



**Anterior Chamber IOL (ACIOL)
Implantation**

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No Financial Interest



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)



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



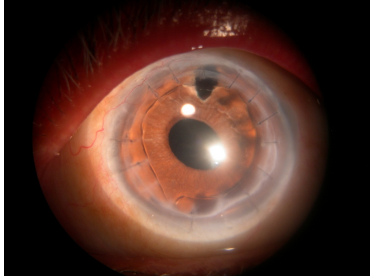
Kelman Multiflex



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



Penetrating Keratoplasty With ACIOL - 5 Years Postoperative



ACIOL- Indications

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



ACIOL- Contraindications

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



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



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 $22 - (118.4 - 115.4) = 19$





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




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




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




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




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




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




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


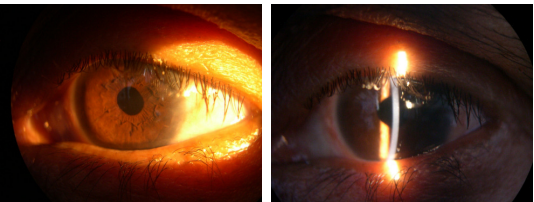


ACIOL- Video 1


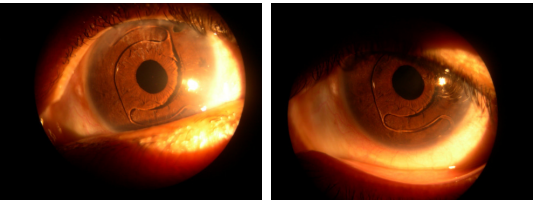
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Preoperative Pictures




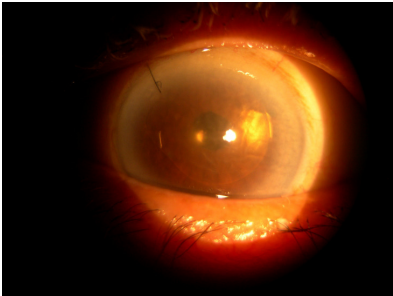
Postoperative- 1 Week




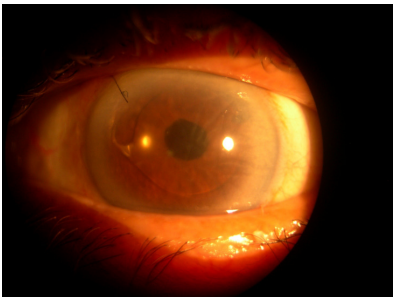
ACIOL- Video 2



Preoperative Picture
- 2 weeks Post ACIOL implantation



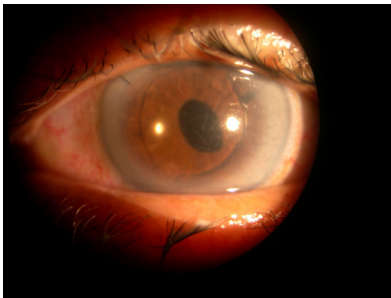
Preoperative Picture
- 3 Weeks Post ACIOL Implantation



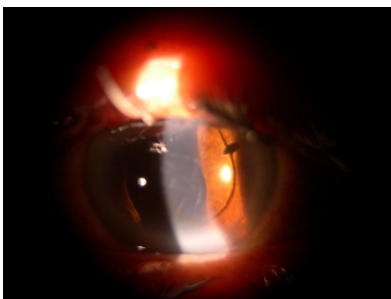
ACIOL- Video 3



Postoperative- Day 2



Postoperative- Day 2



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)



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



Thank You

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