

1

Company	Role	Received
Biotissue	Consultant/lecturer	Honoraria
Carl Zeiss Meditec	Consultant/lecturer	Honoraria
Johnson & Johnson	Consultant/lecturer	Honoraria
LensAR	Consultant	Honoraria
Lumenis	Consultant	Honoraria
myODcoach	Founder	Honoraria
Novartis	Consultant	Honoraria
Glaukos/Glaukos corneal health	Consultant/lecturer	Honoraria
Ocular Therapeutix	Consultant/Research	Honoraria/Research Support
Sight Sciences	Consultant/Lecturer/Research	Honoraria/Research Support
Quidel	Consultant	Honoraria

2

Today: Applications of AS-OCT

- Keratoconus
 - Scleral Lens - Evaluating Vault
 - Epithelial Thickness Mapping
- Refractive Surgery
 - Epithelial Thickness Mapping
 - Pachymetry
 - ICL vault
- Glaucoma
 - Angle Closure Glaucoma Suspects

3

But there are many more... Applications of AS-OCT

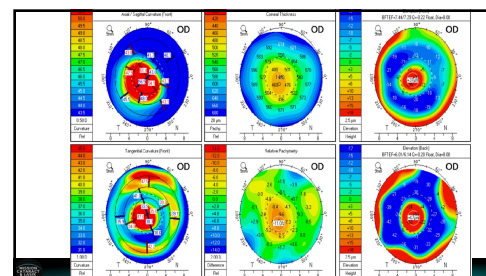
- Scleral Lens Vault
- Corneal Epithelial Thickness (KCN or Refractive Surgery)
- Corneal thickness (Refractive Surgery, Fuchs, or K transplant)
- Flap Thickness/Residual stromal bed
- Depth of Corneal Scars
- ICL pre/post op measurements
- Conjunctiva neoplasm
- Angle Measurements
- Effectiveness of LPI

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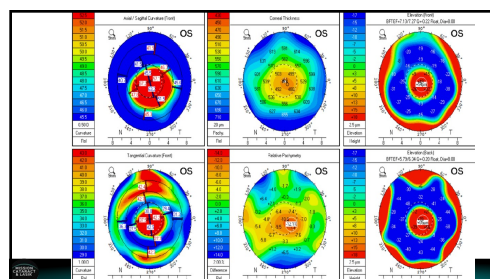
Case 1: LASIK consult

- Drove himself here from Kerrville
- Interested in getting LASIK because he can't see with any glasses rx
- UCVA OD 20/60 OS 20/70
- AR OD: -6.00 -3.00 x 038
- AR OS: -10.25 -9.00 x 116

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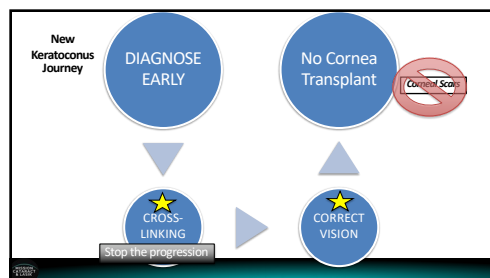


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Overview of Keratoconus

- ▶ Keratoconus is a bilateral, progressive corneal ectasia resulting in irregular astigmatism and loss of visual function, with onset in teenage years¹
- ▶ Affects 1 in 2000 people in the US²
- ▶ Eye Bank Association of America noted ~6,195 transplants/year in patients with keratoconus.⁴
- ▶ Predicted 73% of grafts fail within 20 years; 98% at 30 years³
 - Potential for multiple transplants

8

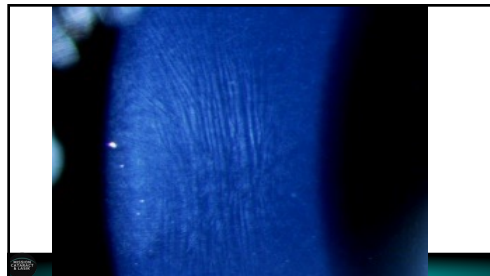


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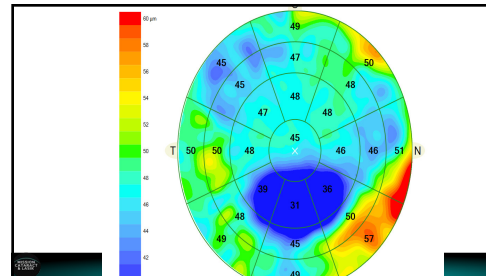
Early Diagnosis - SCARS

- Subpar vision
 - Not correctable to 20/20
- Corneal Appearance
 - Striae and/or stromal thinning
- Astigmatism
 - PI -4.00 x 180
 - Asymmetric Astigmatism
- Red inferior on topography
- Steep Ks or Distorted Mires
 - Unable to get Autorefracton

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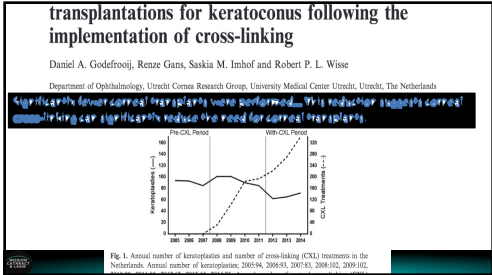


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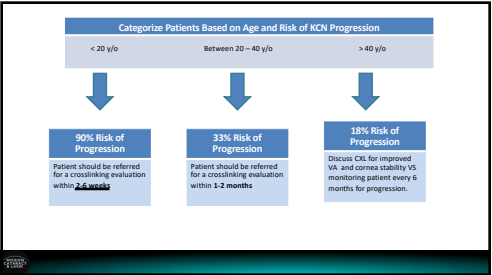


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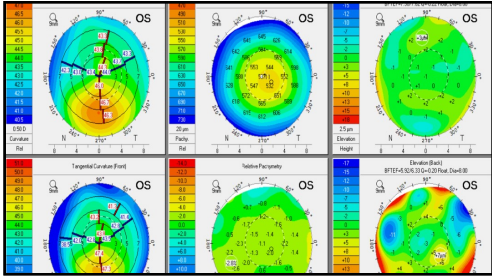




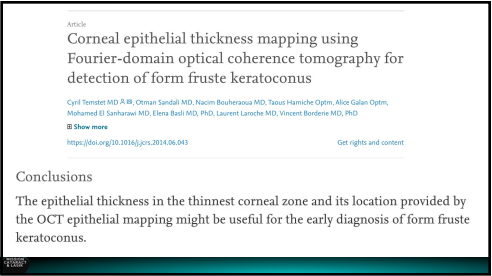
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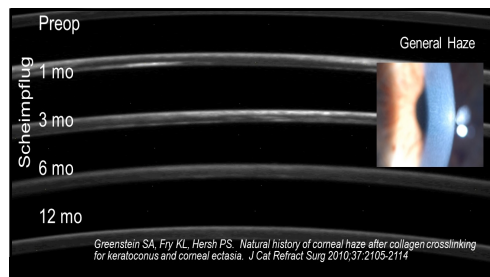
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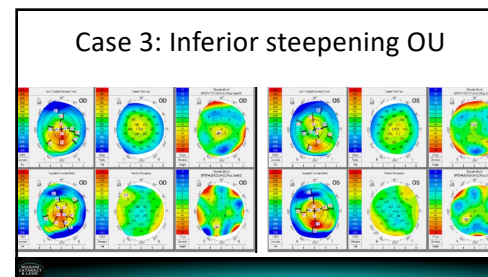
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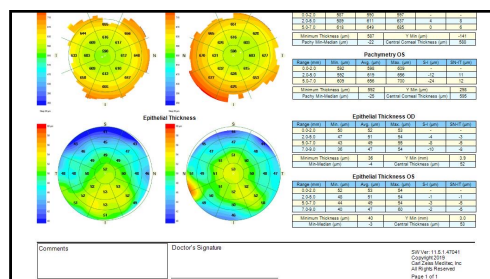
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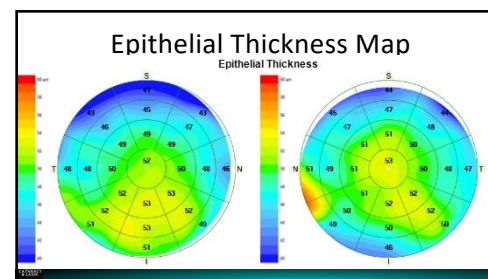
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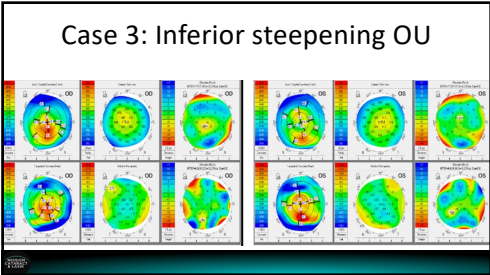
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Keratoconus-like Topographic Changes in Keratoconjunctivitis Sicca
de Paiva, Cintia S. M.D.; Harris, Lindsey D. M.D.; Plugfelder, Stephen C. M.D.

Cornea, January 2003 - Volume 22 - Issue 1 - p 23-24
Clinical Sciences

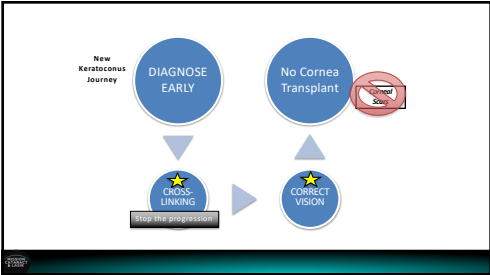
Abstract

Purpose. To describe a case of inferior corneal steepening with a keratoconus-like pattern in a patient with nocturnal lagophthalmos and aqueous tear deficiency (ATD).

Methods. Axial curvature mapping was performed with the Tomey TMS-2N videokeratoscopy instrument. Keratoconus-like topography patterns were identified with the Klyce Software package of this instrument.

Results. Axial videokeratoscopy showed asymmetric inferior corneal steepening in the right eye. The surface regularity index (SRI), surface asymmetry index (SAI), and the simulated keratometric cylinder change (CYL) were 1.05, 5.05, and 0.75, respectively. The keratoconus screening index was as follows for the right eye: Klyce/Maeda index of 65% similarity (clinical keratoconus interpreted) and Smolek/Klyce index of 23.00% severity (keratoconus suspected interpreted). Ultrasound pachymetric mapping showed a normal central corneal thickness. The fundus showed a similar topographic pattern of keratoconus in seven eyes of 74 dry eye patients who were previously evaluated with the Tomey TMS-2N.

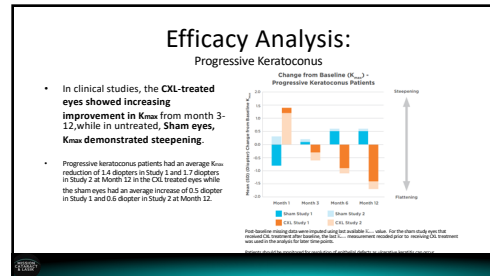
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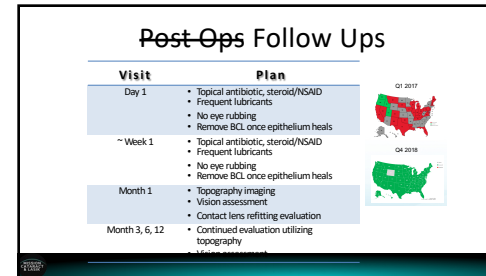
27

Cross-Linking Procedure Summary

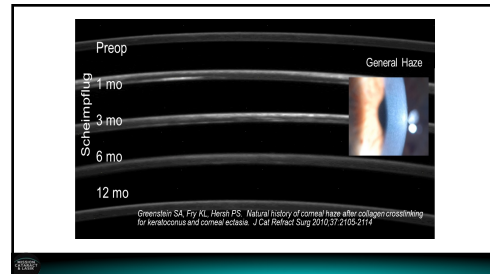
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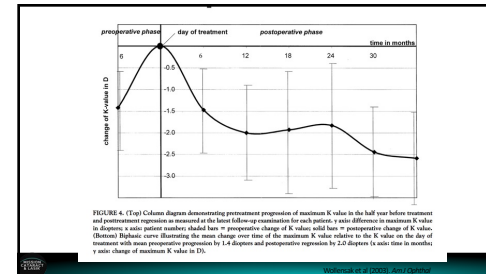
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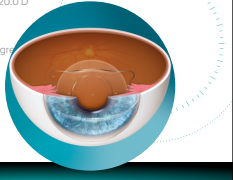
31



32

Phakic IOL (EVO ICL) Patient Selection

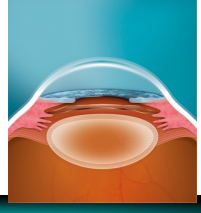
- Age: 21 to 45
- Correction or reduction of myopia -3.0 D to -20.0 D with astigmatism correction up to 4.0 D
- Stable Refraction
- Anterior Chamber Depth (ACD) of 3.0 mm or greater
 - From Endothelium to Natural Lens
- Other considerations for those with
 - Thin Corneas
 - Dry Eye Risk Factors



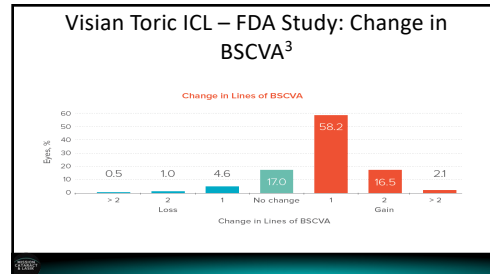
37

What can we correct with ICLs?

- Up to 16D of myopia
- 4D astigmatism
- So a **-15.00 -4.00 x 180**
- **From 16 to 20D**
– Approved for Myopic reduction



38



39

Clinical Ophthalmology

CLINICAL TRIAL REPORT

The EVO ICL for Moderate Myopia: Results from the US FDA Clinical Trial

Mark Postle

Postle Research Associates, Boulder, CO, USA

Correspondence: Mark Postle Research Associates, 1601 Boulder Ave, Boulder, CO 80508, USA. Tel: +1 303 441-0990; mark.postle@postleresearch.com

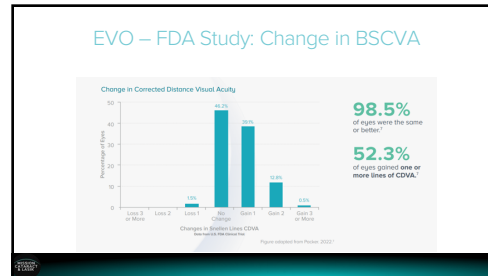
Purpose: To evaluate the safety and effectiveness of collagen posterior chamber phakic refractive lenses with a central port design (EVO and EVO+) ICLs and Toric implantable collamer lenses (TICLs) for correction of moderate myopia with or without astigmatism.

Patients and Methods: Six-month results of a multicenter clinical trial were performed under United States FDA Investigational Device Exemption. Subjects (21 through 49 years of age) with manifest refractive spherical equivalent ranging from -3.00 D to -6.00 D and astigmatism up to 4.00 D underwent implantation of EVO or EVO+ ICLs or Toric TICLs. Unilateral (EVO+) and contralateral (EVO) distance visual acuity, manifest refraction, binocular pressure (BP), endothelial cell density, and adverse events were evaluated over 6 months.

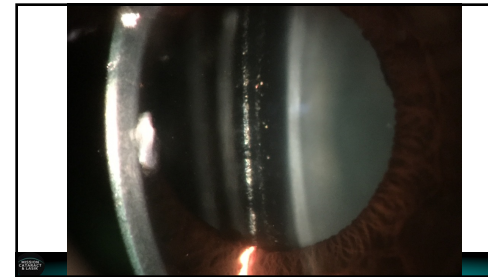
Results: This report includes a retrospective review of 288 eyes of 154 subjects with mean age 35.1 ± 5.1 years that completed the 6-month visit. Mean preoperative spherical equivalent (SE) measured -4.61 ± 0.87 D (range -3.00 to -6.00 D). At 6 months, mean SE was -0.88 ± 0.53 D, with 91.5% within ±0.50 D of target and 100.0% within ±1.00 D of target. Mean preoperative TICLs and EVOs were -0.68 ± 0.68 logMAR and -0.54 ± 0.57 logMAR, respectively. About 98.0% of eyes maintained or gained lines of CDVA, and no eyes lost more than 1 line CDVA. Efficiency and safety indices were 1.81 and 1.21, respectively. No eye experienced pupillary block, required prophylactic or postoperative peripheral iridotomy or iridectomy, developed anterior subcapsular cataract or had elevated IOP due to angle narrowing or pigment dispersion. Mean endothelial cell density declined by 1.2%.

Conclusions: EVO ICLs have demonstrated accuracy, predictability and stability of refractive correction with achievement of high levels of CDVA and an excellent safety profile for patients with moderate myopia with or without astigmatism.

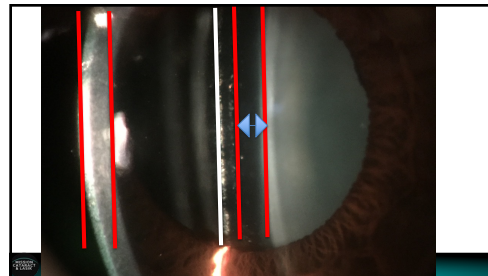
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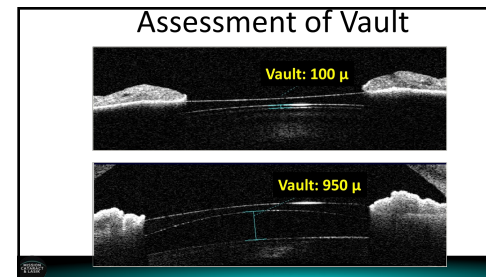
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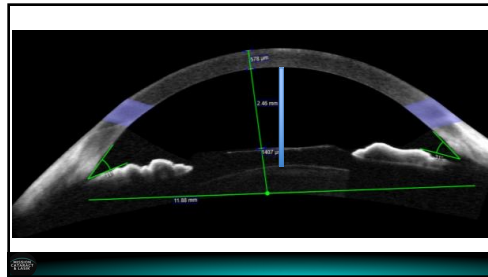
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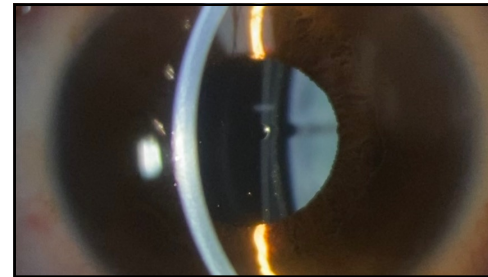
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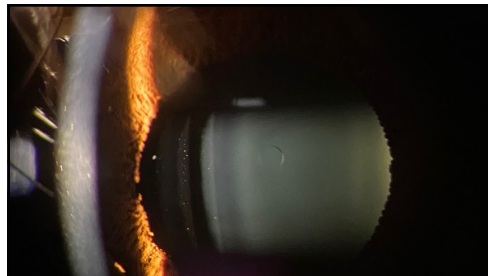
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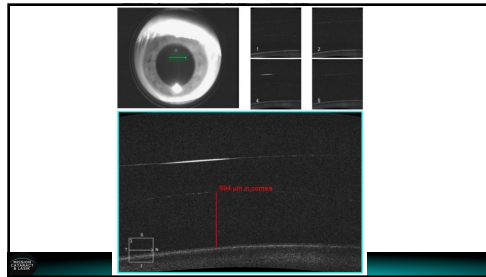


47

So some scenarios I get phone calls about

- 1 day post op vision not good
- 1 week post op vision less than ideal

48



49



50

1 week post op = +1.00 -2.00 x 141

Preop Mrx: -11.75 +4.00 x 077
 Ks: 41.78 @ 176 , 44.57 @ 086
 ACD: 3.25
 CCT: 570um
 WTW: 12.59
 ICL selected 13.7 -12.50 +4.00 x
 077

CURRENT ICL AXIS: 97 degrees

51

AS-OCT: Angle

1. Identify Angle Structures
2. Assess who is at risk of primary angle closure
AND those who are in primary angle closure
3. Evaluate the outcome of the LPI

52

Anterior Segment Modules

- Chamber View
 - ACD
 - Angle to Angle Distance
 - Lens Vault
 - Chamber Area
 - Corneal Thickness
 - Caliper tools
- Wide Angle to Angle Scan
 - Angle Opening Distance (AOD 500/750)
 - Trabecular Iris Space Area (TISA 500/750)
 - Scleral Spur Angle
 - Angle caliper tools

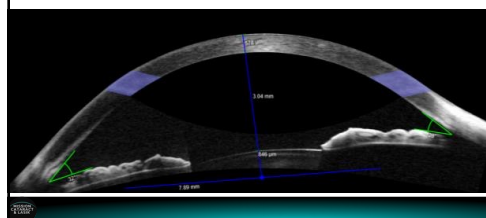
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AS-OCT: Angle Structures

- Non-contact
- Can be performed under dark conditions
- Minimal expertise by technician

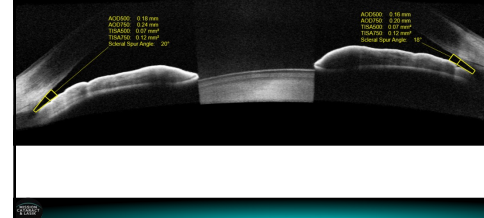
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Angle Structures



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Angle Structures



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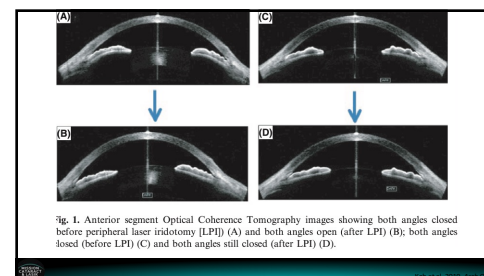
Predicting the outcome of laser peripheral iridotomy for primary angle closure suspect eyes using anterior segment optical coherence tomography

Victor Koh,¹ Mohammad Reza Keshitkaran,¹ David Hernstadt,¹ Maria Cecilia D. Aquino,¹ Paul T. Chew² and Chelvin Sing^{1,2,3} 

¹Department of Ophthalmology, Singapore General Hospital, Singapore
²Singapore General Hospital, Singapore
³Department of Ophthalmology, Singapore General Hospital, Singapore

"Using pretreatment AS-OCT scans, our algorithm was superior to ophthalmologists in predicting the success of LPI for PACS eyes."

57



58

Everyone deserves to see

- Identify KCN early!
- Restore vision in high myopic patients
- Identify those narrow angle patients at risk for angle closure

AS-OCT = 

59