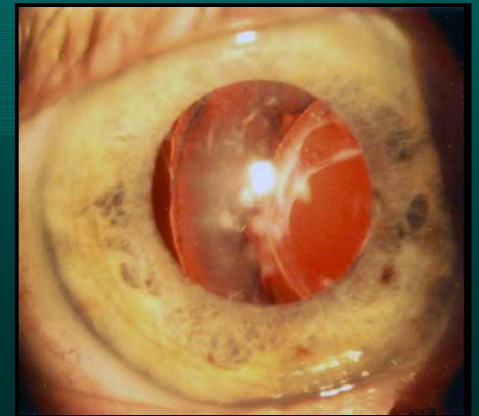
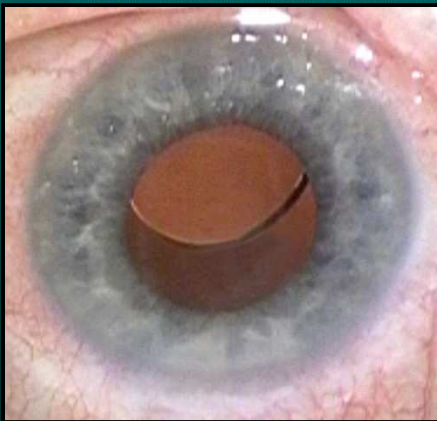


Management of Decentered IOs

Richard S. Hoffman, MD

Clinical Associate Professor of Ophthalmology
Casey Eye Institute
Oregon Health and Science University



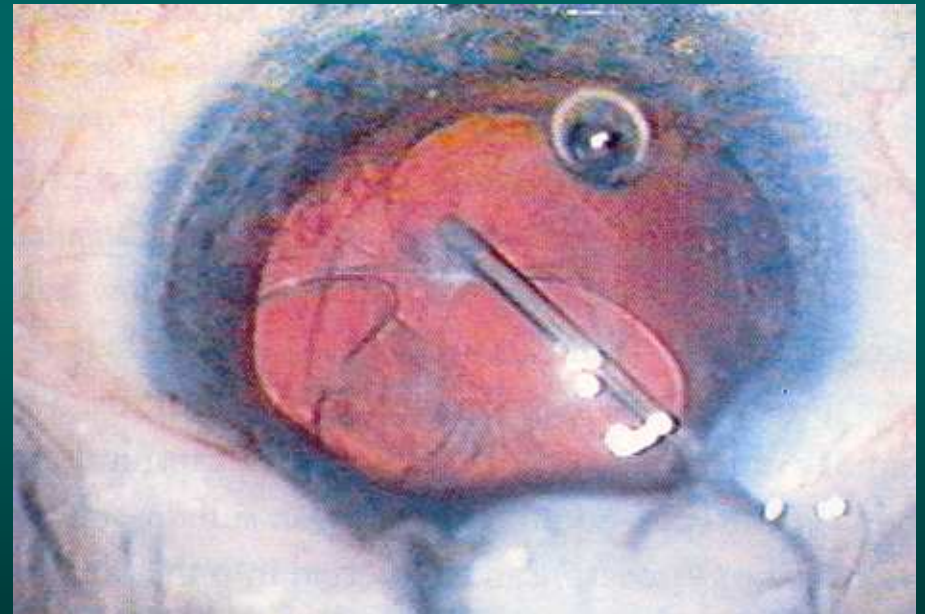
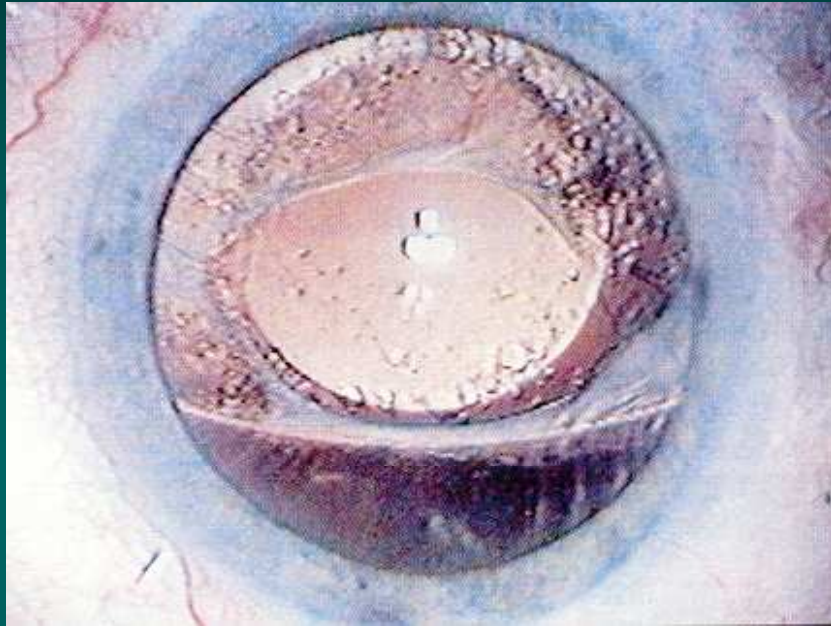
No Financial Interests

Intraocular Lens Decentration

- Decentered within the capsular bag
- Partially subluxed outside of intact capsular bag
- Subluxed outside of compromised capsule
- IOL and capsular bag subluxation
- IOL lying on the retina

IOI Decentration Within Intact Capsular Bag

Late Reopening of Fibrosed Capsular Bags For Lens Repositioning



General Principles

Symptomatic IOL Decentration

VS

Symptomatic PC Opacification

When in Doubt
Reposition IOL First
Then Perform YAG



General Principles

AVOID MACULAR PHOTOTOXICITY

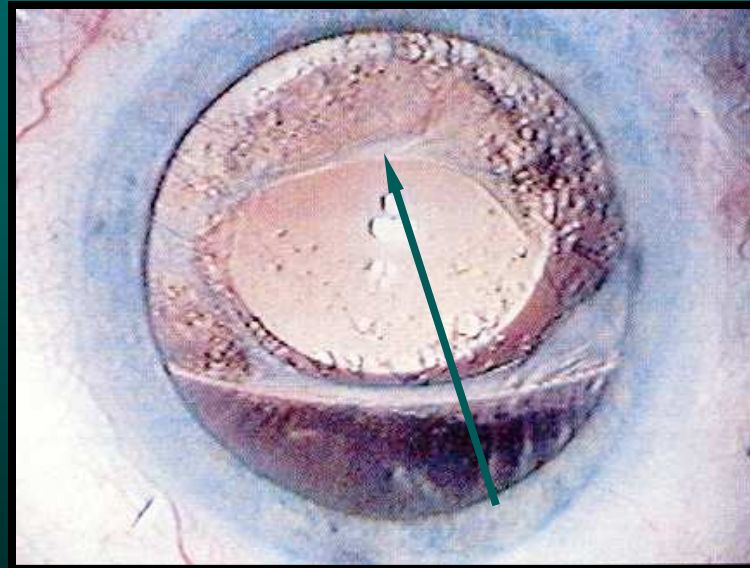
- Turn microscope light down
- Angle microscope light away from macula
 - Appropriate powered IOL is focusing light directly on the retina
 - Macular burns can occur in a relatively short period

General Principles

- Recentration can be accomplished through several paracenteses
- Avoid filling the anterior chamber with viscoelastic
- Use a combination of viscodissection and blunt dissection - Avoid forceps

Technique

- First paracentesis
 - easy access to the capsulorhexis
 - large portion of the IOL under rhexis

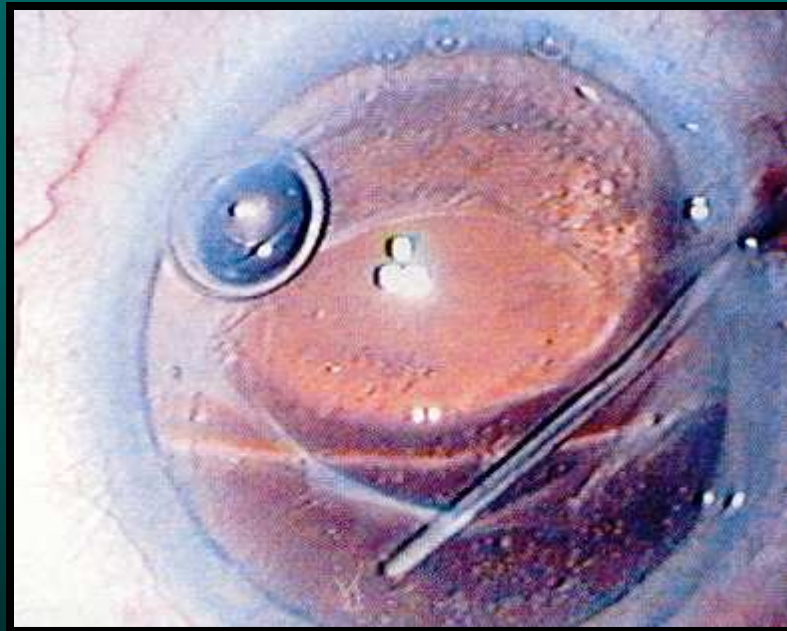


Technique

- Slip cannula between IOL and rhexis
- Inject Viscoat® to dissect anterior capsule from posterior capsule
- Place as many paracenteses as is needed

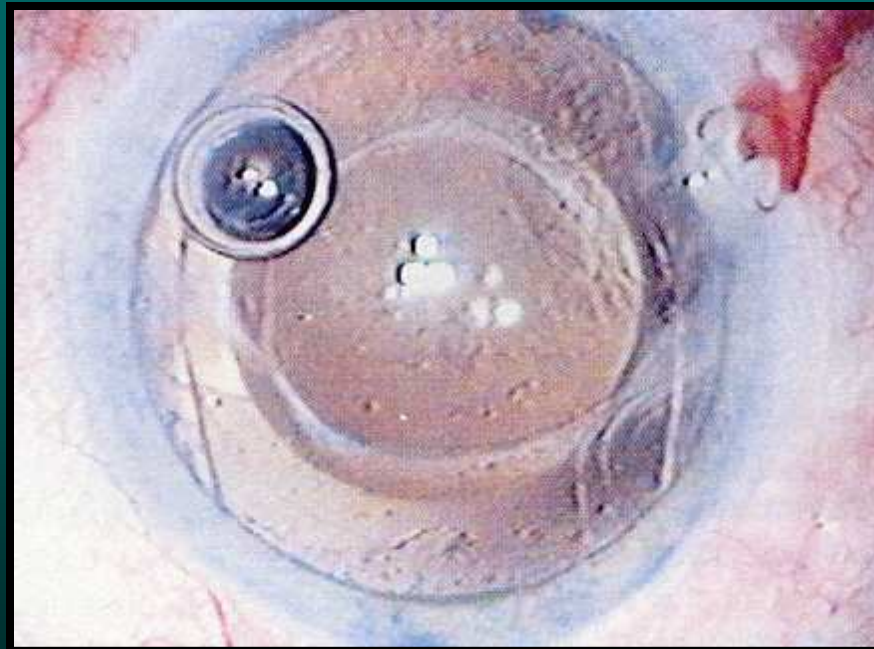
Technique

- Blunt dissection with viscoelastic cannula
- Use broad sweeping movements

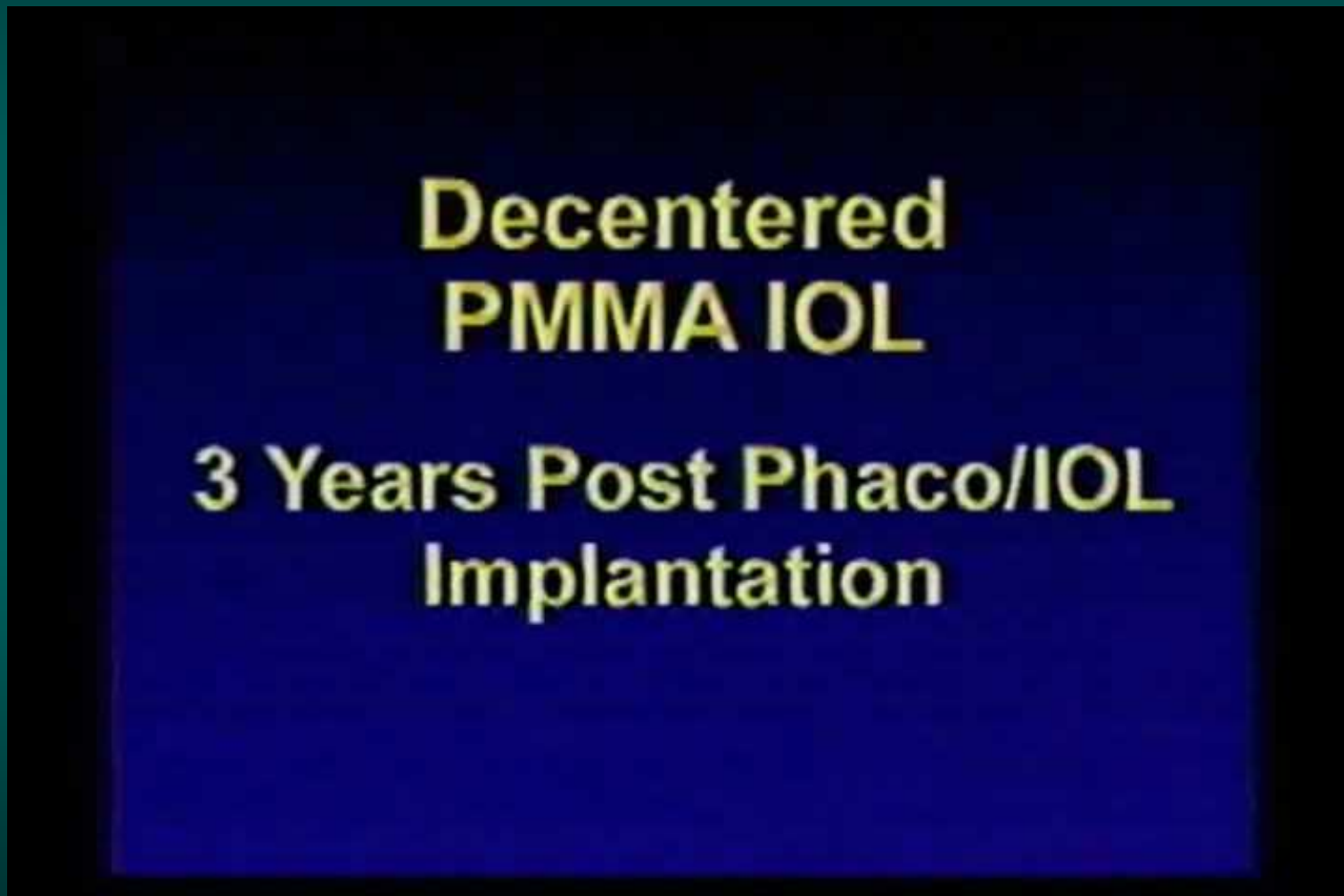


Technique

- Reposition IOL
- Bimanual irrigation and aspiration



Late Reopening of Fibrosed Bag



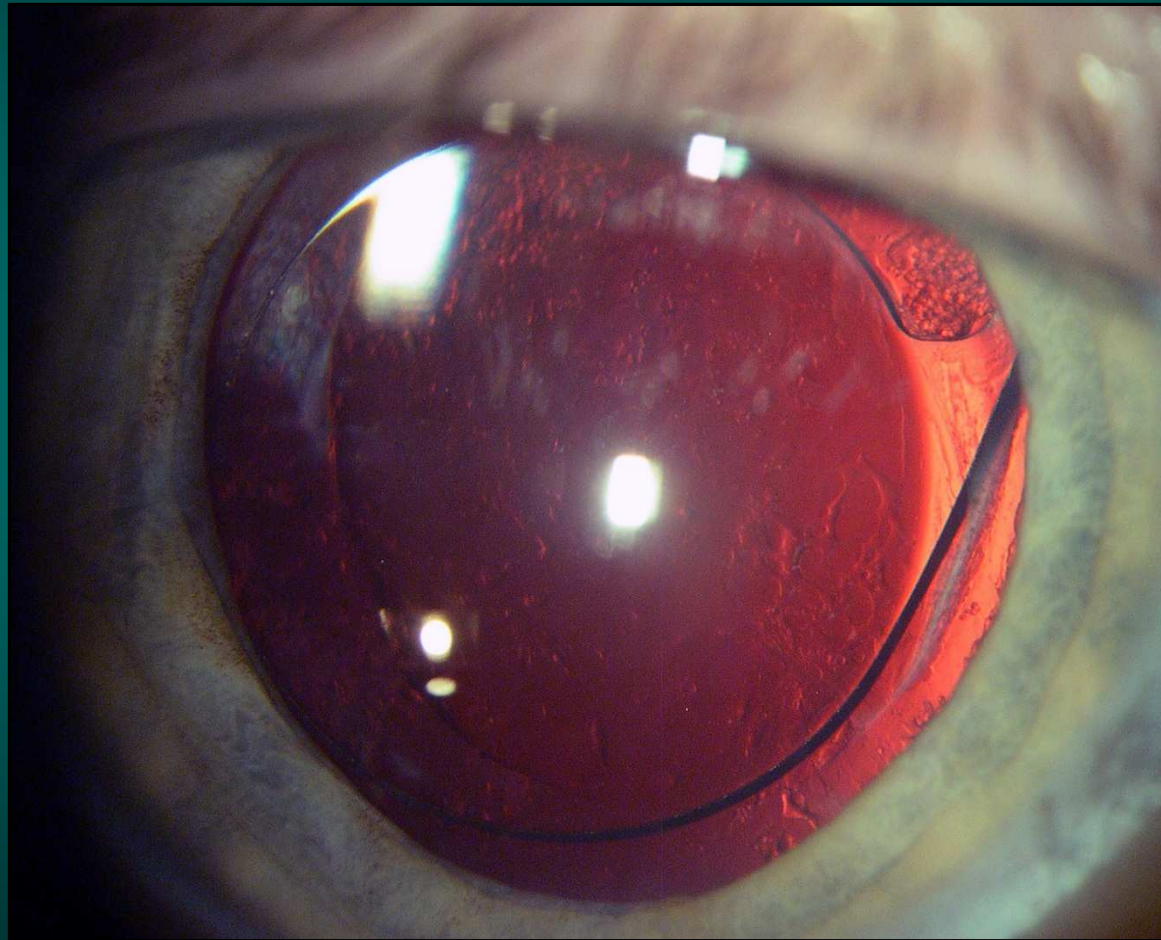
3 Years Post Phaco/IOL

Postoperative Considerations

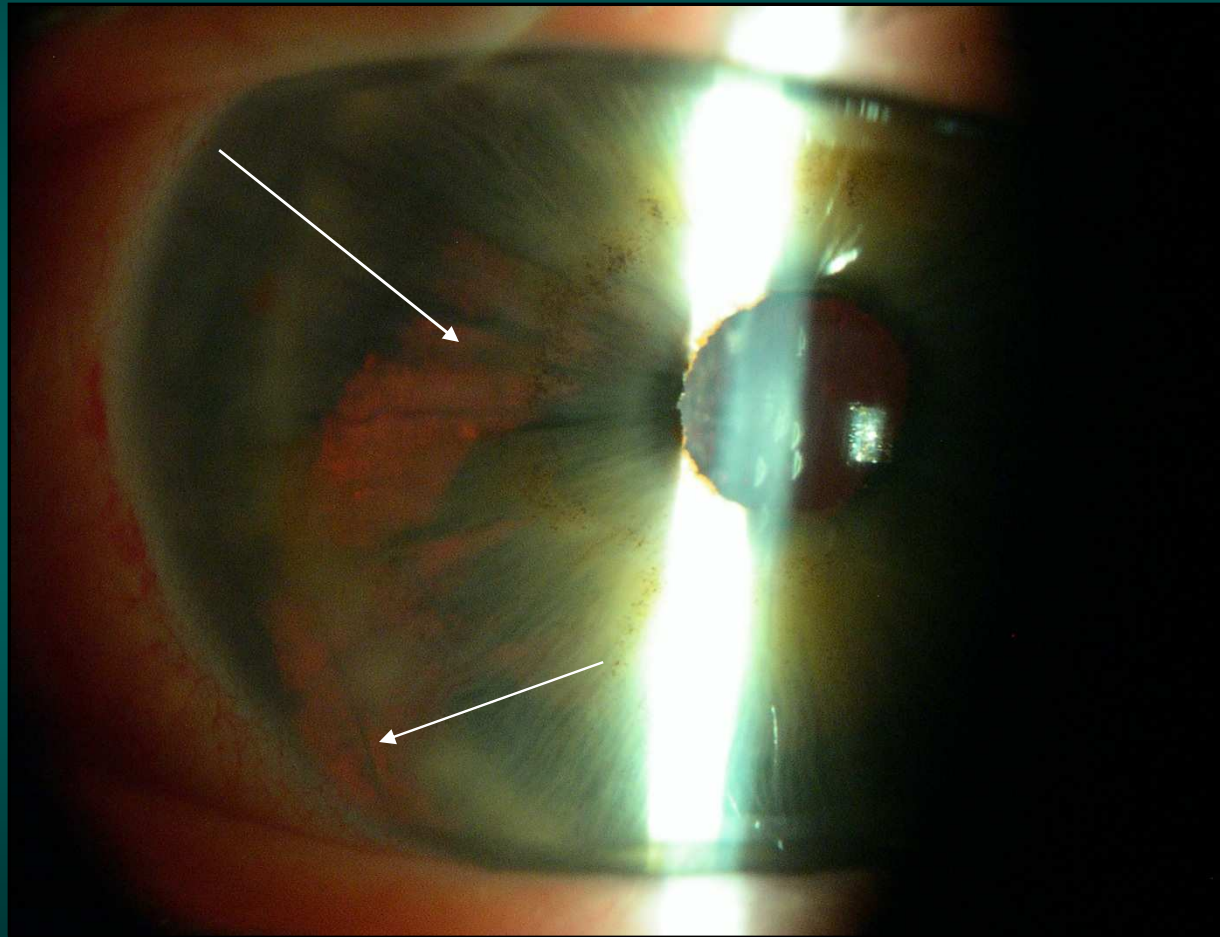
- Most metaplasia and fibrosis of LECs has already transpired
 - Repeat IOL decentration unlikely
- YAG can be performed 1-2 weeks following repositioning

Partially Subluxed Outside of
Intact Capsular Bag

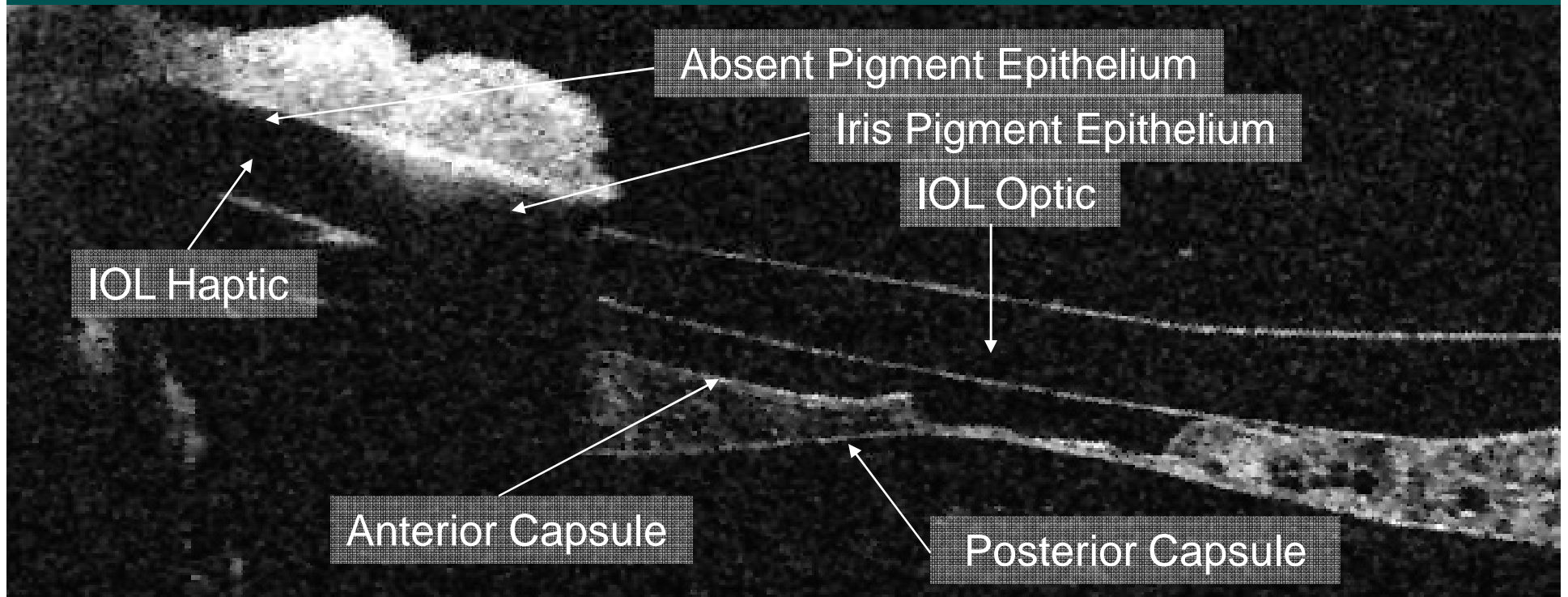
3 Years s/p Phaco / IOL



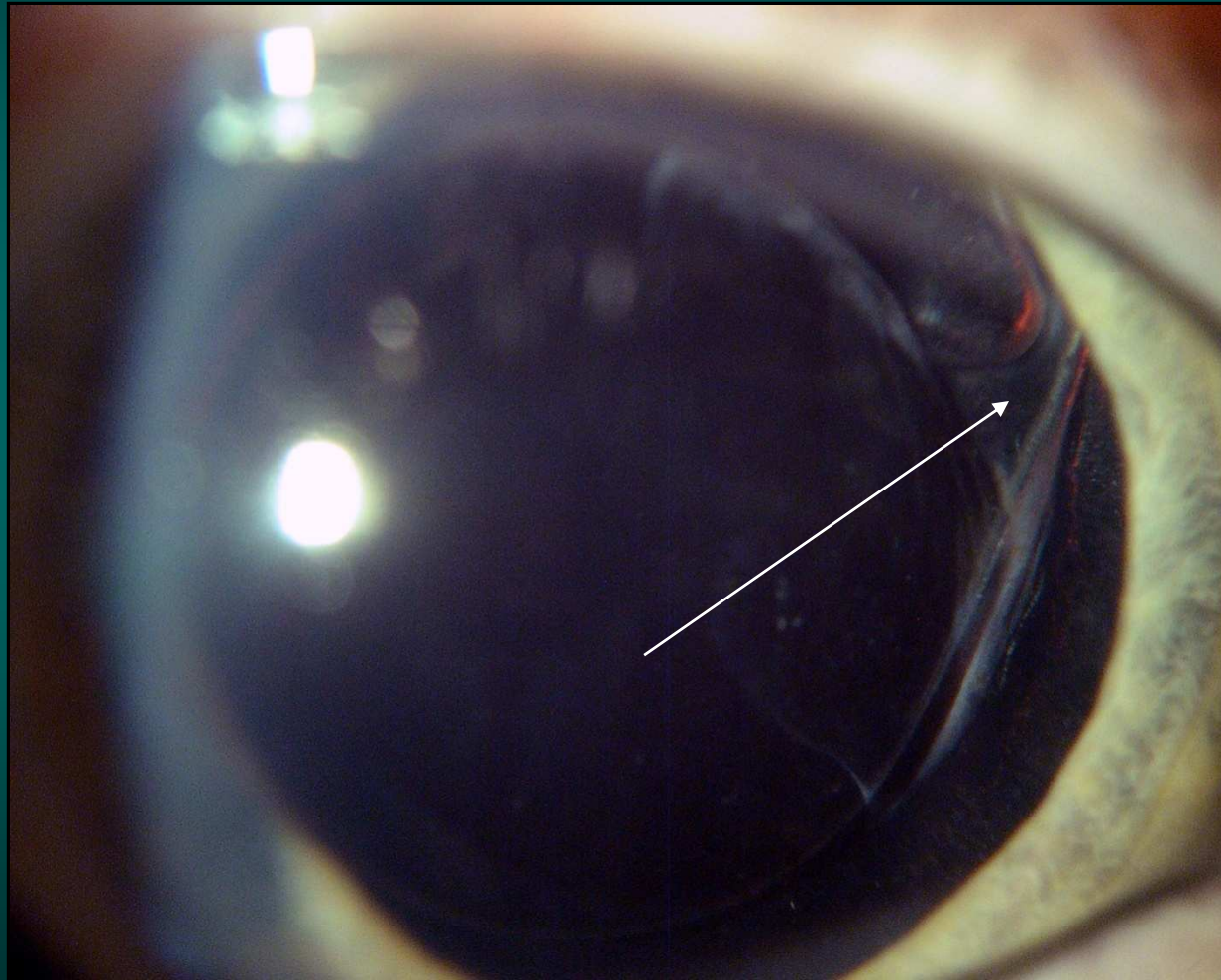
Recurrent Vitreous Hemorrhages



Recurrent Vitreous Hemorrhages

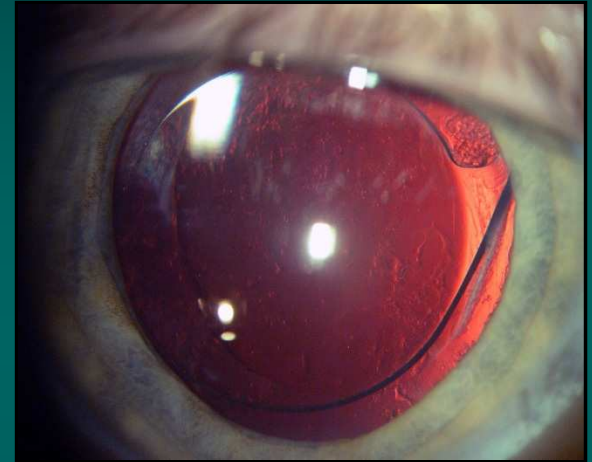


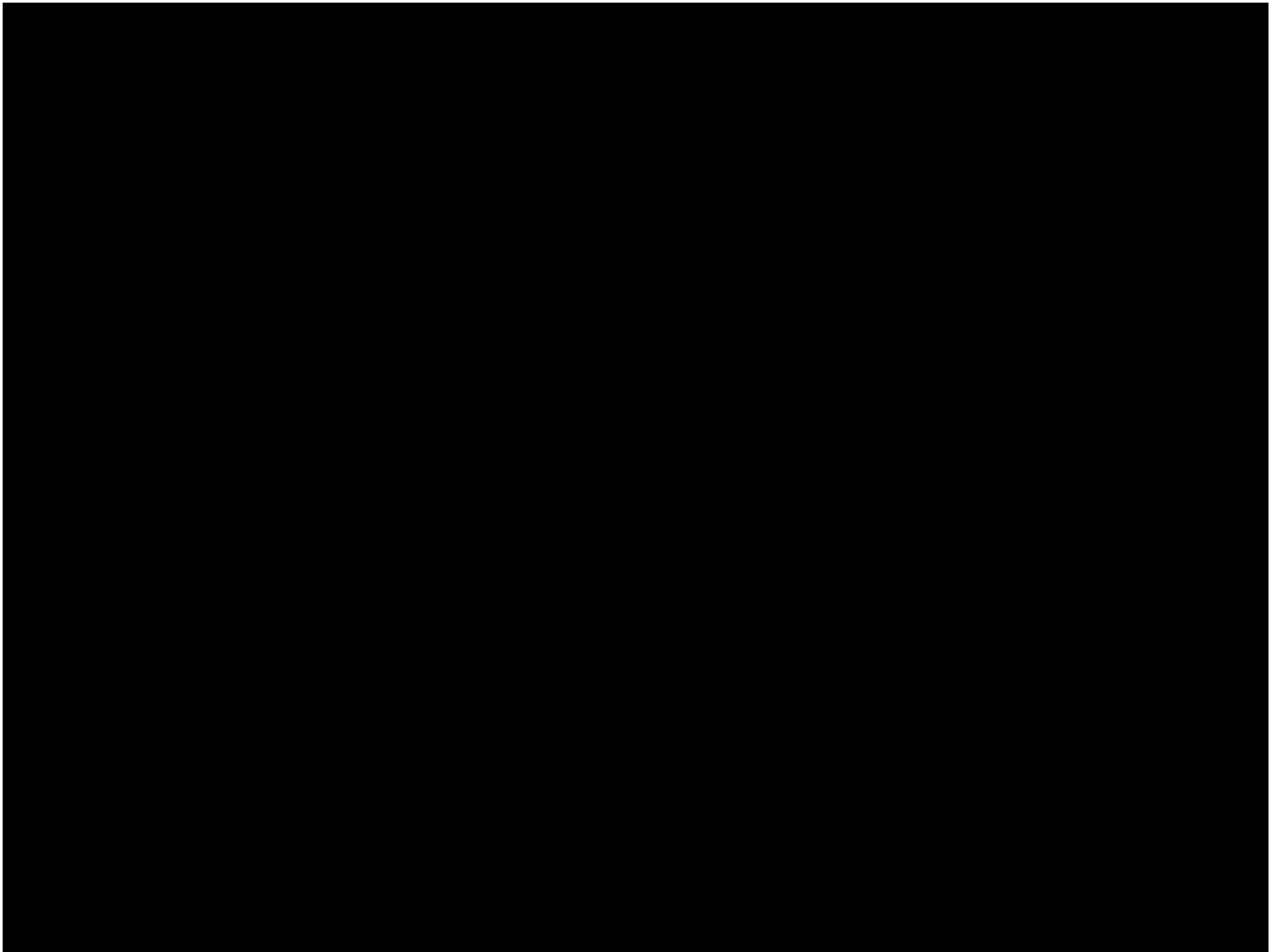
Recurrent Vitreous Hemorrhages



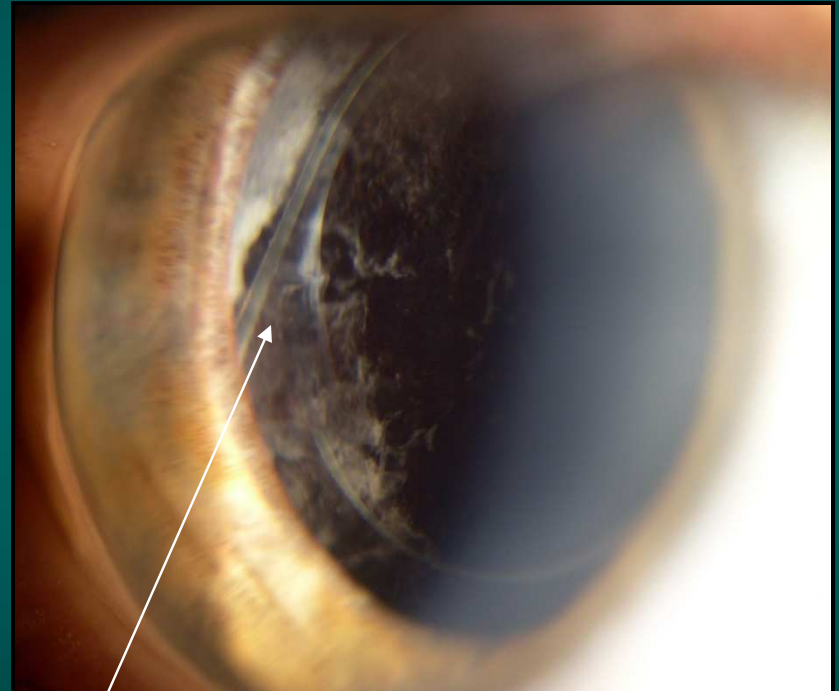
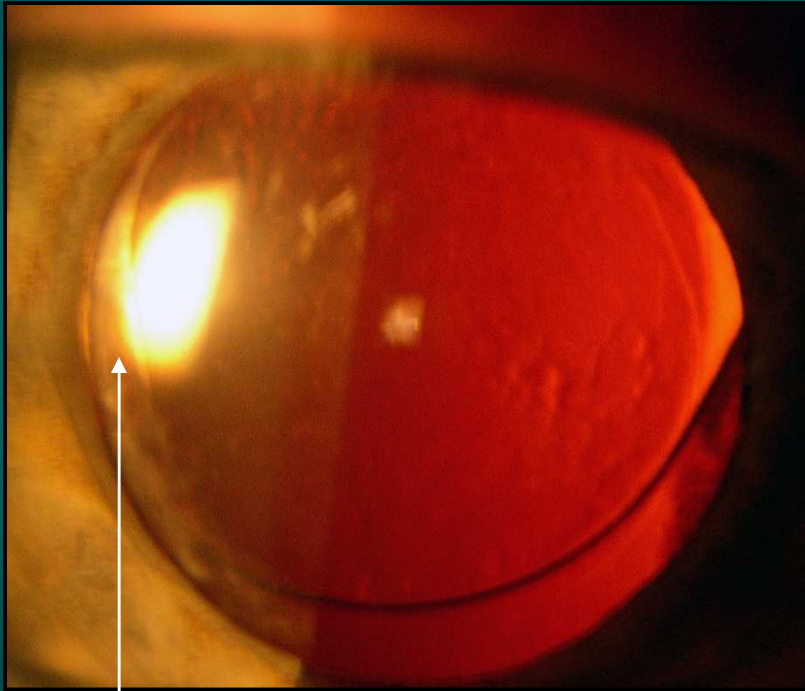
Treatment Options

- Amputate subluxed haptic
- IOL exchange
- Reposition haptic and optic within capsule

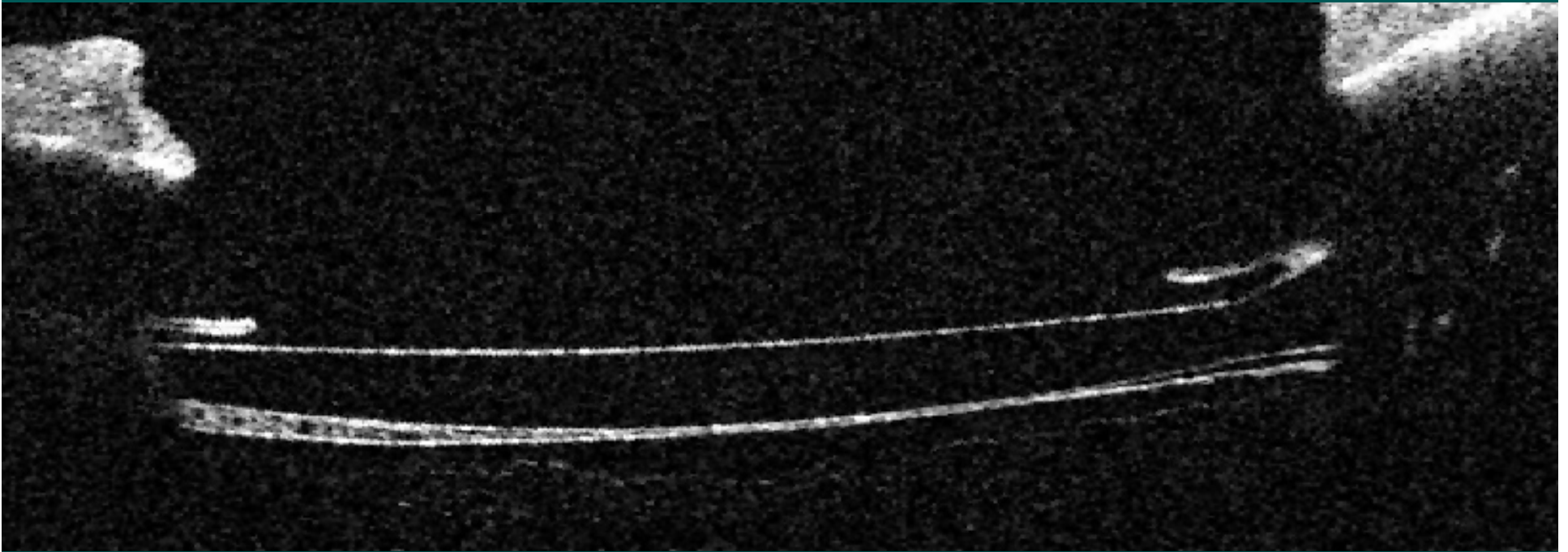




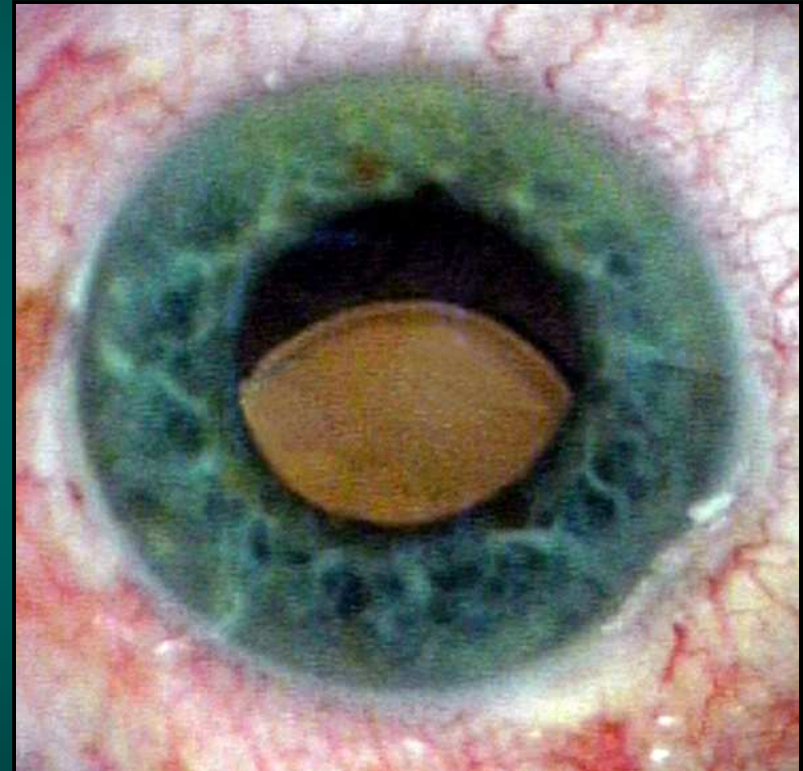
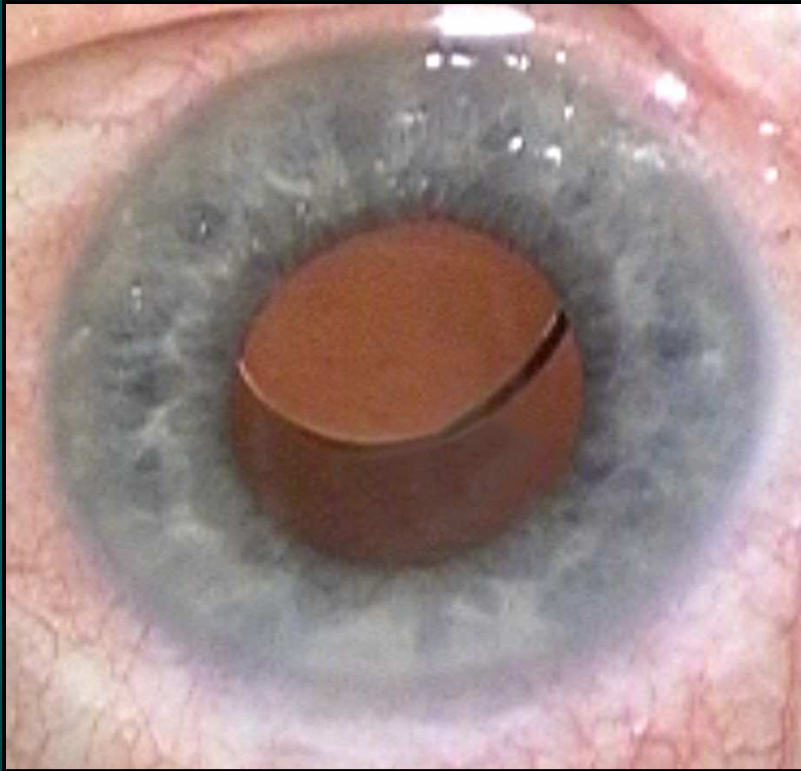
Postop IOL Repositioning



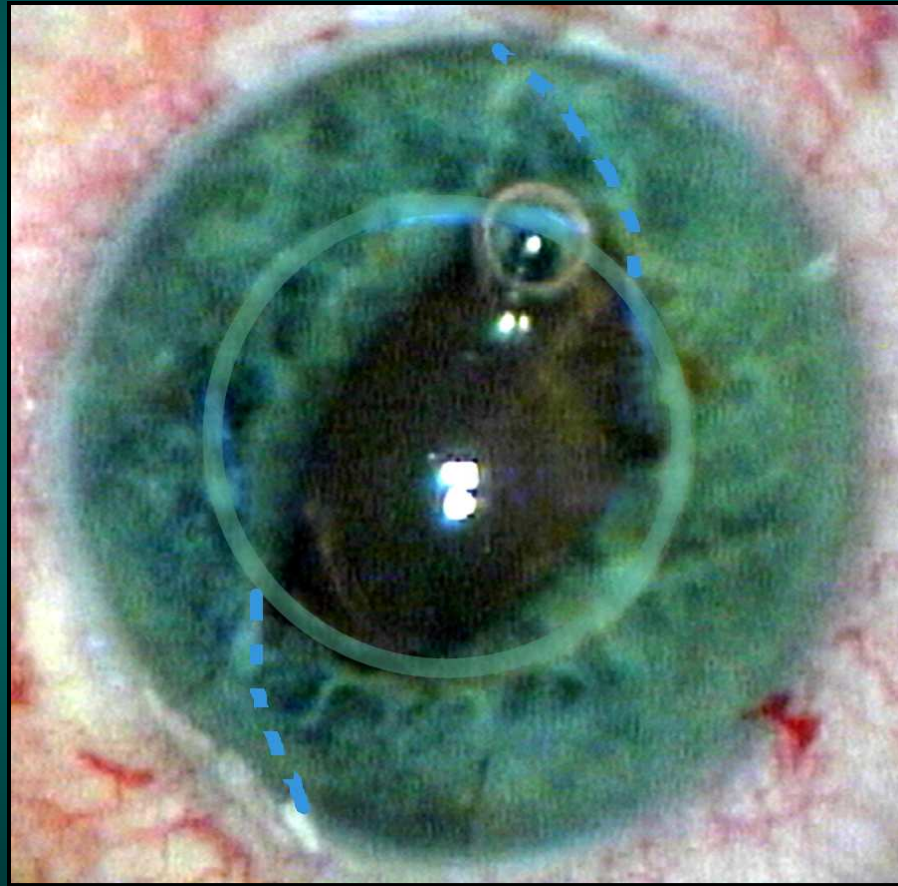
Postoperative OCT



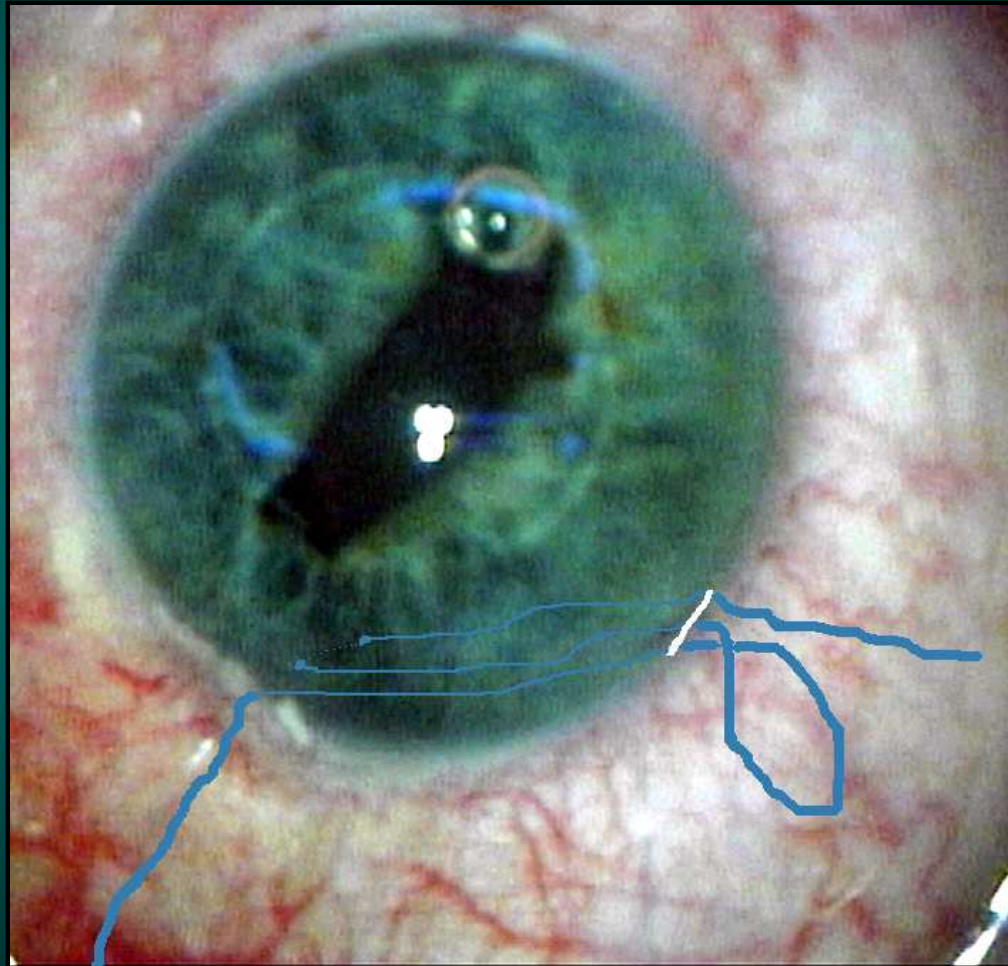
Subluxed with Poor Capsular Support



Iris Fixation of Decentered IOI



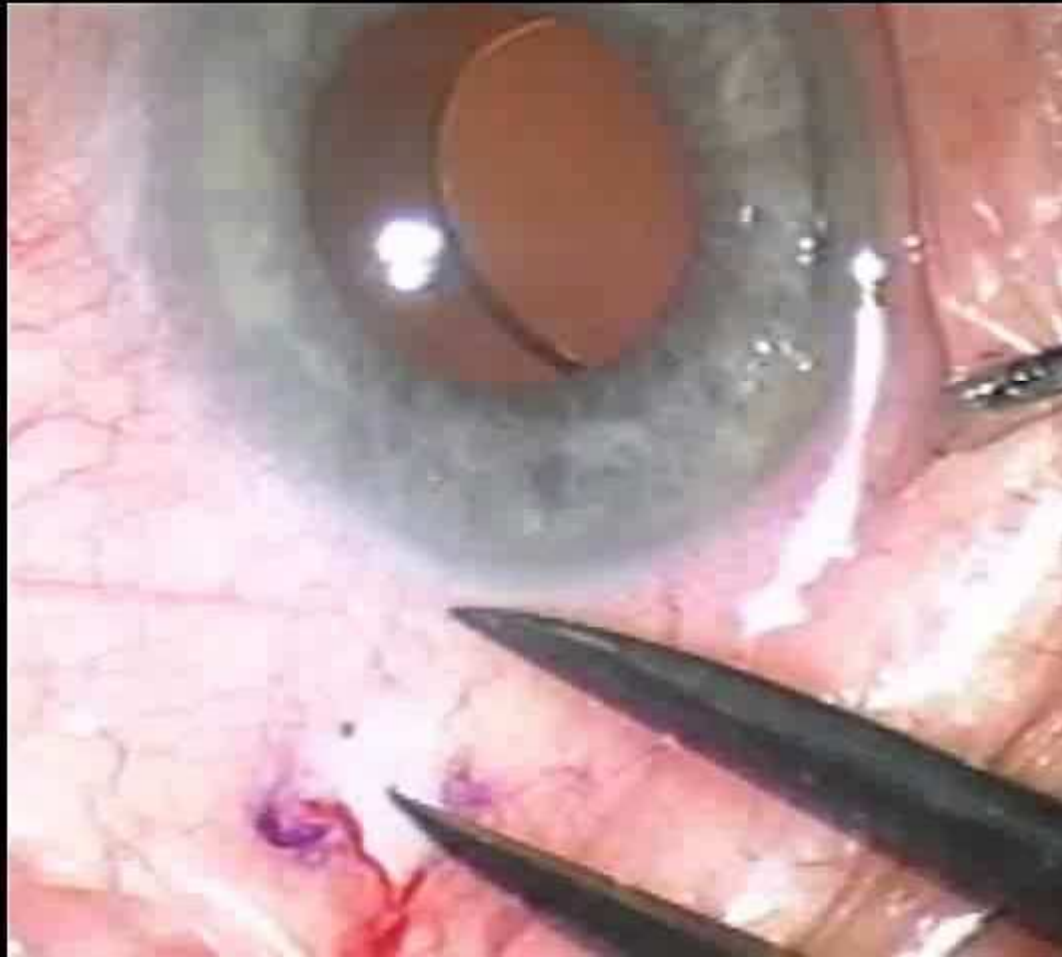
Iris Fixation of Decentered IOL



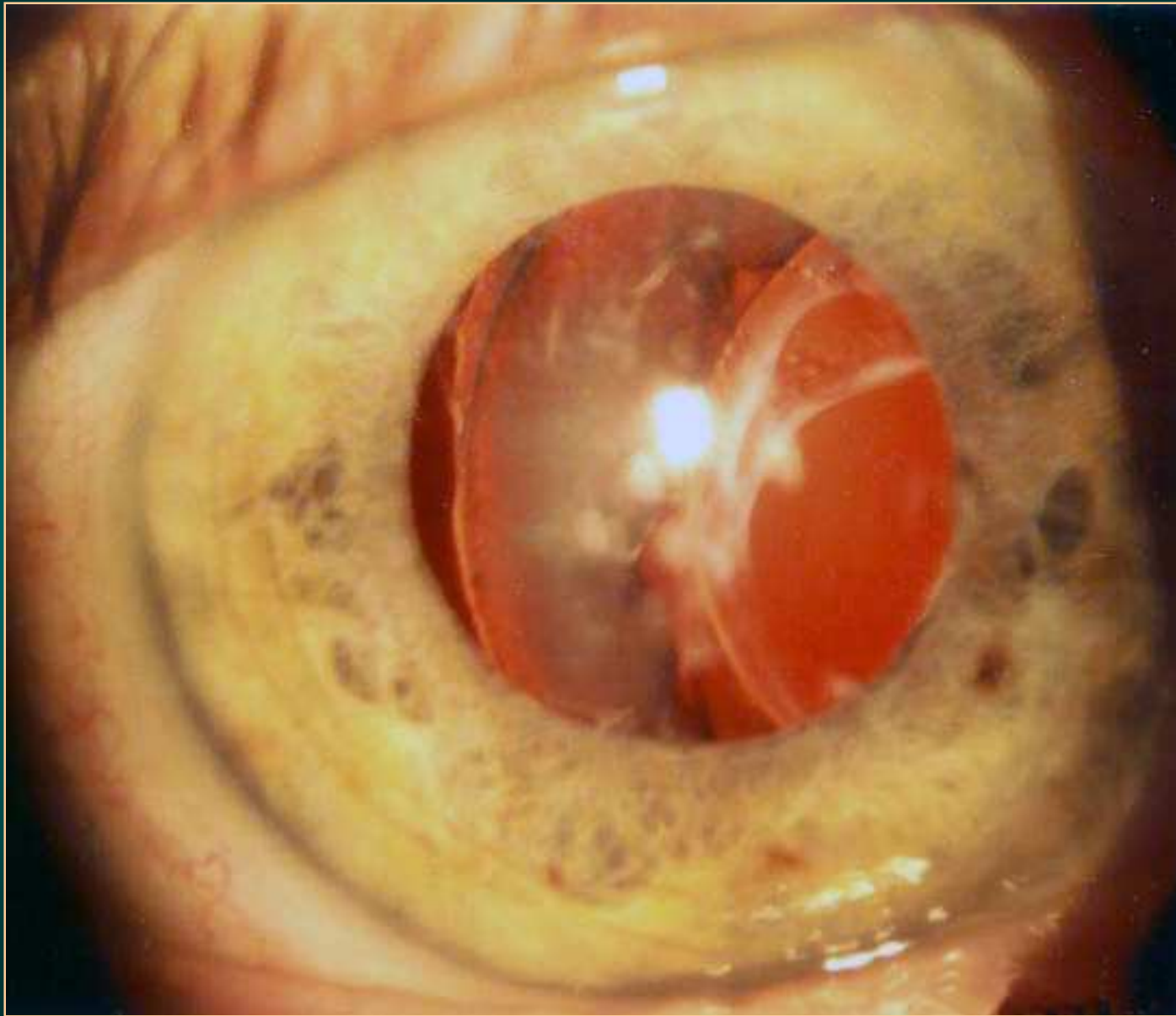
Iris Fixation of Decentered IOL



Pars Plana Approach



Subluxed IOL / Capsular Bag



Transscleral Fixation

A minimally invasive technique that avoids conjunctival dissection, scleral cauterization, or sutured wound closure

J CATARACT REFRACT SURG - VOL 32, NOVEMBER 2006

TECHNIQUES

Scleral fixation without conjunctival dissection

Richard S. Hoffman, MD, I. Howard Fine, MD, Mark Packer, MD

Scleral fixation of intraocular lenses (IOLs) and adjunctive capsular devices can be performed under the protection of a scleral flap. A modification of this technique uses a scleral pocket initiated through a peripheral clear corneal incision. Full-thickness passage of a double-armed suture through the scleral pocket and conjunctiva, with subsequent retrieval of the suture ends through the external incision for tying, facilitates scleral fixation. This modification offers several advantages over traditional methods: it eliminates the need for conjunctival dissection and scleral cauterization; a scleral pocket affords a greater surface area for suture placement through an ab externo or ab interno approach; retrieval of the sutures through the external corneal incision and subsequent tying allows the suture knot to pass under the protective roof of the scleral pocket, negating the need for suture knot rotation; and the architecture of the scleral pocket eliminates the need for sutured wound closure. Suture retrieval and scleral fixation through a corneoscleral pocket offers a refined method for fixation of IOLs and other intraocular adjunctive devices.

J Cataract Refract Surg 2006; 32:1907-1912 © 2006 ASCRS and ESCRS

Stabilization of decentered and secondary posterior chamber intraocular lenses (IOLs) that lack capsule support can be accomplished by means of iris fixation¹⁻³ and transscleral fixation through the ciliary sulcus or pars plana.⁴⁻⁶ Although iris fixation of decentered IOLs is a popular technique, late-onset combined IOL-capsular bag subluxation resulting from zonular weakness or dialysis may be more easily repaired with scleral fixation.⁷⁻⁹

Techniques for transscleral fixation include ab interno methods,¹⁰⁻¹⁴ in which the suture is passed from the inside of the eye to the external surface, and ab externo methods,¹⁵⁻¹⁸ in which the suture is initially passed from the external surface. Common to all techniques for transscleral fixation is the need to bury, cover, or rotate the knot created for fixation so conjunctival erosion and subsequent endophthalmitis is less likely to develop.^{19,20}

We describe a refinement of our previously reported scleral tunnel technique²¹ for scleral fixation that uses

a scleral pocket initiated through a peripheral clear corneal incision. Full-thickness passage of a double-armed suture through the scleral pocket and conjunctiva with subsequent retrieval of the suture ends through the external corneal incision for tying avoids the need for conjunctival dissection, scleral cauterization, or sutured wound closure. The technique is described for a subluxated IOL-capsular bag complex but can be used for any IOL or intraocular device that requires transscleral fixation.

SURGICAL TECHNIQUE

Calipers dipped in gentian violet are used to mark the locations for peripheral clear corneal incisions. These incisions are made 180 degrees from each other in a meridian that will facilitate proper final positioning of the IOL optic. The haptics should be incorporated in the suture passes unless a capsular tension ring (CTR) was previously placed, in which case the CTR can be secured within the suture passes.⁸ The 3 o'clock and 9 o'clock meridians should be avoided to prevent damage to the long posterior ciliary arteries.

A guarded diamond step knife (#05-5027, Rhein Medical) or #64 Beaver blade (376400, BD) is used to make the 30-degree (1 clock hour) and 300 to 400 µm incisions just anterior to the conjunctival insertion at the limbus (Figure 1). The depth of these incisions can be modified depending on the amount of flattening desired

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From the Oregon Eye Institute, Eugene, Oregon, USA.

No author has a proprietary or financial interest in any product mentioned.

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doi:10.1016/j.jcrs.2006.05.029

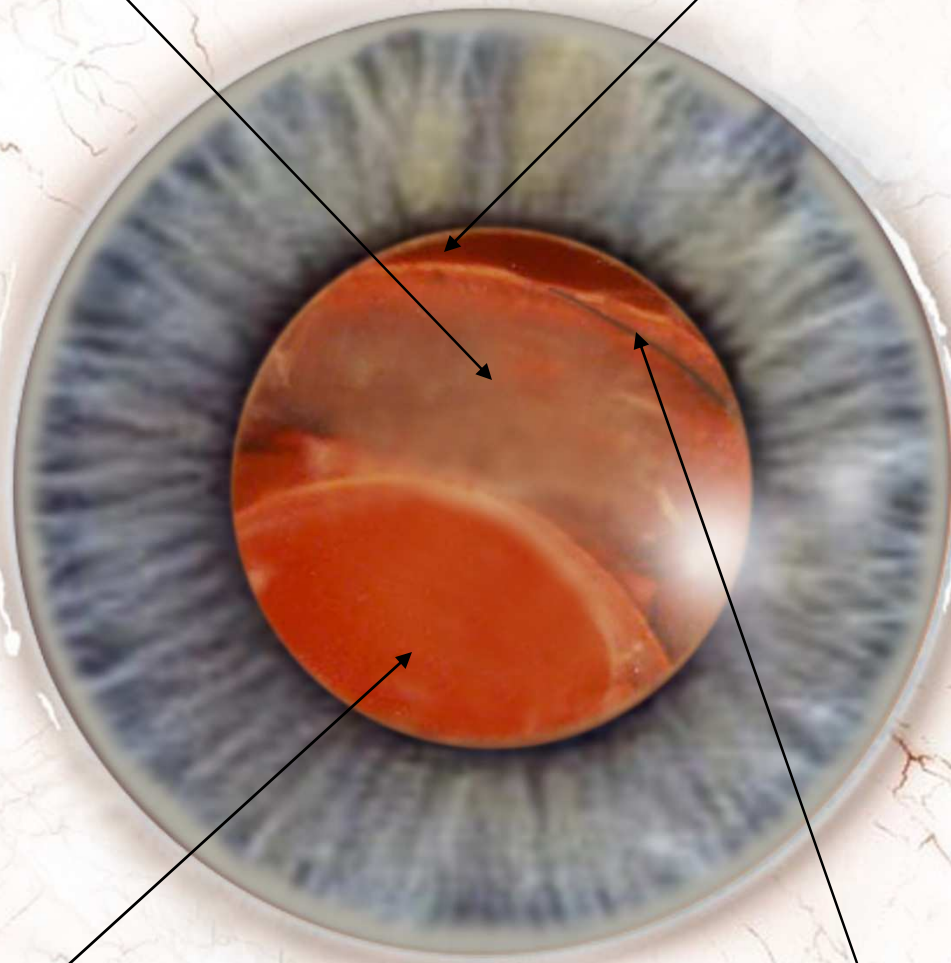
1907

Soemmering's Ring

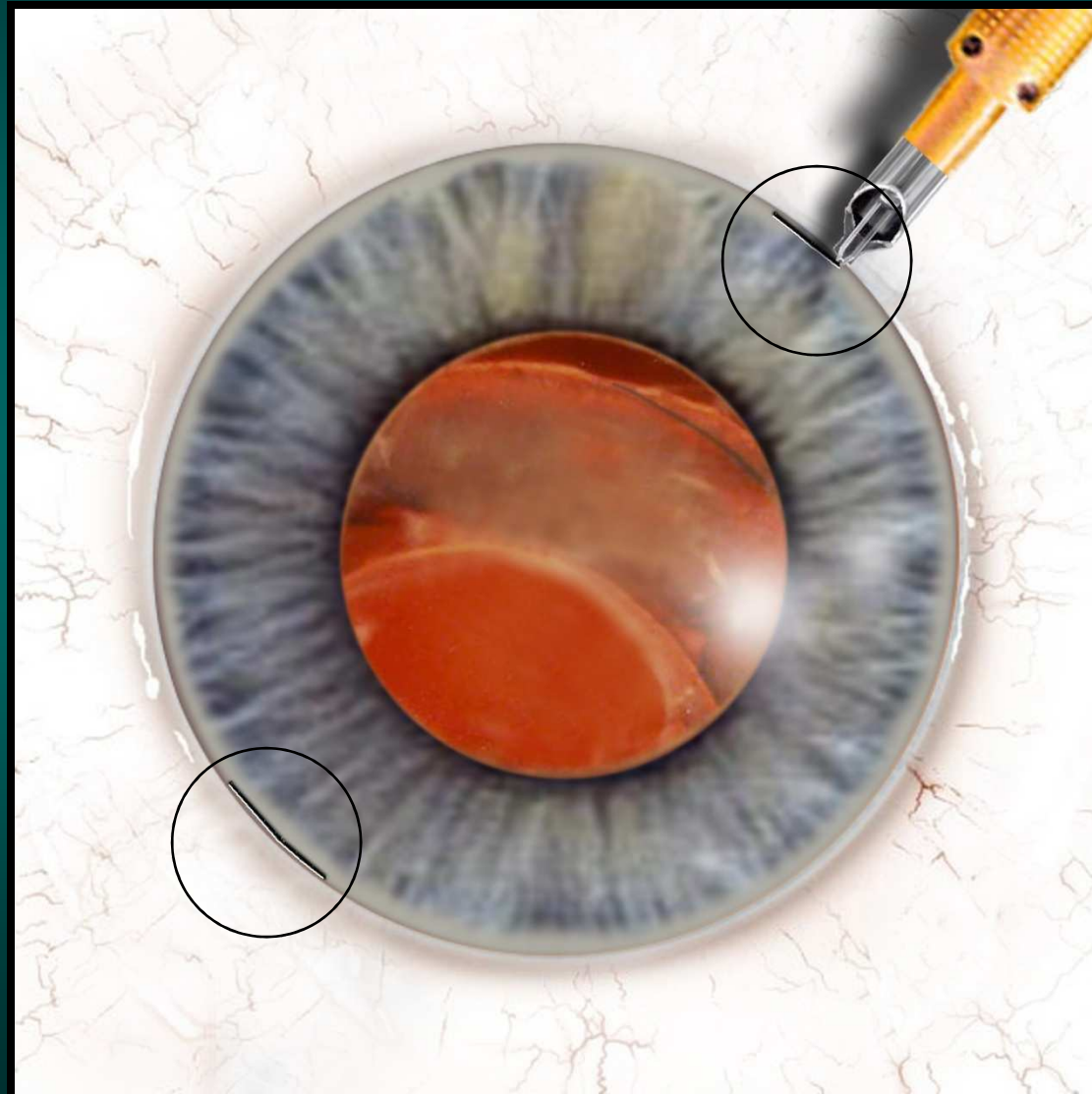
Bag Equator

Subluxed IOL

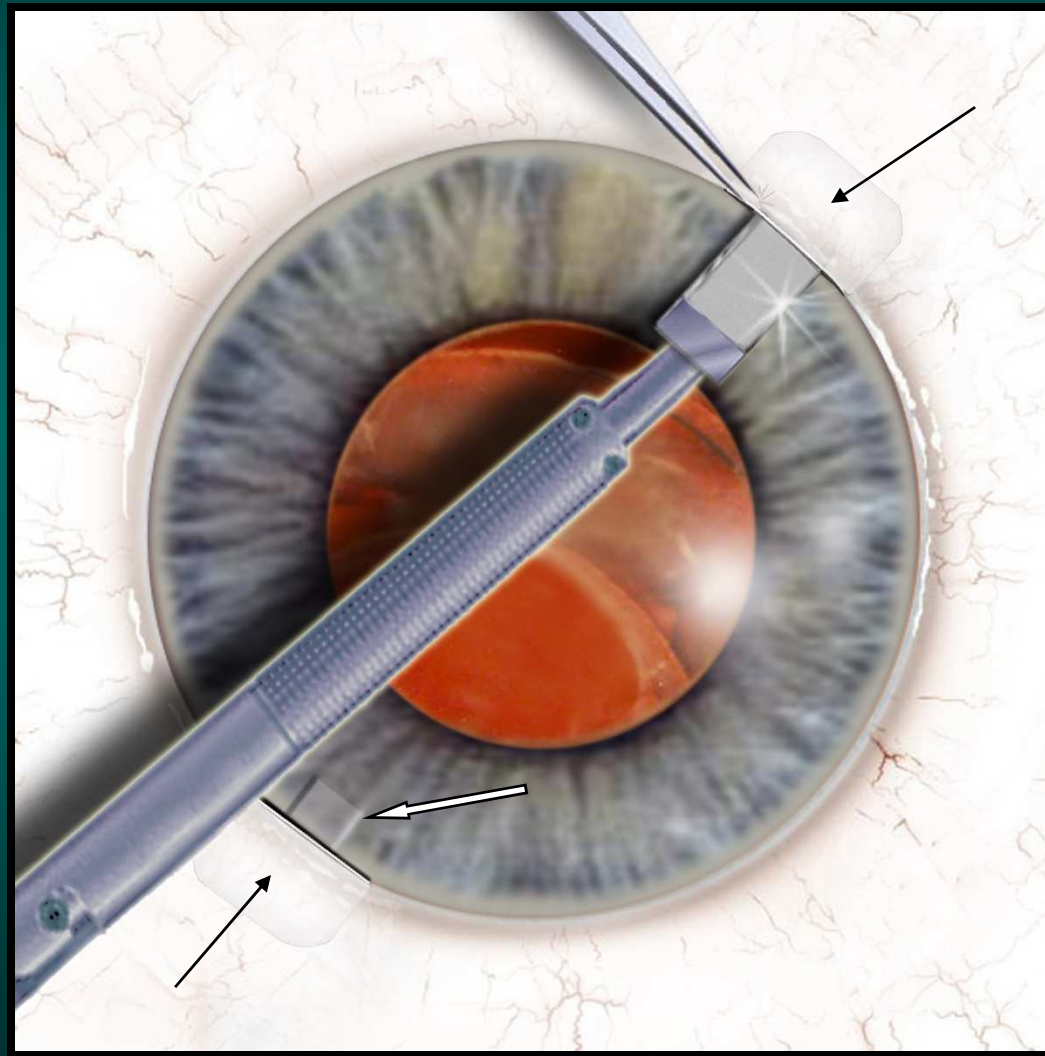
Lens Haptic



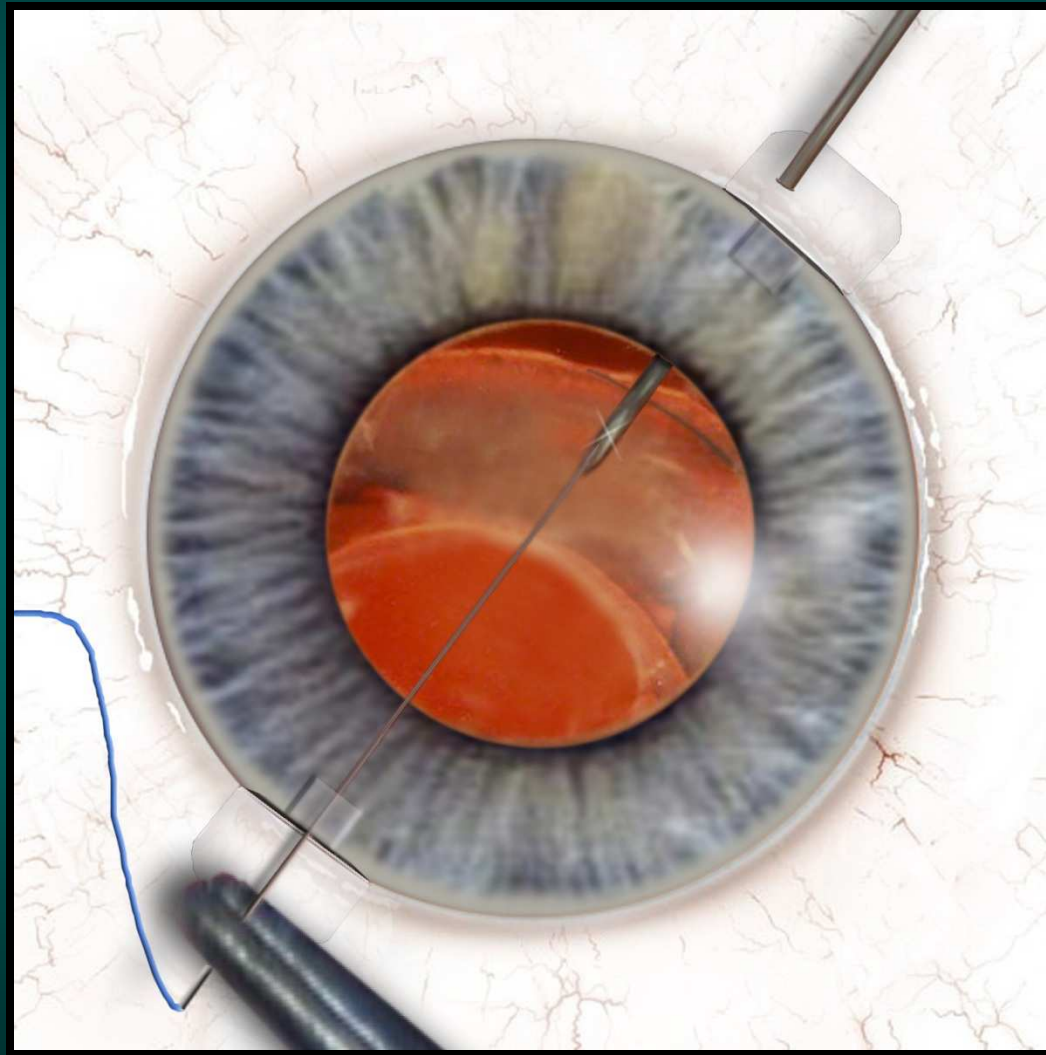
Grooved Clear Corneal Incisions



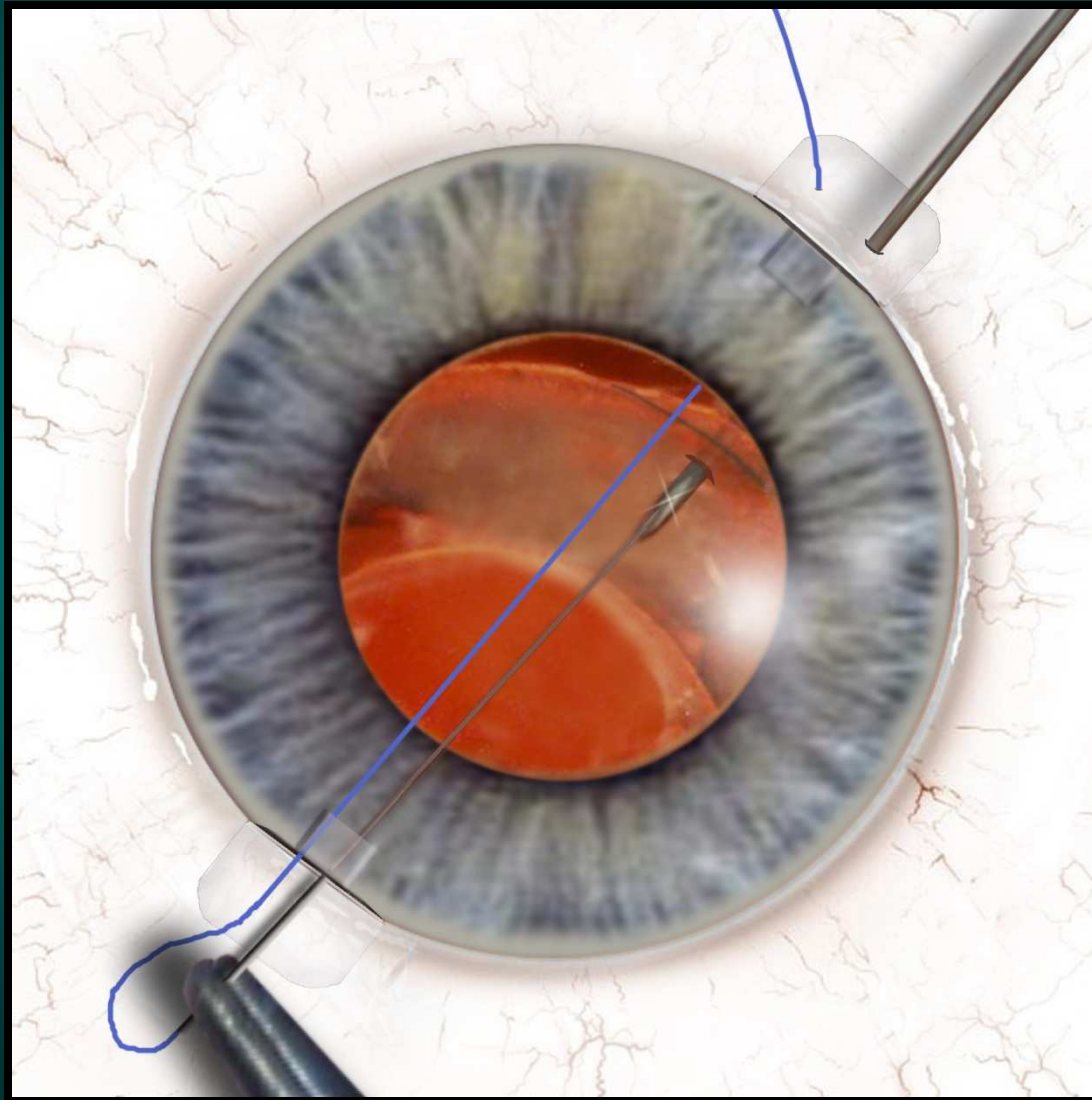
Scleral Pocket



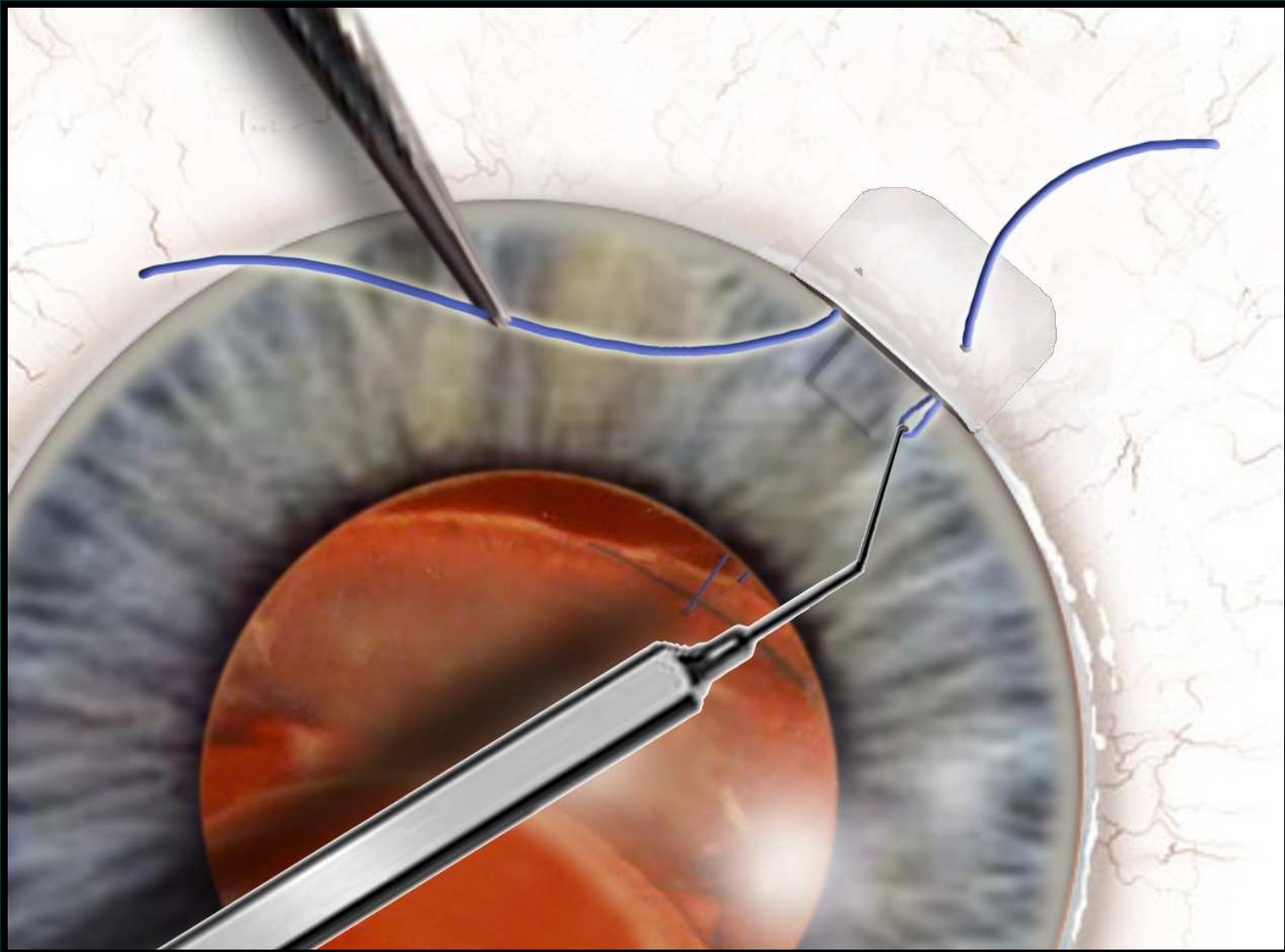
Haptic Encircling



Haptic Encircling



Suture Retrieval



Prolene Suture Tying



Suture Degradation

- 10-0 Prolene suture found to degrade 7-15 years following scleral fixation
- Recommend 9-0 Prolene (Ethicon D-8229 CTC-6L) or 8-0 Gortex



Scleral Pocket Fixation

Advantages

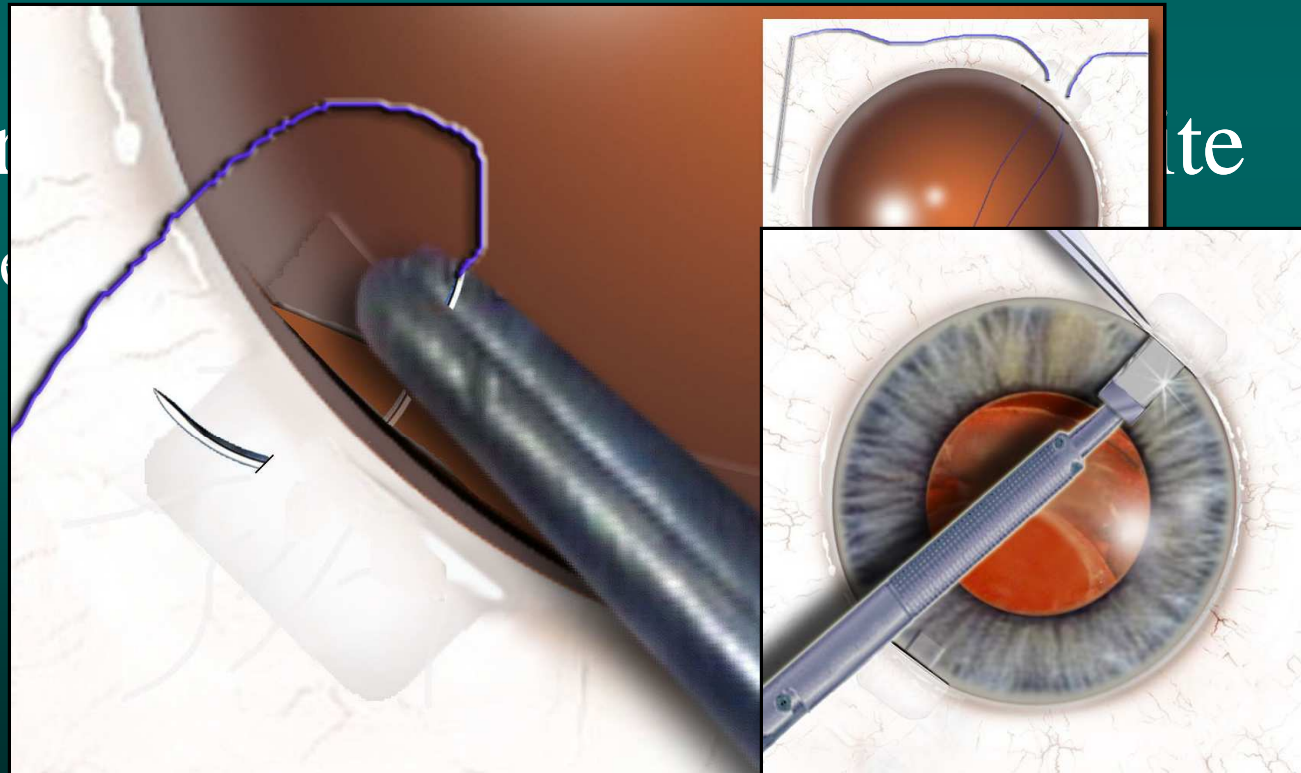
- Simpler creation of suture knot covering
 - Avoids the need to rotate knots
- No conjunctival dissection or scleral cautery
 - Faster than traditional Δ flap procedure
 - Healthier scleral tissue

Scleral Pocket Fixation

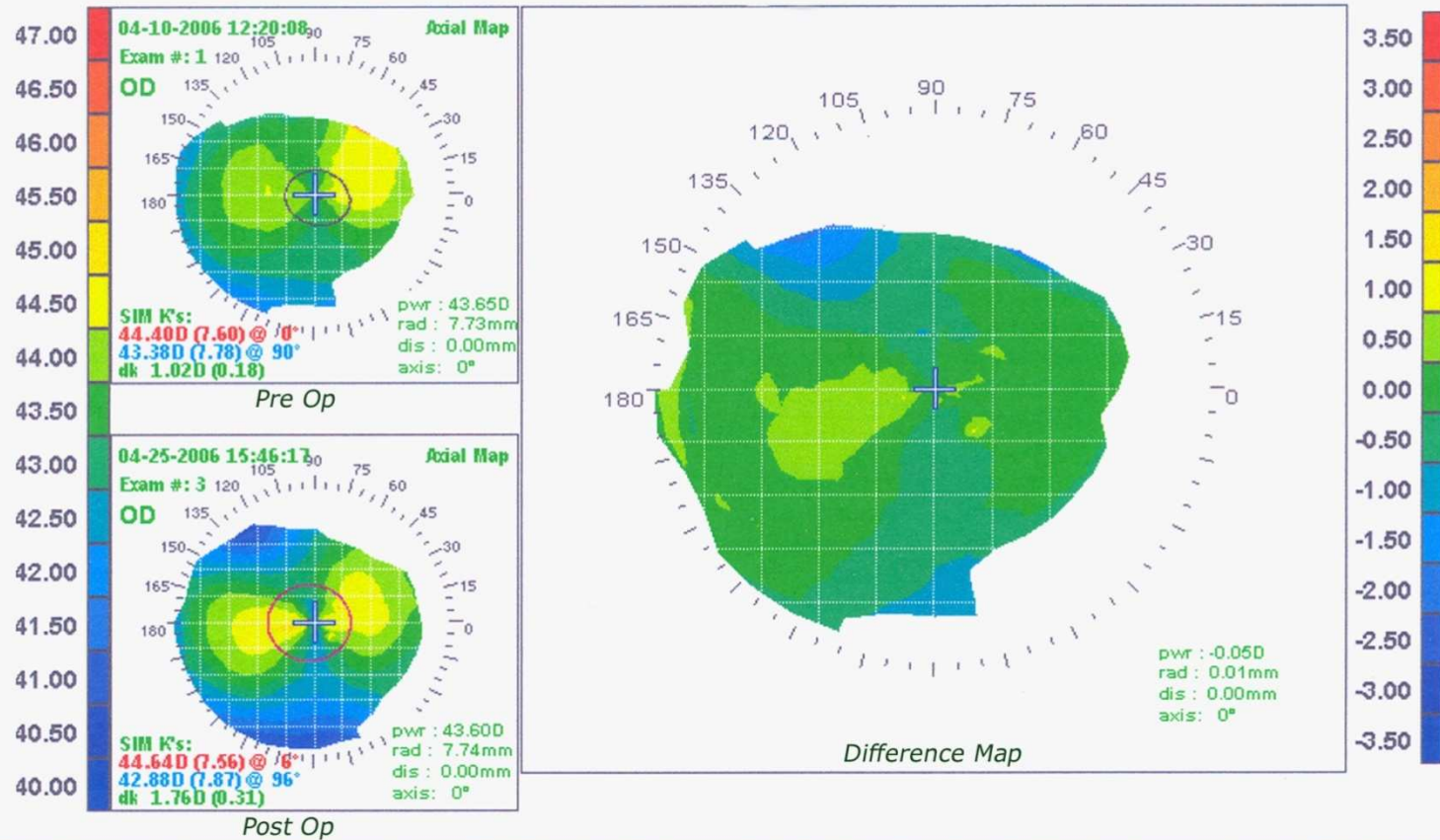
Advantages

- Larger surface area than Δ flap or groove
 - Facilitates ab interno and ab externo approach

- Easier
 - Dissociation



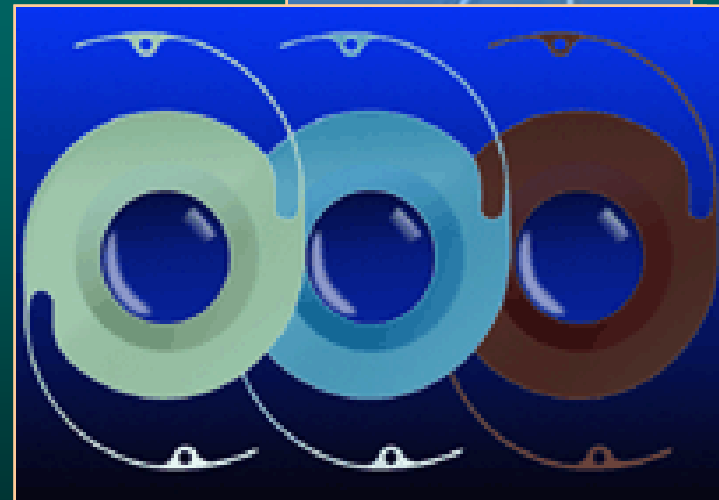
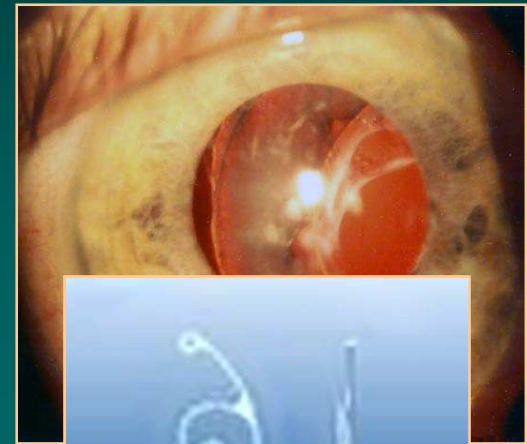
Induced Astigmatism

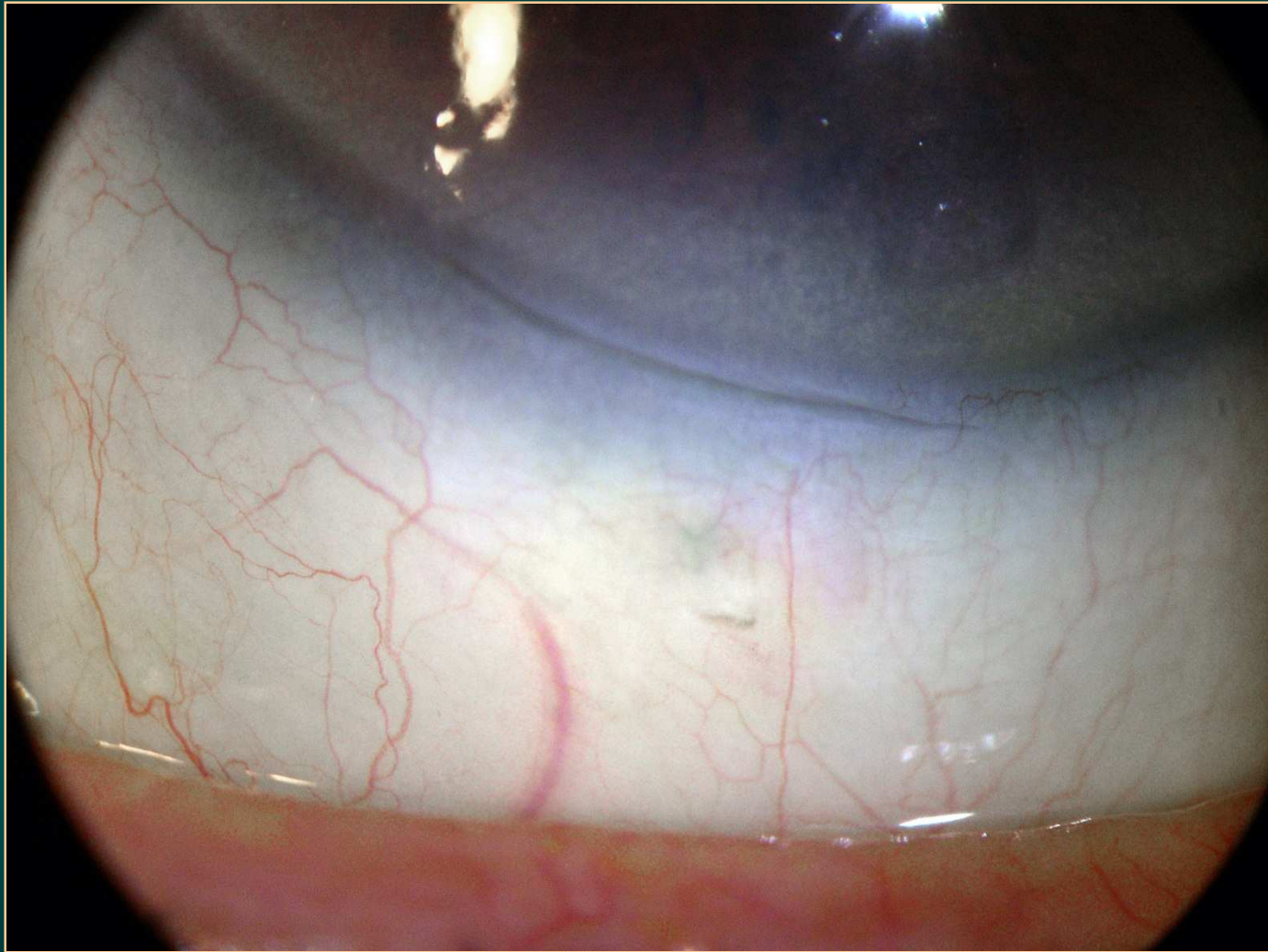


Scleral Pocket Fixation

Improved Method for Scleral Fixation

- Dislocated IOLs
- Adjunctive Capsular Devices
 - Cionni capsular tension ring
 - Ahmed ring segment
- Iridodialysis
- Iris Prosthesis





IOU Lying on Retina

Various Presentations

Coordinate with Retina Colleague

- Single piece / plate haptic IOL
 - Free / on the retina
 - In the bag / on the retina
- 3-piece IOL
 - Free / on the retina
 - In the bag / on the retina

Remove and Exchange

Iris Fixation

Alternate Option

3-Piece IOL on Retina

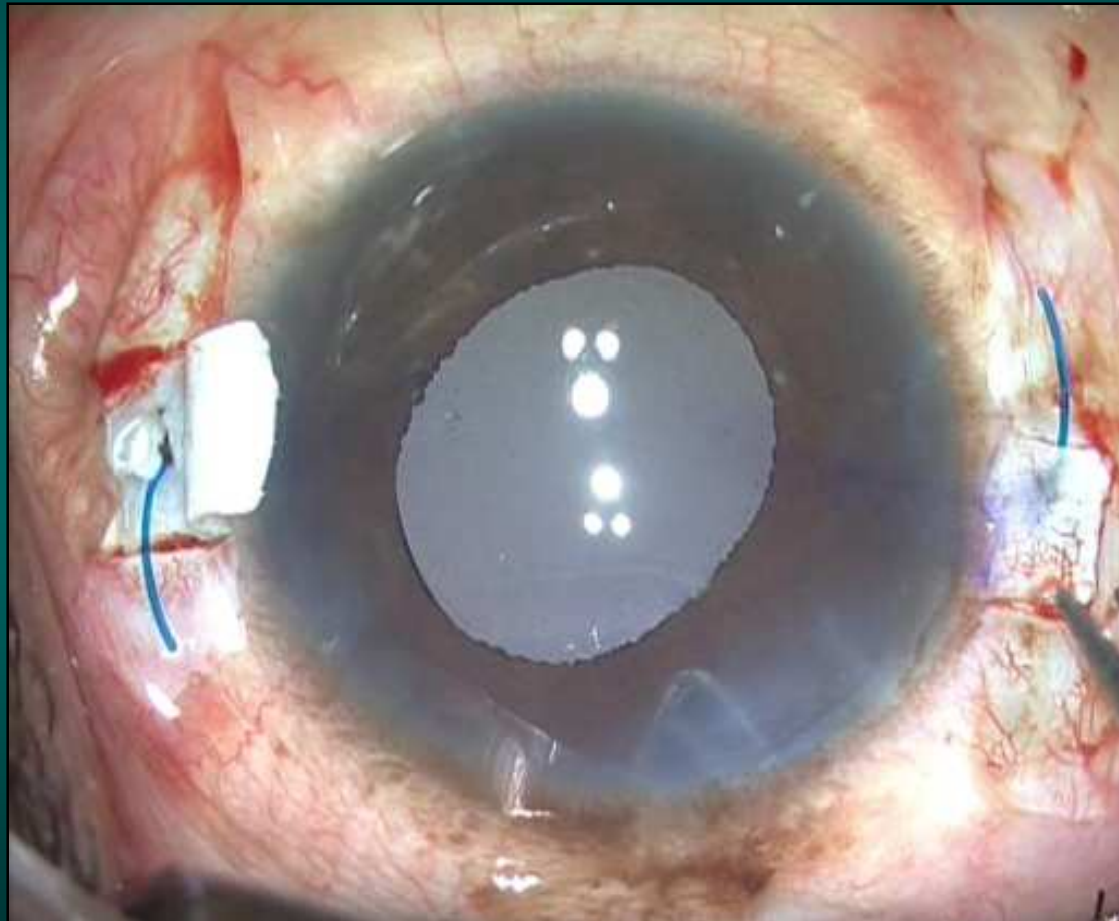


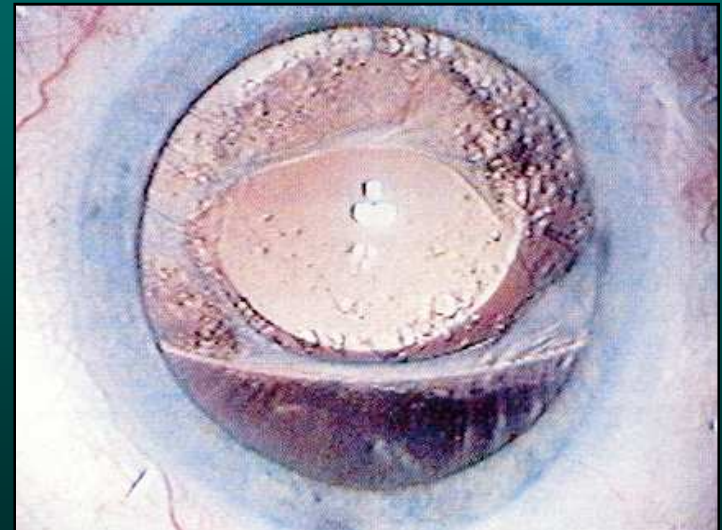
Figure Courtesy of Amar Agarwal, MD

Review

Review

Decentered IOL in the Bag

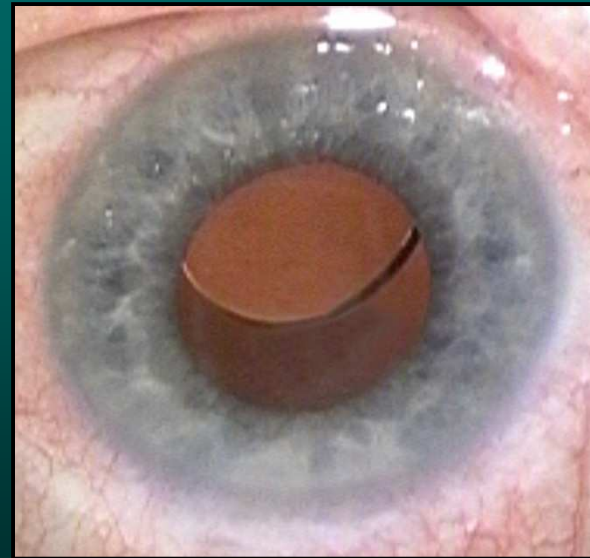
- Reposition first before YAG
- Avoid macular phototoxicity
- Blunt viscodissection
- 2-3 paracenteses



Review

Subluxed Without Capsular Support

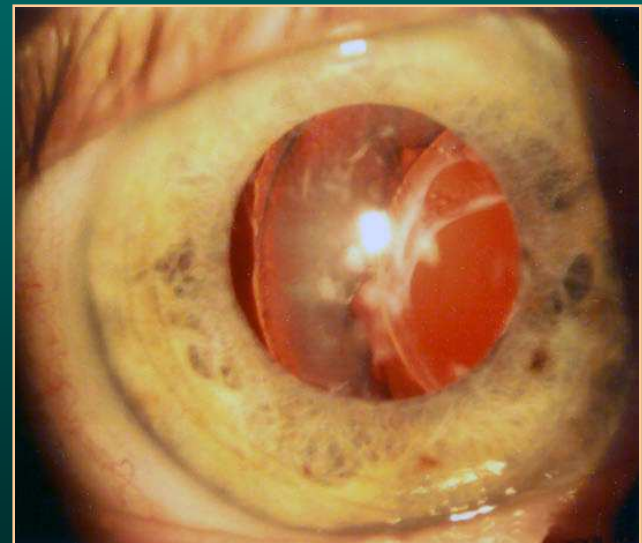
- Iris fixation
- Avoid macular phototoxicity
- 2-3 paracenteses



Review

IOL/ Bag Subluxation

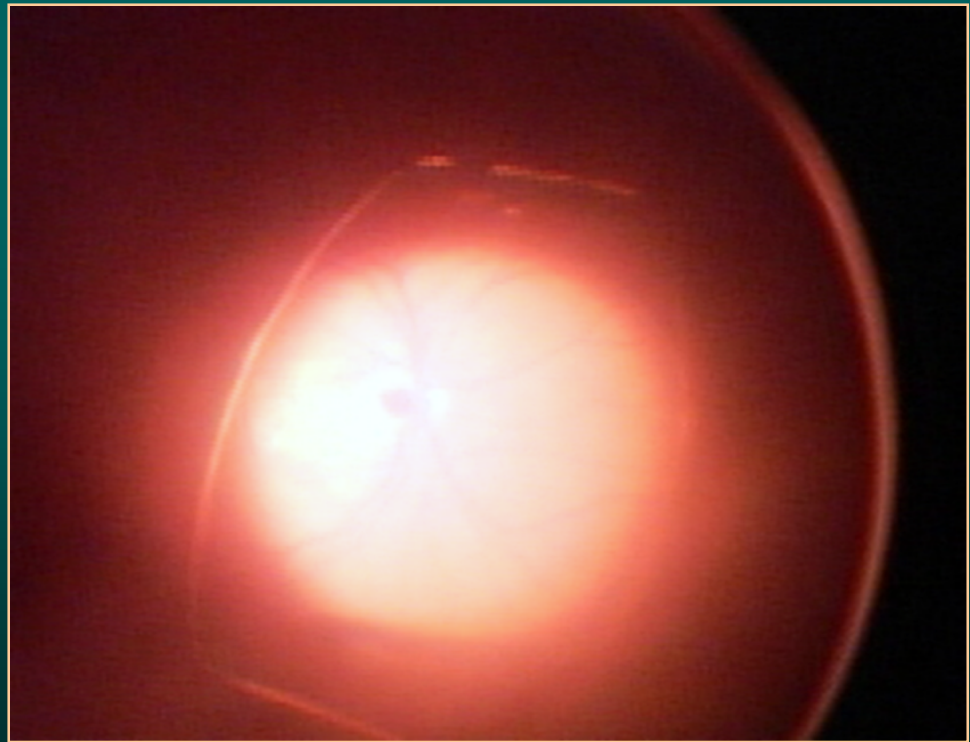
- Scleral fixation through the bag
- Facilitated if CTR in place
- Performed through 2 microincisions with 2 scleral pockets



Review

IOL Lying on the Retina

- Coordinate with your retina colleague



Good Luck !

DRs. FINE
CHOFFMAN
& PACKER
OPHTHALMOLOGISTS

Thank You

DRs. FINE
CHOFFMAN
& PACKER
OPHTHALMOLOGISTS