Phakic IOLs (ICLs)

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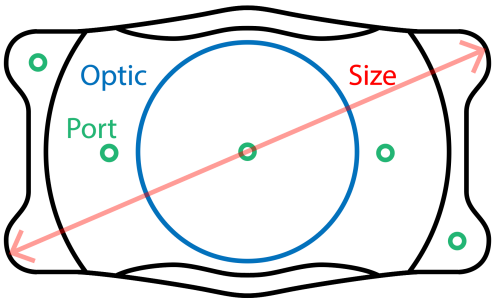
Overview

- The EVO ICL (Implantable Collamer Lens, sometimes called Implantable Contact Lens) is the most common phakic IOL
- They sit in the sulcus space between the crystalline lens and iris
- Four sizes: 12.1 mm, 12.6 mm, 13.2 mm, and 13.7 mm (12.6 and 13.2 are most common)
- The "EVO" model has ports that allow aqueous to flow freely



- The space between the crystalline lens and ICL is called the "vault"
  - Optimal vault is typically 250-750 microns
- FDA approval is for:
  - Age 21 to 45
  - Internal anterior chamber depth ≥ 3.0 mm
  - Spherical Equivalent refractive error greater than -3.00
  - Healthy eyes (e.g., no glaucoma, no endothelial disease)
  - Many surgeons are comfortable with wider age ranges and shallower ACD
    - In Europe, the approval is for ≥ 2.8 mm
- Available SE -3.00 D to -16.00 D with up to 4 diopters of cylinder correction
  - Also used to "debulk" myopia to bring refraction into safe laser range

Pre-Op

- Exam
  - Glasses Rx – habitual refraction
  - Manifest Rx – for ICL cyl power
  - Cycloplegic Rx – for accommodative potential
  - Contact lens over refraction – for ICL sphere power
  - DFE – ICL patients can be high myopes
  - Caliper white-to-white (WTW, manufacturer nomogram sizing method)
  - Pentacam – for ACD and WTW
  - UBM – many doctors use sizing nomograms that rely on ultrasound biomicroscopy, it provides a way to measure the sulcus space

Surgery

- Epi-shugarcaine and dispersive OVD injected through a small paracentesis
- ICL inserted through a ≥ 2.75 mm main wound
- ICL tucked into place and OVD evacuated using BSS
- Commonly oral anesthesia, no IV
- IOP check 30 minutes after surgery
- Vision is commonly excellent less than an hour after surgery

Post-Op

- Usually 1 day, 1 week, 1 month, then annual eye exams
- On POD1 check:
    - Vision – commonly 20/20
    - IOP – retained OVD can cause spikes
    - Vault – measured with anterior segment OCT

Complications

- ICLs are incredibly safe with a remarkably low complication rate
- Most common reason for re-intervention is rotated toric ICL
    - ICL can be "too small" to snuggly fit in the sulcus and rotate
    - Commonly exchanged for a larger size
- Exchange/explant may be needed for over-vault or under-vault
- Vaults that are too large and push the iris forward and narrow the angle
- At Parkhurst NuVision for example, the exchange rate for any reason is ~1%
- Patients may report seeing glare or halos due to that central port but these go

Myths

- Myth #1: ICLs are fraught with complications
    - ICLs are SAFE, the central port essentially eliminated the glaucoma/cataract risk
- Myth #2: They're only for high myopes
    - ANY patient ~-2.50 D or greater may benefit from ICLs!
    - I wore -4.25 contacts my whole life, they're for lower myopes too!
- Myth #3: They're the most invasive
    - In a way, they're the *least* invasive vision correction surgery, no anatomy is changed and no tissue is removed. They're completely reversible!

Alternatives

- Other phakic IOLs may attach to the iris via "claws", called enclavation

Alternatives

- ICLs are SAFE, EFFECTIVE, and REVERSIBLE
- EVO ICL is absolutely a staple of modern refractive surgery