Cataract Postops Gone Bad!

Robert P. Wooldridge,OD,FAAO

1

Disclo$ure

- Speakers Bureau for Aerie, Bausch & Lomb, Glaukos, Ivantis, Reichert

2

When surgery goes well, postop care is easy! But…

- Surgery doesn't always go well and even when it does, some patients still develop postoperative problems
- Practice to your level of competence and comfort
- Don't hesitate to call surgeon for help
- Always tell patient "If you have any problems, like increasing pain or loss of vision, call us right away."

3

Postop Care of Cataract Patients

4

Post-op Vision Rule # 1

Always be able to account for the patient's VA!

5

Causes of Poor VA After Surgery

- Refraction
- Media Opacity
- Retinal Damage
  - Pre-existing
  - Acquired post op
- Optic Nerve damage
  - Pre-existing
  - Acquired post op
- Amblyopia-
  - Pre-existing

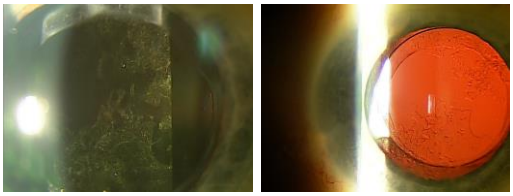
6

Posterior Capsule Opacification (PCO)

- Look AT and THROUGH Posterior Capsule
  - Gauge view of fundus
- Use retro illumination
- Test Contrast Sensitivity c/s glare
  - Also valuable for evaluating cataracts
- Vector Vision
- BAT
- M&S Screen

7

Posterior Capsule Opacity



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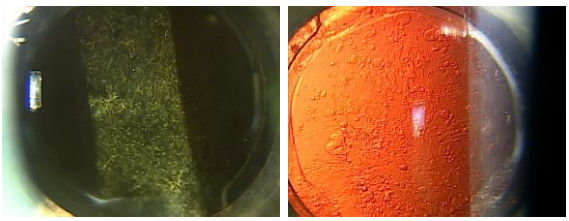
Posterior Capsule Opacification



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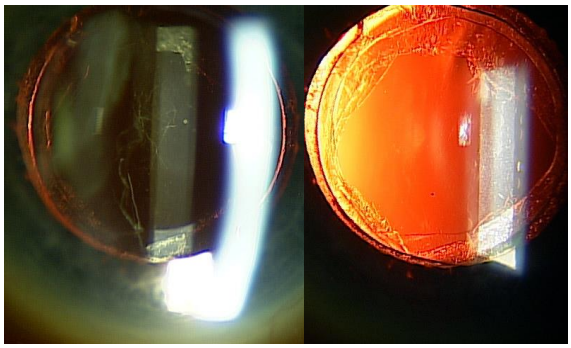

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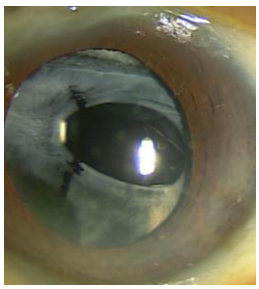
Capsular Phimosis

- AKA Anterior Capsule Contraction Syndrome[1]
- Contraction and fibrosis of the AC by metaplastic lens epithelial cells
- Risk factors
  - Small capsulorhexis
  - PXE, uveitis, etc
- Treatment
  - YAG Ant Capsulotomies
  - More effective if done sooner



1.Davison, J. A. Capsule contraction syndrome. J. Cataract Refract. Surg. 19, 582–9 (1993)

11

Residual Refractive Error

- Deferral of Toric IOL–residual astigmatism
- Inaccurate IOL power calculation
  - Inability to get good pre-op measurements
- Corneal edema/distortion
- Options for surgical correction
  - IOL exchange
  - Limbal Relaxing incision (LRI)
  - LASIK/PRK

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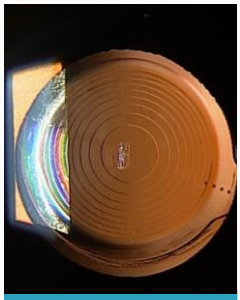
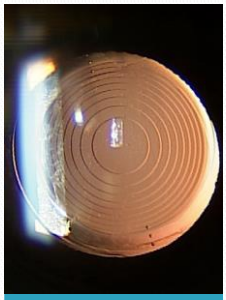
Toric IOL Off axis



Before repositioning



After repositioning

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Causes of Postop Pain

- Days 0-2
  - Betadine wash during surgery
  - Corneal abrasion
    - Lid speculum
  - Punctate keratitis
  - Very high IOP
- Days 2-4
  - Cornea usually healed
  - Endophthalmitis concern
    - Deep pain or FBS?
    - Loss of vision?

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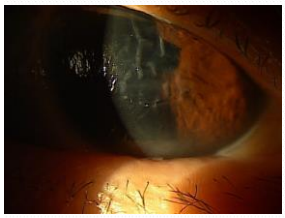
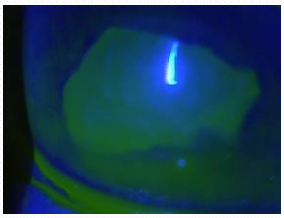
Corneal Abrasion





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Corneal Edema

- Normal vs. abnormal levels
  - Epithelial v. stromal?
- Possible causes
  - Hard nucleus
  - Extended surgery time, intra-operative complications
  - Corneal guttata
  - Elevated IOP

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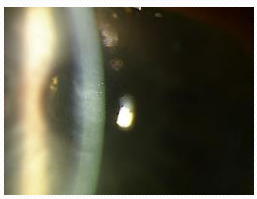
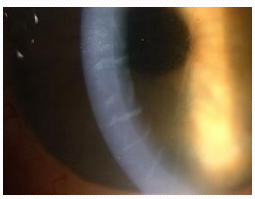
Stromal Edema



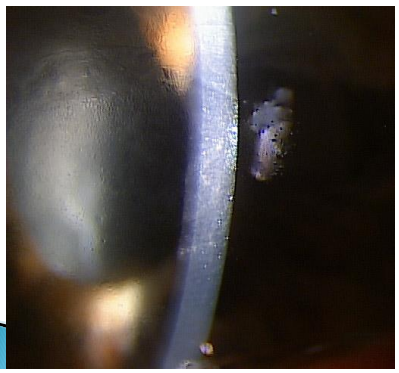
Endothelial folds



Thick stroma

17

Microcystic Epithelial Edema (MCE)



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Corneal Edema Management

- Management
  - Dependent on cause
  - Increase steroid dosage
  - Tincture of time
  - Possible surgery later
  - If caused by elevated IOP in early postop period
    - Burp the wound

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Elevated IOP-Possible Causes

- Early causes
  - Retained viscoelastic material
  - Inflammation
    - With/without retained lens material
  - Pre-existing glaucoma
- Late causes
  - Steroid response
  - Inflammation
    - With/without retained lens material

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Elevated IOP Management

- Mild elevation-topical meds
- Severe elevation- Wound Burping

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Burping the Wound

- Get consent
- Use Fluorescein
- Use sterile instruments
  - Punctal dilator
  - spactula
- Topical Ab
- Burp the PORT incision!!
  - NOT the primary temporal incision!
- Start slowly, CHECK IOP frequently!
- WATCH AC DEPTH
- If the AC is FLAT, you've gone too far!
- If the cornea is CONCAVE, you've gone too far!

22

Not Appropriate for Burping

- Needle/syringe
- Toothpick
- Swizzle stick
- Chop stick
- Plastic utensils
- Spork
- pencil

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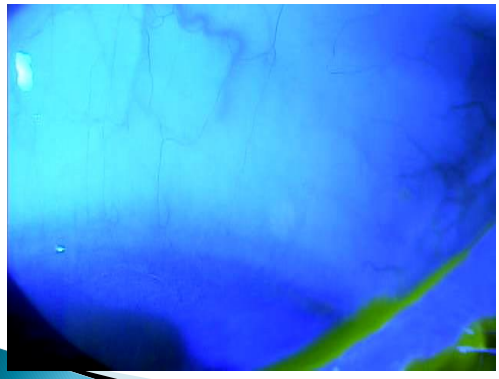

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What happens when a patient burps his/her own wound?

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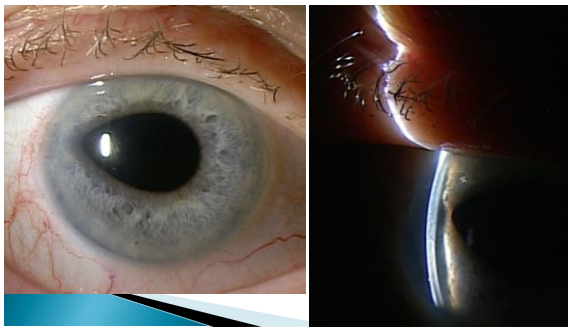
Peaked Pupil



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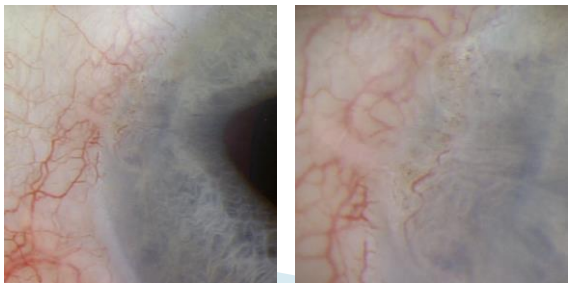
Peaked Pupil



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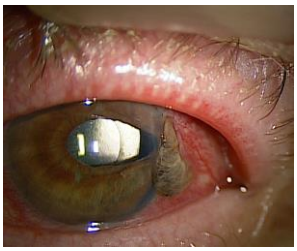
Lionel

- Returns from vacation
- Fell and struck LE 6 days ago
- No pain
- Only slight reduction
- in VA



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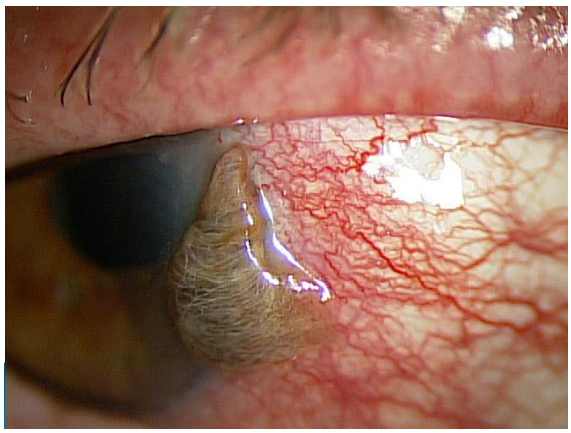

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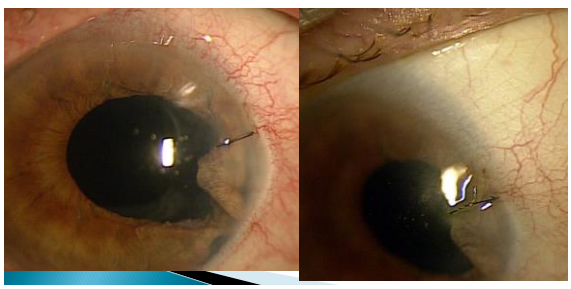
Post repair–Exposed suture



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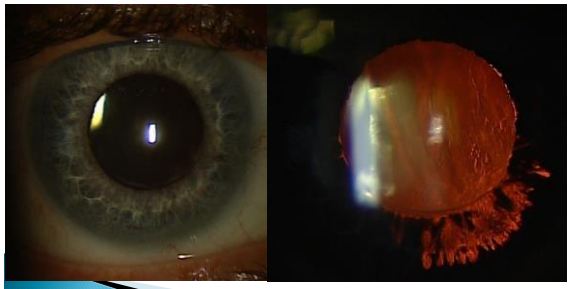
IOL haptic causing TID



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Waldo

- 73yo M monitored as pseudophakic glaucoma suspect
  - S/P PPV OU for retinal detachment
- Calls 9:00PM C/O sudden painless LOV OD
  - Cannot read but can count his fingers
- What to do?
  - Meet me at the office in 20 minutes
  - See me tomorrow AM
- Differential diagnosis?
  - Retinal detachment?
  - Vitreous hem?
  - CRVO?
  - CRAO?

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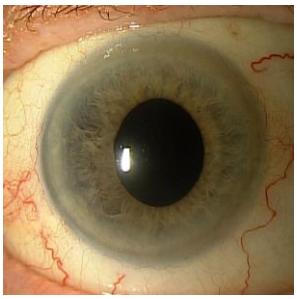
Waldo

- VA
  - R CF L 20/70
- CVF FTHM OD
  - FTFC OS
- Clues:
- Negative APD OU
- Refraction
  - OD + 10.75+0.75x 103
  - 20/30



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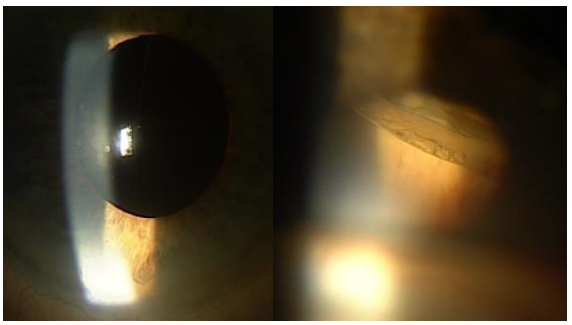
Where's Waldo's IOL?



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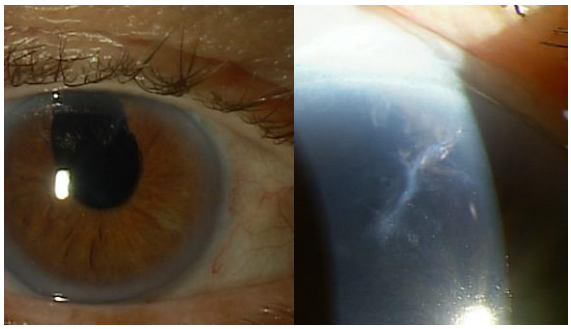
Randy Subluxed IOL after old penetrating injury



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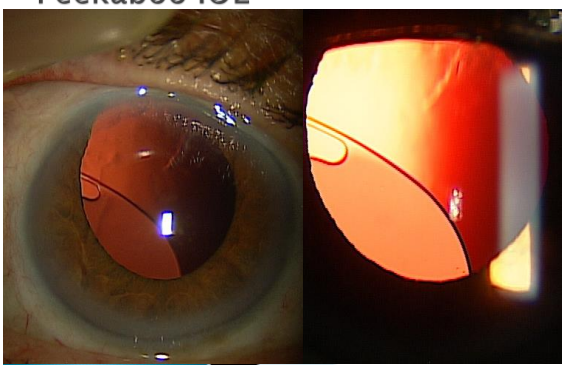
Peekaboo IOL



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Torn Posterior Capsule

- Causes
  - S—t happens
  - PXE–loose, fragile zonules
- Reposition in bag
  - With small tear

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IOL Repositioning Options

- Anterior Chamber IOL
- Iris sutured IOL
- Posterior sulcus
- Scleral sutured posterior chamber IOL
- Yamane technique
  - Intrascleral sutureless posterior chamber IOL[1]

1. Yamane S, Sato S, Maruyama-Inoue M, Kadonosono K. Flanged Intrascleral Intraocular Lens Fixation with Double-Needle Technique. Ophthalmology. 2017 Aug;124(8):1136-1142.

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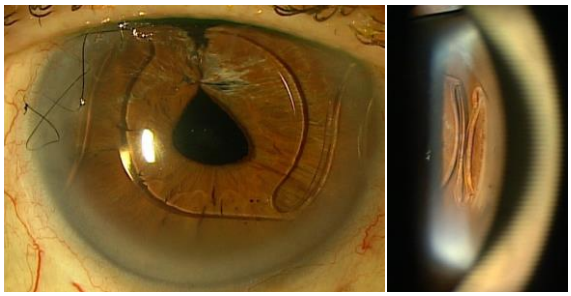
AC IOL with iris suture repair



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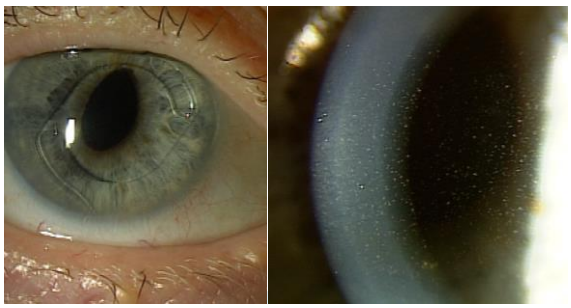
AC IOL



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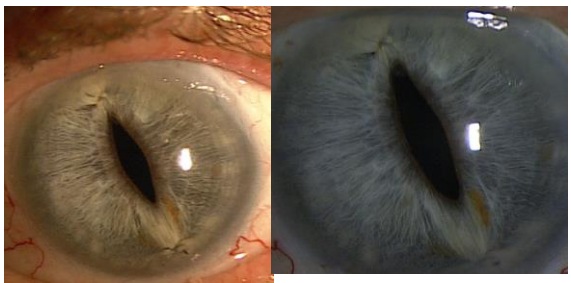
Iris-sutured IOL post-op



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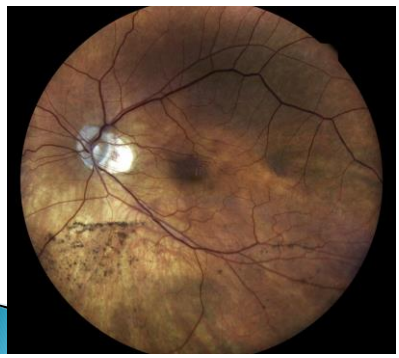
Ted Eidon Photo



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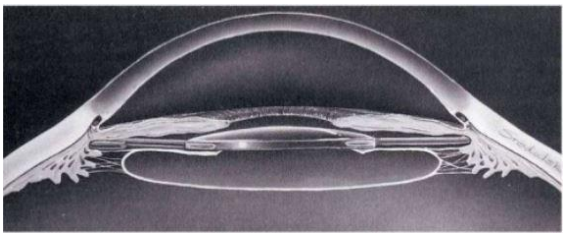
Sulcus Fixated IOL



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Shin Yamane, MD, PhD

- Department of Ophthalmology & Micro-technology Yokohama City University, Medical School, Yokohama, Japan

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Yamane Technique[1]

- Sutureless IOL fixation
- Haptics buried within sclera
- Requires specific IOL
  - C2 Lucia 602 Lens (Zeiss)
  - polyvinylidene fluoride (PVDF) haptics
- Thread haptics inside needle in AC
- Pull needle with haptics into sclera
- Cauterize haptic tip
- Bury haptic in sclera

1. Yamane S, Sato S, Maruyama-Inoue M, Kadonosono K. Flanged Intrascleral Intraocular Lens Fixation with Double-Needle Technique. Ophthalmology. 2017 Aug;124(8):1136-1142.

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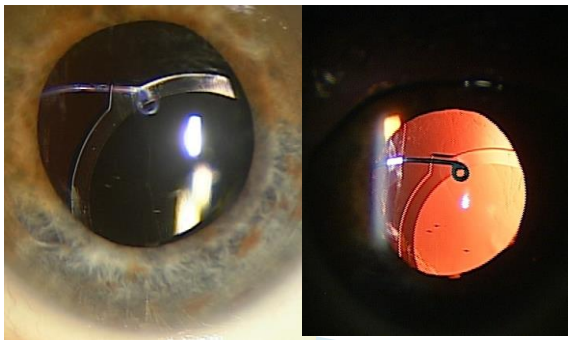
Subluxed IOL Repair



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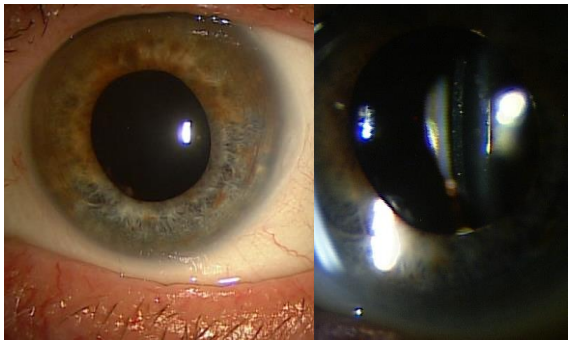
Post Repair 8/06/2019



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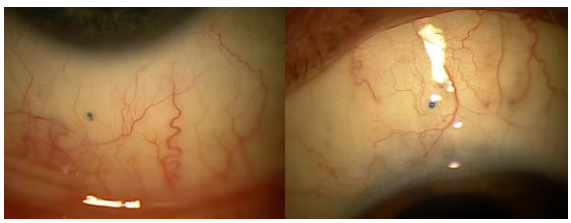
Yamane Technique: scleral-fixated haptics



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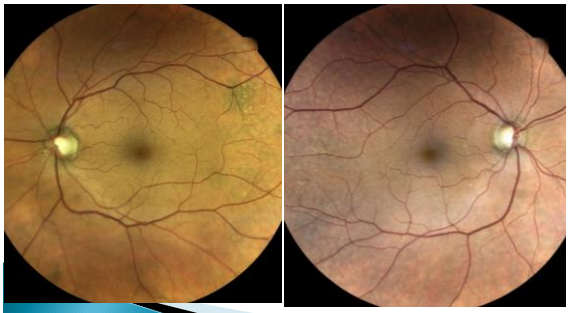
What's wrong with these pictures?



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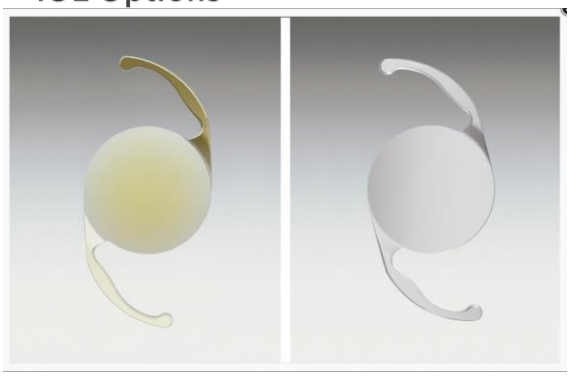
IOL Options



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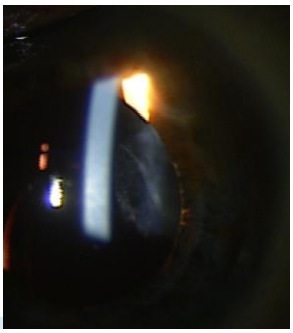
Vitreous Prolapse

- Accompanies torn posterior capsule and/or broken zonules
- Check for
  - vitreous to wound
  - Vitreous/corneal touch
- Treatment
  - Usually just monitor
  - (+/–) Anterior vitrectomy



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Retained Lens Material

- Where is it?
  - Ant chamber
  - Vitreous
- What is it?
  - Cortex or nucleus?
  - Cortex more easily resorbed
- Complications
  - Inflammation
  - Increased IOP
  - Corneal endothelium damage with nucleus in AC

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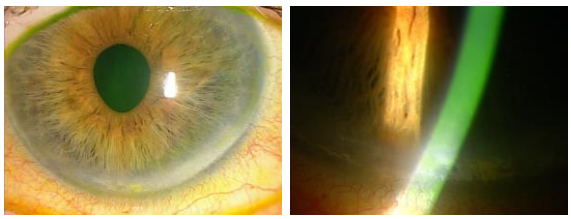
Ranae



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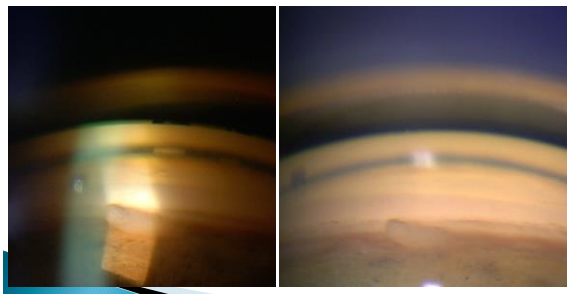
Ranae



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Marie

- 1 day post phaco/IOL
  - VA sc 20/50
  - 2+ Pek 3+ AC cells
  - IOP 42
  - Burped wound
- Day 2
  - VA 20/40- IOP 50; AC 1+ cells
  - Burped wound IOP 13
  - Add Travatan, Simbrinza
- Day 5
  - VA 20/30 IOP 40
  - Burped wound
  - DFE: reveals retained lens cortex
  - Surgical consult: removed retained cortex

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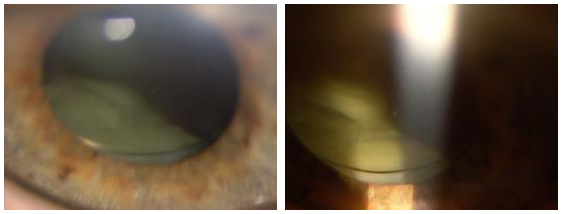
Fluffy Cortex posterior to IOL



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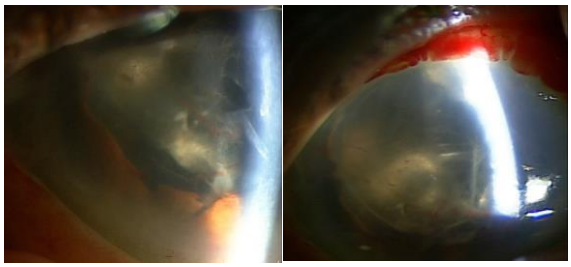
Retained Lens Material (Dora)



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RLM-Treatment Options

- Consult surgeon
  - Send photos
- Manage inflammation
  - Durezol QID
- Manage IOP
  - Medicate as necessary
  - PGA not the first choice
- Surgical removal if necessary
  - Based on lens material, complications

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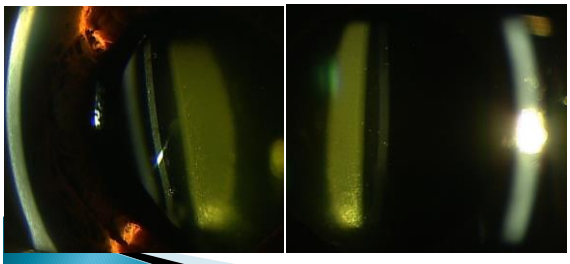
What's wrong with this IOL?



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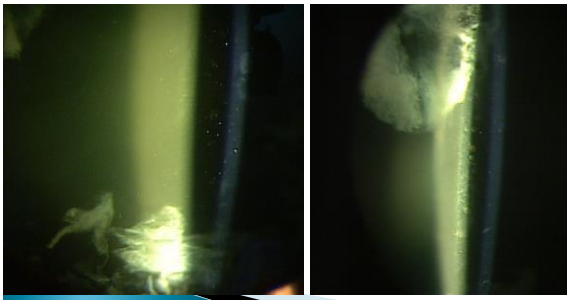
Alia OD



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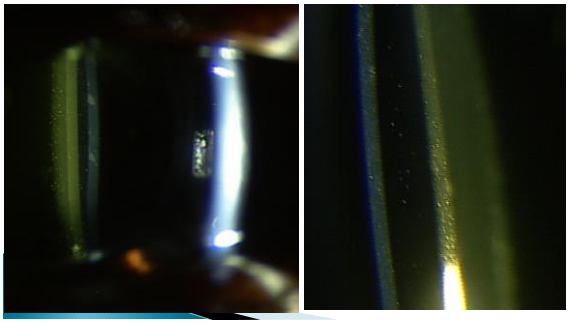
Alia OS



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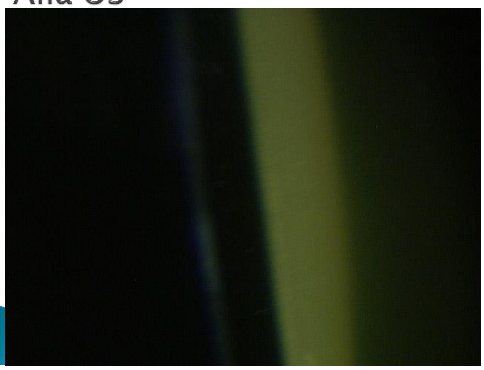
Alia OS



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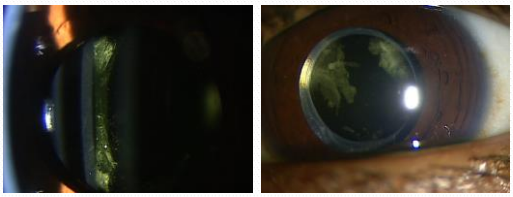
Alia Post YAG OU



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Larry

- Phaco/IOL 4/27/17
  - Post cap tear during surgery
  - Iris damage
  - Monitored by MD until 5/5/17
  - Referred to retinal specialist
- Sees me 5/15/17
  - VA 20/400 IOP 53
  - Azopt, Combigan, Diamox administered in-office
  - Referred for surgical repair

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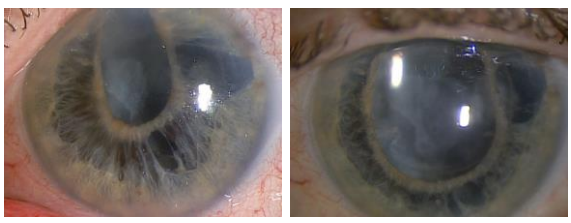
Larry



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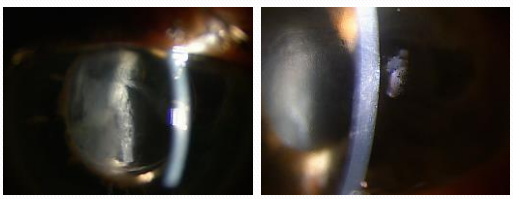
Larry



Retained lens material | MCE due to high IOP

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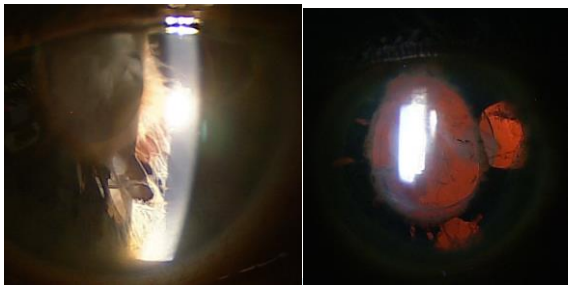
Iris Trauma



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Surgical Repair

- Vitreoretinal surgeon
  - Pars plans vitrectomy
  - Removal of retained lens material in vitreous and posterior capsule
- Anterior segment surgeon
- Positioned IOL
- Removed lens material in AC
- Sutured iris

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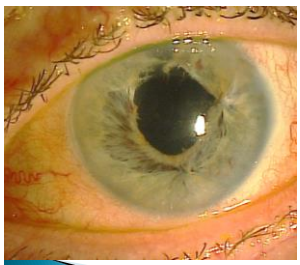
Larry Post Repair



- VA 20/20
- Persistently elevated IOP
- Managed with topical meds
- Quiet eye

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Iris Damage

- Mild, moderate or severe
  - Mild-common, inconsequential
  - Moderate-probably no treatment necessary
  - Severe-Mgt dependent on symptoms
- Options for management
  - Nothing
  - Reposition IOL if necessary
  - Iris suture if severe
  - Artificial iris?

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Intraoperative Floppy Iris Syndrome (IFIS)

- Small pupil syndrome initially described by Chang and Campbell in 2005
- Triad of
  - floppiness or billowing of the iris,
  - progressive intraoperative miosis and
  - iris prolapse through the surgical wounds
- Occurs in about 2% of cataract surgeries in the US
- Can occur in men OR WOMEN
- HTN is an independent risk factor

1.Enright J et al Curr Opin Ophthalmol 2017, 28:29-34
2. Chang DF, Campbell JR. J Cat Ref Surg 2005; 31:664-673.

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Complications

- Short-term complications
  - Increased rates of posterior capsule rupture, vitreous loss, retained nuclear fragments, postoperative intraocular pressure spikes, iridodialysis, hyphema, and corneal endothelial loss
- Long-term consequences
  - permanent pupil deformity, and vision loss secondary to endophthalmitis, macular edema, or retinal detachment.

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Alpha-1 antagonists

- tamsulosin (Flomax and Jalyn),
- silodosin (Rapaflo),
- alfuzosin (Uroxatral),
- doxazosin (Cardura)
- terazosin (Hytrin)
- prazosin (Minipress)
- Notably, gender, race, and diabetes are not independent risk factors for IFIS.

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Agents with possible association

- Neuromodulators
  - benzodiazepines,
  - duloxetine (Cymbalta, a serotonin-norepinephrine reuptake inhibitor [SNRI])
  - donepezil (Aricept, acetocholinesterase inhibitor)
- Other agents
  - finasteride (Propecia, 5a-reductase inhibitor)
  - beta blockers labetalol and carvedilol

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IFIS in Women

- Tamsulosin used for chronic urinary retention and off-label to facilitate passage of urinary stones in both men and women
- IFIS has been associated with antipsychotic medications and hypertension, which may affect either gender.

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IFIS Pre-operative Management

- Male and female patients should be asked about current or prior use of a1-antagonists, particularly tamsulosin (Flomax, Jalyn), but also alfuzosin (Uroxatral), doxazosin (Cardura), terazosin (Hytrin), and prazosin (Minipress)
- Antipsychotics with a1- antagonist activity, including chlorpromazine (Thorazine), zuclopenthixol (Clopixol), and quetiapine (Seroquel)
- **Discontinuing tamsulosin does not reduce the risk of IFIS!**
  - **No need to discontinue it**

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Pre-operative Management

- Poor preoperative dilation is associated with IFIS and should be noted,
  - although IFIS can occur in the setting of normal preoperative dilation.
- Atropine 1% TID x 2 days prior to surgery
  - *May* help decrease intra-operative miosis

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Intra-operative Management

- Intracameral epinephrine and phenylephrine reduce iris floppiness and promote pupillary dilation
- Ophthalmic viscosurgical devices
  - Healon, Viscoat, etc
- Iris retractors and pupil expanders

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Post-operative Management

- Depends on postop complications
- Combination agents for increased IOP
  - Acetazolamide short-term if necessary
  - Avoid prostaglandins if possible
- Avoid burping wound!
- Increase steroid for inflammation
- Shield while sleeping
- Avoid pressing on eye

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Endophthalmitis Stats[1]

- Systematic English literature review 1963-2003
- Overall incidence 0.128%
- Increasing since 2000
  - 1970's: 0.327%
  - 1980's: 0.158%
  - 1990's: 0.087%
  - 2000-2003: 0.265%
- Incision type has impact
  - clear corneal cataract extraction (1992- 2003) 0.189%
  - scleral incision 0.074% (relative risk, 2.55 [95% confidence interval, 1.75-3.71])
  - Limbal incision: 0.062% (relative risk, 3.06 [95% confidence interval, 2.48-3.76]) for limbal incision.

1.Mehran T; Behrens A; Newcomb R Arch Ophthalmol. 2005;123:613-620

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Bascom Palmer Experience 2000-2004

- Incidence:0.04% (7/15,920) for cataract surgeries of all methods,
- Clear cornea 0.05% (6/11,462)
- cataract surgery by methods other than clear cornea 0.02% (1/4,458)
  - (P = .681, Fisher's exact test).
- Potential risk factors for endophthalmitis may include intraoperative complications, relative immune compromise, application of lidocaine 2% gel before povidone-iodine preparation, and inferior incision location

AJO 2005 139:6, 983-987

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Endophthalmitis

- Timing
  - Day 2-4 post op
  - Later onset possible
- Signs/Symptoms
  - Decreased VA
  - Pain
  - Redness
  - Increasing symptoms post surgery
  - Increasing/severe AC cells/flare
  - Vitreous cells
    - Examination of vitreous

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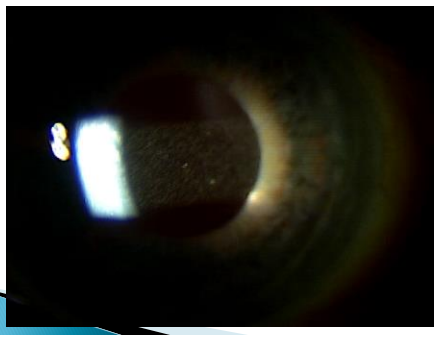
AC 4+ Cells 2+ Flare



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Management

- Immediate call to phaco surgeon and referral to retinal specialist
- Likely vitreous tap with culture
- Intravitreal injection antibiotics
- Possible vitrectomy with AB's

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What have we learned?

- Myriad of possible postop. complications
  - Mild, moderate, severe
- We can handle many of them
- Careful observation/frequent FU is critical with potentially serious findings
- Good communication is key
  - With patients
  - With surgeons
- Always tell patient "If you have any problems, like increasing pain or loss of vision, call us right away."
- BE AVAILABLE TO OUR PATIENTS 24/7

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