

# 20<sup>th</sup> CONGRESS OF THE BSOS

FEBRUARY 9-11 2023

FAIRMONT HOTEL - FLAME TOWERS, BAKU - AZERBAIJAN

BSOS  
Black Sea Ophthalmological Society



# ABSTRACT BOOK

20<sup>th</sup>. Congress of the BSOS  
9-11 February 2023, Baku - Azerbaijan

[www.bsos2022.org](http://www.bsos2022.org)

BLACK SEA OPHTHALMOLOGY SOCIETY  
2023

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**10**  
**February**  
**Scientific**  
**Programme**

10 FEBRUARY 2023

SCIENTIFIC PROGRAMME

**FREE PAPER PRESENTATIONS**

**MODERATORS**

Merab Dvali, Bilgehan Sezgin Asena

08:00 09:00	08:00	The flap thickness outcomes with new dual femtosecond laser platform	Bilgehan Sezgin
	08:06	Is refractive surgery safe for pregnant women? Mini review of the literature	Sedat Selim
	08:12	Enhancing Visual Quality with Eye Max Mono Lens in Dry Age Related Macular Degeneration	Sedat Selim
	08:18	Post lasik ectasia - is it always predictable?!	Bella Sirbiladze
	08:24	Tecnis Eyhance – Innovation In Monofocal Iols Segment	Giorgi Mekvabishvili
	08:30	Shedding Light To Negative Dysphotopsia	Giorgi Mekvabishvili
	08:36	Combined Methods For Keratoconus Correction	Lia Jorjikashvili

10 FEBRUARY 2023

SCIENTIFIC PROGRAMME

**FREE PAPER PRESENTATIONS**

ROOM

**2**

**MODERATORS**

**Hamidu Gobeka**

09:00  
11:00

09:00	Comparison Of Ocular Surface And Dry Eye Symptoms Between Surgical Mask And N95 Respirator Mask Users	Yonca Asfuroğlu
09:06	Early Results Of I-Prf Injection In Pterygium Surgery With Conjunctival Autograft	Alperen Bahar
09:12	Evaluation of the Effects of Strabismus Surgery on Corneal Backward Light Scattering and Corneal Volume	Ayna Sariyeva İsmayilov
09:18	Outcomes Of Penetrating Keratoplasty And Descemet Membrane Endothelial Keratoplasty In Congenital Hereditary Endothelial Dystrophy	Ayşe Tüfekçi Balıkcı
09:24	Changes in OCTA measures throughout the day: Diurnal variation or test-retest variability?	Beyza Tekin Altınbay
09:30	Does corneal thickness affect the amount of cross-linked tissue and the 3-dimensional structure of the cornea in keratoconus patients after accelerated cross-linking?	Bilge Tarım
09:36	Etiology Of Epiphora In Geriatric Patients	Ceyda Başkan
09:42	Efficacy And Safety Of Selective Laser Capsulotomy Versus Manual Continuous Curvilinear Capsulorhexis	Huri Sabur
09:48	A tertiary hospital study on standard versus simplified consent forms for cataract surgery: is there a perceptible or imperceptible influence on surgery decision-making?	İbrahim Ethem Ay
09:54	Smile Technique, In Over 4000 Cases	Mircea Filip
10:00	A Tertiary Hospital-Based Demographic Analysis of Patients Receiving Intravitreal Injections	Güllü Jabbarova
10:06	How does pupil size affect corneal densitometry measurements?	Neslihan Bayraktar Bilen
10:12	The Effect Of Inferior Oblique Myectomy Surgery On Corneal Astigmatism	Ömer Faruk Yılmaz
10:18	Evaluation of the effects of conventional and pattern lasers on the macula and optic disc in diabetic retinopathy treatment	Semra Koca
10:24	A Smart Approach to Deal with Corneal Complications of Adenovirus Conjunctivitis	Cüneyt Karaarslan

10 FEBRUARY 2023

SCIENTIFIC PROGRAMME

**SESSION - 1**

**MODERATORS**

Mahmut Kaşkaloğlu, Baha Toygar

09:00 10:45	09:00	EDOF technology in the treatment of presbyopia	Bilgehan Sezgin Asena
	09:15	IOL surprises	Yehia Salah El Din
	09:30	Premium IOLs after refractive Laser surgery	Baha Toygar
	09:45	Management of astigmatism in cataract surgery	Haluk Talu
	10:00	Management of cataract surgery in keratoconus eyes	Özlem Evren Kemer
	10:15	Refractive lens exchange: Patient selection and management of unhappy patients	Mahmut Kaşkaloğlu
	10:30	Why we stil meet unhappy patients after cataract and implant surgery.How to solve the problem?	Hafiz Qahramanov
	10:45	Discussion	

10:45-11:15

COFFEE BREAK

**SESSION - 2 (Live Surgery from Caspian Hospital)**

**MODERATORS**

Mahmut Kaşkaloğlu, Merab Dvali

11:15 12:00	11:15	Sutureless strabismus surgery "EyeWatch" glaucoma implant "Scharioth IOL for Macular Degeneration Patients" "Phakic IOL ICL Implantation for high Myopia"	Surgery by Cahid Shahbazov

12:00-13:00

LUNCH

**OPENING CEREMONY & CONCERT**

13:00 14:00	13:00	BSOS Board Member BSOS Board Member BSOS Board Member BSOS Board Member BSOS Board Member BSOS Board Member	Mahmut Kaşkaloğlu Merab Dvali Petja Vasileva Baha Toygar Nadiya F. Bobrova Mircea Filip



10 FEBRUARY 2023

SCIENTIFIC PROGRAMME

**SATELLITE SYMPOSIUM**

**"ADVANCED TECHNOLOGY IOL SOLUTIONS IN MODERN CATARACT ERA"**

**MODERATORS**

Baha Toygar

14:00  
14:45

14:00	Adressing the visual quality demand when seeking spectacle independency with Rayner Rayone Trifocal	Başak Bostancı
14:15	A new step in presbyopia treatment with intraocular lens surgery: Rayner Rayone EMV	İzzet Can
14:30	Discussion	

**SENOMED / MESA GROUP  
WITH UNCONDITIONAL SCIENTIFIC SUPPORT**



14:45-15:15

COFFEE BREAK

**SESSION - 3**

**MODERATORS**

Merab Dvali, Özlem Evren Kemer

15:15  
17:30

15:15	First Clinical Cases with the New Synthetic Endothelial Implant	Merab Dvali
15:30	"Smile ; Techniques and Complications"	Akif Özdamar
15:45	Refractive surgery complications	Başak Bostancı
16:00	When to do DMEK or PDEK for lamellar endothelial surgery	Özlem Evren Kemer
16:15	Decagon Femto Laser assisted DALK	Mahmoud M. I. Ahmed
16:30	Secondary IOL Implantation in the Transconjunctival Era	Tansu Erakgün
16:45	Keratoprothesis 2023	Mahmoud M. I. Ahmed
17:00	Why we stil meet unhappy patients after cataract and implant surgery.How to solve the problem?	Hafiz Qahramanov
17:15	Discussion	

20:00-23:00

GALA DINNER



**11**  
**February**  
**Scientific**  
**Programme**

11 FEBRUARY 2023

SCIENTIFIC PROGRAMME

**FREE PAPER PRESENTATIONS**

**MODERATORS**

Shalva Skhirtladze , Başak Bostancı

08:00 09:00	08:00	Is slt the first-line treatment in glaucoma?	Nana Gaprindashvil
	08:06	Foldable Capsular Vitreous Body: Surgical Solution For Pre Phthisical Eye	Shalva Skhirtladze
	08:12	Use of high oxygen-permeable scleral lenses in dry eye	Nargiz Badalova
	08:18	Bilateral Papilledema Caused by Brucellosis Mimicking Pseudotumor Cerebri	Taryel Rustemov
	08:24	Bilateral Altitudinal Visual Field Defect Caused by Occipital Infarction	Taryel Rustemov

**SESSION - 5**

**MODERATORS**

Petja Vassileva, Leyla Gahramanova

09:00 10:30	09:00	Myopia and treatment for progression	Huban Atilla
	09:15	Vision Loss and Blindness Following Fillers (Case Report)	Leyla Gahramanova
	09:30	Congenital optic nerve pathologies	Huban Atilla
	09:45	Vascular tumors of the retina and choroid: diagnosis and treatment strategies.	Murat Karaçorlu
	10:00	Diagnostic traps – closed angle glaucoma/plateau iris	Petja Vassileva
	10:15	Discussion	

10:30-11:00

COFFEE BREAK

11 FEBRUARY 2023

SCIENTIFIC PROGRAMME

**SESSION - 6**

**MODERATORS**

Thanasis Nikolakopoulos, Okan Toygar

11:00 12:30	11:00	Surgical treatment of macular hemorrhages	Murat Karaçorlu
	11:15	The using of povidone-iodone in an infusion solution for vitrectomy for endophthalmitis	Galyna Levytska
	11:30	Practical approach to corneal infections.	Yehia Salah El Din
	11:45	True Giant tears treatment	Athanasios Nikolakopoulos
	12:00	Optical coherence tomography angiography in macular diseases. How we use it and should we use it in clinical practice?	Murat Karaçorlu
	12:15	Discussion	

12:30-13:30

LUNCH

**SESSION - 7**

**MODERATORS**

Murat Öncel, Cahid Shahbazov

13:30 15:15	13:30	Update on Macular Surgery	Murat Öncel
	13:45	OCT biomarkers in diabetic macular edema	Okan Toygar
	14:00	Modern Diabetic Vitrectomy Indications and Techniques	Tansu Erakgün
	14:15	EGS: Key points and evidence based recommendations in glaucoma	Hamidu Hamisi Gobeka
	14:30	Nonsteroidal ophthalmic therapy in ophthalmic surgery	Alexander Zabolotniy
	14:45	Combination primary polychemotherapy (intravitreal with systemic) in retinoblastoma treatment	Nadiya F. Bobrova
15:00	Discussion		

15:15

CLOSING CEREMONY

11 FEBRUARY 2023

SCIENTIFIC PROGRAMME

FREE PAPER PRESENTATIONS

ROOM

2

MODERATORS

Sedat Selim

09:00  
11:00

09:00	Prognostic Value Of Choroidal Vascular Index In Determining Response To Intravitreal Dexamethasone Implant Treatment Used In Refractory Diabetic Macular Edema	Yusuf Ziya Güven
09:06	Management of Congenital Nasolacrimal Duct Obstruction with Probing	Emine Savran Elibol
09:12	Lamina cribrosa thickness as a prognostic factor in exudative age-related macular degeneration	Serkan Akkaya
09:18	Comparison Of Topical Tacrolimus (0.1%) Versus Combined Treatment Of Topical Tacrolimus (0.1%) And Prednisolone (1%) For Subepithelial Infiltrates Secondary To Epidemic Keratoconjunctivitis	Şule İdacı Koç
09:24	The Incidence of Cystoid Macular Edema after DMEK in Pseudophakic Bullous Keratopathy	Mehmet Önen
09:30	Clinical Characteristics, Contrast Sensitivity, Error Factors in Intraocular Pressure Measurement in Keratoconus Patients	Mehmet Önen
09:36	Mathematical Analysis Of The Upper Lid Contour With Bezier Curve	Yusuf Ziya Güven
09:42	Keratitis Spectrum At A Tertiary Referral Center In Türkiye	Dilmeran Ş. Parmaksız
09:48	Risk Factors In Patients Who Underwent Repeat Descemet Membrane Endothelial Keratoplasty In Our Clinic	Betül Coşkun
09:54	Are blood derived inflammatory markers associated with ankylosing spondylitis uveitis?	Meltem Kılıç
10:00	Our Pre-Descemet Endothelial Keratoplasty (Pdek) Patient Series	Büşra Kurt
10:06	Reduced Retinal And Choroidal Microvascular Perfusion In Pediatric Patients With Stroke Detected By Optical Coherence Tomography Angiography	Halil İbrahim Ateşoğlu
10:12	Short And Mid-Term Multimodal Findings Of Cases Who Developed Solar Maculopathy After The Solar Eclipse On 25 October 2022	Cemal Çavdarlı
10:18	Choroidal Vascularity Index In Central Serous Chorioretinopathy	Mine Öztürk
10:24	External (Dermal) Chalazion Procedure	Mehruz Cevadzade
10:30	Why transcanalicular diode laser dacryocystorhinostomy(tcl-dcr) ?	Mehruz Cevadzade
10:36	Comparison Of Microvascular Changes In Pregnant Women With Carbohydrate Metabolism Disorders Using Swept-Source Optical Coherence Tomography Angiography	Çisil Erkan Pota
10:42	Comparison of Virtual Reality Visual Field Device (Oculera) with Humphrey Visual Field in Glaucoma Patients and Healthy Individuals	Alper Can Yılmaz
10:48	Comparison and Correlation of Anatomical Markers Obtained from Stereoscopic Optic Nerve Head Photography and Optical Coherence Tomography with the Results Obtained from Optical Coherence Tomography Angiography in Glaucoma Patients	Alper Can Yılmaz



# Speaker Abstracts

## DECAGON; FEMTO LASER ASSISTED DALK

### **Mahmoud Mohamed Ismail Ahmed**

Professor of Ophthalmology University of AL-Azhar, Head of Cornea & Refractive surgery unit, Chairman of Ophthalmology Department  
Al Azhar University - Cairo



Corneal transplantation is always linked to the philosophy of “rounded cutting” i.e. Trephination. A sharp clean and rounded cut of the diseased patient’s requires a matching donor graft and tight by sutures. Such regular technique is dominated by corneal surgeons all over the world.

However, in some occasions the regularity of the corneal refractive outcome is not satisfactory. This occurs due to different healing patterns, suture nut application and proper wound approximation. A Decagon is 10 sided shape only can be performed by Femto-Second assisted laser application. It provides a new technique in fitting Donor graft-patient’s approximation especially in cases of deep anterior lamellar keratoplasty. Hence can serve in improving the outcome of postoperative astigmatism.

## KERATO-PROTHESIS 2023

### **Mahmoud Mohamed Ismail Ahmed, Prof. MD.**

University of AL-Azhar, Head of Cornea & Refractive surgery unit, Chairman of Ophthalmology Department  
Al Azhar University - Cairo



Keratoprosthesis (Kpro) surgery is a full-thickness removal of the cornea and replacement by an artificial cornea. Generally, patients who have a history of multiple failed PKs are candidates for a keratoprosthesis transplant. Other indications include severe keratitis or ocular surface disease resulting from limbal stem cell failure like in steven-Johnson disease, Ocular cicatricial pemphigoid (OCP) and chemical injury.

The most popular design is the Boston Type I Kpro. It consists of a clear plastic polymethylmethacrylate (PMMA) optic and back plate sandwiched around a corneal graft and secured with a titanium locking ring. After the device is assembled, a partial-thickness trephination is performed on the host cornea. Full-thickness resection of the patient's cornea is then completed using curved corneal scissors. The keratoprosthesis is then secured to host tissue using interrupted or running sutures. However besides being very tedious surgery ;but it is also very expensive. Here we discuss a novel technique defined as simple and inexpensive procedure.



## EDOF TECHNOLOGY IN TREATMENT OF PRESBYOPIA

**Bilgehan Sezgin Asena, M.D.**

Kaskaloglu Eye Hospital, Izmir, Turkey



Extended depth-of-focus (EDOF) is a new intraocular lens (IOL) technology in the treatment of presbyopia. In contrast to multifocal (MF) IOLs, EDOF lenses create a single elongated focal point, rather than several foci, to enhance depth of focus. In this way, EDOF IOLs aim to reduce photic phenomena, glare, and halos, which have been reported in MF IOLs.

Ideally, these IOLs should enhance intermediate and near visual performance, while minimally affecting distance vision. EDOF IOL designs are available in different optical principles to provide extended depth of field.

These optical models are small aperture, spherical aberration-based, hybrid MF/EDOF designs and wavefront shaping optical designs. Every design has a trade-off in order to produce the extended depth of field, and we should tailor our use of these IOLs to each specific patient depending on their needs and ocular condition.

## MYOPIA AND TREATMENT FOR PROGRESSION

### Huban ATILLA MD, FEBO

Prof of Ophthalmology

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



Myopia is the most common eye disorder and its prevalence is increasing so that it becomes a public health problem. Refractive errors are one of the five priority eye diseases in terms of avoidable blindness. Refractive errors especially myopia is very important in school age children and young adults, as with proper correction visual functions will improve and this will also cause sequential improvement in academic and physical performance as well. Epidemiological studies show an increase in prevalence of myopia and this increase escalates the risk of high myopia that has higher complication rates and eventual visual loss. Prevention of progression has gained great importance in last 2 decades especially in Asia. Genetic and ethnic background also has importance in the choice of treatment.

## CONGENITAL OPTIC NERVE PATHOLOGIES

### Huban ATILLA MD, FEBO

Prof of Ophthalmology

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



Congenital optic nerve pathologies are generally asymptomatic and nonprogressive, so usually there is no need to treatment however correct diagnosis and differential diagnosis is very important to have normal growth and well being of the affected individual. Especially in babies with nystagmus, strabismus and low vision, optic nerve pathologies can have role in the etiology. The clinician should keep in mind about unilateral and bilateral optic nerve hypoplasia in these cases. The associated pathologies like serous detachment or choroidal neovascularization may cause decreased vision so even though we may not need to treat congenital optic nerve pathologies we have to follow for detection and early diagnosis and treatment of possible complications. Also differential diagnosis is very important especially for progressive ocular pathologies like glaucoma and neuroophthalmological diseases. Association with systemic diseases are important to keep in mind for early diagnosis and treatment e.g. optic nerve hipoplasia and growth hormone deficiency. so that normal development or growth of the child can be possible.

## COMBINED PRIMARY POLYCHEMOTHERAPY (INTRAVITREAL WITH SYSTEMIC) IN RETINOBLASTOMA TREATMENT



**Nadiya Bobrova, Prof. MD.**

The Filatov Institute of Eye Diseases and Tissue Therapy of the National Academy of Medical Sciences of Ukraine, Odessa

**Purpose:** To develop method and analyze results of combined primary polychemotherapy retinoblastoma (Rb) treatment.

**Methods:** 59 children (80 eyes) at age 1mo/o – 8 y/o ( $18,26 \pm 16,34$  mo) with Rb: mostly bilateral – 72,5% – 58 eyes at 37 pts (16 from them – only one after Rb worse eye enucleation), unilateral – 27,5% (22 eyes). Multifocal growth was found at 23 eyes: Rb capsule break – 16 eyes, vitreal clones – 28eyes. According WHO classification (1986) RB T-3 stages were 53,8%. Standard ophthalmology examination under general anesthesia were performed including digital retinal camera PanoCam, anterior and posterior segments B-scan, brain and orbits MRI. Primary combined polychemotherapy (PCPCh) were elaborated by Bobrova N & Sorochyńska T started in Odessa in 2009 include local chemotherapy – intravitreal I/Vit Melphalan (10-30mg) with systemic chemotherapy – chemoreduction CEV protocol (Carboplatin, Etoposide, Vincristin).

**Results:** Dosage and terms of Melphalan injections (10 – 30  $\mu$ g every 10 – 28 days) were administrated depending on the elaborated indications (Bobrova et al., 2021), based on the developed IVit chemotherapy ablaticity (Bobrova et al., 2020). Follow up 8-125 (ave  $56,7 \pm 24,8$ ) mo. Totally 418 I/Vit Melphalan, Chemoreduction 2-6 courses (ave 4,2).

Remote results – after PCPCh with 10mg Melphalan – 85,1% saved eyes, 20-30mg -92,3% saved eyes with total tumor control. High dose I/Vit complications – “salt and pepper” peripheric retinal dystrophy different severity at the injection zone.

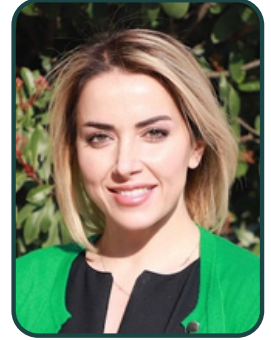
**Conclusion:** Elaborated ablatic I/Vit technique - minimally invasive, easy to perform, safe. Indications for different-doses I/Vit (10, 20 and 30  $\mu$ g Melphalan) were developed. Worked up primary combined polychemotherapy saved 92.3% eyes mostly in advanced T3 Rb with 30 mg I/Vit Melphalan.

Primary combined polychemotherapy salvage eye treatment - maximum tumor injury with minimal general toxic effect, safe, easy to perform, high effective.

## REFRACTIVE SURGERY COMPLICATIONS

### **Basak Bostancı MD FEBO**

DünyaGöz Hospital Etiler, İstanbul, Turkey

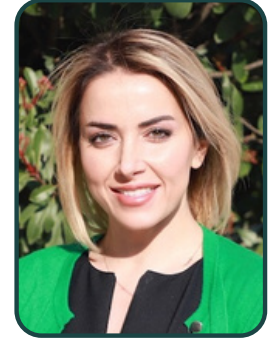


Corneal refractive surgeries include a number of surgical techniques for treating refractive errors.

Although many different methods have been tried in the historical process, it is possible to say that there are three main methods widely used today, which can be grouped as surface ablation techniques, flap based techniques and lenticule extraction techniques.

Although it is known that these surgical methods provide reliable and predictable results, complications can be seen. In this presentation, complications of these surgical methods, preventive measures and management will be discussed.

## **ADDRESSING THE VISUAL QUALITY DEMAND WHEN SEEKING SPECTACLE INDEPENDENCY WITH RAYNER TRIFOCAL IOL**



**Basak Bostancı MD FEBO**

DünyaGöz Hospital Etiler, İstanbul, Turkey

Given the increasing desire for spectacle independency, it may be possible to understand the evolution of premium lenses in the intraocular lens market.

While many patients dream of an optical system that they can see all distances clearly without glasses, few want to accept the problems such as halo and glare that may arise from those lenses. Features such as the number of rings, refractive index of the material, hydrophilicity, chromatic aberration and spherical aberration control of different lenses are effective on those dysphotopsias as well as the visual quality of the patients.

Within the scope of this presentation, the technical features and clinical results of the RayOne Trifocal intraocular lens will be discussed in the light of current literature.

## A NEW STEP IN PRESBYOPIA TREATMENT WITH INTRAOCULAR LENS SURGERY: RAYNER RAYONE EMV



**İzzet Can, MD, Prof, FEBO**

This presentation aims to answer the recent discussion on “Trifocal?” or “EDOF?” by focusing on RayOne EMV, presbyopia correction IOL. EDOF IOLs create a new indication area when restrictive ocular conditions may cause hesitation for trifocal IOLs. While dysphotopsia and contrast loss are prominent problems caused by trifocal lenses and hybrid EDOF lenses; pure EDOF lenses seem to solve these issues.

Arguably, the most important problem of EDOF lenses is near vision insufficiency, especially when compared to trifocal lenses. However, this can be amended by minimonovision.

Usage of positive or negative spherical aberration (SA), in the most common method to attain single and elongated focus in pure EDOF lenses. This presentation will emphasize the advantages of positive SA usage over negative SA, in terms of quality of vision.

By using positive SA, RayOne EMV opens a new door as a pure lens that provides EDOF. This presentation will outline the literature about these lenses and will provide information on our work that is being executed by using minimonovision.

## FIRST CLINICAL CASES WITH THE NEW SYNTHETIC ENDOTHELIAL IMPLANT

**Prof. Merab Dvali**

TSMU Eye Clinic "Akhali Mzera", Tbilisi, Georgia

**Giorgi Mekvabishvili MD.**



**Introduction:** The purpose of this case series is to describe a novel device EndoArt® that may serve as an alternative to Descemet membrane endothelial keratoplasty (DMEK). The device is used for the treatment of chronic corneal edema due to endothelial dysfunctions such as Fuchs' endothelial dystrophy, pseudophakic bullous keratopathy (PBK) or failed endothelial grafts.

**Materials and methods:** The EndoArt® implant is a 6.5-mm diameter, disc with the thickness 50-µm which serves as an artificial fluid barrier between the recipient's posterior stroma and the anterior chamber. In our study 7 eyes of 7 patients with PBK underwent EndoArt® implantation. The procedure was performed in accordance with the guidelines provided by the manufacturer.

**Results:** Mean Central Corneal Thickness (CCT) was 792.6 µm (673 to 996 µm) preoperatively which decreased to 527.8 µm (490 to 569 µm) 6 months postoperatively. Although 4 out of 7 eyes required one re-bubbling procedure due to partial detachment of the implant, the CCT changes were consistent. Patients did not complain of pain during postsurgical period. All patients reported high satisfaction as the Visual Acuity (VA) improved and the reduction in eye pain - Visual Analog Scale (VAS) score decreased from >50mm at baseline to 0-mm postoperatively. No inflammatory reaction was observed in the treated eyes during the post-surgical follow-up examinations. There were no clinically significant, device-related side-effects and/or complications observed.

**Conclusion:** Implantation of an artificial endothelial layer offers a range of advantages over using a donor DMEK tissue. Due to possible complications following DMEK (primary or secondary graft failure, immunological graft reaction, or interface keratitis) patients usually require long-term immunosuppressive therapy and frequent follow-up visits. Moreover, DMEK procedure requires extreme delicacy of a skillful surgeon as there is a high risk of donor graft damage during the manipulation, which can lead to graft failure in postoperative period. Although no severe adverse events were observed, further studies should be conducted to investigate the safety and efficacy of the novel device. The EndoArt® is demonstrating clinical parameters supporting its design as a sterile, inert biocompatible polymer and resiliency. Those support simplicity of the surgical procedure, while exhibiting corneal thickness and pain reduction, and improved VA over time.

**KEYWORDS:** Corneal Edema, Fuchs' endothelial dystrophy, Pseudophakic Bullous Keratopathy (PBK), EndoArt



## MODERN DIABETIC VITRECTOMY INDICATIONS AND TECHNIQUES

**Tansu Erakgun, Prof. MD.**

Kaskaloglu Eye Hospital, Izmir, Turkey



Diabetic retinopathy is one of the leading causes of blindness across the world. Nearly 5% of patients show continued progression of retinopathy and require surgical intervention. Pars plana vitrectomy with endolaser panretinal photocoagulation remains the procedure of choice for non-clearing diabetic vitreous hemorrhage and diabetic tractional retinal detachment. With improvements in surgical techniques leading to better outcomes, fewer complications, less discomfort and a faster recovery time it is reasonable to operate on such patients sooner than the 3-4 months that had been generally accepted in the past, if there has been no significant spontaneous improvement.

## SECONDARY IOL IMPLANTATION IN THE TRANSCONJUNCTIVAL ERA

**Tansu Erakgun, Prof. MD.**

Kaskaloglu Eye Hospital, Izmir, Turkey



“In-the-bag” placement of an IOL maximizes the chances of optimal surgical and refractive outcomes. In cases of inadequate capsular support, the surgeon must use alternative surgical approaches to place an IOL in the eye. Compromised anterior and posterior capsular integrity can be categorized into ocular trauma, inherent zonular weakness, complicated cataract surgery. Transconjunctival intrascleral haptic fixation is an elegant technique in the cases with compromised capsular integrity.

## VISION LOST AND BLINDNESS FOLLOWING FILLERS

**Leyla Gahramanova, ophthalmologist Phd**

Melhem International Hospital, Baku, Azerbaijan



With the increase in popularity of the use of cosmetic fillers in plastic and esthetic surgery, the possibility of severe ocular complications should not be neglected. Cosmetic fillers, autologous fat are the most common to cause permanent visual deterioration, one of the most severe complications associated with blindness. Here we present the case report of a recovery of visual acuity from an instance of visual loss with no light perception caused by ophthalmic artery occlusion of the right eye following filler injection in the facial area of forehead. Ophthalmological intervention unfortunately was late for almost three days but comprehensive therapy with hyaluronidase injection on retrobulbar space made it possible to restore retinal perfusion and achieve recovery of visual acuity from no perception light to vision 6/36. Awareness of the iatrogenic artery occlusions associated with facial fillers and the need for immediate treatment should be popularized among injectors to prevent devastating consequences, such as permanent vision loss.

## EGS: KEY POINTS AND EVIDENCE BASED RECOMMENDATIONS IN GLAUCOMA: THINGS TO AVOID-CHOOSING WISELY

**Hamidu Hamisi GOBEKA, Asst. Prof. MD., FEBOphth**

Department of Ophthalmology, Faculty of Medicine, Afyonkarahisar Health Sciences University, Afyonkarahisar, TURKEY



Guidelines must be presented to assist ophthalmologists in managing patients who have or are at risk of having glaucoma, as well as to provide trainees with clinically useful information. In this context, the 5th edition of the European Glaucoma Society (EGS) began the process of updating the Guidelines by identifying critical questions on diagnosis, monitoring, and treatment, which were then recommended by glaucoma specialists. To address these questions, currently available evidence has been identified and evaluated. In 2019, data was collected in collaboration with the USA-Cochrane Eyes and Vision Group through an analysis of systematic reviews on glaucoma approaches and diagnosis. Unlike prior EGS editions, a grading system for rating the quality of evidence and the strength of recommendation, based on grading of recommendations, assessment, development, and evaluations, was only used to answer critical questions. The presentation's remaining recommendations and suggestions are based on expert consensus. Considering the significance of patients' care and well-being, a list of the most fundamental questions that ophthalmologists should ask glaucoma patients, as well as a list of their most common concerns, appears unavoidably worthwhile.

**Keyword:** EGS, Glaucoma, Guidelines, Questions, Recommendations

**DECLARATIONS:** I declare that I have received no public or private funding for, or participated in, any of the products, methods, or materials mentioned in this manuscript, and that I have no conflicts of interest to disclose. Furthermore, I declare that I have no financial or non-financial interest in the topic or materials discussed in this presentation.

## **OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY IN MACULAR DISEASES. HOW WE USE IT AND SHOULD WE USE IT IN CLINICAL PRACTICE?**



**Murat Karacorlu, MD, MSc, FEBO**

Professor of Ophthalmology, Istanbul Retina Institute, Istanbul Turkey

OCT-angiography (OCT-A) is the most recent advance of OCT technology and provides high resolution images of retinal and choroidal vascular perfusion. The introduction of OCT-A has provided a noninvasive system to better assess the microvascular morphology of lesions. Comparative studies have demonstrated that OCT-A can detect CNV (choroidal neovascularization) blood flow with the same sensitivity as FA and is able to show the area of Type 1 CNV more precisely than ICG-A.

The identification of biomarkers for lesion activity has become a hot topic in retinal clinical research. By further studying these new biomarkers, OCT-A may become a valuable technique in assessing how CNVs respond to anti-VEGF agents and enable the clinician to make personalized treatment decisions.

As previously observed by OCTA imaging, the microvascular features of NV (neovascular) membranes undergo a transformation when treated with anti-VEGF agents: from an homogeneous, tiny branching network to an heterogeneous dead tree appearance. This qualitative observation translates into higher lacunarity within the NV lesion after anti-VEGF treatment.

The discussed OCT-A biomarkers may add helpful and measurable information to structural OCT interpretation and may help the clinician in the decision-making process of scheduling visits and intravitreal treatments.

## SURGICAL TREATMENT OF SUBMACULAR AND PREMACULAR HEMORRHAGES. TECHNIQUE AND TIMING!

**Murat Karacorlu, MD, MSc, FEBO**

Professor of Ophthalmology, Istanbul Retina Institute, Istanbul Turkey



Caused by alterations to retinal or choroidal circulation, macular hemorrhage is an accumulation of blood in the macular area. Depending on their location, they may be preretinal (sub-internal limiting membrane or subhyaloid), subretinal, subretinal pigment epithelium, mixed (subretinal and sub-retinal pigment epithelium), and may be located in more than two layers.

This condition is associated with a wide variety of diseases, including age-related macular degeneration, retinal arteriolar macroaneurysm, pathological myopia, ocular trauma or Valsalva maneuver. The natural history, when left untreated, will depend on the location of the hemorrhage. Subretinal hemorrhages have a worse prognosis, due to the toxicity of the blood on the photoreceptors and the retinal cells.

**Preretinal hemorrhages.** Preretinal hemorrhages occur in vascular diseases of the retina, such as retinal arteriolar macroaneurysms, proliferative diabetic retinopathy, retinal venous occlusions, Valsalva retinopathy and or by Terson syndrome. Other causes include hematological disorders, eye trauma, or shaken baby syndrome. Preretinal hemorrhages can be located under the internal limiting membrane or subhyaloid hemorrhages. Preretinal hemorrhages usually have a good visual prognosis.

Several techniques have been described to treat premacular hemorrhages. These include observation, especially for hemorrhages of less than one disc area, which tend to be resolved spontaneously over a short period of time. However, in dense and large hemorrhages, spontaneous resolution may take months and may generate permanent visual damage due to macular pigmentary changes, epiretinal membrane formation, macular holes or toxic damage due to permanent contact with hemoglobin and/or iron. Neodymium-doped yttrium aluminium garnet laser membranotomy is useful in non-coagulated and non-dense macular hemorrhages. Pars plana vitrectomy is more effective in cases with a dense premacular hemorrhage.

**Subretinal Hemorrhages.** The majority are produced by choroidal neovascularization, 90% of these are secondary to age-related macular degeneration. Other less common causes include, polypoidal choroidal vasculopathy and, more rarely, myopic or causes related to trauma. Up to 10% of retinal arteriolar macroaneurysms present with subretinal hemorrhages and have variable clinical presentations, being able to present multi-level macular hemorrhages and even vitreous hemorrhage.<sup>4</sup> Subretinal hemorrhages have the worst prognosis due to the potential damage to photoreceptors and retinal cells. Experimental studies have shown that the damage is irreversible in the retina and can occur as soon as 24 hours after the onset of bleeding. If left untreated, the visual prognosis is poor.

Several therapeutic approaches aimed displacing the blood from the fovea have been described. Those include anti vascular endothelial growth factor (VEGF) injections, intravitreal injection of expansile gas, intravitreal injection of recombinant-tissue plasminogen activator (r-tPA) and gas ( $\pm$ anti-VEGFs), and surgery with variable outcomes depending on the technique. The most widely used is complete pars plana vitrectomy (PPV) after induction of posterior vitreous detachment (PVD), subretinal injection of r-tPA, intravitreal filling with gas, and pre and post-operative injections of anti-VEGF agents.

## VASCULAR TUMORS OF THE RETINA AND CHOROID: DIAGNOSIS AND TREATMENT STRATEGIES

**Murat Karacorlu, MD, MSc, FEBO**

Professor of Ophthalmology, Istanbul Retina Institute, Istanbul Turkey



**Retinal Capillary Hemangioblastoma.** Retinal capillary hemangioblastoma (RCH) is a rare tumor of the retinal vasculature that can occur sporadically or as part of von Hippel-Lindau (VHL) syndrome. Identifying an RCH can lead to the diagnosis of VHL, an autosomal-dominant and potentially life-threatening multi-organ neoplastic syndrome. The clinical presentation of RCH varies depending on the size and location of the tumor. Bilateral involvement has been reported in 58% of cases. Peripheral RCHs are identified in approximately 85% and juxtapapillary lesions in 15% of patients.

The diagnosis of the RCH is primarily clinical. Dilated fundus exam is essential in identifying the existing RCHs. Fundus photography, especially ultra-widefield retinal imaging to capture the location, number, and size of the peripheral lesions may be helpful in following the growth or regression of the lesions.

The differential diagnoses included Coat's disease, racemose hemangioma, retinal cavernous hemangioma, retinal macroaneurysm and vasoproliferative tumor. Juxtapapillary RCH can mimic papilledema, papillitis or choroidal neovascular membrane.

Various treatment modalities have been proposed for the management of RCH, including observation, laser photocoagulation, cryotherapy, plaque and proton beam radiotherapy, and vitreoretinal surgery. The efficacy and applicability of these modalities are influenced by the location of the tumor (peripheral vs juxtapapillary), size of the tumor and the presence of any associated findings (subretinal fluid, exudation, evidence of traction).

Small and non-visually-threatening peripheral lesions (< 500  $\mu\text{m}$ ) with no associated exudation can be observed. Laser photocoagulation has been the mainstay of treatment for peripheral lesions less than 1 DD and no associated subretinal fluid. In cases where the RCH is located anteriorly and the tumor size is 1 DD-3 DD, cryotherapy is the preferred modality. Photodynamic therapy is preferred as initial treatment in juxtapapillary tumors. Vitreoretinal surgery the best management option if there is a tractional component, vitreous hemorrhage and epiretinal or vascular proliferation.

**Choroidal hemangioma.** Choroidal hemangioma is a benign vascular tumor (hamartoma) of the choroid and manifests in two distinct clinical forms: circumscribed and diffuse.

The diagnosis of choroidal hemangioma is a combination of clinical features and ancillary tests. Clinically, circumscribed hemangioma appears as a reddish-orange, round to oval choroidal tumor located in the posterior half of the fundus. Diffuse choroidal hemangioma appears as an extensive redorange thickening of the posterior choroid.

The differential diagnoses of circumscribed choroidal hemangioma included, amelanotic choroidal nevus or melanoma, central serous chorioretinopathy, primary extraocular cancer metastatic to choroid, choroidal osteoma and inflammatory choroidal granuloma.

Photodynamic therapy (PDT) using verteporfin has been used with considerable success as treatment of small to medium-size circumscribed choroidal hemangiomas. In patients who have a thick choroidal hemangioma, extensive non-rhegmatogenous retinal detachment, or a diffuse or circumscribed choroidal hemangioma that is refractory to PDT, low-dose ocular irradiation appears to be an effective therapeutic option.

## REFRACTIVE LENS EXCHANGE: PATIENT SELECTION AND MANAGEMENT OF UNHAPPY PATIENTS

**Prof.Dr. Mahmut Kaşkaloğlu**

Kaşkaloğlu Eye Hospital, İzmir, Turkey



Cataract surgery has evolved from merely restoring sight to restoring sight with better visual acuity than before the cataract and justly called refractive cataract surgery. Because with proper surgical technique and intraocular lens selection preexisting refractive errors can be corrected. For this purpose, multifocal intraocular lenses have found wide use. Optimal results for satisfied patients with multifocal lenses depend on patient selection, preoperative examination, postoperative follow-up and care. Patient dependent selection criteria are patients age, occupation, preexisting systemic disease and motivation. Preoperative examination requires careful evaluation of the ocular surface, corneal astigmatism, aberrations, pupil diameter, lens and the retina. Detailed information on the expected result should also be given in a manner without causing doubt and anxiety to the patients. Postoperatively patients should be closely counseled, assured and treated for ocular surface disorders and residual refractive errors. While many patients experience early postoperative haloes and loss of contrast sensitivity, by time most of these symptoms fade. In this presentation I will elaborate the steps crucial for optimal results after cataract surgery.



## MANAGEMENT OF CATARACT SURGERY IN KERATOCONUS EYES

**Özlem EVREN KEMER, Prof. MD.**

University of Health Sciences, Ankara Bilkent City Hospital, Ankara, TURKEY



Cataract surgery in keratoconus eyes has some challenges. These patients have thin and steep corneas, asymmetric irregular astigmatism, deep anterior chamber, high spherical aberration, increased higher-order aberrations, and axial myopia. All these predispose to biometry measurement errors. Patients with progressive keratoconus should be evaluated for treatment with collagen crosslinking prior to cataract surgery to stop the progression of the disease. For correct biometrical measurements, keratometry (K) readings, expected lens position, and axial length measurements should be correct. Anterior and posterior curvature ratios of the cornea have been changed in keratoconus corneas. Also, the cornea is multifocal, so standard IOL calculations result in an overestimation of corneal power and result in a hyperopic surprise. Several IOL formulations are proposed for correct IOL measurement. These are Kane formula, Holladay 2 with keratoconus adjustment, and Barrett True K formula. For the Kane formula, if  $K_{max} > 48$  D, target IOL power should aim for  $-0.75$  to  $1.5$  D, and if  $K_{max} > 53$  D, target IOL power should aim for  $-2.0$  to  $-3.0$  D. Toric lens implantation can be considered for those patients who have mild keratoconus (average  $K < 48$  D), that are stable for at least one year, whose astigmatism is symmetrical and regular in central 3 mm zone, and visual acuity can be improved with astigmatic optical correction. For those patients whose average  $K$  is  $> 55$  D, who are using rigid gas permeable lenses and in whom corneal transplantation is planned, monofocal IOLs should be preferred. Standard  $43.25/43.25$  D k readings can be used for calculations in those cases. All patients should be informed about possible postsurgical refractive surprises.

## WHEN TO DO DMEK OR PDEK FOR LAMELLAR ENDOTHELIAL SURGERY



**Özlem EVREN KEMER, Prof. MD.**

University of Health Sciences, Ankara Bilkent City Hospital, Ankara, TURKEY

Endothelial keratoplasty is the preferred technique over penetrating keratoplasty for corneal endothelial dysfunction. Currently, there are three methods for this purpose: Descemet's stripping automated endothelial keratoplasty (DSEAK), Descemet's membrane endothelial keratoplasty (DMEK), and PreDescemet Endothelial Keratoplasty (PDEK). DMEK is the preferred technique for corneal endothelial dysfunction, but it is technically difficult to perform DMEK in challenging cases. In DSEAK, a thin layer of the stroma is transplanted in addition to Descemet's membrane (DM) and endothelial layer. It gives stability to graft and is preferred for challenging cases that are not suitable for DMEK. The disadvantage of DSAEK is its higher rejection rate compared to DMEK and PDEK, as it has a thin layer of stroma. PDEK is a new technique with all the advantages of DSAEK with respect to ease of manipulation, and it has all the benefits of DMEK as PDEK graft does not have stroma.

PDEK grafts can be harvested from younger donors, so they have more endothelial cells than DMEK grafts. PDEK grafts have the Dua layer, which gives stability to grafts, so they are flexible and easily manipulated. PDEK is preferred over DMEK for challenging cases like vitrectomized eyes, eyes with seton implants, and anterior segment pathologies. PDEK graft is more difficult to prepare, and graft preparation failures are higher for donors over 40 years. DMEK surgery is very successful for standard cases like Fuchs's endothelial dystrophy and bullous keratopathy, where the anterior segment is otherwise normal. DMEK graft is easier to prepare and provides fast recovery with excellent visual outcomes. Donors older than 45 years of age are suitable for DMEK surgery.

In conclusion, both DMEK and PDEK techniques provide excellent visual results and fast recovery and thus can be performed for all indications of corneal endothelial dysfunction. DMEK surgery can be preferred for cases with normal anterior segment structure, while PDEK surgery can be utilized for more challenging cases like vitrectomized eyes and eyes with seton implants.

## THE USING OF POVIDONE-IODINE IN AN INFUSION SOLUTION FOR VITRECTOMY FOR ENDOPHTHALMITIS

**Galyna Levytska**

The Filatov Institute of Eye Diseases and Tissue Therapy of the National Academy of Medical Sciences of Ukraine, Department of Vitreoretinal and Laser Microsurgery, Odesa, Ukraine.



**Introduction:** It is known that povidone iodine (PI) in low concentrations (0.01% solution) has significant bactericidal effect after 15 seconds of exposure. It has also been proven that the bactericidal effect of a 0.025% solution of PI persists for 15 minutes at room temperature. The use of a 0.025% solution of PI in a BSS solution does not cause damage to the cells of cornea and retina. In addition, intravitreal administration of 0.1 ml of a 0.25% solution of PI before vitrectomy demonstrated not only high efficiency, but also safety, as proved by improvement of visual acuity and oscillatory potentials on the ERG in patients after endophthalmitis.

**The aim** of our work was to study the effectiveness of the bactericidal effect during irrigation with 0.025% PI in a balanced salt solution BSS during vitrectomy for the treatment of endophthalmitis of various origins.

**Material and methods:** A retrospective study of 13 cases of endophthalmitis was performed: 7 patients after penetrating wounds, one patient after secondary IOL implantation, one patient after phacoemulsification with IOL, three patients after intravitreal anti-VEGF injection, one patient with IOL haptic extrusion. All patients underwent a standard set of tests. Washing of the anterior chamber was performed in 13 patients, removal of the lens in 7 patients. All patients underwent vitrectomy using 0.025% PI solution as irrigation fluid.

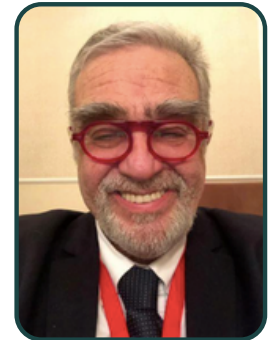
**Results:** The used technique allowed in all cases to achieve a positive result in the treatment of endophthalmitis with retinal reattachment in 12 patients. In one case, fungal post-traumatic endophthalmitis occurred, which required additional intravitreal administration of amphotericin B. No side effects were noted. In 2 months term, retinal attachment was present in all (13), eyes, VA>0.05 in 8 patients, in 6 greater than 0.1. In 6 months term - retinal attachment in 9 eyes (82%), 2 patients did not come for test. Silicone was removed and IOL implantation was performed in 3 patients. VA (>0.05) was preserved in 7 patients, maximum visual acuity was 0.4. Unfortunately, there was a loss of light perception in 2 eyes.

**Conclusion:** The use of 0.025% povidone iodine in BSS as an irrigation fluid for vitrectomy is a safe and effective treatment for endophthalmitis of various origins.

## TRUE GIANT TEARS TREATMENT

### Athanasios Nikolakopoulos

Drama Day Clinic And Tvr



We present the true giant tears separation from giant dialysis, both of them can look the same as large tears more than 90 d.

BUT in true giant tears that are very difficult to treat the traction and the vitreous is attached on the anterior lip of the retina tear

But in dialysis the vitreous is attached on the posterior lip of the tear and there is no peripheral tear. That makes a lot of difference in the diagnosis and the surgical approach. In giant dialysis a simple buckle is enough and vitrectomy is not suggested.

In giant tears peripheral traction removal is a must, and if it is behind the lens, combined lens removal is strongly indicated.

The great area exposition of pigment epithelium in giant tears is followed by an early PVR. SO EARLY intervention is suggested. Direct PFCL, Silicon Oil 5000 cts exchange to avoid slippage during air exchange and take care posterior tears extensions.

We include a video presentation of a 25g Giant Tear treatment our way.

## UPDATE ON MACULAR SURGERY

### **Murat Öncel, MD., FASRS**

Professor of Ophthalmology, Former Chairman

Istinye University, Ulus Liv Hospital,, Retina Clinic Istanbul, Turkey



We will give a update on macular surgery including, macular hole, epiretinal membrane, vitreomacular traction, subretinal hemorrhage and optic pit maculopathy.

Discuss the recent advancements and also share short videos. Will give the recent results of the Preferences and Trends(PAT) Survey from the American Society of Retina Specialists(ASRS) which gives many usefull ideas about what the experienced retina specialists are dealing with different topics.

## SMILE; TECHNIQUES AND COMPLICATIONS

**Akif Özdamar, Prof. MD.**

DünyaGöz Ataşehir, İstanbul, Türkiye



The procedure of small incision lenticule extraction (SMILE) was introduced in 2011, and since then there has been an increase in the number of cases undergoing this procedure worldwide. SMILE offers certain postoperative advantages compared with FS-LASIK, including fewer problems with dry eyes, better biomechanical stability, and a reduced risk for corneal ectasia.

The conventional technique of small incision lenticule extraction (SMILE) involves docking, femtosecond laser application, lenticule dissection from the surrounding stroma, and extraction. It has a steep learning curve compared to femto-LASIK and the surgical technique may be challenging even for the experienced surgeon.

Several modifications of the surgical technique have been described to handle surgical challenges, improve outcomes and minimize complications. Also, early identification and appropriate management of intraoperative complications are required for achieving optimal visual and refractive outcome. In this presentation we summarize the various surgical techniques of SMILE with their advantages and disadvantages.

We also aim to highlight clinical features and management of various intraoperative complications.

## WHY WE STILL MEET UNHAPPY PATIENTS AFTER CATARACT AND IMPLANT SURGERY: HOW TO SOLVE THE PROBLEM



**Dr. Hafiz M. Gahramanov**

Azerbaijan Medical University, Ophthalmology Department, Baku, Azerbaijan

Patient satisfaction is one of the main factors that indicate the success of the surgical outcome for both the surgeon and the patient after cataract and implant surgery. Every surgeon wants to see a happy patient first after surgery. However, sometimes even modern technical equipment, surgical methods, and accurate operation cannot protect us from meeting dissatisfied patients.

When investigating the causes of dissatisfaction among patients who were unhappy after uncomplicated routine FACO and implant surgery in our clinic, during 4 years (2019-2022, 352 patients, 402 eyes), the picture we came across can be characterized as follows:

- patients whose refractive expectations are not as desired (myopic or hyperopic shift)
- patients whose quality of vision is not as desired (dysphotopsias, decreased contrast sensitivity, etc.)
- patients with subjective complaints such as dry eye, foreign body sensation and others

In conclusion, we must note that patient dissatisfaction after cataract and implant surgery should be considered as a serious factor that reduces the quality of life in many cases, and the factors that cause it should be prevented or eliminated.

Therefore:the condition of the ocular surface should be closely monitored before surgery and optimized;

IOL selection and IOL power calculation must be performed without errors; especially for multifocal lens implantation, patients should be selected more carefully.

## IOL SURPRISES

### **Yehia Salah El Din, Prof. MD.**

Professor of Ophthalmology  
Cairo University, Cairo, Egypt



A video based presentation showing all different scenarios with intraocular lenses from, difficult unfolding, to torn IOL, opacified IOLs, Kinked, Displaced and dislocated IOLs.

## PRACTICAL APPROACH TO CORNEAL INFECTIONS

### **Prof. `Yehia Salah EIDIn**

Professor of Ophthalmology

This a step by step clinical approach to how to diagnose and manage corneal infections, showing all modalities to combat such a drastic challenge, covering medical and surgical treatment



## ADJUSTABLE GLAUCOMA IMPLANT WITH THE AUTOGENOUS FASCIA LATA GRAFT

**Jahid Shahbazov, MD.**

Caspian International Hospital, Baku - Azerbaijan



A 46-year-old patient was admitted to our hospital on September 22, 2022, with complaints of high intraocular pressure, eye pain, and blurred vision despite having previously undergone trabeculectomy surgery in our hospital and after using triple medication.

Ophthalmologic examination showed intraocular pressure of the left eye was 48 mmHg; therefore, the patient was diagnosed with primary open angle refractory (resistant) glaucoma OS. Carbonic anhydrase inhibitor Diacarb tablet and Mannit system with osmotic diuretic effect were given to the patient preoperatively.

The anterior segment examination is still in the same state as before. We then planned to treat the patient with an adjustable glaucoma implant using an autologous graft from his fascia lata. One week after surgery, there was an increase in the visual acuity (visus) and the intraocular pressure was 11 mmHg in the left eye.

Our difference that we used fascia lata, not pericard. Because it costs less and we believed the risk of infection will be less.

## ASTIGMATISM MANAGEMENT IN CATARACT SURGERY

### Dr. Haluk Talu

DünyaGöz Ataköy Hospital, Istanbul, Turkey



Cataract surgery has become a refractive procedure with the advent of multifocal and toric IOLs. Residual astigmatism is one of the most important factors which decreases visual satisfaction in cataract surgery. Multifocal IOLs don't tolerate residual astigmatism over 0.5D.

In this presentation, I will discuss my astigmatism management strategies. I will present when I prefer steep axis incisions, put counter clear corneal incisions and when I choose toric IOLs to manage astigmatism in cataract surgeries.

I will also discuss regression formulas and new technologies in pursuit of defining the true implantation axis. In addition, I will present new technologies like digital biomarkers and Lensar FS' IntelliAxis feature which facilitate to align the toric IOLs along the correct refractive axis.

## PREMIUM IOLS AFTER REFRACTIVE LASER SURGERY

**Baha Toygar**

DünyaGöz Etiler Hospital, Istanbul - Turkey



Increasing number of patients with a history of laser vision correction that need cataract surgery. Their expectations for UCVA after cataract surgery are typically higher than those of the average patient.

This population presents unique challenges to the cataract surgeon due to high expectations for excellent visual outcomes and spectacle independence and the difficulty of intraocular lens power (IOL) prediction.

Careful preoperative evaluations such as biometry and selecting appropriate IOL formula, corneal regularity, corneal high order aberrations, angle alpha and kappa are important. Surgeon should select the correct type of premium IOL according to these pre operative measurements.

## OCT BIOMARKERS IN DIABETIC MACULAR EDEMA

### Associate Prof. Dr. Okan TOYGAR

Bahçeşehir University Faculty of Medicine, Department of Ophthalmology, Istanbul



Among patients with diabetic retinopathy, diabetic macular edema (DME) is the most common cause of visual impairment, estimated to affect nearly 5-10% of patients with diabetes mellitus.

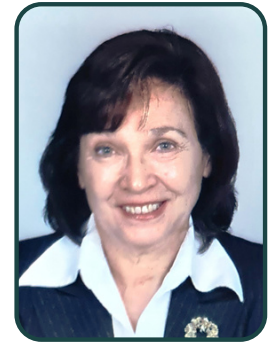
Standard treatment for DME involves repetitive, invasive intraocular injections (anti-VEGFs and corticosteroids), which place heavy burdens on the patient, physician, and health care reimbursement. Although there had been no precise method for deciding the treatment protocol as well as prognosticating outcome in DME in the past; some anatomical, biochemical and molecular parameters and imaging features such as optical coherence tomography (OCT), fundus angiography and OCT angiography have come into use as biomarkers, recently.

In this talk, OCT biomarkers such as disorganization of retinal inner layers, subretinal fluid, hyperreflective foci, intraretinal cysts and ellipsoid zone disruption will be discussed in the light of recent studies.

## DIAGNOSTIC TRAPS – CLOSED ANGLE GLAUCOMA/PLATEAU IRIS

**Petja Vassileva, Prof. MD.**

University Eye Hospital “Prof. Pashev”, Sofia, Bulgaria



**Purpose:** Specific configurations of tissues in the anterior eye segment play an important role in glaucoma pathogenesis. These complicated interrelations can lead to closure of anterior chamber angle (ACA) and development of angle closed glaucoma (ACG). We analyze diagnostic problems in patients with ACG, and discuss the importance of timely differential diagnosis.

**Methods:** A prospective study of 92 consecutive patients with ACG, referral to our hospital for a 6 months period and follow-up of 30-36 months. All patients had full eye exam and specialized eye tests. Differential diagnosis was of main importance for appropriate treatment methods: antiglaucomatous medications, laser procedures, and incision surgery.

**Results:** The mean age of studied patients was 45-89 years, and they were predominantly female (56.52%). In 25 patients (27%) the diagnosis was made during AAC attack. 12 patients had been misdiagnosed: iridocyclitis - 6 patients, conjunctivitis - 2, and cataract - 4. In 20 patients (22%) ACG was diagnosed at exam for refractive correction. In 23 patients (37%) ACG had been diagnosed for years but not adequately treated. Plateau iris configuration (PIC) was diagnosed in 22 patients (23.91%), mostly young female - 19 (86.36%), with mean age 42 years, and with shorter axial length. Anterior segment of patients with PIC was characterized with flat/concave iris, deep central AC, IOP fluctuation up to 60-70mmHg, double hump on gonioscopy, and symptoms of intermittent pain and vision fluctuation. LPI was essential to confirm transition of PIC to PIS - the unique clinical situation. The differential diagnosis of PIC includes phacomorphic AC, iris cysts (causing secondary narrowing of angle), incomplete LPI.

**Conclusions:** PIS is defined of persistent narrowing angle capable of closure in spite of patent functioning iridotomy. The main cause for diagnostic mistakes in ACG is due to lack of adherence to the protocol of comprehensive eye exam and of differential diagnostic search. Gonioscopy should be mandatory in every patient. All people with narrow ACA should be evaluated for PIC, especially if presenting with AAC. Patients with PIC/PIS represent specific clinical puzzle with difficult diagnosis and treatment.

**Keywords:** angle closed glaucoma, plateau iris configuration, plateau iris syndrome, laser peripheral iridotomy

## NONSTEROIDAL OPHTHALMIC THERAPY IN OPHTHALMIC SURGERY

### Alexander Zabolotniy

The S. Fyodorov Eye Microsurgery Federal State Institution, Krasnodar branch, Chief Researcher of the Scientific Department, Krasnodar, Russian Federation  
FSBEI of High Education "Kuban State Medical University" of the Ministry of Health of Russia, Associate Professor of the Department of Eye Diseases, Krasnodar, Russian Federation



**Purpose** For the speaker – to provide up-to-date knowledge for the formation of stable scientific practical competencies (SPC) on the use of non-steroidal anti-inflammatory drugs (NSAIDs) to achieve the clinical effectiveness of ophthalmic surgery (OS) and ophthalmotherapy (OT). For the listener – to get the new SPCs for effective OS.

The relevance of the topic is determined by the perioperative problems of OS of cataract, glaucoma, keratorefractive OS. Postoperative aseptic inflammatory process (PAIP) in damaged eye tissues due to surgical trauma itself causes a decrease in the effect of the operation and the development of postoperative complications. Adequate PAIP therapy determines the speed and completeness of visual function recovery after OS.

**Methods and material.** Abstract study of thematic literature, results of own research.

**Results.** Outlined pharmacorientation and rationality of NSAID use, taking into account the involved groups of prostaglandin (PG) receptors, forms of cyclooxygenase isoenzymes (COG); the results of a reference comparative study of the effectiveness of eye drops of the NSAID group with the active substance of different pharmacodynamics and the degree of inhibition of COG-1 and COG-2. The problems of long-term use of PG analogs in the treatment of glaucoma were studied - the risk of excessive scarring in glaucoma OS (own research). The expediency of using NSAIDs for non-penetrating OS in POAG has been established. The prophylaxis by taking NSAIDs has been briefly considered: operational miosis and postoperative macular edema in cataract surgery; in keratorefractive surgery, the achievement of an analgesic effect is the relief of pain. It was determined that, with the similarity of the chemical structure and pharmacological action, NSAIDs differ significantly in the severity of the therapeutic effect and the incidence of complications.

**Conclusion.** Non-steroidal ophthalmic therapy is a preventive, corrective and rehabilitative anti-inflammatory therapy in OS. The competent choice of a specific NSAID allows you to get the desired result in OS maximum quickly and efficiently.



**10**  
**February**  
**Oral**  
**Abstracts**

## THE FLAP THICKNESS OUTCOMES WITH NEW DUAL FEMTOSECOND LASER PLATFORM

Bilgehan Sezgin ASENA, MD; Beyza Tekin ALTINBAY, MD; Mahmut KASKALOGLU, Prof., MD

Kaskaloglu Eye Hospital, Izmir, Turkey

**Purpose:** To evaluate flap thickness in femtosecond (FS) laser assisted LASIK operation for myopia performed with new LenSx dual platform using curved interface.

**Materials and Methods:** Fifty eyes of 26 patients (mean±SD age: 26.9±8.1 years, 53.8% were females) with myopia or myopic astigmatism operated with FS laser-assisted LASIK were evaluated in this study. Data on patient demographics, preoperative and postoperative keratometric and aberrometric parameters and flap thickness outcome including mean central flap thickness (MCFT), mean total flap thickness (MTFT), intra-FT range and flap thickness homogeneity (FTH) were recorded.

**Results:** Flap thickness assessment revealed median values for MCFT to be 123 µm (range, 109 to 134), while MTFT was 123 µm (range, 109 to 133.7), Intra-FT range was 4.0 µm (ranged, 1 to 6) and FTH was -2 µm (range, -6 to 2). Overall flap thickness was thicker than planned by +3.0 µm (minimum, 109.0 µm with a -11.0 µm average difference and maximum, 133.7 µm with a +13.7 µm difference) with an average thickness standard deviation of 6.6 µm.

**Conclusions:** In conclusion, our findings related to FS laser assisted LASIK surgery for myopia with new LenSx dual platform using curved interface revealed favorable corneal flap thickness outcome in terms of closeness of flap thickness to the intended value and low intra-flap range. Thus, our findings emphasize the likelihood of planning and producing more successful LASIK outcomes in terms of consistency and predictability of corneal flap thickness with use of new LenSx dual platform.



## IS REFRACTIVE SURGERY SAFE FOR PREGNANT WOMEN? MINI REVIEW OF THE LITERATURE

\*Halime Şen Selim, \*\*Sedat Selim

\*İzmir Katip Çelebi University, Atatürk Training and Research Hospital, Obstetric and Gynecology Department, Turkey

\*\*İzmir Kaşkaloğlu Eye Hospital, Turkey

**Introduction:** Pregnancy is a particular period that cause many physiological changing in all system. (1) Increasing estrogen and progesterone during pregnancy affects many organs and systems. (1)

Many changes in the eye, especially in the cornea, were described in this period. (2-5) Therefore, many surgeons delay many surgical procedures during pregnancy.

Postponing the mother's health needs in this particular period is incompatible with the changing world conditions. Refractive surgery is one of these procedures. Should refractive surgery be postponed during pregnancy and lactation?

**Material-methods:** We searched for the answer to this question in the literature. When we searched "refractive surgery and pregnancy" on PubMed for the last ten years, 64 results were found. However, there was only 5 article related to this issue. (6-10)

**Results:** Ortega et al.(6) reviewed the current contraindications for laser corneal refractive surgery listed in the Preferred Practice Protocols (PPPs) of the American Academy of Ophthalmology and the Spanish Ophthalmology Society, and pregnancy and lactation are classified as relative contraindications. However, they emphasized that there are some studies about the safety of refractive surgery in some of these cases.

Kanellopoulos et al.(7) evaluated Corneal Stability on 64 pregnant women (128 eyes) who had previously undergone bilateral myopic LASIK and concluded that pregnancy did not affect the refractive stability of LASIK.

A multicenter study revealed that; pregnant women have more significant refractive differences from prior spectacle prescription later in pregnancy, but the direction of this change is variable and insignificant. (8) A systematic review(9) reported the outcomes of laser corneal refractive surgery in pregnant or breastfeeding patients. And Photorefractive keratectomy and laser in situ keratomileusis surgery seem to be stable procedures that are not modified during pregnancy and are safe to complete during breastfeeding. On the other hand, in a commentary, Moshirfar et al. stated that LASIK is contraindicated during pregnancy also do not recommended for lactating women (10)

**Conclusion:** Although the change caused by pregnancy hormones in the cornea creates a reservation for LASIK, it does not seem to constitute a definite contraindication. Without doubt; the special data in the literature are very limited, and additional longitudinal studies are needed.

**Keywords:** refractive surgery, pregnancy, LASIK, breastfeeding

## ENHANCING VISUAL QUALITY WITH EYE MAX MONO LENS IN DRY AGE-RELATED MACULAR DEGENERATION

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**Introduction:** To evaluate clinical and visual outcomes in patients with dry age-related macular degeneration (AMD) after intracapsular implantation of a novel EyeMax Mono macular lens, that utilizes an advanced optical design to optimize the image supplied to all areas of the macula and not just the foveal center, which may benefit patients with center-involving macular disorders.

**Methods:** A total of 38 phakic eyes (36 patients) with bilateral intermediate or advanced dry age-related macular degeneration (AMD) patients with macular atrophy or disciform scar were evaluated in this study. Patients were followed up for  $\geq 3$  months after surgery.

A complete pre-operative ophthalmological examination was performed, and measuring best corrected distance visual acuity in logMAR and ETDR. Following phacoemulsification, the EyeMax Mono lens was implanted intracapsularly via a 2.2-mm clear corneal incision. Using pre and postoperative data, changes in distance visual acuity and the safety of the implant were evaluated.

**Results:** Male-to-female proportion was 21:15. Mean age at surgery was  $70.25 \pm 10.25$  years. The average post-operative follow-up was  $7.94 \pm 4.32$  months. The mean post-operative spherical equivalent advanced to  $+2.31 \pm 1.56$  D with significant visual recovery as early as 3 months post-operatively.

Post-operative corrected visual acuity progressed significantly from  $0.89 \pm 0.42$  to  $0.62 \pm 0.40$  logMAR, comparable to mean ETDRS of  $54.23 \pm 19.28$  letter. Patients included in this study gained approximately 2.84  $\pm$  1.63 ETDRS line in visual acuity. There were no major surgical complications, either intra- or post-operatively, just in two patients who experienced intra-operative haptic crack.

**Conclusions:** Extended macular vision lenses show up to have a comparable security profile as standard IOLs within the short to medium term. EyeMax mono macular lens can be the favorable IOL of choice in dry AMD patients for improving visual acuity than standard IOL's

**Keywords:** Cataract · Dry age-related macular degeneration · EyeMax Mono macular lens Visual acuity

### POST LASIK ECTASIA - IS IT ALWAYS PREDICTABLE?!

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**Purpose:** To evaluate risks and predictability of postoperative ectasia after laser in situ keratomileusis (LASIK); discussing the incidences of this particular complication.

**Methods:** A retrospective analyses following LASIK was made to reveal the pitfalls of this serious complication of corneal refractive surgery. The follow-up was between 2 and 10 years. After identifying ectasia, the retrospective analyses of topography maps was done to reveal any predisposing common factors for developing ectasia.

**Results:** Seven eyes of four patients developed post-LASIK ectasia. All of them had been treated for myopia and myopic astigmatism. All the cases of ectasia had a flap created using mechanical microkeratome (flap thickness 140 or 120  $\mu\text{m}$ ) and refractive error corrected using excimer lasers from B&L.

Most prevalent risk factors are: Preoperative topography patterns, even those that can't be qualified as Keratoconic (asymmetric bowtie, inferior steepening and other abnormal maps). Ablation depth (as corneal strength is significantly greater in the anterior 40% of the stroma than in the posterior 60%) & residual stromal bed thickness. Young age (corneal tensile strength increases with age). Thin cornea (low thickness, degree of Myopia and residual stromal bed are inter-related. Even with expected RST > 300 myopia 8,0 D is a high risk factor). Postoperative Risk Factors are: Role of pregnancy: incidental, circumstantial or causal Relaxing hormone increases during pregnancy that may contribute to changes in the physiochemical properties of corneal collagen leading to ectasia. Adenoviral inflammation leading to collagen loss due to apoptosis of stromal keratocytes & weakening of the stroma. Rubbing of the eye (!) Increased IOP (!)

**Conclusion:** These cases highlight the need for a high index of suspicion when making decision about vision correction, despite seemingly safe estimates of residual stromal bed thickness. Regular follow ups are mandatory in every case. In suspicious cases CCL should be scheduled. Timely performed CCL is very good option to halt ectasia.

## TECNIS Eyhance - INNOVATION IN MONOFOCAL IOLS SEGMENT

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**Purpose:** To evaluate the visual quality and performance after bilateral implantation of TECNIS Eyhance IOL Model ICB00 (Johnson & Johnson Vision, Santa Ana, Ca, USA) with or without micro-monovision.

**Design:** Prospective, non-randomized clinical study.

**Methods:** The study comprised 31 patients. The subjects were divided into 2 sub-groups: Group 1 (n=16) who received bilateral implantation of TECNIS Eyhance IOL, targeted for emmetropia in both eyes, Group 2 (n=15) received bilateral implantation of TECNIS Eyhance IOL, with the target refraction of -0.75D in non-dominant eye (Blended Vision). The aim of the study was to evaluate and compare binocular Uncorrected Distance Visual Acuity (UCDVA), Uncorrected Intermediate Visual Acuity (UIVA) at 66 cm distance, Uncorrected Near Visual acuity (UCNVA) at 40 cm distance, the presence of photic phenomena (Halos, Glares, Starbursts, negative dysphotopsia) in both groups at 6 months postoperatively.

**Results:** There was no statistically significant difference observed between the 2 sub-groups in terms of binocular UCDVA: -0.03 vs 0.00 LogMAR. UCIVA was comparable between the groups: 0.15 LogMAR vs 0.14 LogMAR, ( $p < 0.001$ ) respectively. In Group 2, patients had significantly better UCNVA (0.21 LogMAR vs 0.58 LogMAR) ( $p < 0.01$ ). In regards to dysphotopsia profile, 1 patient in Group 1 complained of crescent-shaped shadowing in temporal hemifield (negative dysphotopsia), which did not resolve after 6 months postoperatively, and 1 patient from Group 1 complained of glare sensitivity.

**Conclusion:** TECNIS Eyhance IOL provided an excellent and equal binocular UCDVA in Group 1 and Group 2. Though TECNIS Eyhance IOL yielded good binocular UCIVA, no statistically significant difference was found between Group 1 and Group 2 in that regard. Group 1 demonstrated significantly better UCNVA compared to Group 2. Overall incidence and severity of photic phenomena was low.

**Conflict of Interest Disclosures:** None.

### **SHEDDING LIGHT TO NEGATIVE DYSPHOTOPSIA**

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**Purpose:** To review the literature concerning Negative Dysphotopsia (ND) regarding cause, incidence, and clinical and surgical management.

ND is associated invariably with well-centered in-the-bag IOLs (Occurs exclusively after uncomplicated cataract surgery). The cause of ND seems to be multifactorial and less well understood, with some disparity between clinical and laboratory findings. Raytracing optical modeling suggest an "illumination gap," in which some temporally incident light rays to the nasal retina pass anterior to the IOL and some are refracted posteriorly by the IOL, resulting in a gap and resultant temporal shadow. Other implicating factors include nasal anterior capsule override, haptic orientation, large-angle k value, and high hyperopia. Persistent ND has been treated successfully or reduced with reverse (anterior) optic capture, sulcus IOL placement, piggyback IOLs, and neodymium: yttriumaluminumemerald nasal capsulectomy. Persistent dysphotopsia after cataract surgery is a significant cause for patient dissatisfaction and disappointment. The cause and management of negative dysphotopsia are of significance, and new IOL designs and alternative surgical strategies may help to mitigate these unintended side effects of IOL implantation.

**Conflict of Interest Disclosures:** None.

## COMBINED METHODS FOR KERATOCONUS CORRECTION

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**PURPOSE:** To assess the efficacy, stability, and predictability of vision correction with phakic Visian Implantable Collamer Lens (ICL, STAAR Surgical) implantation in keratoconic eyes treated with Intrastromal Corneal Ring Segments (ISCRS) or Corneal Cross Linking (CCL).

**METHODS:** Patients' age - 18-37 years, ICL after ISCRS - in 19, after CCL in 7 cases. Before treatment, each patient had a thorough evaluation including perfect general and ocular histories. The examination included visual acuity, refraction, tonometry, corneal topography, biometry, biomicroscopy and posterior segment evaluation by a retina specialist. The average spherical equivalent (SE) refraction ranged from +1.0 to -14.0 D, astigmatism from 1.5 to 7.5 D. UCVA 0.02-0.2; BCVA 0.09-0.6 before operation.

**RESULTS:** At 1 month postoperatively, it was observed a significant increase in uncorrected visual acuity, making the patients not/less dependent on glasses and contacts. At 6 months, no eyes lost any best-corrected vision. SE after ICL implantation was  $-0,24 \pm 0,45$ ; UCVA 0.4-1.0; The 81% of eyes saw 20\25 or better uncorrected. All eyes were within 1.25 D of the target refraction, and 76 percents were within  $\pm 0.75$  D. The mild vaulting which did not affect the final visual outcomes was observed in one case. There were no other significant complications and the refractive effect remained stable during the follow-up period (ranged from 1 month to 5 years).

**CONCLUSION:** Using Toric ICL implantation for vision correction is effective, safe and predictable procedure and an effective option for improving visual acuity in patients with keratoconus following CCL and/or ISCRS implantation.

## COMPARISON OF OCULAR SURFACE AND DRY EYE SYMPTOMS BETWEEN SURGICAL MASK AND N95 RESPIRATOR MASK USERS

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### ABSTRACT :

**Introduction :** Globally, since the COVID-19 pandemic, there have been deaths in millions and the social disruption has been severe. Since the outbreak of the pandemic and people starting to wear masks, there has been a significant increase in patients with symptoms of dry eyes. In this study, we aim to evaluate the ocular surface and symptoms of dry eye in healthcare workers who wear surgical mask and N-95 respirator ; and to see if there is a difference in severity of ocular surface findings between these two groups.

**Material and Methods:** In this cross-sectional study, 122 eyes of 61 healthcare workers were evaluated. Participants who routinely wore a face mask for at least 8 hours a day since the onset of the pandemic were recruited among healthcare workers. Participants were divided into groups according to the face mask type (group 1: surgical mask, group 2: N95 respirator). All patients were evaluated with the Schirmer test, Tear Break-up Time (TBUT) and Ocular Surface Disease Index (OSDI). A p value <0.05 was taken to be statistically significant.

**Results:** The mean age was 30.48±6.01 years in group 1 and 34.5±9.1 in group 2. Comparing two groups, TBUT (p=0.028) and Schirmer test (p<0.001) values were higher and OSDI scores (p=0.009) were significantly lower in the N95 respiratuar group. There was no significant difference regarding fluorescein staining score between the groups (p=0.217).

**Conclusions :** We could suggest that prolonged mask use, independently from the type, can cause tear film disturbance probably through tear evaporation. Because N95 masks fit very tightly on the face and prevent air from dispersing directly to the ocular surface, they could be an alternative choice for individuals who wear masks for long hours during the day.

**Keywords :** COVID-19, dry eye, N95 mask, ocular surface

## EARLY RESULTS OF I-PRF INJECTION IN PTERYGIUM SURGERY WITH CONJUNCTIVAL AUTOGRAFT

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Conflicts of Interest and Source of Funding: The authors declare

**Introduction and Purpose:** Injectable platelet-rich fibrin (I-PRF) is a second-generation, fully autologous, blood-derived biomaterial having three-dimensional fibrin meshwork, like that of a PRF clot, while retaining the fluid nature, just like platelet-rich plasma (PRP). The introduction of platelet-rich-fibrin (PRF) in 2001 exemplified the first step toward the generation of blood-derived PRF matrices that do not require additional anticoagulation agents. The need for an injectable form, I-PRF, arose because PRF's solid membrane prevents it from being injected into the tissue. With the low-speed centrifugation concept, i-PRF can be obtained in liquid form without forming a PRF membrane. I-PRF clots and forms a gel form after approximately 10-15 min and preserves its content in the tissue for sustained release of growth factors.<sup>1</sup> It has been reported that i-PRF may contribute to wound-healing processes with increased vascularization.<sup>2</sup> The aim of this presentation is to show the early-term results of I-PRF injection in pterygium surgery with conjunctival autograft.

**Materials and methods:** In this non-comparative study, 16 eyes of 16 patients with primary pterygium underwent pterygium excision with conjunctival autograft transplantation. After standard pterygium excision with conjunctival autograft transplantation, 1 ml of I-PRF was injected into each of the upper, lower, conjunctival junctions and under parts of the autograft. The graft stability, vascularity, and complications were assessed within a follow-up period of 6 months.

**Results:** Graft edema developed in 10 patients after surgery and resolved within 1 week. There were no hemorrhage under the graft and graft necrosis in the immediate postoperative period. There are no recurrence within a follow-up period of 6 months.

**Conclusion:** This presentation is the first study in the literature to use I-PRF with autograft for pterygium surgery. Thanks to the fibrin framework and growth factors it creates, I-PRF may shorten the healing process of the graft and cause fewer recurrences.

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## EVALUATION OF THE EFFECTS OF STRABISMUS SURGERY ON CORNEAL BACKWARD LIGHT SCATTERING AND CORNEAL VOLUME

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**Introduction:** Investigation of the effects of conventional strabismus surgeries on corneal clarity and microstructure

**Material and Methods:** Patients who underwent strabismus surgery between May 2022 and July 2022 in Adana City Training and Research Hospital were examined. Corneal densitometry (CD) software with a Pentacam device were used to determine corneal backward light scattering. CD and corneal volume (CV) data were analysed preoperatively and 1 month postoperatively.

**Results:** The study included 33 eyes of 28 patients. The mean age of the patients was  $20.51 \pm 8.22$  (5-35) years. Of the eyes, 19 underwent single muscle recession surgery. Two-muscle surgeries (recession and resection combination) were performed in 14 eyes. The mean CD value decreased in all zones in the postoperative period. This decrease was statistically significant only in the total cornea apical 0-2 mm zone ( $p=0.039$ ). The reduction in CD was generally greater in the two-muscle surgery group, but the difference was statistically significant only in the posterior layer 2-6 mm zone ( $p=0.049$ ). The CV value decreased statistically significant in the postoperative period ( $p=0.010$ ). The reduction in CV was higher in the two-muscle surgery group, but the difference was not statistically significant ( $p=0.205$ ).

**Conclusions:** The transparency of the cornea is maintained by a series of complex mechanisms including the configuration of collagen, extracellular matrix, and keratinocytes. CD and CV reduction after strabismus surgery may be associated with metabolic stress due to the perioperative anterior ciliary artery incision.

**Key Words:** Corneal densitometry, strabismus surgery, corneal volume, anterior ciliary, corneal transparency

The authors declare that the manuscript has not been published previously and not under consideration for publication elsewhere.

Disclosure of potential conflicts of interest: None of the authors have any potential conflicts of interest to disclose

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Ethics approval: The study was compliant with the Declaration of Helsinki and additional approval was obtained from the local institutional ethics committee (registration number: 2034).

Author Contributions: All authors contributed to the study conception and design. Patients who applied to our Ophthalmology Clinic and were diagnosed with strabismus and had surgery indication were operated by Dr. Duygu Topaktaş Emekli. Preoperative and postoperative data of patients who met the inclusion criteria were collected by Dr Aynura Sariyeva Aydamirov. Statistical analysis of the data was done by Dr. Ayna Sariyeva Ismayilov. The first draft of the manuscript was written by Dr. Ayna Sariyeva Ismayilov.

All authors commented on previous versions of the manuscript. All authors read and approved the final manuscript

## OUTCOMES OF PENETRATING KERATOPLASTY AND DESCemet MEMBRANE ENDOTHELIAL KERATOPLASTY IN CONGENITAL HEREDITARY ENDOTHELIAL DYSTROPHY

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**Introduction:** To evaluate the outcomes and complications of penetrating keratoplasty (PK) and Descemet membrane endothelial keratoplasty (DMEK) in patients with congenital hereditary endothelial dystrophy (CHED).

**Material and Methods:** Records of 26 eyes of 15 CHED patients who underwent PK and DMEK were reviewed retrospectively. Visual outcomes, graft clarity rates, and complications were compared between patients who underwent PK before (group 1) and after (group 2) at the age of 12. The visual outcomes of eyes with and without nystagmus were also compared.

**Results:** Twenty-one of the corneal transplanted eyes had PK, whereas five had DMEK. The eyes that underwent PK included 10 eyes in group 1 and 11 eyes in group 2. The mean age at surgery was 9.6 and 17.7 years, the mean follow-up period was 9.21 and 6.71 years, and the graft survival rates at the final follow-up were 80% and 63.6% in group 1 and group 2, respectively. There was no significant difference between the two groups in visual outcomes, final graft clarity rates, and postoperative complications. Graft failure was observed in 2 eyes in group 1 and in 4 eyes in group 2 ( $p=0.407$ ). Eighteen eyes underwent primary grafts and three eyes had regrafts. Nystagmus was present in 7 patients. There was no significant difference in final best-corrected visual acuity (BCVA) between eyes with and without nystagmus. The mean age at surgery in the DMEK group was 16.2 years and the follow-up period was 3 years. Graft failure and rejection were not observed. The BCVA was 20/80 or better in 80% of eyes. Postoperative glaucoma was observed in 3 eyes and 2 eyes required glaucoma surgery.

**Conclusion:** Delayed keratoplasty seems to have no significant effect on graft survival, visual prognosis, and complication rates in CHED patients. Additionally, the presence of nystagmus may not affect the visual outcome. Although DMEK surgery is a good alternative in CHED patients, careful follow-up is required for glaucoma.

**Key Words:** congenital hereditary endothelial dystrophy, penetrating keratoplasty, Descemet membrane endothelial keratoplasty.

### CHANGES IN OCTA MEASURES THROUGHOUT THE DAY: DIURNAL VARIATION OR TEST-RETEST VARIABILITY?

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**Purpose:** To evaluate simultaneously the repeatability and the diurnal variation of the retinal vessel density (VD) and foveal avascular zone (FAZ) parameters using optical coherence tomography angiography (OCT-A).

**Methods:** 41 healthy individuals were measured twice in the morning and once in the evening. FAZ area, FAZ perimetry, foveal density (FD); superficial and deep capillary plexus (SCP, DCP) VD parameters, central macular thickness (CMT) were evaluated with the intraclass correlation (ICC), coefficient of repeatability (CR) and Bland-Altman plot.

**Results:** FAZ area, FAZ perimetry and FD; CR value was 5.4%, 4.3% and 8.8% respectively with excellent ICC. In SCP-VD parameters, ICC value was poor for parafovea (0.33), was excellent for fovea (0.97). CR for foveal and parafoveal areas, were 19.19% and 10.43% respectively. In DCP-VD parameters, ICC values were poor (0.3-0.4) with between 10-16% measurement differences. CR for CMT parameters were between 1-2% with excellent ICC values. Also similar results were obtained for diurnal variation research.

**Conclusion:** OCT-A is a highly reproducible device for FAZ parameters and foveal VD measurements in SCP and DCP. Concomitantly, diurnal variation was not observed for VD, FAZ and CMT measurements. The differences between measurements in the morning and evening were evaluated as test-retest variability.

**Key Words:** diurnal variation, macular thickness, optical coherence tomography angiography, repeatability, vessel density

**Summary Statement:** Diurnal variation was not observed for vessel density, foveal avascular zone and central macular thickness measurements via OCT-A which is a highly reproducible device.

**DOES CORNEAL THICKNESS AFFECT THE AMOUNT OF CROSS-LINKED TISSUE AND THE 3-DIMENSIONAL STRUCTURE OF THE CORNEA IN KERATOCONUS PATIENTS AFTER ACCELERATED CROSS-LINKING?**

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**PURPOSE:** To evaluate the effects of the baseline corneal thickness on the amount of cross-linked tissue and the 3-dimensional structure of the cornea in keratoconus patients after accelerated cross-linking (A-CXL).

**MATERIALS AND METHODS:** The central corneal thickness (CCT), thinnest corneal thickness (TCT), corneal volume (CV), anterior chamber volume (ACV), keratometry (K), AKf, AKb, KVf, KVb values measured at baseline, 1,3,6,12 months after CXL in corneas that underwent A-CXL (9mW/cm<sup>2</sup>) treatment for keratoconus were examined. Since the mean CCT of the subjects included in the study was found to be 450±51 µm, corneas below this value were grouped as Group 1 and corneas above this value as Group 2, and the groups were compared with each other.

**RESULTS:** A total of 53 eyes of 42 patients were included. The mean CV, CCT and TCT were lower in Group 1 when compared to Group 2 at all follow-up visits before and after A-CXL (p<0.05 for all values). The mean CV and TCT were significantly low when compared to baseline at each follow-up visits after A-CXL in Group 2 (p<0.05). The mean KVb was significantly higher in Group 1 when compared to Group 2 at 12 months after A-CXL (p<0.05).

**DISCUSSION AND CONCLUSION:** The decrease in the corneal volume and thickness in thinner corneas is less prominent within one year after A-CXL treatment. Considering that the vertex value of the posterior surface of the cornea also increases more after CXL in thin corneas, it has been thought that the amount of tissue that develops cross-linking reaction is lower in thin keratoconic corneas.

**Keywords:** Keratoconus, Corneal Cross-linking, Corneal Volume, Topography

## ETIOLOGY OF EPIPHORA IN GERIATRIC PATIENTS

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**Aim:** Epiphora is a common complaint in patients presenting to eye clinics. The importance of this study is that it addresses the common complaint of epiphora in the advanced age group who may need care. It was aimed to investigate the causes of epiphora and to evaluate the treatment approach in this age group.

**Material and method:** The records of 160 patients who were referred to the oculoplasty unit due to epiphora from March 2020 to September 2022 were retrospectively reviewed. 246 eyes of 160 patients were included in this study. Eyelid position, dry eye tests, ocular surface pathologies, patency of the nasolacrimal system and punctum were evaluated together with a detailed biomicroscopic examination.

**Results:** A total of 246 eyes of 160 patients (90 female, 70 male) were included. The average age was  $74.9 \pm 6.6$ . There was bilateral epiphora in 86 (53.8%) and unilateral epiphora in 74 (46.3%) patients. The most common cause of epiphora was nasolacrimal duct/canaliculi obstruction (31.3%); followed by reflex tearing (16.9%), lower eyelid malposition (15.0%), punctal stenosis (15.0%), multifactorial (14.4%), anterior segment disease (7.5%). Women were younger than men ( $p < 0.05$ ). Reflex tearing, multifactorial and anterior segment disease were higher in male patients than in females over 65 years of age ( $p < 0.05$ ).

**Conclusion:** In patients over 65 years of age, the most common cause of epiphora was found to be nasolacrimal duct/canaliculi obstruction in both men and women. As age increases, lower eyelid laxity in women and multifactorial epiphora in men are more commonly seen. While reflex tearing secondary to dry eye is more prominent under the age of 70, the need for surgical correction increases with age. As a result, a significant portion of epiphora can be corrected with surgery rather than medical treatment in this age group. In addition, with careful examination of the patients, the real cause of epiphora will be found and the chronic use of eye drops will be prevented. Epiphora as a common problem, can be easily solved with a successful surgery, especially in this age group who may need care.

**Key words:** epiphora, geriatrics, nasolacrimal duct, canaliculi, obstruction.

## EFFICACY AND SAFETY OF SELECTIVE LASER CAPSULOTOMY VERSUS MANUAL CONTINUOUS CURVILINEAR CAPSULORHEXIS

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**Introduction:** To compare the efficacy and safety of selective laser capsulotomy and manual continuous curvilinear capsulorhexis

**Material and Methods:** The study included 18 patients (10 males, 8 females, mean age: 62.4 years) who underwent phacoemulsification surgery for stage 2-3 senile nuclear cataract. Capsulorhexis was performed with a selective laser capsulotomy device (Capsulaser, Excel-Lens) in one eye of the patients and manually in the fellow eyes. Efficacy and safety were evaluated based on surgical video records (capsulorhexis size, roundness, centrality, capsule margin tear) and postoperative examination findings (best corrected visual acuity (BCVA), refractive error, intraocular lens (IOL) decentralization or tilt, and decreased endothelial cell count (ECC)).

**Results:** The capsulorhexis size was 5.04 mm (4.80-5.10) in the laser group, and 5.12 mm (4.51-5.10) in the manual group ( $p>0.05$ ). 16 (86%) patients in the laser group achieved the desired capsulorhexis size ( $5.00\pm 0.01$  mm), compared to 10 (55%) patients in the manual group ( $p=0.001$ ). Capsulorhexis was oval and/or notched in 4 patients in the manual group, but it was round in all patients in the laser group. During IOL insertion, one patient in the manual group had a capsule margin tear. After surgery, the BCVA and refraction values of patients in both groups were comparable ( $p>0.05$ ). IOL decentralization or tilt was not noticed in either group of patients. At 1 week postoperatively, ECC was  $2012\pm 212$  in the laser group and  $2102\pm 162$  in the manual group, but the difference was not statistically significant. First- and third-month postoperative ECC were also comparable ( $p>0.05$ ).

**Conclusion:** Selective laser capsulotomy is an effective and promising method allowing to perform round and centralized capsulorhexis in desired sizes, and could be beneficial especially in cases of premium lens surgery.

**Keywords:** Selective laser capsulotomy, continuous curvilinear capsulorhexis, cataract

**A TERTIARY HOSPITAL STUDY ON STANDARD VERSUS SIMPLIFIED CONSENT FORMS FOR CATARACT SURGERY: IS THERE A PERCEPTIBLE OR IMPERCEPTIBLE INFLUENCE ON SURGERY DECISION-MAKING?**

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**Purpose:** To investigate the standard versus simplified consent forms (CFs) for cataract surgery to see if there was a difference that influenced patients' surgery decisions.

**Design:** A tertiary hospital register-based study

**Methods:** 400 patients scheduled for elective cataract surgery at a tertiary hospital between March 1, 2022 and June 30, 2022 were investigated. Patients signed the consent forms on the day of surgery, either independently or with the assistance of a companion. Demographic data was collected, including age, gender, educational level, prior surgery, and whether or not they were alone.

**Results:** The simplified CFs were far more likely to be read than the standard CFs, and the reading rate increased significantly with educational level ( $p < 0.001$ ). No significant influential difference existed in the CF reading between patients reading independently and those assisted by companions ( $p = 0.139$ ). The simplified CFs influenced surgery-related patients' decisions the most ( $p < 0.001$ ).

**Conclusions:** In the CFs, a relatively simple, easily readable and comprehensible language appears to have a significant perceptible, or at least imperceptible, influence on patients' surgery decisions. Owing to the relatively low educational level, mainly in developing countries, the CFs should be written in simple and understandable language, allowing for a clinically transparent, simple, and quick consenting process.

**Key word:** Cataract surgery, Consent forms, Educational level, Readability

**Declaration:** 'The authors declare that they have received no public or private financial support or involvement in the products, methods, or materials mentioned in this manuscript, and there is no conflict of interest to disclose'.

### **SMILE TECHNIQUE, IN OVER 4000 CASES**

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Amaoptimex Eye Clinic, Bucharest, Romania

The paper aims to make an assessment of the quality, results, evolution of patients operated with this mini-invasive technique, compared with femtolasik, where incision is 80% bigger.

We have been first clinic in Romania using the technique since 2014, during which time we benefited from various stages of preparation, no doubt necessary.

Talking to the patient will help him understand what will happen to him after the operation, immediately and in time

The importance of complete eye examination is emphasized, with great care to avoid the risk of ectasia



## A TERTIARY HOSPITAL-BASED DEMOGRAPHIC ANALYSIS OF PATIENTS RECEIVING INTRAVITREAL INJECTIONS

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**BACKGROUND:** To investigate the demographic features of patients receiving intravitreal injections in an ophthalmology clinic at a tertiary hospital

**MATERIALS&METHODS:** In this single centered study, the medical records of patients receiving intravitreal injections at Afyonkarahisar Health Sciences University's Ophthalmology department between October 1, 2021 and September 30, 2022 were reviewed retrospectively. Data, including patients' ages, genders, cities of residence, treatment indications, and intravitreal injection types were obtained from medical records, and their education levels were determined over the phone. Patients whose records contained invalid phone numbers and who did not respond to three separate calls were excluded from the study because their education level could not be determined.

**RESULTS:** There were 50.1% females and 49.9% males among the 9798 patients who received intravitreal injections, with a mean age of  $56.9 \pm 7.4$  years. 52.2% of patients had diabetic retinopathy (DR), 37% had age-related macular degeneration (ARMD), 9.5% had retinal vein occlusion (RVO), and 1% had non-infectious uveitis. The mean age of patients with DR, ARMD, RVO, and uveitis was  $64.5 \pm 6.6$ ,  $68.3 \pm 2.8$ ,  $54.0 \pm 4.2$ , and  $40.8 \pm 6.3$  years, respectively. 39.7% of patients received Aflibercept, 35.7% received Bevacizumab, 11.5% received Ranibizumab, and 12.9% received intravitreal dexamethasone. While 94.9% of patients came from the city center, the remaining 5% came from neighboring provinces. 9.9% of the patients were illiterate, 57.9% had completed primary school, 2948 had completed secondary school, 0.7% had completed high school, and 1.2% had completed university. Endophthalmitis was found in only 0.02% of the patients, with no cases of vitreous hemorrhage or retinal detachment.

**CONCLUSIONS:** Despite the existence of numerous indications for intravitreal injections, the most common appeared to be DR and ARMD. RVO and non-infectious uveitis, both of which necessitate intravitreal injections, appeared to be more common in younger patients. The most commonly used intravitreal injections were anti-VEGF agents. As a result, careful consideration of all of these variables would be beneficial when planning any intravitreal injection therapy.

**KEY WORDS:** Anti-VEGF, Demographics, Diabetic retinopathy, Intravitreal injection, Tertiary Hospital

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## HOW DOES PUPIL SIZE AFFECT CORNEAL DENSITOMETRY MEASUREMENTS?

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**Introduction and purpose:** The Pentacam tomography device (Oculus, Wetzlar, Germany) assesses the corneal light backscattering and objectively quantify corneal transparency with corneal optical densitometry measurements. It works according to Scheimplug principle and analyzes taken photographs thorough analysis systems. In this system, the light intensity affects images. When the pupilla dilates, the amount of light entering the eye increases. The aim of this study is to investigate the effect of pupillary dilatation on corneal densitometry measurements .

**Materials and methods:** 48 eyes of 48 participants were included in this prospective study. Inclusion criteria required all participants to be aged 18 years or older, have visual acuity of 1.0 (20/20), and have no ocular pathology with normal biomicroscopic and fundus examination. Exclusion criteria were previous ocular surgery, keratoconus, pterijyum, corneal scar and ocular surface disease. Pentacam corneal tomography measurements [anterior chamber dept, anterior chamber volume, thinnest corneal thickness, pupillary diameter and corneal densitometry] were measured before (Group 1) and after pupillary dilatation with 2.5% phenylephrine and 1% tropicamide ophthalmic solution (Group 2). Anterior, central, posterior and total corneal densitometry values were recorded in the 0-2, 2-6, 6-10 and 10-12 mm annular zones. The right eye of each patient was included in the study; if right eye is not convenient left eye was included. The results were statistically compared.

**Results:** Mean age of the patients were  $34.34 \pm 6.91$  years. Anterior chamber dept ( $2.93 \pm 0.33$  vs  $2.84 \pm 0.33$ ), anterior chamber volume ( $171.44 \pm 35.22$  vs  $156.06 \pm 36.01$ ), pupillary diameter ( $6.27 \pm 0.69$  vs  $3.02 \pm 0.62$ ) were significantly higher in Group 2 compared to Group 1 ( $p < 0.05$  for all). Corneal optical densitometry values in the anterior 0-2 mm zone were significantly higher in Group 2 compared to Group 1 ( $16.43 \pm 1.02$  vs  $16.05 \pm 0.92$ ,  $p < 0.05$ ). The other densitometric values were similar ( $p > 0.05$ ).

**Conclusion:** Pentacam corneal optical densitometric measurements are increased after pupillary dilatation in the anterior 0-2 mm corneal region.

Key Words: Corneal densitometer; Pupillary dilatation; Pentacam Scheimpflug camera.

## THE EFFECT OF INFERIOR OBLIQUE MYECTOMY SURGERY ON CORNEAL ASTIGMATISM

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**OBJECTIVE:** Our study aims to evaluate the effect of inferior oblique myectomy surgery on corneal astigmatism.

**MATERIAL AND METHODS:** Preoperative, postoperative 1st-week, 1st-month, and 3rd-month Scheimpflug corneal topographies of 46 eyes of 28 patients who underwent inferior oblique myectomy were evaluated. The degree of astigmatism and axis were calculated with the values of K1 with a diameter of 5 mm. The corneal astigmatism axis was statistically compared with the Wilcoxon test before and after surgery.

**RESULTS:** All operations were performed by a single surgeon. The mean age of 28 patients was 11.4 (4-42) years. Of 28 patients, 10 had unilateral, and 18 had bilateral inferior oblique myectomy surgery. Preoperative right eye astigmatism was 1.28 (0.41-2.80), and left eye astigmatism was 1.42 (0.39-2.23). While the mean preoperative right astigmatism axis was 178.9°, it was 168.1° in the 1st-week, 170.5° in the 1st-month, and 177.1° in the 3rd-month. While the mean preoperative left astigmatism axis was 179.2°, it was 183.3° in the 1st-week, 183.3° in the 1st-month, and 176.4° in the 3rd-month. In the 1st-week after surgery, the right eye axis decreased by 10.8°, while the left axis increased by 4.13°. A statistically significant difference was found between the right axis before and during the 1st-month after surgery ( $p=0.024$ ). At 3rd-month, the right and left axis approach the preop values.

**CONCLUSION:** The inferior oblique muscle externally rotates, elevates, and abducts the eye. After the inferior oblique myectomy, both eyes are intorted. This intorsion decreases the right corneal astigmatism axis and increases the left axis. Corneal astigmatism approaches preoperative values at three months. In patients with high astigmatism, care should be taken when prescribing glasses after inferior oblique myectomy.

**Keywords:** inferior oblique myectomy, corneal astigmatism

## EVALUATION OF THE EFFECTS OF CONVENTIONAL AND PATTERN LASERS ON THE MACULA AND OPTIC DISC IN DIABETIC RETINOPATHY TREATMENT

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**Purpose:** Comparison the effect of conventional and pattern laser panretinal photocoagulation (PRP) on macula and optic disc in diabetic retinopathy (DR).

**Materials and methods:** Fifty-seven patients who underwent PRP for severe non-proliferative or proliferative DR were included in this single-center retrospective study. In the conventional laser group, PRP was completed in 2 sessions, 1 week apart, using the LightMed LightLas 532 laser (LightMed Corporation, California, USA) device in accordance with the protocol recommended by the ETDRS. In the pattern laser group, it was completed in a single session using a PASCAL (OptiMedica Corp., Santa Clara, CA, USA) device with a 200-mm spot diameter, 20 ms, 4x4 multispot pattern. Central macular thickness (CMT) and peripapillary retinal nerve fiber layer (RNFL) thickness were evaluated in all cases before laser treatment and at 1, 6 and 12 months after laser treatment.

**Results:** There were 30 eyes in the conventional laser group and 27 eyes in the pattern laser group. There was no significant difference between the groups in terms of age ( $p=0.560$ ), gender ( $p=0.866$ ), duration ( $p=0.498$ ) and stage ( $p=0.503$ ) of diabetes, visual acuity ( $p=0.104$ ) and intraocular pressure ( $p=0.963$ ). In both groups, CMT increased significantly ( $p < 0.001$ ), while RNFL thickness decreased significantly ( $p < 0.001$ ) at 12 months. While CMT and mean RNFL thickness increased in the first month in both groups, it decreased progressively after the first month until the 12th month. CMT increased by 4.9% and 2.8% in the conventional and pattern laser groups at 1 month, respectively. At 12th months, it increased by 2.2% in the conventional laser group and 1.2% in the pattern laser group compared to baseline. At 1 month, RNFL thickness increased by 5.1% and 2.2% in the conventional and pattern laser groups, respectively. At 12 months, it was 3.3% thinner in the conventional laser group and 1.5% in the pattern laser group compared to baseline.

**Discussion:** Conventional and pattern laser systems used in the treatment of DR cause an increase in CMT and thinning of RNFL thickness in the long term. This change is more in the conventional laser group compared to the pattern laser.

**Keywords:** Diabetic retinopathy, Macula, Optic disc, Optical coherence tomography, Panretinal photocoagulation, Pattern laser

## A SMART APPROACH TO DEAL WITH CORNEAL COMPLICATIONS OF ADENOVIRUS CONJUNCTIVITIS

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**Introduction:** Adenoviruses are well known viruses that infect eyes, airways, lungs, intestines, urinary tract and nervous system. They are common causes of fever, coughs, sore throats, diarrhea and pinkeye. This conjunctivitis usually begin in one eye and may spread to the other eye within days.

**Material and Methods:** The prominent symptom of that conjunctivitis is pink or red color change in the white of the eye(s), increased tear production, epiphora, feeling like a foreign body in the eye(s), itching, irritation, and/or burning etc.

Apparently clinical representation is like a feverish flu or common cold.

Depending on the severity of the infection and ocular involvement some vision threatening complications such as corneal opacities may occur.

Early diagnosis and proper treatment of

adenoviral conjunctivitis may prevent the ocular structures from many devastating complications.

651 acute Adenovirus conjunctivitis patients between 2020-2022 years in our clinic were included in this study. 81 of them had been applied systemic intramuscular antibiotic (aminoglycoside) due to painful some regional lymphadenopathies.

49 of these 81 had apparent corneal numullar keratitis. These opacities were diminished rapidly by applying two times/daily alpha-2 receptor agonist drops.

In our approach, using systemic and topical anti inflammatories is essential but here is using topical alpha 2 receptor agonists to prevent corneal damage is crucial and new in this study.

**Results:** All of 651 patients received proper treatment according to their medical situation. They were treated exactly and no one of them had any adverse reaction or any other complications.

**Conclusion:** Treatment of adenovirus eye infection is symptomatic and supportive. There is no need to antibiotics unless there is a superinfection and there is no proven antiviral agents for these viruses.

Fortunately, today we have a smart approach to prevent corneal and ocular surface complications of adenovirus conjunctivitis.

**Keywords:** Adenovirus,Conjunctivitis, Cornea Keratitis.



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**February**  
**Oral**  
**Abstracts**

## IS SLT THE FIRST-LINE TREATMENT IN GLAUCOMA?

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**Introduction:** The purpose of this study was to evaluate the pattern of IOP reduction following SLT treatment and retreatment (in 1-3 years after first procedure) of OAG patients and long-term results of SLT treatment when it used as first-line.

**Method and Patients:** This study was prospective, nonrandomized, interventional study conducted at Eye Clinic "AkhaliMzera" between October 2011 and November 2022. Patients (age 45 years and older ) with early to moderate primary open-angle glaucoma (POAG) or pseudoexfoliation glaucoma (PXC) Phakic and pseudophakic were included in the study. IOP between 19 and 27 mmHg measured on at least two visits up to 1-3 years after SLT treatment or in non-treated ( in "virgin") eyes

**Procedure:** Before to laser Pilocarpine 1% single drop was used to keep the pupil constricted and prevent peripheral-iris crowding 60 min before SLT. Topical anesthesia (tetracaine 0.5%) was applied 1 to 2 minutes before the procedure. The laser procedure involved the Ellex Solo SLT Laser and a Latina SLT Gonio Lens (Ocular Instruments, WD, USA). Treatment was realised in two stages with 1 month interval. During one procedure I placed 150-190 contiguous spots along 180° of the TM. Immediately, after the completion of the procedure brimonidine 0.2% drop was applied and IOP was measured after an hour. All patients were prescribed topical diclofenac sodium 0.1% for 10 days 3-4 times a day after laser treatment.

**Result:** A total of 867 eyes of 558 patients were involved in the study. The mean age of the study participants was  $54.3 \pm 5.2$  years (range, 40 to 78 years) and 362 (64.9%) were males. The glaucoma diagnosis was POAG in 726 (83.7%) eyes and PXC in 141 (16.3%) eyes. Diabetes mellitus in 8% and systemic hypertension in 30% were noted . 736 eyes ( 84.9%) were on medications, and 130 (14.9%) eyes were treated with laser as primary therapy.

Pre-SLT baseline IOP was  $24.3 \pm 2.5$  mmHg (range, 19 to 32 mmHg), and pre-SLT mean number of antiglaucoma drugs used was  $1.9 \pm 1.01$ .

Overall, the mean IOP after SLT was  $17.8 \pm 3.2$  mmHg,  $18.8 \pm 2.3$  mmHg and  $23.4 \pm 2.5$  mmHg in 12th month, 24th month and 36th month respectively. So, in 2 years the overall percentage of IOP reduction from the baseline was 22.9%.

## IS SLT THE FIRST-LINE TREATMENT IN GLAUCOMA?

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In 3 years after first SLT procedure the majority of patients were retreated. In 1-2 months after repeated treatment IOP reduction was the same like after first SLT ( in 10% of cases even more effective). About 20% of patients with POAG lost efficacy in 18 months post-treatment and in these eyes second SLT procedure was more effective than first time.

The number of drugs reduced from an average of 1.3 to an average of 1.0 was statistically significant with the inter-eye correlation .

Those patients who were treated with laser as primary therapy with a baseline IOP of 25.4 mmHg  $\pm$ 2.9 mmHg had IOP reduction of 7.5 $\pm$ 3.1 mmHg at the last visit, and those who were on antiglaucoma medication with baseline IOP 23.9  $\pm$  2.2 mmHg had IOP reduction of 6.8  $\pm$  2.8 mmHg. IOP reduction at the last visit between POAG, PXG was 6.5 mmHg and 7.9 mmHg, respectively.

### Conclusion:

- SLT is a safe and innovative technology that uses lasers to target only certain cells of the trabecular meshwork of the eye, leaving the tissue surrounding these cells untouched.
- In our study, the patients were treated with laser as primary therapy or adjunct laser with medication. The overall IOP reduction was 27.7%, and the success rate was 75% at 1 year and 53% at 2 years.
- IOP reduction was similar in POAG and PXG . Overall IOP reduction at different follow-up visit ranges from 4.5% to 28.2% with the highest IOP reduction noted at 18th month follow-up period.
- We concluded that SLT appears to be repeatable in eyes with OAG and PXG that have previously been successfully treated.
- We have found that it is more effective to begin treatment at closer to about 0.8 mJ (if the TM has 1 to 2-plus pigment) and titrate by 0.1 mJ increments. The energy level is titrated to the targeted response looking for bubbles forming in the anterior chamber. Once bubbles are visualized, titration is not decreased.
- SLT is most effective in a virgin eye that has not received any medications yet. If the patient drop maximal medications, SLT usually has a less effect. Drops suppressed aqueous production and enhanced outflow so much, that the additive effect of SLT is reduced. We should be offering it to our patients first-line, because it's so safe that they have practically nothing to lose.



## FOLDABLE CAPSULAR VITREOUS BODY: SURGICAL SOLUTION FOR PRE PHTHISICAL EYE

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**Purpose:** To report a surgical procedure and the outcome of foldable capsular vitreous body implantation in a patient with prephthisical eye with chronic retinal and uveal detachment.

**Methods:** 35 years old male patient had the history of chronic retinal detachment since childhood. no light perception and sensory exotropia was noted. Severe hypotony was noted. Slit lamp examination revealed 360 degrees posterior synechia, iridodonesis and crystalline lens opacification. B-scan showed total retinal detachment and sectorial choroidal effusion. Ultrasound biomicroscopy demonstrated choroidal effusion with partial ciliary body detachment.

In order to support and maintain the eyeball, total retinectomy and FCVB implantation was planned. Surgical synechialysis was performed and iris was expended using iris hooks. AC maintainer was utilized to support phacoemulsification procedure. 23gauge chandelier assisted pars plana vitrectomy was done. 360 endodiathermy was performed and was proceeded with total retinectomy. Fluid-air exchange was done. 6 mm scleral incision was made 3.5 mm from the limbus and prefolded FCVB device was introduced through scleral incision. 8.0 Nylon was used to suture wound and to ligate FCVB tube. 23 G VFC silicone oil injection system was utilized to facilitate oil delivery to the FCVB device. After FCVB became sufficiently filled with a silicone oil, the tube was placed in sub-Tenon's pocket superotemporally. Surgical iridectomy was made at 12 o clock position.

**Results:** Immediate postoperative complication was hyphema ("8 ball") and was managed in first postoperative week. At the 2 years follow-up, ultrasound (B SCAN) and UBM demonstrated choroidal and ciliary body reattachment. Stable (9-10 mmHg) intraocular pressure was achieved. FCVB showed excellent biocompatibility and stable positioning within the eye.

**Conclusion:** Patients with prephthisical eyes with ciliary body detachment and chronic retinal detachments with extensive proliferative vitreoretinopathy are usually treated with vitrectomy with silicone oil tamponade. Vast majority of these patients still need frequent silicone oil exchange and carry high risk of post-surgical complications, eventually leading to loss of the eyeball.

Silicone oil-filled FCVB implantation has shown to be effective and safe procedure in our case as a vitreous substitute over 2 years observation period. Postoperative intraocular pressure remained stable (10 mmHg) during follow up time. No tip extrusion was detected. More observation is needed to learn long term safety profile.

**Financial Disclosure:** None

## USE OF HIGH OXYGEN-PERMEABLE SCLERAL LENSES IN DRY EYE

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**Purpose of review:** Use of soft corneal contact lenses may worsen dry eye syndrome in patients. The purpose of this study is to find out the effect of using scleral lenses in patients with dry eye syndrome as an additional method of treatment, as well as for those patients for whom scleral lenses may be the only treatment due to the small effect of conservative treatment

**Methods:** In this study, high oxygen-permeable scleral contact lenses (15 mm diameter )were fitted onto 100 eyes, of which 38 had a deviant corneal topography and 62 had dry-eye syndrome. Mean age of the patients was 34.5 years. 36 were males 14 females.

**Results:** As a result no signs of oxygen shortage were recorded , improvement of visual acuity and good lens tolerance were found. İdeal fit were in 88 eyes of 100

**Conclusions:** The new scleral lenses provide a physiological condition of the cornea, which allows a revival in the application of such lenses and successful fit for dry eyes.

## BILATERAL PAPILLEDEMA CAUSED BY BRUCELLOSIS MIMICKING PSEUDOTUMOR CEREBRI

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**Introduction and Purpose:** Brucellosis infection of the central nervous system is a rare but serious complication. These manifestations are diffuse encephalopathy/meningoencephalitis, papilledema or papillitis without other focal features, meningomyelitis, posterior fossa syndromes, and neuropsychiatric syndromes. We report a case of neurobrucellosis mimicking the symptoms and the clinical findings that can be seen in pseudotumor cerebri, thus demonstrating the diagnostic challenges of such a heterogeneous disease.

**Case Report:** A 20-year-old male patient presented with complaints of blurred vision and headache. His physical examination was normal. In his ophthalmologic examination, the best corrected visual acuity with Snellen chart was 20/20 in both eyes. Pupillary light reflex, ocular movements, color vision test and intraocular pressures were normal. In the slit lamp examination, the anterior segment of both eyes was unremarkable. Fundoscopic examination revealed optic disc swelling, blurred disc margins and peripapillary splinter hemorrhages in both eyes. No neurological deficit was detected in the neurological evaluation. The 30/2 visual field analysis of the patient (Humphrey field analyzer, Carl Zeiss Meditec, Dublin, CA) showed blind spot enlargement in the right eye. There was no visual field defect in the left eye. Cranial computerized tomography revealed no pathology.

Current clinical findings were compatible with pseudotumor cerebri. It was learned that the patient consumed unpasteurized goat's milk. No abnormality was detected in blood count, kidney and liver functions. Erythrocyte sedimentation rate and C-reactive protein was normal. Cranial MRI and MR venography showed no pathology. Lumbar puncture was performed. Brucella tube agglutination test was positive at 1/100 titers in CSF. Serum and CSF Rose Bengal tests yielded positive results. There was no growth in CSF culture. He was diagnosed as neurobrucellosis and was treated with intravenous ceftriaxone (2 g/day), oral rifampicin (600 mg/day), and doxycycline (200 mg/day). At the follow-up examination 2 months later, papilledema and blind spot enlargement in the right eye in the visual field regressed.

**Discussion:** In conclusion, this case illustrates a case of neurobrucellosis in an endemic area, should alert physicians to screen for potential brucellosis in case of early ophthalmologic symptoms. Neurobrucellosis should be considered in the unexplained intracranial hypertension, especially in endemic areas.

**Keywords:** Papilledema, pseudotumor cerebri, brucellosis, neurobrucellosis

## **BILATERAL ALTITUDINAL VISUAL FIELD DEFECT CAUSED BY OCCIPITAL INFARCTION**

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**Introduction and Purpose:** Altitudinal visual field defect, which involves the loss of visual sensation in the horizontal half of the visual field. Bilateral altitudinal hemianopsias with macular (or central visual) involvement are rare. The etiologies for such conditions include bilateral pre-chiasmal lesions such as ischemic optic neuropathy, pituitary lesions, and cerebral vascular infarction involving the occipital lobe.

Who survive cerebrovascular accidents exclusive to the occipital lobe often have no significant neurological deficits other than visual-field loss. Visual-field defects from occipital lobe stroke typically include congruous homonymous hemianopsias or quadranopsias, with or without macular sparing. Here, we report on a patient with bilateral inferior altitudinal hemianopsia due to bilateral occipital lobe infarction.

**Case Report:** A 75-year-old male patient with hypertension and diabetes mellitus was admitted with the complaint of sudden vision loss. He denied having headaches, diplopia, or eye pain. He had a history of coronary artery bypass surgery two years ago. He was using insulin, aspirin and antihypertensive drugs. In the ophthalmological examination, his best corrected visual acuity was 20/32 in the right eye and 20/25 in the left eye using the snellen chart. Pupillary light reflex, ocular movements, color vision test and intraocular pressures were normal. Nuclear sclerosis was present in both eyes on slit-lamp examination. The cup to disc ratios were normal with healthy appearing nerves bilaterally. Dilated fundusoscopic examination was normal in both eyes. Spectral-domain optical coherence tomography (Heidelberg Engineering, Heidelberg, Germany) testing of the optic nerve head and macula were normal. The patient's 30/2 visual field analysis (Humphrey field analyzer, Carl Zeiss Meditec, Dublin, CA) demonstrated bilateral inferior altitudinal defects (partially affecting the upper visual field, especially in the left eye). No neurological deficit was detected in the neurological evaluation. On orbital computed tomography scan, bilateral occipital hypodense areas showing ischemic lesions on the calcarine sulcus were observed.

**Discussion:** Cerebral infarction should be considered in acute, symmetrical, bilateral, altitudinal hemianopsia, especially if the fundus findings are unremarkable. Highly congruent visual field defects indicate an affection of the visual cortex or the posterior visual radiation rather than an involvement of anterior (chiasmal, prechiasmal) parts of the visual pathway.

**Keywords:** Altitudinal hemianopia, occipital lobe infarction

## PROGNOSTIC VALUE OF CHOROIDAL VASCULAR INDEX IN DETERMINING RESPONSE TO INTRAVITREAL DEXAMETHASONE IMPLANT TREATMENT USED IN REFRACTORY DIABETIC MACULAR EDEMA

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**Purpose:** To investigate the effect of intravitreal dexamethasone (IVD) implant injection, which was used in the treatment of DME, on CVI and to investigate whether CVI can be used as a prognostic marker in the treatment of anti-VEGF resistant DME.

**Methods:** A retrospective observational and comparative study. Twenty-five eyes of 25 patients with refractory diabetic macular edema who underwent intravitreal dexamethasone (IVD) implant and 50 eyes of 50 healthy patients were included in the study. Central macular thickness (CMT), subfoveal choroidal thickness (SFCT), luminal choroidal area (LCA), total choroidal area (TCA), stromal choroidal area (SCA), and choroidal vascularity index (CVI) were measured on optical coherence tomography.

**Results:** There was no significant difference between the groups in terms of age and gender. When the pre-treatment values in the IVD group were compared with the healthy group, LCA and SCA values were higher and CVI ratios were lower in the IVD group compared to the control group. When baseline, 1st and 3rd months after injection were compared, it was determined that there was a significant decrease in CMT and LCA. There was no statistically significant difference in SFCT, TCA, CVI. There was a significant negative correlation between baseline CVI and 3rd month CMT after IVD ( $\rho: -0.643$ ,  $p: 0.001$ ). It was observed that the baseline and 1st month LCA values were significantly higher than the 3rd month.

**Conclusion:** The choroidal vascular structure may be affected by IVD treatment. CVI may also have value as a prognostic marker in monitoring the response to treatment.

**Keywords:** choroidal vascularity index; dexamethasone implant; diabetic macular edema; prognostic factor

## MANAGEMENT OF CONGENITAL NASOLACRIMAL DUCT OBSTRUCTION WITH PROBING

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**Introduction:** In this study, it was aimed to describe the efficacy and results of the treatment in patients who underwent lacrimal probing due to congenital nasolacrimal duct obstruction (CNLDO) and characterize of demographic data of patients with CNLDO.

**Materials and Methods:** Retrospective study from January 2016 to January 2022 in patients with CNLDO diagnosed who were submitted to a probing procedure. We identified age at procedure, gender, type of birth, laterality and presence or absence of success with the procedure.

**Results:** 76 eyes of 66 patients undergoing probing were analyzed. % 40,9 of patients were male CNLDO was more commonly unilateral %84,8 and right eye % 43,9. Bilateral eyes was affected in % 15,2. The average age of diagnosis of CNLDO was 10,9 months. 40 eyes of 35 patients (%52,6) delivered by caesarean section. The average age at the time of probing was  $21\pm 14,7$  months. Probing at 0-12 months, 12-24 months and over 24 months is 7.7%, 58.5% and 33.8%, respectively. Subsequent to the probing, only 6 eye 7,89% reported presence of tearing and ocular discharge. All of these 6 patients were older than 36 months. Repeat probing and bicanalicular silicone tube intubation were performed in 4 eyes, and all eyes showed regression in the findings. Success rate was defined as successful irrigation of nazolacrimal duct obstruction intraoperatively and absence of lacrimation and discharge at 1 week, one and six months postoperatively. As a result, it was observed that all patients except 2 eyes remained asymptomatic after follow-up.

**Conclusion:** Probing is a safe and effective procedure. Primerprobing was successful in 92,11% of eyes. Success was observed even in patients over 2 years of age. There was a significant decrease of both signs and symptoms of CNLDO with lacrimal probing.

**Keywords:** congenital nasolacrimal duct obstruction, probing,

## LAMINA CRIBROSA THICKNESS AS A PROGNOSTIC FACTOR IN EXUDATIVE AGE-RELATED MACULAR DEGENERATION

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**Introduction:** To determine usefulness of the lamina cribrosa thickness (LCT) and lamina cribrosa depth (LCD) in exudative age-related macular degeneration (AMD) and compare with those non-exudative AMD, and healthy controls.

**Material and Methods:** Thirty-two eyes of treatment-naive patients with exudative AMD (exudative AMD group), 35 eyes of patients with early and intermediate non-exudative AMD (non-exudative AMD group), and 34 healthy control eyes were recruited for the study. All subjects were subjected to a complete eye exam and OCT was used to assess LCT and LCD.

**Results:** The mean age was  $61.60 \pm 6.02$  years for treatment-naive patients with exudative AMD group,  $63.60 \pm 5.72$  years for patients with non-exudative AMD group, and  $62.00 \pm 6.44$  years for 34 healthy controls. Age was not found to be significantly different across the groups ( $p = 0.860$ ). The LCT was significantly decreased in exudative AMD group ( $125.60 \pm 22.27 \mu\text{m}$ ,) compared to non-exudative AMD group ( $178.20 \pm 26.22 \mu\text{m}$ ,  $p = 0.006$ ), as well as healthy controls ( $240.67 \pm 17.09 \mu\text{m}$ ,  $p < 0.001$ ). There was also significantly difference between exudative AMD and non-exudative AMD groups ( $p = 0.006$ ). In addition, no difference was determined between the controls and non-exudative AMD and exudative AMD groups in terms of LCD ( $p = 0.983$  and  $p = 0.929$ , respectively).

**Conclusions:** LCT was decreased in neovascular AMD compared to non-exudative AMD, and healthy controls. LCT in patients with exudative AMD may be use as an important prognostic tool in the management of AMD.

**Keywords:** Age-related macular degeneration: enhanced-depth imaging; lamina cribrosa thickness

**COMPARISON OF TOPICAL TACROLIMUS (0.1%) VERSUS COMBINED TREATMENT OF TOPICAL TACROLIMUS (0.1%) AND PREDNISOLONE (1%) FOR SUBEPITHELIAL INFILTRATES SECONDARY TO EPIDEMIC KERATOCONJUNCTIVITIS**

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**Purpose:** To compare the efficacy of topical tacrolimus (0.1%) ointment with combined treatment of topical tacrolimus (0.1%) and prednisolone (1%) for subepithelial infiltrates (SEI) following epidemic keratoconjunctivitis (EKC).

**Method:** This retrospective study included 58 eyes of the 43 patients with subepithelial infiltrates secondary to EKC. They were divided into two groups according to treatment regimen. 20 patients (25 eyes) who treated with topical tacrolimus ointment (%0.1) were classified as group A and 23 patients (33 eyes) who received combined treatment of topical tacrolimus (0.1%) and prednisolone (1%) classified as group B. Best corrected visual acuity (BCVA), corneal subepithelial infiltrate scores (CSIS), subjective symptom scores, duration of the therapy and follow-up periods were evaluated and compared between the two groups.

**Results:** BCVA, CSIS and subjective symptom scores improved significantly within both groups after the treatment ( $p < 0.05$ ) and there was no statistically significant difference between the groups ( $p > 0.05$ ). The mean treatment duration was  $12.5 \pm 6.2$  weeks and  $6.3 \pm 3.6$  weeks in groups A and B, respectively. Treatment duration was significantly shorter in group B ( $p < 0.05$ ). One patient (%4) in group A and two patients (%6.1) in group B had recurrence of SEIs after cessation of therapy. Topical prednisolone was discontinued in one of the group B patients due to rise in intraocular pressure (IOP) at the end of first month of the therapy.

**Conclusion:** Both topical tacrolimus monotherapy and combined therapy with topical prednisolone have similar efficacy in the treatment of SEIs secondary to EKC. Combined therapy can be used early in the treatment to achieve faster recovery. Careful monitoring of IOP in patients using topical prednisolone is essential.

**Keywords:** Adenoviral Conjunctivitis, Prednisolone, Subepithelial Infiltrate, Tacrolimus



## THE INCIDENCE OF CYSTOID MACULAR EDEMA AFTER DMEK IN PSEUDOPHAKIC BULLOUS KERATOPATHY

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**Purpose:** To describe the incidence and outcomes of cystoid macular edema (CME) after Descemet membrane endothelial keratoplasty (DMEK) in eyes with pseudophakic bullous keratopathy.

**Materials and Methods:** In this retrospective study 202 patients with pseudophakic bullous keratopathy underwent DMEK surgery between 2019 and 2022 at Ankara City Hospital Eye Clinic were included. Patients with minimum of 6 months of follow-up were involved. Spectral-domain OCT was performed in patients with postoperative visual impairment and the patients with cystoid macular edema after DMEK were investigated. Patients with pre-existing history for macular edema were excluded. The patients with CME after DMEK were treated with posterior subtenon triamcinolone (PST) injections. Post treatment parameters were collected.

**Results:** Fourteen of 202 patients (6,93 %) showed CME after DMEK. The mean age was  $65.5 \pm 8.48$  years. Four of the patients (28.5%) had repeated DMEK, 4 of patients (28.5%) had diabetes mellitus, 4 of the patients (28.5%) had prior vitrectomy, 10 of the patients (71.4 %) had 10 % SF6 as tamponade and 3 eyes had peripheral iridectomy during the surgery. Mean subfoveal thickness before PST injection was  $379.71 \pm 91.60 \mu\text{m}$  and reduced to  $300.5 \pm 55.5 \mu\text{m}$ . ( $p < 0.001$ ) Mean best corrected visual acuity was  $1.17 \pm 0.36 \text{ logMAR}$  and developed to  $0.87 \pm 0.44 \text{ logMAR}$  after PST injection.

**Conclusion:** A clinically significant CME incidence of 6.93 % after DMEK was identified. Patients with a history of diabetes mellitus, prior vitrectomy and usage of gas tamponade in DMEK surgery may be at risk of developing CME. The patients undergoing DMEK should be monitored with macula OCT for detecting subtle changes and early intervention.

**Keywords:** Cystoid macular edema, Descemet membrane endothelial keratoplasty, pseudophakic bullous keratopathy.

## CLINICAL CHARACTERISTICS, CONTRAST SENSITIVITY, ERROR FACTORS IN INTRAOCULAR PRESSURE MEASUREMENT IN KERATOCONUS PATIENTS

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**Purpose:** To evaluate the clinical features, contrast sensitivities and error factors in intraocular pressure (IOP) measurement of patients with keratoconus.

**Material and Method:** Forty patients diagnosed with keratoconus with the TMS-2 Videokeratography device were included in the study. The unilaterality, topographic features and contrast sensitivity of the patients with keratoconus were evaluated. Intraocular pressures were measured by applanation tonometry and compared with a healthy control group. In the TMS-2 device, the diagnosis of keratoconus was made with software using Rabinowitz and Klyce-Maeda incis.

**Results:** The mean age of the patients was 28.3±11.0 years. While 6 (15%) of the cases were clinically unilateral, only 1 (2.5%) was found to be unilateral by videokeratography. While keratoconus could not be diagnosed clinically in 5 (12.5%) of the cases, keratoconus was detected by videokeratography. Family history was taken in 5% of the patients. Cone location was found to be peripheral in 70% of the patients on topography. The IOP of keratoconus cases was 4.5mmHg lower than the control group. A positive correlation was found between contrast sensitivity and visual acuity of the patients. A statistically significant correlation was found between visual acuity and Klyce-Mydea indices.

**Conclusions:** The diagnosis of keratoconus can be made by videokeratography in subclinical cases. It should be kept in mind that IOP measurement will normally be lower in keratoconus patients. Contrast sensitivities decrease in parallel with visual acuity.

**Keywords:** Keratoconus, Contrast Sensitivity, Videokeratography, Intraocular pressure.

## MATHEMATICAL ANALYSIS OF THE UPPER LID CONTOUR WITH BEZIER CURVE

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**Purpose:** The aim of our study is to evaluate the upper eyelid contour symmetry in the young-middle age group by quantitative methods.

**Methods:** Flash photos were taken of the healthy volunteers included in the study. Obtained photos were processed with Image J software provided from Pubmed database. Lid contours were determined with Bezier Curve. Mirror images of the right eyelid contours were reconstructed. The coordinates of the lid contours were transferred to the Matlab software, and the lid symmetries were calculated numerically by superimposing the two pupillary reflexes.

**Results:** Thirty healthy volunteers were included in the study. Of the participants, 15 were female and 15 were male. Average age is  $28.5 \pm 5.5$  (range 20-40 years). The mean upper lid symmetry ratio of the group was  $93\% \pm 2.4\%$ . Symmetry ratios of temporal and nasal pupillary reflexes were found to be 92% and 94%, respectively.

**Conclusion:** The success of surgical corrections for upper eyelid malpositions is generally evaluated by subjective methods. For example, ptosis surgical outcomes are conventionally measured with MRD-1. However, MRD-1 ignores eyelid contour defects and focuses only on lid height. Therefore, it does not seem sufficient to determine how symmetrical the two upper eyelids actually are with MRD-1 alone. In addition, measurements such as MRD-1 require the patient's compliance and the experience of the surgeons. The sensitivity and specificity of demonstrating a surgical success is open to debate, since subjective methods, with their own difficulties, only show data that they focus on measuring outcomes. Although the upper eyelid contour appears symmetrical, rapid and reliable preoperative evaluation of the eyelid contour quantitatively with Bézier lines may increase surgical success.

**Keywords:** Bezier Curve, image j, upper eyelid contour, upper eyelid symmetry

## KERATITIS SPECTRUM AT A TERTIARY REFERRAL CENTER IN TURKIYE

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**INTRODUCTION AND AIM:** It is aimed to classify keratitis patients who applied to our clinic in terms of clinical, confocal microscopy findings, culture results of corneal scraping samples and treatment options.

**METHOD:** 95 keratitis patients who applied to Ankara City Hospital Ophthalmology Clinic were analyzed retrospectively.

**RESULTS:** 59 patients (62.1%) were male and 36 (37.9%) were female. According to clinical findings, 32 of them (33.7%) had herpetic keratitis, 7 of them (7.4%) had acanthamoeba keratitis, 26 of them had bacterial keratitis (27.4%) and 30 of them (31.6%) had fungal keratitis. Three (3.09%) patients had fungal tunnel keratitis after cataract surgery. Confocal microscopy was performed in 27 (28.3%) patients. In microscopy, hyphae were seen in 17 patients (17.9%) and acanthamoeba cysts in 5 patients (5.3%). No cysts or hyphae were observed in 5 patients (5.3%). Corneal scrapings were performed in 43 patients (fungus, 3 (3.2%); acanthamoeba, 2 (2.1%); bacteria, 15 (15.8%) ; culture-negative, 23 (24.2%)).

Confocal Microscopy and clinical findings were compatible with culture results in three (3.09%) patients. Topical treatment was started in all patients, systemic treatment was added to 57 (60%) patients. 38 patients received additional surgical procedures (PKP (penetrating keratoplasty) (n=22, (24.2%)), PPV (pars plana vitrectomy)+PKP (n=15 (15.8%)), evisceration (n=1, (1.1%)) for treatment.

PKP was performed in 22 patients (herpetic keratitis, 3 (13.6%); acanthamoeba, 5 (22.7%), bacterial keratitis, 6 (27.2%), fungal keratitis, 8 (36.3%)). One patient (6.6%) who underwent evisceration had fungal keratitis. 15 patients underwent PKP+PPV procedure (herpetic keratitis with bacterial superinfection, 1 (6.6), bacterial keratitis, 8 (53.3%); fungal keratitis, 6 (40%)). Fifty-six (58.9%) patients recovered with haze.

**CONCLUSION:** In our study, complicated keratitis cases that did not respond to topical treatment and required advanced medical or surgical treatment constituted majority. In tertiary hospitals, the application of advanced treatments and the use of sampling and imaging methods are important for the management of difficult keratitis cases.

**Keywords:** Keratitis, confocal microscopy, corneal sampling

## RISK FACTORS IN PATIENTS WHO UNDERWENT REPEAT DESCEMENT MEMBRANE ENDOTHELIAL KERATOPLASTY IN OUR CLINIC

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**Purpose:** To evaluate the success rates of repeat Descemet membrane endothelial keratoplasty (Re-DMEK) and to determine the risk factors that cause failure

**Methods:** Data from patient files and eye bank were recorded.

**Results:** It was determined that a Re-DMEK was performed after primary DMEK failure in 26 (30 eyes) of a total of 133 consecutive DMEK patients who were performed in our clinic between 2021 and 2023. Etiologies for primary DMEK, Fuchs endothelial dystrophy(FED) (5 eyes), pseudophakic bullous keratopathy (24 eyes), Iridocorneal endothelial syndrome(ICE Syndrome) (1 eye) 14 of the patients were female, mean patient age was 66.8. When the patients were examined in terms of additional ocular disease, 4 had vitrectomized, 3 had glaucoma, and 1 had anterior chamber artisan lens. The preoperative best corrected visual acuity was measured as logMAR  $1.87 \pm 0.86$  (0.30 - 3). Preoperative mean intraocular pressure was 12 mmHg. Intraoperative anterior chamber samples were obtained from 21 patients in total. Cytomegalovirus (CMV) was detected in the anterior chamber sample in 3 patients. 10% SF6 was given as buffer to 11 eyes. Peripheral iridectomy was not performed in 12 eyes. A total of 3 patients were given air to the anterior chamber after RE-DMEK. One of these patients was given air for the second time. The mean donor age was 58.3, the mean donor corneal diameter was 7.75 mm. The mean time between the first DMEK and RE-DMEK was calculated as 12.2 months. A second Re-DMEK was performed on 4 eyes in total. Two of these patients were vitrectomized.

**Conclusions:** Re-DMEK provides significant visual improvement after failed primary DMEK. Re-DMEK failure may occur in eyes with additional anterior segment pathologies.

**Keywords:** DMEK, Re-DMEK, ICE Syndrome, Fuchs endothelial dystrophy

## ARE BLOOD DERIVED INFLAMMATORY MARKERS ASSOCIATED WITH ANKYLOSING SPONDILITIS UVEITIS?

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**Purpose:** The aim of this study was to investigate blood-derived inflammatory markers in ankylosing spondilitis with and without uveitis.

**Methods:** This study included 101 patients with ankylosing spondilitis. Patients were divided into two groups according to the presence of uveitis. Group 1 (uveitic patients) included 51 patients whereas group 2 (nonuveitic patients) included 50 patients. Neutrophil to lymphocyte ratio (NLR), platelet to lymphocyte ratio (PLR) and systemic inflammation index (SII) were calculated from blood samples to assess the differences of blood-derived-inflammatory markers between two groups. Ophthalmologic records of all patients were recorded. Mean differences of continuous variables were compared by independent sample t test.

**Results:** No significant differences were found in age and gender between groups ( $p = 0.401$  and  $p = 0.490$ ). Neutrophil counts were higher in Group 1 than Group 2 ( $p = 0.000$ ). There were no statistically significant differences in lymphocytes, monocytes and platelets counts between groups ( $p = 0.308$ ,  $p=0.368$  and  $p = 0.664$ , respectively). NLR and SII values were significantly higher in Group 1 when compared to group 2 ( $p = 0.000$  and  $p=0.002$ ).

**Conclusion:** Uveitis which is the most common extraarticular manifestation of ankylosing spondilitis is seemed to be related with blood-derived novel inflammatory markers. SII and NLR may be a warning for rheumatologists to refer the patients to ophthalmologists.

## OUR PRE-DESCEMET ENDOTHELIAL KERATOPLASTY (PDEK) PATIENT SERIES

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**Purpose:** To evaluate the outcomes of Pre-Descemet endothelial keratoplasty (PDEK) in complicated eyes with bullous keratopathy and graft failure after penetrating keratoplasty.

**Method:** The records of 13 eyes (11 patients) who underwent PDEK surgery have been reviewed retrospectively. Patient data such as demographic characteristics, PDEK surgery indications, ocular comorbidities, preoperative visual acuity, type of tamponade used, donor age and follow-up periods were recorded. The data were analyzed by SPSS Statistics software (version 22.0; IBM),  $p < 0.05$  was considered significant.

**Results:** Six of the 11 patients were female, and the mean age of the patients was 59.1 years (range; 6-79 years). The indications for surgery were; pseudophakic bullous keratopathy (11 eyes), graft failure after DMEK (1 eye) and corneal edema due to CHED syndrome (1 eye). Comorbid ocular signs were, glaucoma (2 eyes); congenital corectopia (1 eye), and aphakia (1 eye). It was performed in 1 eye due to graft failure after penetrating keratoplasty. [TB1] Ten of 11 patients were vitrectomized. The mean time between diagnosis and operation was three months. Preoperative best-corrected visual acuity (BCVA) was  $1.96 \pm 0.98$  (range: 0.52 - 3) logMAR. The mean preoperative topographic central corneal thickness was 761 microns. The average donor age was 39.7 years, and the mean donor corneal diameter was 7.3 mm. Peripheral iridectomy was not performed in 3 patients in the intraoperative period. Ten % SF6 was used as a tamponade in 4 of 13 eyes. Postoperative BCVA was measured as logMAR  $1.23 \pm 0.62$  (0.30-1.69). Postoperative mean corneal thickness was measured as  $603 \pm 79.5$  (range: 515-722) microns. Re-PDEK was performed in 2 patients during their follow-up due to graft failure. No complications were observed in other patients. [TB1]Ben böyle bir hasta hatırlamıyorum ama varsa yukarıya eklemek lazım, endikasyonlar içine

**Conclusion:** Unlike the DMEK graft, the PDEK graft is easier to handle and manipulate during surgery. Also, younger donors can be used. It is advantageous over DMEK in challenging cases.

**Keywords:** PDEK, DMEK

## REDUCED RETINAL AND CHOROIDAL MICROVASCULAR PERFUSION IN PEDIATRIC PATIENTS WITH STROKE DETECTED BY OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY

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**Introduction:** The aim was to examine retinal and choroidal microvascular parameters of optical coherence tomography angiography (OCTA) in patients with stroke detected in the pediatric population.

**Materials and Methods:** This prospective controlled study included 15 patients with stroke detected without any eye complaints, and 22 age- and sex-matched healthy individuals. Within the scope of the study, OCTA (AngioVue, RTVue XR Avanti SD-OCT, Fremont, USA) measurement to assess the foveal avascular zone (FAZ) area; FAZ perimeter; acircularity index of FAZ; foveal density-300; superficial and deep capillary plexus vessel densities; and choriocapillaris flow area at 1-, 2-, and 3-mm radius. was performed in addition to a detailed ophthalmological examination.

**Results:** No significant difference was found in the FAZ area, perimeter, acircularity index of FAZ, and foveal density-300 between patients and controls ( $p > 0.05$  for all). The superficial capillary plexus vessel density of the whole image, perifovea, and the deep capillary plexus vessel density of the fovea and parafovea were lower than those in healthy control subjects ( $p=0.039$ ,  $p=0.09$ ,  $p=0.02$ ,  $p=0.08$  respectively). Choriocapillaris flow areas in all three radii were lower than healthy controls ( $p < 0.001$  for all).

**Conclusion:** We demonstrated the ability of OCTA to reveal microvascular alterations in patients with stroke detected without any clinical ocular signs. Our results show that patients with previous stroke have retinal and choroidal vascular changes despite the absence of any ocular signs. Retinal and choroidal circulation can be affected in cerebrovascular diseases as they share many common anatomical and physiological features with cerebral vessels.

**Keywords:** optical coherence tomography angiography, pediatric, retinal vessel analysis, stroke



## SHORT AND MID-TERM MULTIMODAL FINDINGS OF CASES WHO DEVELOPED SOLAR MACULOPATHY AFTER THE SOLAR ECLIPSE ON 25 OCTOBER 2022

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**Introduction and purpose:** To present the initial and follow-up functional and multimodal findings of 5 cases who admitted with blurred vision regarding solar maculopathy

**Materials and Methods:** Ten eyes of 5 cases who presented with recent blurred vision after the solar eclipse on October 25th, 2022 were included in the study. Best-corrected visual acuity (BCVA), complete ophthalmologic examination, color fundus photography, fundus autofluorescence, 24-2 visual-field testing, and spectral domain optical coherence tomography (OCT) findings were evaluated in all cases. The records and images of patients were assessed on the day of referral; on the 7th day, and 30-45 days after the initial admission.

**Results:** The main complaint was recent metamorphopsia and blurred vision in the dominant eye. The mean age was 15.5 years (10-31 years). Initial BCVA ranged from 10/20 to 20/20. Anterior segment examination and intraocular pressure were normal (15.4 mmHg, 11-20 mmHg). Central scotoma and metamorphopsia were noted in two cases tested with the Amsler grid test. Fundus examination revealed a small yellowish-white spot on the foveolar region in most of the patients. The main finding of OCT at first presentation was a hyperreflective foveal beam containing all foveolar retinal layers. In the mid-term of follow-up, hypo reflective interruption was observed in the IS/OS (photoreceptor inner/outer segment junction) band in the foveolar region. No specific finding was found in the fundus fluorescein angiography, fundus autofluorescence and visual field testing. While BCVA increased in 4 of 5 cases, it remained at the initial level in 1 case whose both eyes were affected.

**Conclusion:** Solar maculopathy is macular damage that develops after direct exposure of the macula to sunlight. Similar to the literature, as in the presented cases, a progressive and slow regression was observed in the hyperreflective beam-like lesion which was observed on the initial OCT screening. Parallel to this, an increase of BCVA was observed. However, a slight loss of visual acuity was observed. Localization and extent of the lesion, damage of photoreceptors, and chronic sequelae can be followed with OCT, and also must be screened during the long-term follow-up.

**Keywords:** eclipse; OCT; solar; maculopathy

## CHOROIDAL VASCULARITY INDEX IN CENTRAL SEROUS CHORIORETINOPATHY

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**Introduction:** The choroidal vascularity index (CVI) is a relatively new parameter, calculated off spectral domain optical coherence tomography (SDOCT) images for the quantitative evaluation of choroid vascularity and defined as the ratio of vascular area to the total choroidal area. This study aims to evaluate CVI in eyes with acute central serous chorioretinopathy (CSC).

**Materials and Methods:** In this retrospective cohort study, 33 patients diagnosed with central serous chorioretinopathy in the Retina Outpatient Clinic of Haseki Training and Research Hospital between July 2022 and November 2022 were included. Enhanced depth imaging SDOCT scans of both eyes of patients with CSC were taken; they were segmented and compared with SDOCT scans of the fellow eyes without CSC and the age-matched healthy subjects. The subfoveal choroidal area (1.500 mm) was segmented into stromal and luminal areas using image binarization with ImageJ software. CVI was defined as the proportion of luminal area to the total circumscribed subfoveal choroidal area.

**Results:** Of the patients included in the study, 21 (63.6%) were male, 12 (36.4%) were female in the CSC group, 19 (57.6%) were males, and 14 (42.4%) were females in the healthy group. The mean age was  $45.5 \pm 11.5$  years in the CSC group and  $44.3 \pm 11.7$  years in the healthy group. CVI was  $67.72 \pm 1.15$  in the eyes with CSC,  $66.98 \pm 1.11$  in the fellow eyes, and  $65.86 \pm 0.99$  in the healthy group. Eyes with CSC (33 eyes) had significantly higher CVI compared with their fellow eyes (33 eyes) ( $P=0.01$ ) and with 33 eyes of age-matched healthy eyes ( $P<0.0001$ ). Fellow eyes of subjects with CSC also had significantly higher CVI than age-matched healthy eyes ( $P<0.0001$ ).

**Conclusion:** Increased CVI suggested an increased vascular component compared with the stromal component in the eyes with acute CSC and in fellow eyes compared to age-matched healthy subjects. The CVI could be a valuable index for early diagnosis of CSC and assessing the treatment response after photodynamic therapy or laser photocoagulation.

**Keywords:** Central serous chorioretinopathy, choroidal vascularity index, choroidal vasculature

## EXTERNAL (DERMAL) CHALAZION PROCEDURE

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**INTRODUCTION:** Chalazion is a chronic non-infective inflammation of the sebaceous glands of eyelid which affects the meibomian glands. Results in a painless, firm nodule of the eyelid. Both the upper and lower lids could be affected. Hyperimmunoglobulinemia E (Job syndrome) can be associated with aggressive chalazion. Histologically, it appears as deep dermal or subcutaneous suppurative lipogranulomatous inflammation. A pseudocapsule surrounds the cellular infiltrate.

conventional surgical treatment of chalazion is palpebral Incision and curettage, that Stinging due to Conjunctival Scar and Recurrence is often, Our preferred approach is excision of Chalazion with its capsule, externaly (Dermal side) with less Recurrence and no stinging.

**METHODS:** We present a prospective cohort case series study of the external chalazion excision of the 25 patients with chalazia followed 12 months. We analyzed success rate as absence of Recurrence and Stinging of eye. The procedure was performed under LOCAL anesthesia (Lidocaine). Incision performed external skin side of the chalazion. A chalazion clamp is inserted so that its circular opening surrounds the skin surface of the chalazion. No. 15 Bard-Parker blade is used for incision of the skin over the chalazion. Dissection made by blunt scissor around the capsule of the chalazion. Chalazion excised with whole capsule without rupturing the capsule part. 6/0 prolene suture was used for skin closure. Mostly small lacunes of the new chalazia formation found around the excised chalazion, or inside the tarsal plate. With this skin side procedure we could reach all the lacunae of new formed chalazia and all them excised.

**RESULTS:** All 25 patients' sutures were removed one week later and No visible skin scar, No chalazion recurrence, No pain, No Blepharitis, meibomitis due to excised chalazion, No astigmatism due to excised chalazion. We followed all patients 12 months and there were no recurrences.

**CONCLUSIONS:** Skin side external procedure were safe, effective and convenient. Small lacunes of the new chalazia formed around the excised chalazion, or inside the tarsal plate could NOT be excised by the palpebral approach. In some patients with palpebral approach stinging of the eye could occur, but with skin side approach NO eye stinging were seen during 12 months follow up the 25 patients.

NO recurrence were seen in skin approach. The capsule of the chalazion could not be excised by palpebral approach so recurrence could occur easily in palpebral procedure.

## WHY TRANSCANALICULAR DIODE LASER DACRYOCYSTORHINOSTOMY(TCL-DCR)?

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**INTRODUCTION:** Epiphora due to Nasolacrimal Duct Obstruction (NDO) is one of the annoying symptoms. External dacryocystorhinostomy (EX-DCR) is considered as the gold standard in the treatment of acquired Nasolacrimal Duct Obstruction (NDO). But it is an invasive procedure (ex. scar on the face & medial canthus). Many advances have been made towards the development of minimally invasive therapies like Transcanalicular Diode laser DCR. Transcanalicular Laser-assisted DCR is NOT invasive to the patients' skin and medial palpebral structures also palpebral-canalicular pump function. With this method, DCR surgery can be performed with local anesthesia in elderly patients at high risk of anesthesia

Here, we report our experience with the surgical technique, results and complications of minimally invasive Transcanalicular Diode Laser-assisted DCR.

**METHODS:** We present a prospective cohort case series study of Diode Laser-assisted Transcanalicular DCR (TCL-DCR) procedures on 50 patients with 52 Nasolacrimal Duct Obstruction (NDO) and Epiphora. We followed patients for 12 months postop and analyzed success rate as absence of epiphora (subjective), or patency of the lacrimal drainage system on irrigation (objective), procedure time, amount of required laser energy for a 10 mm osteotomy and probable postop complications. The procedure was performed under LOCAL anesthesia and Sedation. An endoscope was used for examination of the lacrimal pathways and nasal cavity. The site of osteotomy was determined with transillumination of the nasal wall by aim beam light of the laser fiber. We opened a 10 mm osteotomy by using a 980 nm diode laser with the power between 8-9 Watts. We inserted a bicanalicular silicone stent for period of time between 6-10 months.

**RESULTS:** We performed 52 successive TCL-DCR with bicanalicular intubation in 50 patients (2 patients had bilateral NDO). The average procedure time was 17 min, and an average 9 Watt of laser energy was needed. The silicone stents were removed 6 to 10 months after surgery. We observed absence of epiphora and a patent nasolacrimal duct on irrigation in 40 out of 52 treated eyes. 5 patients had epiphora despite a patent nasolacrimal duct on irrigation. No serious postop complication was observed. This yields a success rate of 86.4%, with an average follow-up period of 12 months.

**CONCLUSIONS:** The Transcanalicular 980 nm Diode laser DCR with bicanalicular silicon intubation is a new technique in the field of lacrimal surgery. The advantages of this procedure are: It is a minimally invasive with No bleeding during surgery. Easy to apply and learn. Quick procedure. Performing DCR with local anesthesia and Sedation in elderly and risky patients. Repeatability of the procedure is a big advantage. Absence of scars on the skin in females and young patients. Ability to return to normal social life just after surgery. Comfort procedure for patients (No bleeding and pain after surgery).

## COMPARISON OF MICROVASCULAR CHANGES IN PREGNANT WOMEN WITH CARBOHYDRATE METABOLISM DISORDERS USING SWEEP-SOURCE OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY

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**Introduction:** Evaluation of blood flow values, retinal and choroidal thicknesses between pregnant women having Gestational Diabetes (GDM), Pregestational Diabetes (PGDM) and healthy pregnant subjects with OCT Angiography (OCTA).

**Material and Methods:** The right eye measurements of 28 pregnant women with GDM, 20 pregnant women with PGDM, and 30 healthy pregnant women, aged between 20-40 years, without clinical retinopathy were evaluated. Retina, retinal nerve fiber layer (RNFL) thickness, ganglion cell layer (GCL) thickness, subfoveal choroidal thickness (SFCT), foveal avascular zone (FAZ) area, superficial capillary plexus (SCP), deep capillary plexus (DCP) vascular density (VD) and choriocapillaris (CC) VD measurements were taken with Topcon Swept Source OCTA, DRI Triton device (3x3 mm scanning). Foveal and parafoveal 4 quadrants were evaluated. Hemoglobin A1c (HbA1c) levels of the diabetic group, fasting blood sugar levels, and the usage of insulin were compared in the diabetic groups.

**Results:** There was no significant difference in retinal, RNFL, GCL thicknesses and CC VD between the groups. The highest values for SFCT in all quadrants were in the healthy pregnant group, and the lowest values were in the group with PGDM. Mean CT was statistically significantly higher in healthy pregnant compared to the others. In the group with PGDM, FAZ area was larger than the group with GDM. Although SCP and DCP VD values were higher in healthy pregnant women, the difference was not statistically significant. In the diabetic pregnant group who did not use insulin in the treatment, DCP VD was found to be statistically significantly higher and the FAZ area was smaller than those using insulin. As the HbA1c level increased in pregnant women with PGDM and GDM, a decrease was observed in the mean retinal thickness and DCP VD ( $r:-0.38, -0.32$  respectively). We found a decrease in mean retinal thickness and choroidal thickness as the blood glucose level increased ( $r:-0.34, r:-0.33$  respectively).

**Conclusions:** In our study, we observed changes in retinal and choroidal thickness and microvascular circulation in diabetic pregnant women when compared to healthy pregnant women, even if there were no clinical or retinal findings. We consider that the type of diabetes and glycemic control could affect the microvascular changes that occur during pregnancy.

**Keywords:** diabetes, foveal avascular zone, optic coherence tomography angiography, vascular density

## COMPARISON OF VIRTUAL REALITY VISUAL FIELD DEVICE (OCULERA) WITH HUMPHREY VISUAL FIELD IN GLAUCOMA PATIENTS AND HEALTHY INDIVIDUALS

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**Purpose:** In this study, the correlation of Humphrey visual field (HFA II) and Oculera virtual reality visual field test (Oculera, Ankara, Turkey) performed in glaucoma patients is examined.

**Methods:** HFA II and Oculera tests were performed prospectively on glaucoma patients and healthy individuals at Health Sciences University Gulhane Faculty of Medicine. Patients were randomized according to which device would be used first. Patients were tested with the other device on the same day. The glaucoma severity of the patients was classified according to the HFA II mean deviation (MD) results (<-6 mild, -6 to -12 moderate, -12> advanced). The right eyes of healthy individuals and bilateral glaucoma patients or the affected eyes of unilateral glaucoma patients were used for statistical analysis. MD and pattern standard deviation (PSD) values of both devices were examined.

**Results:** A total of 93 patients (M 44%, F 56%, mean age  $58 \pm 15.6$ ), including 55 glaucoma patients and 38 healthy individuals, were included. The mean of HFA II MD was -6.36 dB (-31.8 to 2.27), while the mean of Oculera MD was -5.80 dB (-29.1 to 2.2). The difference between Oculera and HFA II MD mean was -0.56 dB. The dependent t-test was statistically significant between Oculera and HFA II (mean -0.55; 95% CI -0.885 to -0.229;  $p < 0.001$ ). Also, the correlation of MDs was quite strong ( $r = 0.995$  and  $p < 0.001$ ). A Bland-Altman plot is included to show the assessment of agreement between the two tests. In the subgroup analysis, device results were found to be similar in all three groups among mild, moderate, and advanced glaucoma patients.

**Conclusion:** Oculera MD results were observed to be comparable to HFA II MD results. Oculera stands out as a useful alternative in clinical practice for functional testing in glaucoma patients. It provides convenience as it is portable and can be applied in the home environment.

**Keywords:** Glaucoma, Humphrey visual field, Oculera virtual reality visual field test, Mean deviation

**COMPARISON AND CORRELATION OF ANATOMICAL MARKERS OBTAINED FROM STEREOSCOPIC OPTIC NERVE HEAD PHOTOGRAPHY AND OPTICAL COHERENCE TOMOGRAPHY WITH THE RESULTS OBTAINED FROM OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY IN GLAUCOMA PATIENTS**

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**Purpose:** Comparison of anatomical markers obtained from optical coherence tomography (OCT) and stereoscopic optic nerve head photographs (non mydriatic retinal camera / NMRC) with the results obtained from optical coherence tomography angiography (OCTA) in glaucoma patients.

**Methods:** The data of 150 patients who were followed up with the diagnosis of glaucoma in the ophthalmology glaucoma unit of the Health Sciences University Gulhane Training and Research Hospital were retrospectively analyzed. In addition to the ophthalmological examination findings obtained from the files of the patients, the stereoscopic optic nerve head photograph, retinal nerve fiber layer thickness (RNFLT) and OCTA data obtained from the same anatomical area were compared and their correlations were examined.

**Results:** Vertical cup/disc ratio was  $0.63 \pm 0.16$  with OCTA and  $0.59 \pm 0.12$  with NMRC ( $p < 0.01$ ). OCTA and NMRC data were not similar in terms of rim area, disc area and cup volume ( $p < 0.01$ ). Peripapillary mean RNFLT OCTA was  $92.31 \pm 21.5 \mu$ , OCT was  $81.30 \pm 19.34 \mu$  ( $p < 0.01$ ), superior RNFLT OCTA was  $105.35 \pm 30.0 \mu$ , OCT was  $100.1 \pm 27.9 \mu$  ( $p < 0.01$ ), inferior RNFLT OCTA  $111.1 \pm 32.8 \mu$ , OCT  $99.8 \pm 28.9 \mu$  ( $p < 0.01$ ), temporal RNFLT OCTA  $69.4 \pm 17.6 \mu$ , OCT  $63.3 \pm 14.8 \mu$  ( $p < 0.01$ ), nasal RNFLT OCTA  $84.4 \pm 21.2 \mu$ ,  $61.56 \pm 17.2 \mu$  by OCT ( $p < 0.01$ ). RNFLT measurements were not similar between OCTA and OCT ( $p < 0.01$ ). Vertical cup/disc ratio showed a statistically significant correlation between OCTA and NMRC ( $p < 0.01$ ,  $r = 0.59$ ). OCTA and NMRC data showed a statistically significant high correlation in terms of rim area ( $p < 0.01$ ,  $r = 0.51$ ), disc area ( $p < 0.01$ ,  $r = 0.80$ ), cup volume ( $p < 0.01$ ,  $r = 0.46$ ). Between OCTA and OCT, peripapillary RNFLT ( $p < 0.01$ ,  $r = 0.95$ ), superior RNFLT ( $p < 0.01$ ,  $r = 0.92$ ), inferior RNFLT ( $p < 0.01$ ,  $r = 0.93$ ), temporal RNFLT ( $p < 0.01$ ,  $r = 0.51$ ), nasal RNFLT ( $p < 0.01$ ,  $r = 1.0$ ) data showed statistically significant high correlation.

**Conclusion:** Numerical data of anatomical markers obtained from OCTA were not similar to the data obtained from stereoscopic optic nerve head photograph and OCT, but statistically significant high correlation was observed between them in all measurements. OCTA appears to be useful for quantitative data on anatomical markers in glaucoma patients.



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