



**SOUTHERN EYE CONGRESS 2022**

**FLOPPY BAGS AND FALLING LENSES:  
MANAGING THE DISLOCATED LENS**

**D. Brian Kim, M.D.**  
Professional Eye Associates, Dalton, Georgia  
Clinical Assistant Professor of Ophthalmology  
Medical College of Georgia






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**SOUTHERN EYE CONGRESS 2022**

**FINANCIAL DISCLOSURES**  
Corza/Katena (consultant)  
Tarsus (consultant)  
Ocuphire (consultant)






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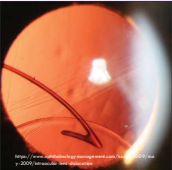
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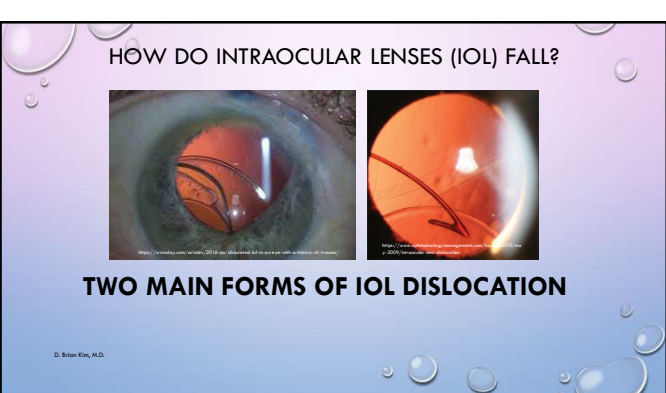
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**HOW DO INTRAOCULAR LENSES (IOL) FALL?**

**TWO MAIN FORMS OF IOL DISLOCATION**

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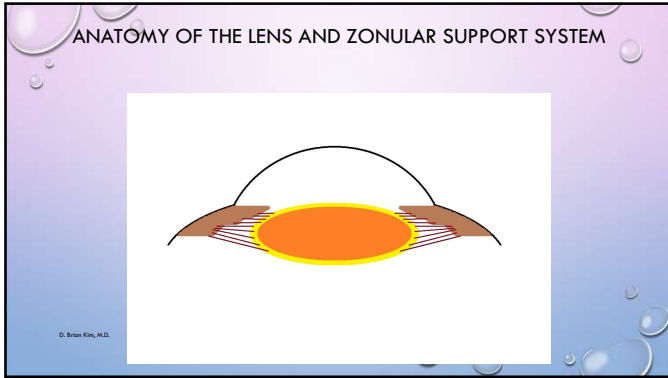
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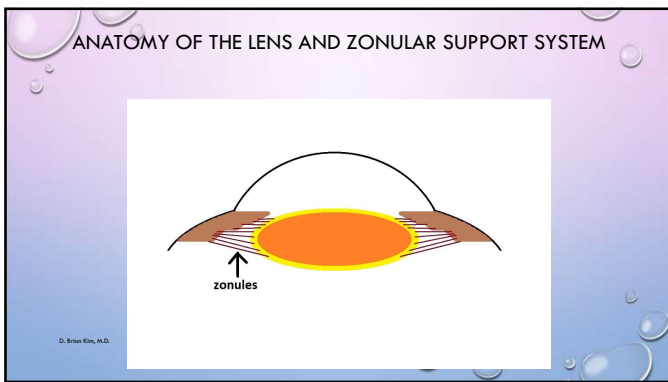
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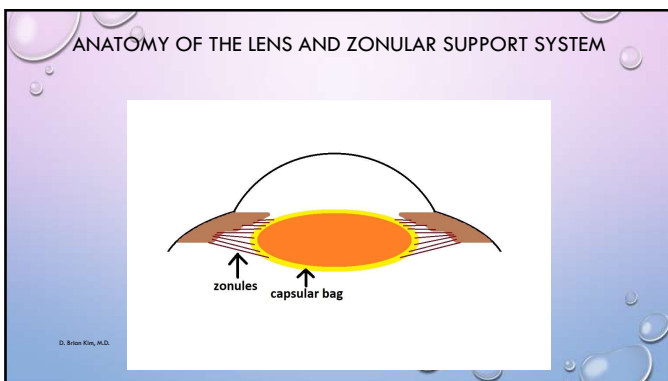
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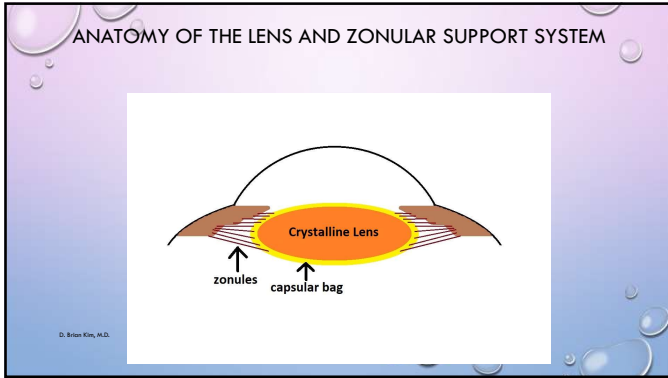
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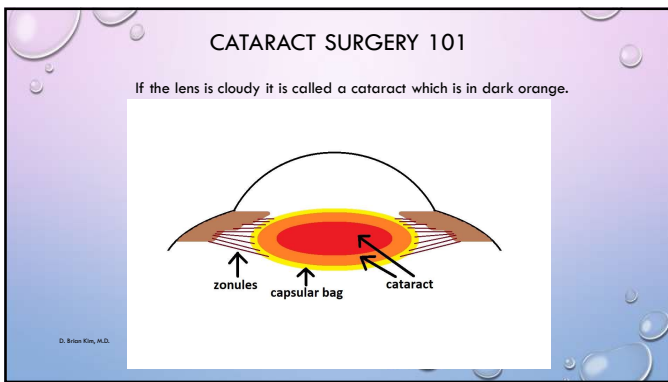
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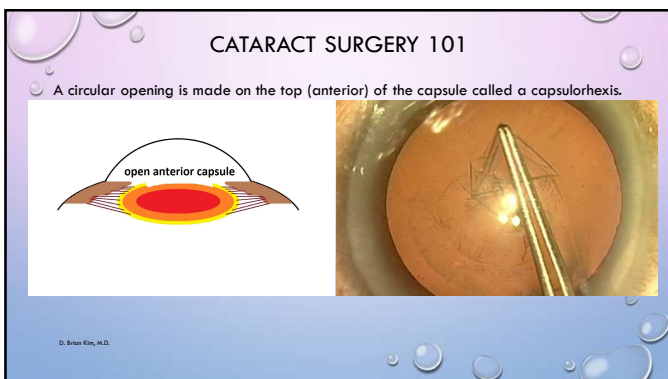
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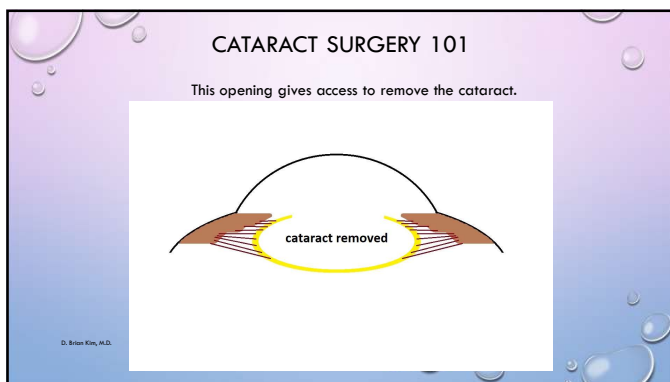
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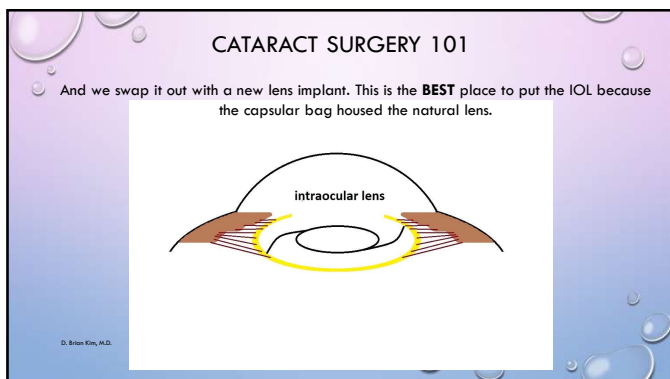
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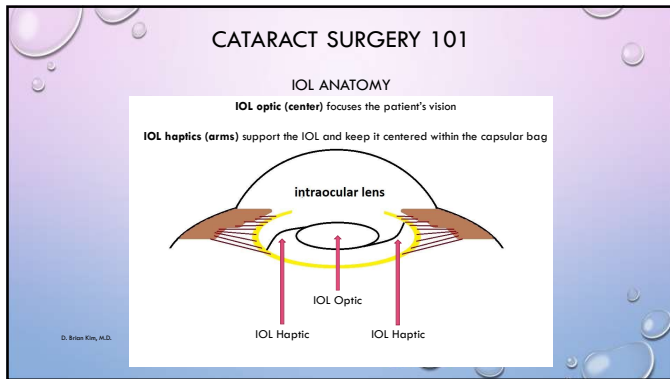
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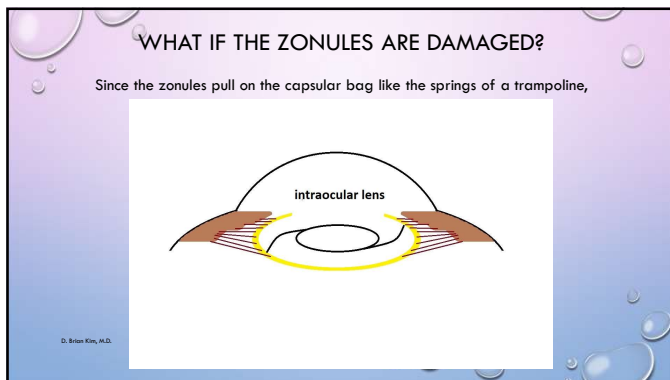
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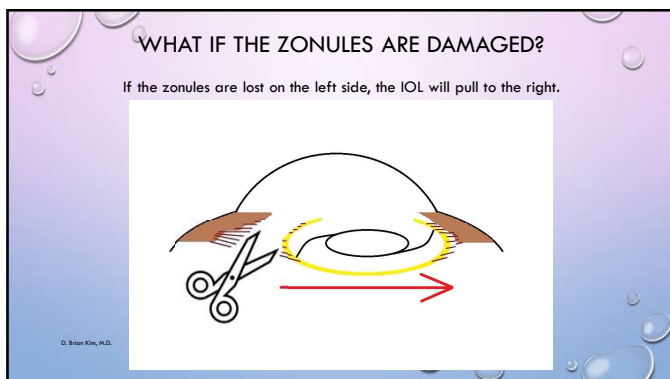
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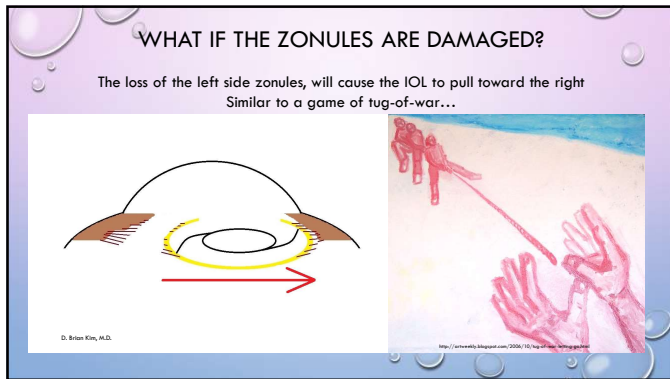
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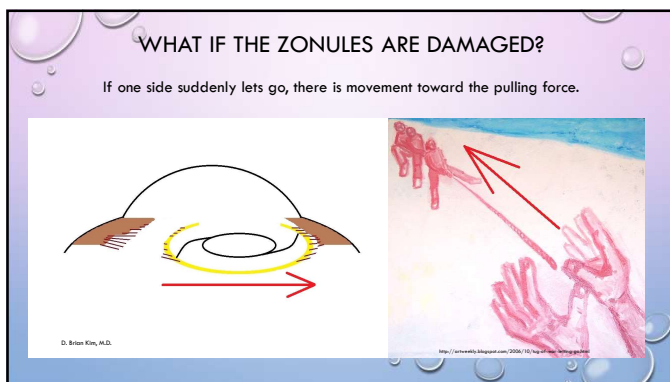
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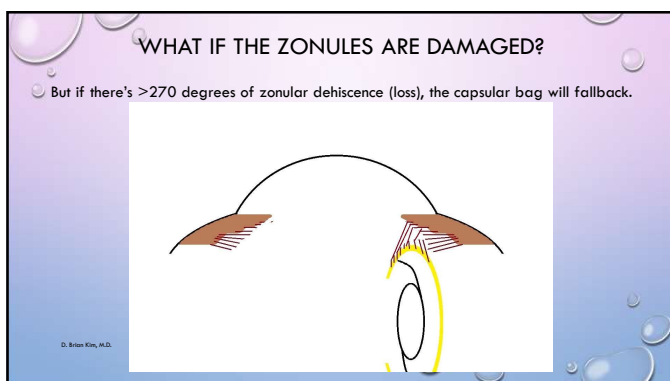
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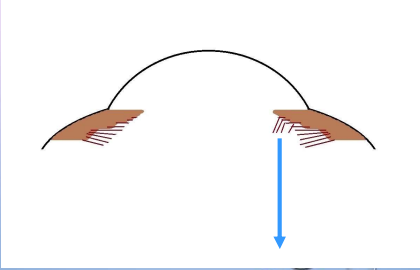
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### WHAT IF THE ZONULES ARE DAMAGED?

And if all the zonules separate, the IOL will descend into the vitreous space.



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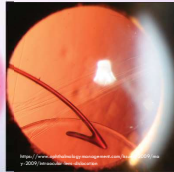
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### HOW DO INTRAOCULAR LENSES FALL?

#### SCENARIO 1



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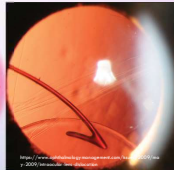
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### HOW DO INTRAOCULAR LENSES FALL?

#### SCENARIO 1



- There is complete Zonular Detachment (separation of zonules from capsular bag)
- Both the IOL and capsular bag are dislocating

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### HOW DO INTRAOCULAR LENSES FALL?

#### SCENARIO 1



**IOL Optic**

- There is complete Zonular Dehiscence (separation of zonules from capsular bag)
- Both the IOL and capsular bag are dislocating

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### HOW DO INTRAOCULAR LENSES FALL?

#### SCENARIO 1



**IOL Optic**      **IOL Haptic**

- There is complete Zonular Dehiscence (separation of zonules from capsular bag)
- Both the IOL and capsular bag are dislocating

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### HOW DO INTRAOCULAR LENSES FALL?

#### SCENARIO 1



**Capsular Tension Ring**      **IOL Haptic**

**IOL Optic**

- There is complete Zonular Dehiscence (separation of zonules from capsular bag)
- Both the IOL and capsular bag are dislocating

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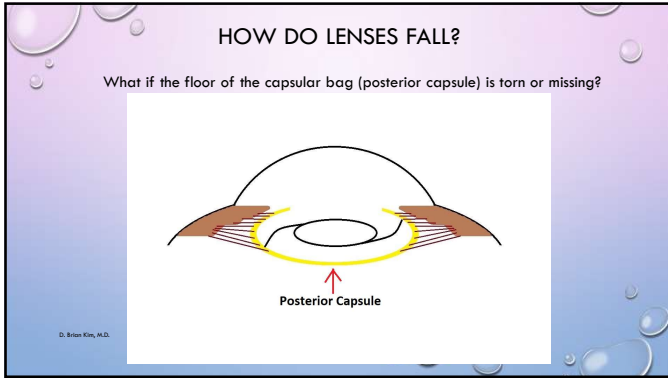
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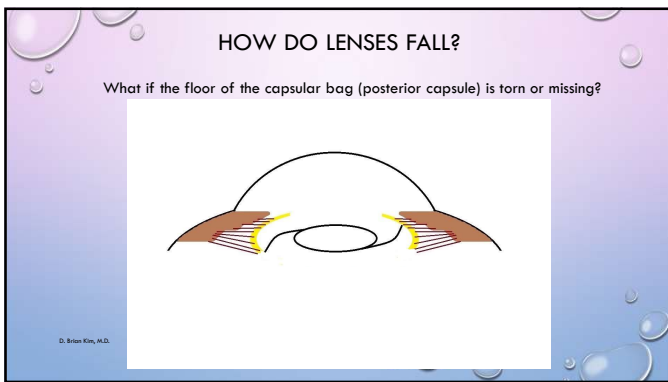
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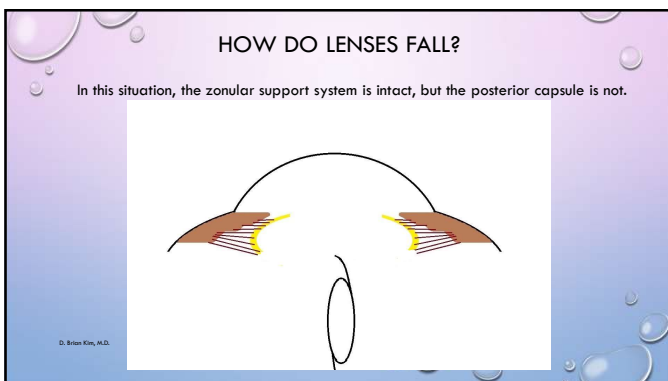
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### WHY DO LENSES FALL?

#### SCENARIO 1: IOL/CAPSULAR BAG DISLOCATION

- IOL/ZONULAR AND CAPSULAR BAG DISLOCATION
  - Trauma
  - Prior vitreoretinal surgery
  - Hypermatre cataract
  - Pseudoxfoliation syndrome
  - Advanced age
  - Aniridia
  - Congenital glaucoma
  - Syphilis
  - Retinitis pigmentosa
  - Intraocular tumor
  - Axenfeld Rieger syndrome
  - Megalocornea
  - Ectopia lentis syndromes (e.g. Marfan)



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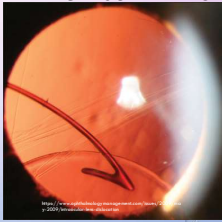
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### WHY DO LENSES FALL?

#### SCENARIO 2: IOL FALLS THROUGH A HOLE IN THE CAPSULAR BAG

- IOL DISLOCATION THROUGH POSTERIOR CAPSULE DEFECT
  - Cataract surgery complication (posterior capsule rupture, vitrectomy)
  - Prior vitreoretinal surgery
  - Prior intravitreal injections (Avastin, Lucentis, Eylea, Ozurdex)
  - Too large yag laser capsulotomy opening



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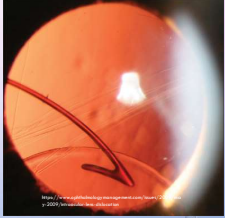
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#### SCENARIO 2: IOL FALLS THROUGH A HOLE IN THE CAPSULAR BAG

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**IOL IS PLACED WHEN THE CAPSULAR BAG IS NOT STABLE**

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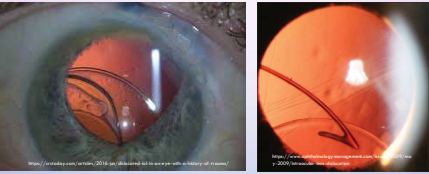
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### SO HOW DO WE FIX THESE?



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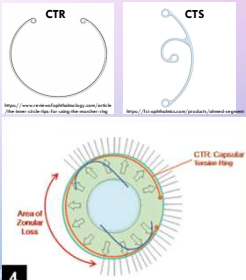
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### SAVE THE CAPSULAR BAG WHENEVER POSSIBLE

THESE DEVICES SUPPORT AND STABILIZE THE CAPSULAR BAG

- Capsular Tension Ring (CTR), 360 degrees of support
  - Mild zonular weakness
- Capsular Tension Segment (CTS) using in combination with anchoring to scleral wall
  - Severe zonular weakness and dislocation
  - 9-0 polypropylene suture (can degrade if exposed)
  - 8-0 Gore-Tex (strong but off-label)
  - 6-0 polypropylene suture (cauterize tip to create flange)



**4**

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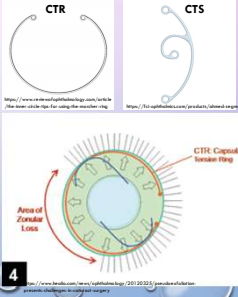
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**BOTTOMLINE: THESE DEVICES HELP TO SUPPORT WEAK ZONULES**



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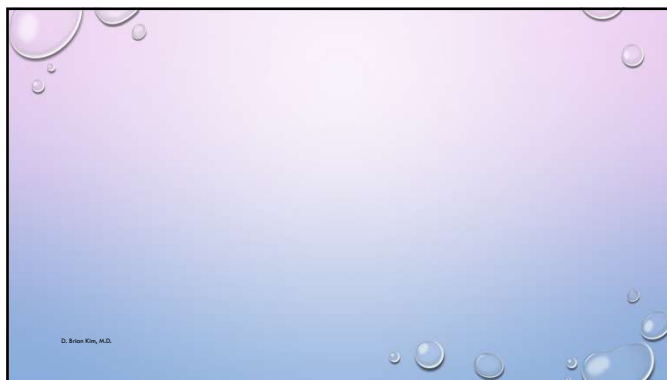
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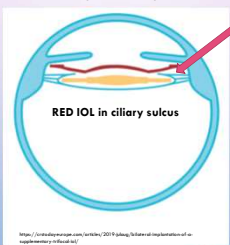
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### WHAT IF THE ZONULES ARE FINE?

- But there's a hole in the posterior capsule. The IOL can be placed on top of the bag but behind the iris, which is a small plane of space called the ciliary sulcus



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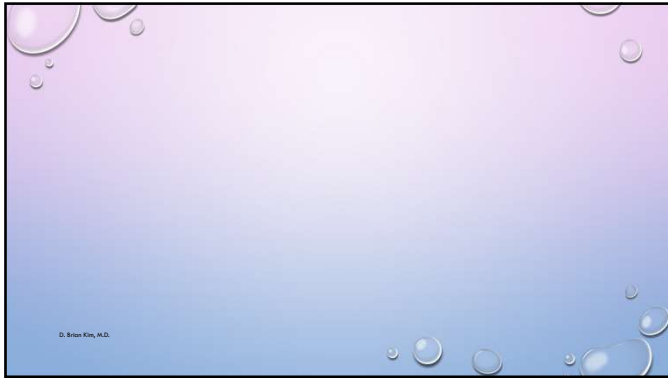
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**WHAT IF THE ZONULES ARE FINE?**

- But there's a hole in the PC & the capsulorhexis is round, well centered, and  $<6\text{mm}$ , the IOL can be placed in:
  - optic capture: haptics in sulcus, optic in bag
  - reverse optic capture: haptics in bag, optic in sulcus

<https://www.asas.org/teacha/Intracapsular-lens-capture>

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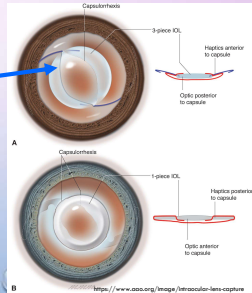
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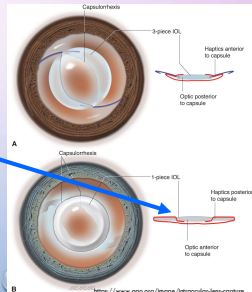
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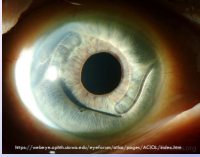
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### WHAT IF THE CAPSULAR BAG IS LOST?

- Anterior Chamber IOL (ACIOL): IOL is in front of the iris & in the angle
  - Benefits
    - Technically easier surgical option
  - Risks
    - Corneal decompensation
    - Glaucoma
    - Chronic pain syndrome
    - Chronic cystoid macular edema
    - Uveitis-Glaucoma-Hyphema (UGH) syndrome



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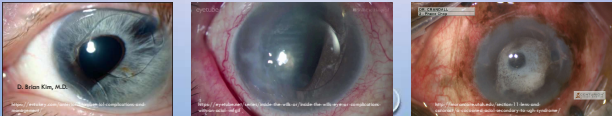
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**THIS IS NOT MY PREFERRED TECHNIQUE IN YOUNG PATIENTS**



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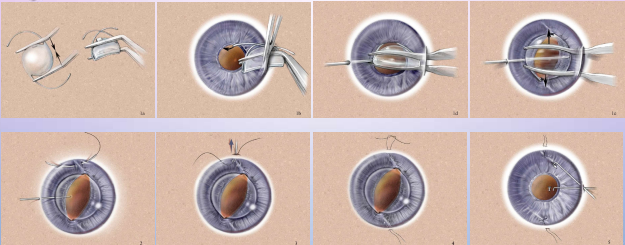
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### WHAT IF THE CAPSULAR BAG IS LOST?

- Iris-Sutured posterior chamber IOL (PCIOL)



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<https://www.eyeworld.org/article-iris-fixated>

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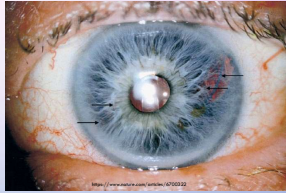
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## WHAT IF THE CAPSULAR BAG IS LOST?

### • IRIS-SUTURED PCIOL

- Benefits
  - Technically easier to perform
- Risks
  - Pupil Distortion
  - Corneal decompensation
  - Glaucoma
  - Chronic cystoid macular edema
  - Uveitis-Glaucoma-Hyphema (UGH) syndrome
  - Iris Transillumination defects (TIDs)
  - Suture breakage or late haptic slip can cause IOL dislocation



**THIS IS NOT MY PREFERRED TECHNIQUE BECAUSE ANCHORING THE IOL TO IRIS IS NOT STABLE**

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## WHAT IF THE CAPSULAR BAG IS LOST?

### • IRIS-CLAW ACIOL or PCIOL

- Benefits
  - Technically easier surgical option
  - Can claw from the front or back
- Risks: chafing of the iris against the IOL
  - Can cause pupil distortion
  - Corneal decompensation
  - Glaucoma
  - Chronic cystoid macular edema
  - Uveitis-Glaucoma-Hyphema (UGH) syndrome
  - Iris Transillumination defects (TIDs)
  - AC dislocation → damage the cornea
  - PC dislocation → fall into the vitreous space



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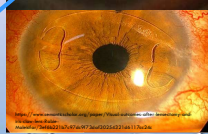
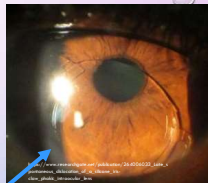
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  - Glaucoma
  - Chronic cystoid macular edema
  - Uveitis-Glaucoma-Hyphema (UGH) syndrome
  - Iris Transillumination defects (TIDs)
  - AC dislocation → damage the cornea
  - PC dislocation → fall into the vitreous space



**NOT AVAILABLE IN THE U.S. BUT I'VE SEEN CASES OF THE CLAW SLIPPING OFF AND THE LENS FALLS**

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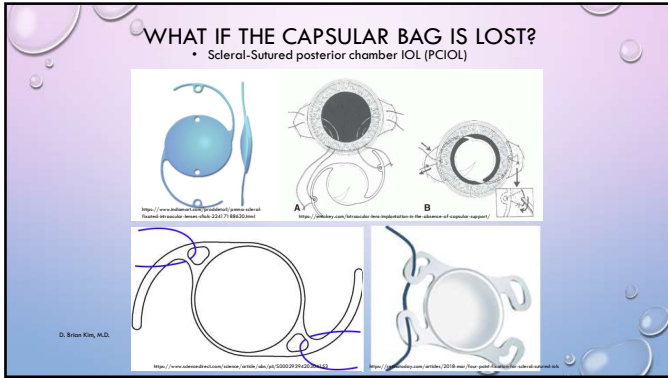
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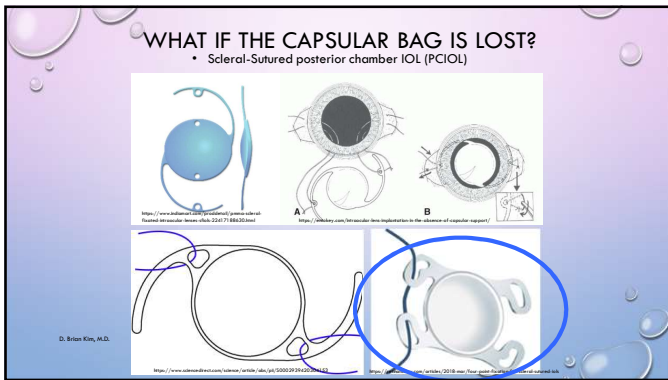
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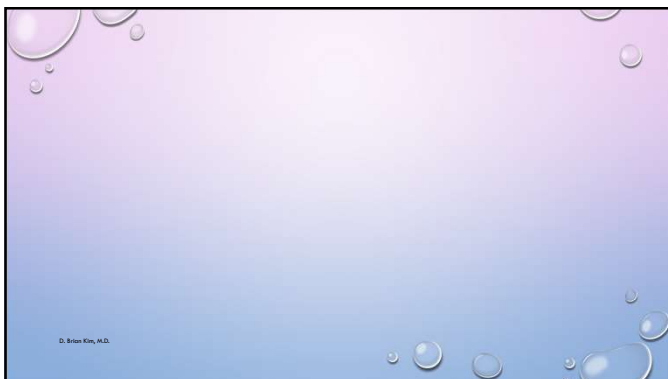
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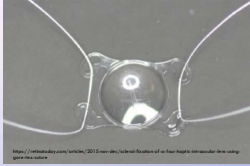
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### WHAT IF THE CAPSULAR BAG IS LOST?

- SCLERAL-SUTURED PCIOL
  - Benefits
    - Can perform 4 point fixation which is more stable
    - Unlikely to dislocate
    - Gore-Tex suture is very secure and less likely to break long-term
  - Risks:
    - Hydrophilic IOL material can opacity if exposed to gas or air such as with vitreoretinal surgery or corneal transplant (DSAEK or DMEK)
    - Spaghetti surgery: lots of sutures. Cumbersome.
    - Glaucoma
    - Chronic cystoid macular edema



https://www.researchgate.net/publication/351121102\_Sutureless-Intraocular-Fixation-of-a-New-Design-Intraocular-Lens-using-Gore-Tex-Sutures

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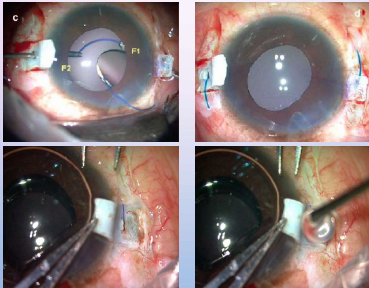
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### WHAT IF THE CAPSULAR BAG IS LOST?

- Sutureless Scleral Fixated Glued IOL Technique



https://www.eyeworld.org/article-a-step-by-step-approach-to-the-glued-iol

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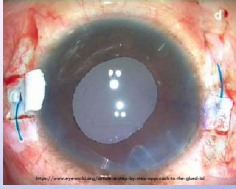
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### WHAT IF THE CAPSULAR BAG IS LOST?

- SUTURELESS SCLERAL-FIXATED GLUED PCIOI
  - Benefits
    - No sutures
    - Scleral flap provides stable platform for haptics
  - Risks
    - Technically more difficult
    - **More surgical steps**
    - Glaucoma
    - Chronic cystoid macular edema
    - Uveitis-Glaucoma-Hypohemia (UGH) syndrome
    - **Late dislocation**



**THIS IS NOT MY PREFERRED TECHNIQUE BECAUSE IT TAKES A LOT OF TIME AND I HAVE SEEN LATE DISLOCATION.**

D. Brian Kim, M.D.

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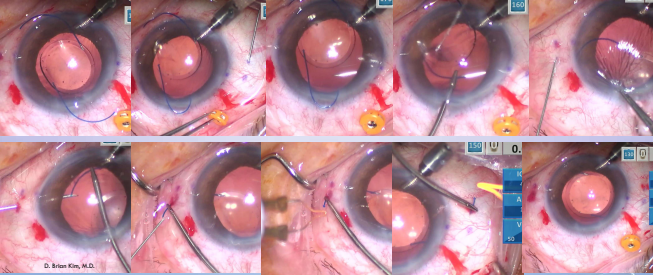
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### WHAT IF THE CAPSULAR BAG IS LOST?

- Sutureless Scleral Fixated IOL Modified Yamane Technique



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## WHAT IF THE CAPSULAR BAG IS LOST?

- SUTURELESS YAMANE SCLERAL-FIXATED PCIOI
  - Benefits
    - No sutures
    - Less surgical manipulation: no flaps, no sutures
    - Very stable scleral fixation
  - Risks
    - Technically more difficult
    - **Requires delicate handling of haptics**
    - **Potential late risk of haptic extrusion and infection**
    - Glaucoma
    - Chronic cystoid macular edema
    - Uveitis-Glaucoma-Hyphema (UGH) syndrome

**THIS IS MY PREFERRED TECHNIQUE BECAUSE IT IS EFFICIENT AND STABLE.  
AND I HAVE NOT SEEN ANY SERIOUS COMPLICATIONS.**

D. Brian Kim, M.D.

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## IN SUMMARY

- There are many ways to secure the IOL when the zonules or the capsular bag are not stable.
- There are pros and cons to each of these different procedures
- The best technique varies with each case.
- Surgeon comfort and skill should dictate which procedure is used to secure the dislocating lens.

D. Brian Kim, M.D.

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The screenshot shows a web browser window displaying the YouTube channel for D. Brian Kim MD. The address bar at the top shows the URL <https://www.youtube.com/user/DocBrianKimMD>, which is circled in red. A red arrow points from this URL to the channel's banner image, which also features the same URL. The channel name is "D. Brian Kim MD" with 7.68K subscribers. The page includes navigation tabs for Home, Videos, Playlists, Community, Channels, and About. The "Uploads" section is visible at the bottom.

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**SOUTHERN EYE CONGRESS 2022**



**THANK YOU FOR YOUR ATTENTION**

**QUESTIONS?**

PROFESSIONAL EYE SURGERY CENTER

D. Brian Kim, M.D.

Professional Eye Associates, Dalton, Georgia

Clinical Assistant Professor of Ophthalmology

Medical College of Georgia



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