


**Anterior Chamber IOL (ACIOL)  
Implantation**

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**No Financial Interest**



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**ACIOL**

- ACIOLs came onto the scene fairly early in the history of Intraocular lenses
  - Soon after Dr Ridley’s lens
  - First ACIOL- By Baron in France (1952)
- However, earlier ACIOLs went into disrepute
  - Poor design- Closed loop
  - Poorer quality manufacturing/ polishing
  - Improper use- Sizing issues (One size fits all)



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### ACIOL- Kelman Multiflex design

- The “newer” Kelman Multiflex design has overcome most of the flaws of earlier designs
  - Open Loop design
  - Flexible haptics
  - Anterior vaulting (0.5 mm)
    - Reduces Pupil block
    - Reduces Iris chaffing and Uveitis
- If properly implanted, results of Kelman Multiflex lens have been very good
- Studies have shown that there is no significant progressive corneal endothelial cell loss with Kelman Multiflex design



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### Kelman Multiflex



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“It is not the proximity of the lens to the endothelium, rather the pseudophakodonesis that is responsible for endothelial cell loss”



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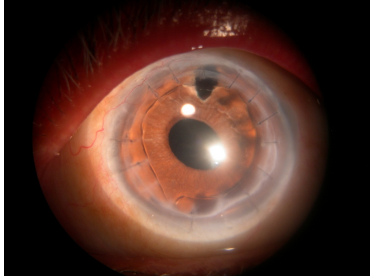
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### Penetrating Keratoplasty With ACIOL - 5 Years Postoperative



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### ACIOL- Indications

- Inadequate Capsular support (Anterior or Posterior)
  - Posterior Capsule rupture
    - During cataract surgery
  - Secondary IOL implantation- Aphakics
  - “Significant” Zonular Dialysis- Subluxation or Dislocation



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### ACIOL- Contraindications

- Unhealthy corneal endothelium
- Uveitis
- Absent/ Insufficient Iris support
- Paediatric eyes
- Eyes with shallow anterior chamber



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### ACIOL- Procedure

- Aim
  - IOL in the Anterior Chamber
    - Well centred
    - Properly sized
    - Properly powered
    - Properly oriented
  - Haptic resting in the Scleral Spur
  - No Iris tuck
  - Haptics away from iridectomies
  - No Vitreous in AC/ Wound



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### ACIOL- Power

- Power
  - Elective surgery- By Biometry (using appropriate A constant)
  - Unplanned- PC rupture
    - Power of PCIOL Calculated- (PCIOL A constant- ACIOL A constant)
    - eg . Power of IOL= 22 D, PCIOL A constant= 118.4, ACIOL A constant= 115.4, then ACIOL power is  $22 - (118.4 - 115.4) = 19$



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### ACIOL- Size

- Proper sizing is critical for ACIOL implantation
- **Horizontal White to White Limbal Diameter + 1 mm**
- However, proper size can be confirmed only after implantation



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### ACIOL- Haptic Orientation

- The trailing haptic- Bottom half of a "Reversed Z"
- The Optic- Haptic junction of trailing haptic- On the left side (Like PCIOLs)
- The "knee" of trailing haptic- On the right side



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### ACIOL- Vaulting

- ACIOLs are vaulted anteriorly (0.5 mm)
- Ensuring the correct orientation automatically ensures correct vaulting
- Inadvertent upside-down placement (posterior vaulting) can cause severe complications
  - Pupillary block (Iridectomies may avoid this situation)
  - Chronic uveitis
  - Cystoid macular edema
  - Corneal decompensation



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### Surgical Technique

- Incision (Based on astigmatism)- Preferably on steeper meridian
- Thorough Anterior vitrectomy
- Pupillary constriction by Miochol/ Pilocarpine
- Iridectomy- Either before or after IOL implantation



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### Surgical Technique

- Viscoelastic- My preference
  - Initially **Dispersive** viscoelastic
    - HPMC
    - Sometimes Chondroitin Sulfate based- To protect corneal endothelium
  - Then **Cohesive** Viscoelastic
    - Sodium Hyaluronate (1.4 %)
  - This is the “Soft shell” technique
    - Dispersive coats the endothelium- Protecting it
    - Cohesive
      - Keeps AC well formed
      - Very easy to wash out during Irrigation & Aspiration




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### Surgical Technique

- ACIOL implantation
  - Proper power, size, orientation
  - McPhersons forceps/ IOL holding forceps- May use Sheet’s glide
  - Orient IOL horizontally
  - Leading haptic abuts against the angle
  - Avoid capturing Iris (Iris tuck)
  - Trailing haptic- Tuck the “knee” behind the posterior wound edge
  - Trailing haptic- Tuck the free foot plate with a Lester’s manipulator/ Micro hook behind the posterior wound edge




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### Surgical Technique

- Perform “Bounce” test
  - Stable fixation
  - Absence of Iris tuck
- Confirm appropriateness of IOL size
  - Small size
    - No resistance to rotation
    - Not centred properly
    - Excessive movement
  - Oversized lens
    - Stretching or gaping of wound
    - Ovaling of pupil
- Irrigation and aspiration done
- Suturing
  - Depending on pre-existing/ induced astigmatism
  - Usually should be done




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ACIOL- Video 1



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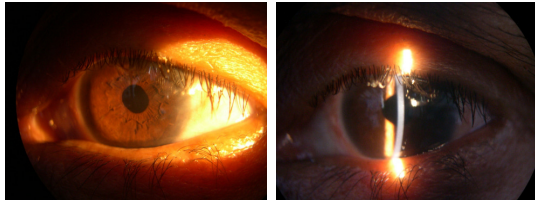
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Preoperative Pictures



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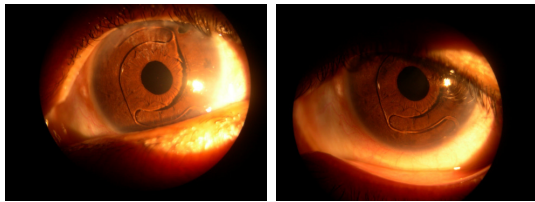
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Postoperative- 1 Week



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ACIOL- Video 2



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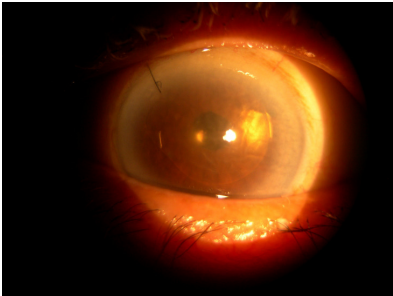
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Preoperative Picture  
- 2 weeks Post ACIOL implantation



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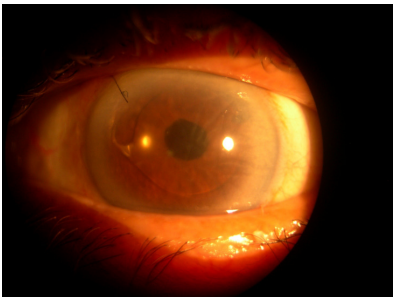
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Preoperative Picture  
- 3 Weeks Post ACIOL Implantation



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ACIOL- Video 3



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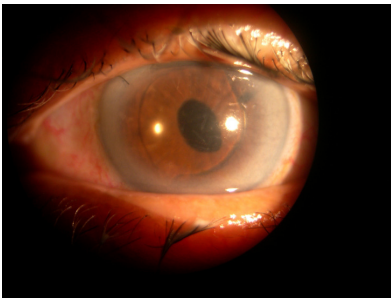
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Postoperative- Day 2



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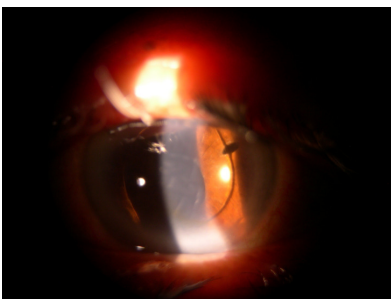
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Postoperative- Day 2



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### Tips, Tricks & Pitfalls

- Correct sizing
- Correct orientation
- Avoid Iris tuck
- Appropriate location of Iridectomies
  - Haptics may rotate through them
- Adequate vitrectomy
- Use of OVDs (Soft Shell technique)



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### Conclusion

- Present day ACIOL design (Kelman Multiflex) works well
  - Ensure compliance to basic principles discussed
- Compares very well to scleral fixated IOLs
- Easy to implant with short learning curve
- A good technique to have in one's surgical armamentarium



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### Thank You

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