eye Hospital's pan-ocular genetics clinic. The pan-ocular genetics is a multidisciplinary team involving advanced orthoptists, optometrists, genetic counsellors, developmental paediatricians, and ophthalmologists.

Results: On examination, visual acuity was 0.30 logMAR or better for each child. All children had an exotropia with bilateral ptosis and limitations of extraocular motility which varied between siblings. Anterior and posterior segment examination was normal for all children. Examination by the paediatrician noted no systemic or skeletal problems. Genetic testing found a novel homozygous MYF5 frameshift variant, c.596dupA, p.(Asn199Lysfs*49), in exon 3. This prompted further radiological examination where all 3 children had mild degrees of thoracic, thoracolumbar, and lumbar scoliosis

Conclusion: In conclusion, we report three siblings with a novel homozygous MYF5 variant, linked to EORVA - a distinct form of CFEOM. Genetic testing is crucial for CFEOM cases with or without systemic features to confirm pathogenesis and systemic implications.

Keywords: CFEOM, Genetics, Strabismus, CCDD

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-100 - Early surgical intervention in CFEOM: emphasizing the role of timely management in motor development

Ana Curic1, Mirjana Bjelos2, Jelena Petrinovic Doresic3

1University Eye Department, Reference Center of the Ministry of Health of the Republic of Croatia for Pediatric Ophthalmology and Strabismus, Reference Center of the Ministry of Health of the Republic of Croatia for Inherited Retinal Dystrophies, Reference Center of the Ministry of Health of the Republic of Croatia for Standardized Echography in Ophthalmology, University Hospital "Sveti Duh", Zagreb, Croatia; Faculty of Dental Medicine and Health Osijek, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia

2University Eye Department, Reference Center of the Ministry of Health of the Republic of Croatia for Pediatric Ophthalmology and Strabismus, Reference Center of the Ministry of Health of the Republic of Croatia for Inherited Retinal Dystrophies, Reference Center of the Ministry of Health of the Republic of Croatia for Standardized Echography in Ophthalmology, University Hospital "Sveti Duh", Zagreb, Croatia; Faculty of Dental Medicine and Health Osijek, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia; Faculty of Medicine, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia

3University Eye Department, Reference Center of the Ministry of Health of the Republic of Croatia for Pediatric Ophthalmology and Strabismus, Reference Center of the Ministry of Health of the Republic of Croatia for Inherited Retinal Dystrophies, Reference Center of the Ministry of Health of the Republic of Croatia for Standardized Echography in Ophthalmology, University Hospital "Sveti Duh", Zagreb, Croatia

Introduction: This report highlights the critical importance of early surgical intervention to address abnormal head posture (AHP) and promote motor development in congenital fibrosis of the extraocular muscles (CFEOM) type 2.

Materials-Methods: An 8-month-old boy presented with bilateral ptosis, more pronounced on the right eye (RE), and significant congenital motility deficit. A constant, extreme chin elevation was observed, secondary to locked infraduction of both eyes. The infant's motor development was impaired, as he was unable to crawl due to the severe head tilt and instead rolled onto his back. Ocular motility examination revealed bilateral elevation deficits: neither eye reached the horizontal midline, with both locked in hypotropia and adduction. RE abduction across the midline was impossible, whereas left eye abduction crossed the midline. The pattern suggested restrictive motility.

Results: Based on clinical findings, a diagnosis of CFEOM type 2 was proposed, and early surgical intervention was performed to alleviate the AHP. Intraoperative findings revealed no significant passive restriction of ocular movements; however, the RE inferior rectus muscle was anomalously thin. A bilateral -9.0 mm inferior rectus hang-back recession was performed. Immediate

postoperative improvements included significantly reduced AHP and minimal residual bilateral hypotropia.

Conclusion: This case highlights the impact of severe infraversion on motor development in infants with CFEOM. The AHP, driven more by bilateral infraversion than ptosis, severely impaired crawling and motor milestones. Early surgical intervention effectively corrected the head posture, enabling improved developmental progress. Genetic analysis is pending, and ptosis correction depends on critical factors evaluated over time.

Keywords: fibrosis, infant, surgical procedure, eye movements

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-101 - Isolated palsies of extraocular muscles

Sana Nadeem

Ophthalmology, Foundation University Islamabad, Pakistan

Introduction: Isolated pareses of the extraocular muscles are not common. Although cryptic, based on the anatomy of the nerve nuclei, reports have existed for decades. We present a concoction of various cases of isolated EOM weakness, bilateral superior rectus paresis, lateral rectus superior compartment palsy, isolated inferior oblique paresis & superior oblique palsy. The objective of this case series is to describe etiology, clinical characteristics, radiological features and management of isolated pareses of the extraocular muscles.

Materials-Methods: Patients presenting routinely to our OPD were included in this study. A diagnosis of isolated paresis of the respective muscle was made clinically after a thorough examination of strabismus patients, starting with visual acuity, refraction, extraocular motility examination in 9 gazes, prism cover testing, Parks' three step test, stereoacuity, and fundus torsion exam. Each patient was ordered a thin section (2.5 mm) MRI of the Orbit and Brain with contrast, to study the muscle, the involved cranial nerve & its course and etiology of its paralysis. The patients were managed surgically with adjustable suture strabismus technique as needed.

Results: The results of various surgeries will be shown.

Conclusion: Isolated paresis of extraocular muscles can be diagnosed by defective action in the field of action of the affected muscle, a careful exam, and confirmed by neuroimaging of the orbit. These can be successfully managed surgically to correct the deviation, if significant.

Keywords: strabismus, cranial nerve palsies, strabismus surgery, oblique muscle, vertical strabismus

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-102 - Sudden Onset Sixth Nerve Palsy in a 4-Month-Old Infant Following COVID-19 Infection: An Unusual Presentation of Intracranial Aneurysm

Elpida Kollia1, Natalie Waters1, Bhamy Hariprasad Shenoy2, Haya Razzouk3

1Moorfields Eye Hospital NHS Foundation Trust

2Manchester Royal Eye Hospital

3Warrington Hospital NHS Foundation Trust

Introduction: A 4-month-old female presented with sudden-onset esotropia and limited abduction of the left eye, indicative of a left sixth nerve palsy, following a recent COVID-19 infection. She was referred to a tertiary center for further evaluation and management, where neuroimaging revealed an intracranial aneurysm involving the left internal carotid artery, a rare finding in this age group.

Materials-Methods: During the initial hospitalization, the ophthalmic examination was limited to bedside evaluation due to the patient's clinical condition. The parents were advised by the team there to initiate occlusion therapy of the right eye for presumed amblyopia. However, this was discontinued after our follow-up assessments confirmed that both eyes had equal visual acuities. At the follow-up ophthalmological evaluation, after discharge, the resolution of the sixth nerve palsy was also noted.

Results: Follow-up evaluations at our department revealed complete resolution of the sixth nerve palsy with the patient exhibiting orthophoria and full ocular motility. Cycloplegic refraction and fundoscopy were unremarkable, showing no signs of amblyopia.

Conclusion: Intracranial aneurysms are an extremely rare cause of sixth nerve palsy in infants, particularly in comparison to their more common occurrence in adults. This case underscores the importance of considering vascular etiologies in infants with cranial nerve palsies, especially in the context of recent systemic infections. Clinicians should be vigilant about the potential link between viral infections like COVID-19 and vascular abnormalities in this patient population, necessitating further investigation into this rare association.

Keywords: sixth nerve palsy, sudden onset esotropia, intracranial aneurysm, pediatric emergency

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-103 - Surgical management of unilateral abducens palsy in children

Selma Lukacevic, Ivana Mravicic, Anja Shumejko, Ivona Petrovska

University Eye Hospital Svjetlost, Department for Pediatric Ophthalmology and Strabismus, Heinzelova 39, 10000 Zagreb, Croatia

Introduction: Abducens nerve palsy in children is caused by severe intracranial pathology or trauma. Patients have esotropia, compensatory head posture (CHP) and inability to abduct the eye. When neurological treatment is finished and the angle of deviation is stable for at least 6 to 9 months, we can opt for surgical treatment of residual strabismus.

Methods: First patient was 9 year old boy with abducens nerve palsy after astrocytoma surgery. His right, blind eye was 80 PD esotropic. Abduction was possible 5 mm beyond the midline. Passive motility test revealed completely free abduction. Recess-resect procedure of -6/+10 was done on the right eye.

Second patient was 4 year old girl with traumatic 6th nerve palsy. Her left eye was 80PD esotropic, patient had CHP of 40° left head turn when fixating with her left eye. Abduction of the left eye stopped 35° before the midline. Passive motility test showed tight medial rectus. Recession of medial rectus (-6mm) with Kaufmanns modified Hummelsheim procedure was done.

Results: First patient had residual 10 PD esotropia with complete abduction possible. Second patient had 15 PD of residual esotropia, no CHP when looking with left eye and the abduction possible for 2mm beyond the midline.

Conclusion: According to the angle of deviation and the preserved motility, different surgical options are available for succesfull treatment of abducens nerve palsy. The aim of the surgery is widening the field of binocular single vision, improving CHP and abduction and improving the cosmetic appeareance.

Keywords: abducens nerve palsy, compensatory head position, abduction, strabismus surgery

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-104 - Sixth nerve palsy as the initial presenting sign of metastatic breast cancer: A case report

Pinar Orenc1, Ugur Yayla2

1Istanbul Training and Research Hospital, Department of Ophthalmology

2Medipol University, Department of Ophthalmology

Introduction: To present a case report of a patient with double vision complaints who was diagnosed with metastatic breast cancer.

Materials-Methods: A 67-year-old female patient presented to us with complaints of double vision.Best corrected visual acuity was determined as 1.0 right and left with the Snellen chart. Biomicroscopy and dilated fundus examination were normal. The Hirschberg test revealed left 5-degree left esotropia. Ductions showed a -2 deficit on adduction of the left eye but were otherwise full.There were 8 PD esotropia at near and 16 PD esotropia at far with the alternate prism cover test.There was no significant refractive error. The patient had no history of trauma or additional systemic diseases such as diabetes mellitus. In the brain and orbital MRI, a mass extending to the left cavernous sinus and a mass lesion compressing the durameter and periosteum in the superolateral area of the left orbit were detected. Further examination revealed metastatic breast cancer in the patient.

Results: In adults, sixth nerve palsy may be caused by microvascular ischemia, trauma, increased intracranial pressure, degenerative diseases, and diseases that cause inflammation. Cranial infiltrative tumors should definitely be considered in the pathogenesis. Cavernous sinus metastasis is a rare condition and usually includes complaints such as headaches and double vision. Due to its proximity to this region, 6th cranial nerve palsy may be observed.

Conclusion: Breast cancer can metastasize to the bones, lungs and brain, and the first symptom may be diplopia. It is important to investigate the etiological causes before calling sixth nerve palsies idiopathic.

Keywords: breast cancer, esotropia, sixth nerve palsy

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-107 - Myasthenia Gravis Presented as Paralysis of Superior Division of The Oculomotor Nerve: A Case Report

Pınar Orenc, Ece Guler, Hulya Gungel

İstanbul Education and Research Hospital, Sağlık Bilimleri University,İstanbul,Türkiye

Introduction: To present a case report of a patient with Myasthenia Gravis presenting with paralysis of the upper branch of the third nerve

Case: A 72-year-old man with hypertension presented with acute ptosis of the left eye and diplopia for 6 months. Both pupils were isocoric and promptly reactive to light stimuli. He had no recent infection or trauma. There was unilateral ptosis of the left eye. The Hirschberg test revealed left hypotropia. Ductions showed limited elevation of the left eye but were otherwise full. There was 2PD left hypotropia with the alternate prism cover test. Head position was present. Left upper rectus palsy was detected by Park test. It was confirmed by Hess test. Brain MRI including angiography was normal. Single fiber electromyography was normal. A repetetive EMG revealed rapid reduction in the amplitude of evoked responses. Anti-aceytlcholine receptor antibodies were positive at 8.4 nmol/l (normal <0.4 nmol/l). Thorax CT showed cardiomegaly and a 3 mm nodule in the middle lobe of the right lung. Based on these findings a diagnosis of Myasthenia Gravis was made and the patient was started on pyridostigmine and improvement of the patient's symptoms was observed.

Conclusion: Third nerve palsy may be caused by microvascular ischemia, trauma, intracranial lesions, but it should be kept in mind that myasthenia gravis may mimic all nerve palsies. This patient was referred to us for surgery but complete recovery was achieved with the treatment of myasthenia gravis. Determining the etiology of nerve palsies is important for treatment.

Keywords: Myasthenia gravis, 3. CN palsy, diplopia

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-108 - A pediatric case of perinould syndrome with rare presentation and etiology

Tülin Öğreden

Başakşehir Çam and Sakura City Hospital,Ophthalmology Department,İstanbul

Introduction: Parinaud syndrome can be defined as a group of abnormalities caused by damage to the posterior midbrain and affecting eye movement and the pupil. Althouhg the classic triad of Parinaud syndrome is conjugate up gaze paralysis,convergence-retraction nystagmus(CRN) and light-near dissociation,it can be seen in only 65% of cases and some series highlight the variable clinical picture.This presentation aims to describe some rare ophthalmological findings in a patient with unilateral Parinaud syndrome due to neurotuberculosis.

Case presentation:A 13-year-old male patient presented with complaints of upgaze deficiency on the left eye and diplopia.The patient had received long-term treatment for miliary tuberculosis and subsequent cranial involvement for 5 years.

There was limitation in all upgaze positions of the left eye(Figure1).The collier sign was observed(Figure2).Videonystagmography revealed nystagmus that increased with adduction(figure3).Although the versions in the left eye were normal, this eye could accompained the convergance.Also CRN did not observed. When the patient was intended convergence, the pupil diameter was contracted slightly, but remained asymmetrically dilated. Light-near dissociation was was faint(figure4).On MRI, a T2 hypointense and T1A isointense lesion was observed in the suprasellar region, compressing the prepontine cistern (tuberculous granuloma)(Figure5).

Conclusion: In Parinaud syndrome, the etiology depends on age. Pineal region and midbrain tumors are the most common causes in young people. Perinould syndrome associated with neurotuberculosis is very rare. Due to the location of the lesion, findings similar to internuclear ophthalmoplegia may be accompanied. If upward gaze paralysis and pupillary abnormality occur together, perinould syndrome should be considered regardless of CRN.

Keywords: Parinaud's syndrome, neuro tuberculosis, convergence paralysis

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-109 - Complex congenital gaze palsy - a case report

Ewa Zamojska, Piotr Loba

Department of Binocular Vision Pathophysiology and Strabismus Treatment, Medical University of Lodz, Lodz, Poland

Introduction: Oculomotor disturbances are a common symptom of neurological pathologies and can be the first manifestation of central nervous system (CNS) disorders. The midbrain, including the nuclei of the oculomotor and trochlear nerves, controls vertical eye movements. Damage to the posterior commissure of the CNS leads to restricted vertical eye movements, particularly upward, and results in the "sunset sign."

Materials-Methods: This article describes the case of an 11-year-old male with congenital impairment of upward gaze and convergent strabismus of the right eye. The patient, who had previously undergone surgery on the extraocular muscles, presented for strabological consultation due to persistent difficulties with upward gaze and to further expand the diagnostic workup and establish a diagnosis.

Results: Prior neurological evaluations and MRI of the brain and orbits revealed no abnormalities. However, a detailed analysis of the brain MRI demonstrated slight bilateral changes in the midbrain in the region of the superior colliculi of the quadrigeminal plate. The clinical findings suggest possible damage to the structures responsible for the observed limitations in eye mobility.

Conclusion: A precise understanding of the location and function of CNS structures involved in eye movements is crucial for the diagnosis and treatment of oculomotor disorders.

Keywords: gaze palsy, CNS disorders, MRI imaging

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-110 - Gaze deviation in unilateral visual neglect

Rym Maamouri1, Nesrine Chaouach2, Khalil Ghedira2, Khansa Abderrahmen2, Jaafer Aouni1, Jihene Chaouach1

1Department of Ophthalmology, Hospital Habib Thameur Tunis Tunisia

2Department of neurosurgery, National institute Mongi Ben Hamida of Neurology

Introduction: Unilateral visual neglect or unilateral spatial neglect or hemineglect is the absence of reaction and orientation to stimuli presented on the contralateral side to the brain lesion, in the absence of elementary motor or sensory disorders. Neglect can affect visual, auditory and tactile modalities.

Material-Methods: Our study included 23 adult patients hospitalized with unilateral visual neglect syndrome in the neurosurgery department for surgical management of right hemispheric glial tumors. They underwent ophthalmic, orthoptic examination and a neuropsychological assessment.

Results: We highlighted the presence of hemineglect syndrome in 15 patients with ipsilesional gaze deviation, astereognosia, sensory extinction, total omission of the left side in drawing copying and bell blocking tests. This loss of visual control over the left hemifield is secondary to damage to the brain networks responsible for spatial attention and visual exploration. The brain networks involved in spatial attention and gaze control are: the posterior parietal cortex, the frontal cortex (frontal oculomotor area), the superior colliculus and the thalamic pulvinar, damage to these neuronal networks or their connections may be the cause of unilateral visual neglect syndrome.

Conclusion: Gaze deviation in visual neglect syndrome is a consequence of asymmetry in attentional processing of the visual field, rather than a pure motor or visual problem.

Keywords: Gaze movement control, parietal cortex, hemineglect

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-111 - Strabismus surgery in nasopharyngeal carcinoma (NPC) patients after radiation therapy

Ho Min Chen1, Chun Hsiu Liu2, Ling Yuh Kao3

1Department of ophthalmology, Chang Gung memorial hospital, Keelung, Taiwan

2Department of ophthalmology, Chang Gung memorial hospital, Linkou, Taiwan

3Department of ophthalmology, West Garden hospital, Taipei, Taiwan

Introduction: Nasopharyngeal carcinoma (NPC) is more prevalent in southern Asia, northern Africa, and Alaska. The crude prevalence of NPC in Taiwan is about 0.75%. Due to the location of NPC near the skull base and cavernous sinus, cranial nerve III, IV, or VI dysfunction can be caused by tumor direct invasion or radiation-related neuropathy. Here, we presented the rare cases of treatment of diplopia in three patients with NPC following concurrent chemoradiotherapy.

Materials-Methods: Retrospective, case series.

Results: We presented three patients suffer from squint with previous NPC, and most of them received concurrent chemoradiotherapy about 10+ years before diplopia occurred. All of them were sixth cranial nerve palsy. They were treated with botulinum toxin or surgery (such as, lateral rectus recession, and Nishida procedure). All of them improved in diplopia after treatment.

Conclusion: Radiation-induced nerve damage is considered a long-term complication in NPC patients. Botulinum toxin is a recommendable initial option in patients with sixth nerve palsy secondary to NPC, especially at mild to moderate deviation. Strabismus after radiation therapy may be hard to treat with highly recurrence rate and may need more times of surgery.

Keywords: nasopharyngeal carcinoma, diplopia, NPC, radiation therapy, RT

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-112 - Accuracy of detecting ocular motility problems by brain injury screening tools

Fiona J Rowe1, Lauren R Hepworth1, Claire Howard2

1University of Liverpool

2Northern Care Alliance NHS Trust

Introduction: Visual problems after acquired brain injury in adults are common. The purpose of this study was to compare the accuracy of detection of ocular motility problems using screening tools in comparison to orthoptic assessments.

Materials-Methods: 121 patients were recruited to this study with ischemic or haemorrhagic stroke. Vision screening was undertaken with the Visual Impairment Screening Assessment tool in which smooth pursuit eye movements are examined from primary gaze into direct elevation and depression, to right and left gaze, and on convergence. Routine orthoptic assessment examined eye movements by saccadic and smooth pursuits in cardinal positions of gaze, and near point of convergence.

Results: 101 completed both vision screening and orthoptic assessment. Mean age was 70.6 years (SD13.5); 46 female, 54 male. Agreement of presence or absence of ocular motility problems was found for 72 patients (71.29%). There were ten false negatives from vision screening and 19 false positives. These were typically vertical eye movement defects, nystagmus and reduced convergence. Kappa agreement was 0.367 (95% CI: 0.181-0.553). Sensitivity was 66.67% (47.19-82.71%) and specificity was 73.24% (61.41-83.06%).

Conclusions: Vision screening by non-eye trained clinicians detects over 70% of normal or abnormal eye movements. More guidance is needed with the aim to reduce numbers of false positive and negative referrals.

Keywords: Detection, Screening, Accuracy, Ocular motility

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-113 - Evaluation of Ocular Movements in Myelin Oligodendrocyte Glycoprotein Associated Disease

Burçin Çakır, Seren Kaplan Güngördü, Nilgün Özkan Aksoy

Ophthalmology Department, Sakarya University Education and Research Hospital, Sakarya, Türkiye

Introduction: Myelin oligodendrocyte glycoprotein (MOG)-associated disease (MOGAD) is a rare, antibody-mediated inflammatory demyelinating disorder of the central nervous system with various phenotypes starting from optic neuritis, via transverse myelitis to acute demyelinating encephalomyelitis and cortical encephalitis. We aimed to evaluate ocular movements in patients with MOGAD.

Materials-Methods: The records of the patients who were followed up in our clinic with the diagnosis of MOGAD were retrospectively analyzed. Age, gender, best corrected visual acuity (BCVA), the presence of strabismus, and convergence were noted. The files of patients with Multiple Sclerosis (MS) were also analyzed and compared with data of MOGAD patients.

Results: Nineteen patients with MOGAD and 45 patients with MS were included in the study. The mean ages and BCVA were 35.8±13.3 and 40.06±11.88 years, and 0.92±0.1 and 0.94±0.12, respectively. A history of optic neuritis was present in 10 (47.4%) and 19 (42.2%) patients with MOGAD and MS, respectively. Seven patients (36.8%) with MOGAD and eight patients (17.8%) with MS had ocular deviation. Exodeviation was observed in 6 patients with MOGAD and esodeviation in 1 patient, while 5 patients with MS had exodeviation, 2 patients had esodeviation and 1 patient had vertical deviation. Convergence insufficiency was present in 5 patients (26.3%) with MOGAD and 9 patients (20%) with MS.

Conclusion: Ocular deviation was observed more frequently in patients with MOGAD than in patients with MS. Especially exodeviation was remarkable.

Keywords: Myelin Oligodendrocyte Glycoprotein Associated Disease, ocular deviation, convergence insufficiency

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-114 - Strabismus and ocular findings in WEST syndrome, a rare neurological entity

Tulin Ogreden, Elif Kedek Bilmez

Başaksehir Cam and Sakura City Hospital,Ophthalmology Department,İstanbul,Türkiye

Introduction: West syndrome is a rare childhood epilepsy(incidence of 1.6 to 4.5 per 10,000 live births).Diagnosis is based on clinical classic triad are progressive deterioration in cortical functions, infantile spasms, and hypsarrhythmia on electroencephalography.

Materials-Methods: We present a case series of consecutive 5 cases with West syndrome.

Results: 4 cases were male and 1 female. Average age was 1.6(1-3 years) at the first exam and average gestational week at birth was 33.6(28-40).The follow-up period was 13±9 months.

All of the cases had visual inattention and abnormal fixation test.The mean spherical equivalent was +2.36(-0.12/+6.63).Some of the findings overlap, 4 cases(80%)have infantile horizonto-rotatory, slow-oscillation manifest nystagmus,2 cases(40%) have non-accommodative esotropia(ET) with high angle(over 30 PD) and 2 of cases lower angle(under 30 PD).1 case(20%) has transient spasmodic ET with relatively high hyperopia. Mean deviation angle was 23 PD at near and 20 PD at far.Optic disc pathology was not found in any case.2 cases had performed strabismus prosedure(one of them bimedial recession and the other bimedial cemodenervation),2 cases prescribed hypermetropic glases and 2 cases followed-up without intervention.The surgical result was satisfactory. Cemodenervation resulted in partial correction.

Conclusion: Up to our best knowledge there is no report about the frequency and type of strabismus in West syndrome.Previous studies have focused on vision loss.Vision was also affected in our cases.But in our experience,strabismus and nystagmus an important sign at West syndrome.To be awareness of potential ocular problems and correction of refraction and intervention of large deviations may critical for supporting cortical development in WEST syndrome.

Keywords: WEST syndrome, strabismus, esotropia surgery, chemodenervation

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-115 - Results of incomitant strabismus surgery in patient with schizophrenia

Magdalena Sildatke Bauer

Magdalena Sildatke-Bauer, Ophthalmology Department, Kociewskie Centrum Zdrowia, Starogard Gdański Poland

Introduction: Case study of a patient with schizofrenia suffering from post-traumatic strabismus and diplopia.

Materials-Methods: A 30 male was referred to our clinic due to strabismus and diplopia caused by head injury following car crush. He suffers from schizofrenia and he attempted suicide by driving into a tree. He spend almost a month in intensive care and later in in-patient psychiatric unit. When he presented in our clinic he was in good overall condition, back on his antypsychotic drugs. The only problem that remained was esotropia of the left eye and diplopia which was very disturbing for him. He was first equipped with prismatic lenses and later after consent from his psychiatrist scheduled to surgery. We performed classic recess/resect surgery on horizontal muscles of the left eye.

Results: After surgery patient was free from dioplopia, did not require pristmatic lenses and his appearance was significantly improved.

Conclusion: Although good results of surgery for posttraumatic strabismus in nothing new, we wanted to report this case because of patients condition. People with schizofrenia are often perceived as dangerous or difficult to care for. We wanted to show that those patients require adequate treatment and the results are satisfactory in many aspects.

Keywords: strabismus surgery, schizofrenia, diplopia

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-116 - Long term surgical outcome of superior oblique graded posterior tenectomy in patients with congenital Brown syndrome

Pinar Topcu Yilmaz, Emin Cumhur Sener

Private Practice, Ankara

Introduction: Several surgical procedures have been described to weaken the ipsilateral superior oblique (SO) and release the mechanical restriction within the SO tendon-trochlea complex in patients with Brown syndrome. The purpose of this study was to assess the outcome of SO graded posterior tenectomy in congenital Brown syndrome.

Materials-Methods: The medical records of patients who were diagnosed with congenital Brown syndrome and underwent SO graded posterior tenectomy guided with the intra-operative traction test were included for analysis. Guyton's exaggerated forced duction test was positive in all patients. The surgical findings, pre and post- operative ocular ductions, versions, amount of vertical deviation in primary position were evaluated

Results: A total of 19 consecutive patients with a mean age of 6.18±6.01 and a mean post-operative follow-up of 35.94±30.36 months (range 12 to 120 months) were included. An anomolous SO was noted in three patients. In two patients, traction test was compatible with concurrent contralateral 4th nerve paresis. Two (%11) patients developed iatrogenic SO underaction. Four patients (%21) had residual hypotropia (range 2 to 16 PD) and 13 patients (%68) had orthotropia. Limitation of elevation in adduction improved from 3.67±1.12 (range -1.5 to -5) to -1.41±1.36 at one year follow-up and -1.00±1.20 at last follow-up. Eight patients had a follow-up longer than 2 years and motility kept improving in 6 (%75) of these patients until the 3rd year follow-up.

Conclusion: SO graded posterior tenectomy is effective in improving alignment and motility in congenital Brown syndrome.

Keywords: Brown syndrome, superior oblique, superior oblique graded posterior tenectomy, forced duction test

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-117 - Outcome of extended forced duction maneuver and intra-trochlear steroid injection in children with acquired Brown syndrome

Pinar Topcu Yilmaz, Emin Cumhur Sener

Private Practice, Ankara

Introduction: Freeing the adhesion of the SO tendon through extended powerful forced duction maneuver and suppression of local inflammation with peri-trochlear steroid injection can prevent the development of further adhesions and speed the recovery of symptoms in symptomatic patients with acquired Brown syndrome.

Materials-Methods: The medical records of children who were non-responsive to oral NSAIDs and received peri-trochlear steroid injection for acquired Brown syndrome were reviewed retrospectively. Laterality, age at initial presentation, primary deviation at the primary position, duction deficit and anomalous head posture before and after the intervention, complications and recurrences were recorded.

Results: Seven patients with a mean age of 4.8±1.9 years at onset were included. Five patients had a history of an upper respiratory tract infection, two were idiopathic. The time interval from the start of symptoms to injection was 11.7±10.1 weeks (range 2-32 weeks). After injection the mean amount of hypotropia in primary position decreased from 6±5 PD (range 0-10 PD) to 0.4±1.1 PD (range 0-3 PD) at last follow-up (p=0.04). The mean amount of limitation of elevation in adduction improved from -4.1±0.6 to -1.1±0.7 (p=0.02). Recurrence was noted in 3 patients. The number of recurrences ranged between 2 to 9. The time interval between the recurrences ranged between 6-10 months.

Conclusion: Extended forced duction and intra-trochlear steroid injection is effective in improving the symptoms and motility in children with acquired Brown syndrome. Patients should be informed about the recurrences after treatment.

Keywords: acquired Brown syndrome, intra-trochlear steroid injection, extended forced duction maneuver

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-119 - Acquired Brown syndrome of unknown origin: a case report

Dunja Bajtl1, Ivanka Maduna2, Jelena Petrinovic Doresic3, Ivana Strunje1, Dubravka Biuk1, Josip Barac1

1University Eye Department, University Hospital Centre Osijek, Osijek, Croatia'Faculty of Medicine, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia

2Osijek-Baranja County Healthcare Centre, Osijek Croatia'Faculty of Medicine, Josip Juraj Strossmayer University of Osijek, Osijek, Croatia

3University Eye Department, Reference Centre of the Ministry of Health of the Republic of Croatia for Paediatric Ophthalmology and Strabismus, Reference Centre of the Ministry of Health of the Republic of Croatia for Inherited Retinal Dystrophies, University Hospital "Sveti Duh", Zagreb, Croatia

Introduction: We sought to present a case of a 10-year-old male with acquired left Brown syndrome with diplopia.

Materials-Methods: The patient was followed in Department of Ophthalmology, University Hospital Centre Osijek for elevation deficit of the right eye since 2019. The elevation of the left eye was normal. The patient's history included impaired hearing, attention deficit hyperactivity disorder, previous cleft palate surgery, hernia surgery and atrial septal defect. Phenotype included hypertelorism, four-finger furrow, small fingers, low-set ears, wide neck, low-set nipples and impaired growth. Kariotype is 46 male. In August 2024 he was adimitted due to ten-day history of acute horizontal diplopia with abnormal head posture: chin-up and contralateral face turn with a complaint of a „stuck" left eye. Opthoptic examination revealed hypotropia of the left eye with limitation of elevation (-3) more pronounced in adduction, with V pattern. Mild proptosis was present. Relative afferent pupillary defect (RAPD) was positive in the left eye. Color vision, contrast sensitivity, tonometry, anterior segment and fundus examination were unremarkable.

Results: Laboratory testing and computerized tomography were unremarkable. Magnetic resonance with angiography did not display compresive lesions. During the next month, the condition improved spontaneusly. Proptosis and RAPD were no longer visible. Elevation deficit of the left eye as well as the V pattern persisted, however in primary position the boy was ortotropic and he no longer complained of diplopia except in up gaze.

Conclusion: We did not find a cause for patient's diplopia or for the spontaneous improvement of symptoms.

Keywords: congenital abnormalities, diplopia, strabismus

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-120 - Clinical Outcomes in Isolated Inferior Oblique Palsy

Bağım Ayçin Çakır Ince, Osman Melih Ceylan, Fatih Mehmet Mutlu

Department of Ophthalmology, Health Sciences University, Gulhane Faculty of Medicine, Ankara

Introduction: We aimed to present the clinical features and results of different surgical techniques in 6 patients with inferior oblique muscle paralysis.

Materials-Methods: Data including age, sex, laterality, abnormal head posture (AHP), Parks 3 - step test, and deviation in the primary gaze position (PGP) were recorded. Three patients were treated with ipsilateral superior oblique (SO) posterior tenectomy and contralateral adjustable superior rectus recession (SRc). One patient underwent split lengthening of the SO muscle and contralateral SRc. Another patient with torsional diplopia underwent recession of the inferior rectus (IRc) with temporal transposition. Surgical success was defined as the elimination of diplopia, improvement in AHP and a mean vertical deviation <5 prism diopters, at the last follow up. And one patient was prescribed prism glasses.

Results: The mean preoperative vertical deviation was 15.5±5 Prism Diopters (PD) and postoperative 1.6±1.5 PD. While the mean hypertopia in the contralateral gaze was 19.5±3.6 PD, it decreased to a postoperative mean of 4±1.2 PD. While the mean hypertopia in the contralateral head position was 23.6±3.4 PD, it decreased to a postoperative mean of 4.4±1.4 PD. Postoperatively, hypertropia decreased to 0-2 PD and AHP improved in all patients. Diplopia at distance was eliminated in one patient. The mean follow-up period was 25.8±12.5 months.

Conclusion: Although SO weakening and SRc are effective in the management of hypertropia and AHP, IRc with transposition should not be overlooked due to its easy reversibility in correcting torsion.

Keywords: Inferior Oblique, Isolated, Palsy

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-121 - The Rest is History: A Case of an Intra-orbital Cyst Masquerading as Brown's Syndrome

Arguello Cruz Leslie1, Alves Cardoso Verônica 2, Hemptine Coralie 2, Demet Yuksel 2 Vereecken Melissa 3

1.Universidad de Costa Rica, Hospital Nacional de Niños, San José. Costa Rica.

2.Ciniques Universitaires Saint Luc, Bruxellas. Belgium.

3.Gent University Hospital – UZGent. Bruxellas. Belgium.

We present the case of a 7-month-old girl with abnormal elevation of the right eye and torticollis, due to a posterolateral orbital cyst. This patient's clinical findings are compared with the typical eye movements and characteristics of Brown's syndrome. The patient's actual diagnosis is then discussed, along with treatment and ophthalmologic follow-up.

This case study demonstrates how obtaining a thorough history can be essential for the final diagnosis. Just as importantly, in this case study we explain how the specific location of this orbital cyst caused limited eye movements. Finally, we review the challenges involved with surgical treatment and the importance of timely follow-up to avoid vision loss.

Brown Wilson ME, Eustis HS, Parks MM. Brown's syndrome. Surv Ophthalmol. 1989 Nov-Dic;34(3):153-72. [PubMed

The Pictures show a downshoot in adduction, Divergence looking upward, and V-pattern and Y-pattern strabismus.

The TAC shows an acquired hypotropia due to an intraposterolateral orbital cyst located in the right eye.

Keywords: Abnormal eye movements, Brown syndrome, torticollis, orbital cyst.

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-123 - Long-term results of isolated inferior oblique muscle surgery in patients undergoing surgery on one eye

Aslı Çetinkaya Yaprak, Ozan Özgül

Akdeniz University Faculty of Medicine

Introduction: The aim of this study was to evaluate the long-term outcomes and other ocular findings in patients who underwent isolated inferior oblique muscle surgery for one eye in our clinic.

Materials-Methods: The data of 171 patients who underwent inferior oblique muscle surgery (disinsertion, recession) for strabismus treatment at Akdeniz University Hospital between 2022 and 2024 were retrospectively reviewed. The preoperative and postoperative examination data of the patients were recorded. The patients' ages, genders, which eye underwent surgery, and whether patients who underwent isolated inferior oblique muscle surgery for one eye required additional surgeries later were documented.

Results: A total of 171 patients were included in the study, with a mean age of 13.27 ± 13.49. Among them, 92 (53%) were female, 79 (46%) were male, 34 (19%) were adults, and 137 (81%) were pediatric patients. It was observed that 41 (23%) patients underwent inferior oblique muscle surgery on the right eye, 48 (28%) on the left eye, and 82 (49%) on both eyes. 51 (29%) patients underwent isolated inferior oblique muscle surgery on one eye. From this patient group, 33 (64%) had superior oblique palsy. Postoperative examinations revealed that 41 (80%) of these patients were followed up without the need for additional surgical interventions.

Conclusion: The most common indication for isolated inferior oblique muscle surgery was found to be superior oblique palsy. In patients undergoing unilateral inferior oblique muscle surgery, there is a low incidence of requiring surgery on the other eye as well.

Keywords: Strabismus, inferior oblique muscle surgery, surgical effectiveness

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-125 - The vertical shift of horizontal muscles for V- and A-pattern causes cyclotorsion

Ganna Lysenko1, Michael Gräf1, Lyubomyr Lytvynchuk1

1Justus-Liebig-University Giessen, Department of Ophthalmology, Giessen, Germany

2Katharinenhospital, Klinikum Stuttgart, Department of Ophthalmology, Stuttgart, Germany

Introduction: Bilateral vertical shift of horizontal recti is a common technique to correct for A- and V-pattern strabismus, but this is not without risks.

Materials-Methods: A 28-year-old patient with normal visual acuity and binocular functions complained of diplopia due to decompensating esophoria. Angles of strabismus were measured by prism and alternate cover testing (PACT) as well as subjectively at Harms' tangent screen with the dark red glass in front of the fixating eye.

Results: PACT showed +14° both at distance and near in primary position (PP) and +24° in downgaze. Bilateral medial rectus (MR) recession of 5.5 mm with full tendon width downward transposition for the V-pattern reduced esodeviation to +3° both at distance and near and +3° in downgaze, but induced excyclotropia of 14°. After 2 months, with a lack of improvement, the MR were shifted upwards in their physiologic direction combined with bilateral inferior oblique muscle recession of 4 mm for both excyclotropia and V-pattern. This eliminated the cyclodeviation but created esodeviation of 15° at distance and 7° at near and 21° in downgaze with corresponding diplopia. Following bilateral lateral rectus plication of 4 mm eliminated esodeviation and diplopia. The last examination showed well-compensated exophoria of 4° in PP and 0,5° in downgaze.

Conclusion: Vertical shift of horizontal muscles induces torsion by the oblique muscle path inside Tenon's capsule. Infraplacement of MR causes extorsion, more with simultaneous recession. That may be tolerable for patients without binocular function but a problem for patients with normal bifoveal fusion.

Keywords: excycloduction, V and A pattern strabismus, vertical transposition of horizontal muscles

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-126 - Surgery for masquerading superior oblique (SO) palsy

Qingyu Meng, Veronika Yehezkeli, Joseph L. Demer

Stein Eye Institute and Department of Ophthalmology University of California, Los Angeles, California, USA.

Introduction: To determine if SO palsy (SOP) and masquerading SO palsy (mSOP) require different surgical approaches.

Materials-Methods: Surgeries for SOP and mSOP that all fulfilled the 3-step test were reviewed from 1991 to 2024. Palsy cases had maximum SO cross section in the hypertropic (HT) eye no more than 80% of the fellow eye, while mSOP cases had bilateral SO symmetry on magnetic resonance imaging. Types of surgery and effect on HT were compared.

Results: A total of 39 patients aged 38±20 (standard deviation) years had SOP; 18 aged 36±17 years had mSOP. Maximum palsied SO cross-section was 10.6±3.8mm2, significantly smaller than 18.9±4.0mm2 of the contralateral fellow (P<0.0001), but was bilaterally symmetrical in mSOP. Mean preoperative HT was similar at 14.7±9.8Δ in SOP and 11.0±6.9Δ in mSOP (P=0.2). The commonest surgery for both was ipsilateral inferior oblique (IO) weakening combined with contralateral inferior rectus (IR) recession, followed by ipsilateral IO weakening and contralateral IR recession. After 41±65 months follow-up in SOP and 22±41 months in mSOP, central gaze HT decreased from 14.7±9.8Δ to 1.7±4.1Δ in SOP, and from 11.0±6.9Δ to -2.9±5.4Δ in mSOP (both P<0.0001). Surgical effect was similar at 13.2±10.3Δ in SOP and 14.1±10.0Δ in mSOP. Surgeries in both groups similarly reduced HT in lateral gazes. Re-operation rate was similarly low in both groups.

Conclusion: Since clinical characteristics and surgical effects of conventional surgeries are similar in mSOP and SOP, surgical planning does not require distinguishing them. Mechanisms beyond SO muscle function evidently drive head-tilt dependent cylcovertical strabismus

Keywords: superior oblique palsy, strabismus surgery, magnetic resonance imaging

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-128 - Management of assymetrical DVD in a child with craniosynostosis

Margarita Papadopoulou1, Georgios Markogiannakis2, Anna Mourgela1, Agathi S. Kouri1

1Department of Ophthalmology, Athens Children's Hospital "Panagiotis and Aglaia Kyriakou", Athens, Greece

2Department of Neurosurgery, Athens Children's Hospital "Panagiotis and Aglaia Kyriakou", Athens, Greece

Introduction: Strabismus is common in children with syndromic craniosynostosis, but is also common in non-syndromic craniosynostosis, particularly when the coronal sutures are involved. Exotropia is more often, and V pattern with true or "pseudo" superior oblique palsy.

Materials-Methods: A female was treated successfully for unilateral (left) coronal craniosynostosis, at the age of 10 months old, with fronto-orbital advancement. Pre-operatively significant hyperelevation of the left eye in adduction was noted, and the mother reported that "the left eye drifted outwards and upwards" often. The child was monitored and patching was given for amblyopia treatment. CT scan of the head and orbits were performed.

Results: At the age of 3,5 years old, examination revealed vision of 0.1 Logmar in either eye, no significant refractive error, bilateral dissociated vertical deviation with bilateral "overaction" of the inferior obliques L>R, and at times abnormal head posture with face turn to the right. After diagnostic occlusion, there was left hypertropia (16 PD) and exotropia (18 PD) for distance and 16 PD of left hypetropia for near. A bilateral anterior transposition of the inferior oblique was performed. In the left eye, a 3mm resection of the inferior oblique was also performed. After the operation there was no overelavation of the eyes in adduction, ocular motility was full, there was no abnormal head posture and only a mild intermittent exotropia for distance was noted.

Conclusion: Combined resection and anterior transposition of the inferior oblique muscle for asymmetric DVD can be considered also in cases of treated craniosynostosis.

Keywords: strabismus, DVD, craniosynostosis

ESA - TOA - AAPOS 2025
JUNE 11-14, 2025 Hilton Bosphorus Hotel and Convention Center, Istanbul
www.esa2025.org

C-129 - Cyclic vertical deviation after glaucoma surgery - a case report

Sara Vetö, Elin Hansson

Department of Ophthalmology, Sahlgrenska University Hospital, Gothenburg, Sweden

Introduction:Cyclic strabismus, typically characterized by a 24-hour on-off cycle, is a rare condition, particularly when it manifests as a vertical deviation in adults. Cyclic deviations involve alternating periods of significant strabismus and orthotropia with binocular single vision. We report a case of a 48-hour cycle of vertical deviation and superior oblique (SO) underfunction associated with glaucoma surgery.

Case: A 37-year-old man developed alternate-day hypertropia with bothersome diplopia approximately two months after Ahmed shunt implantation in the right eye. The patient's glaucoma, related to goniodysgenesis and anterior synechiae, was diagnosed four years earlier in the right eye. To control intraocular pressure (IOP), he underwent selective laser trabeculoplasty (SLT), XEN shunt implantation, trabeculectomy, needling, and ultimately Ahmed shunt implantation.

Two months postoperatively, the patient presented with mild ptosis and cyclic vertical right hypertropia accompanied by -2 underfunction of the right SO muscle. On the affected days, his hypertropia measured 45 prism diopters (PD) in the primary position. On asymptomatic days, he exhibited a vertical phoria with good motility of the right OS. MRI of the orbit revealed that the Ahmed device was in contact with the right superior rectus muscle and situated near the bulbar insertion of the right SO muscle. A revision of the shunt was performed, resulting in improved IOP control but no change in the cyclic strabismus.

Conclusion: Cyclic vertical deviations are rare, mostly associated with visual loss, some linked to motor injuries. To our knowledge, this is the first report of cyclic vertical deviation following glaucoma surgery.

Keywords: cyclic strabismus, vertical deviation, cyclic superior oblique underaction, glaucoma surgery, Ahmed shunt

global congress

ORGANIZATION SECRETERIAT

Address: **Koşuyolu Mah. Koşuyolu Cad. No: 112 Kadıköy / Istanbul**

Phone: **+90 (212) 282 92 32**

E-Mail: **esa2025istanbul@globalturizm.com.tr**

Web: **globalturizm.com.tr**