Cataract surgery in post-vitrectomy eyes

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The literature reports the increased risk of PCR in post-vitrectomy eyes

Results of cataract surgery in previously vitrectomized eyes

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Purpose: To evaluate the difficulties and results of manual extracapsular cataract extraction (ECCE) and phacoemulsification cataract surgery performed in previously vitrectomized eyes.

Methods: A retrospective case series of 86 eyes in 60 consecutive patients who underwent ECCE or phacoemulsification surgery for cataract extraction. The procedures were performed at the Department of Ophthalmology, University of Medical Sciences, in a tertiary referral center.

Results: Of the 86 eyes, 9% had previous vitrectomy. The success rate was similar between the groups, with 7% of eyes requiring reoperation. The rate of posterior capsular opacification (PCO) was higher in the vitrectomized group (12%) compared to the non-vitrectomized group (5%).

Conclusions: Preoperative counseling should include the risk of PCO and its management in vitrectomized eyes.

Post-vitrectomy eyes can present major challenges for cataract surgeons especially if the patient has had silicone oil

- Biometry – use optical means if possible for axial length, allow for silicone oil if A scan needed
- Type of anaesthesia – if topical beware of potential discomfort as AC deepens some may prefer peri or retrobulbar or GA
- Surgical considerations because of potential AC deepening – handpiece position and fluctuation
- Incision size and machine settings

IOL choice

- Use an IOL of sufficient length and with good capsular stability eg Acrysof MA60MA and consider use of CTR if one piece lens used
- Remember that PCO will appear early and frequently because there is no vitreous support to help the capsular bag to seal

11.6% with ECCE
6.9% with KPE
Vitrectomised eye with MA60BM at 6 months postop

Complete epithelialisation

Space behind IOL

Wound considerations

- Wound construction – consider scleral wound as it is more posterior and less likely to distort cornea
- If CCI used do not make wounds too long as corneal distortion can impair the view if Kelman tip not used
- Make sure that wounds match instruments to minimise leakage which can increase AC fluctuation
- CMICS or BMICS are better alternatives

Other surgical considerations

- The rhexis is may be more difficult if too much viscoelastic is injected as the AC can easily overdeepen
- Use special techniques to avoid Lens Iris Retropulsion Syndrome and patient discomfort due to AC sudden deepening and instability
- Use machine settings to avoid chamber instability

Use machine settings to avoid chamber instability, biaxial works well here

- As chambers often more unstable due to minimal vitreous support consider using lower flow rates and vacuum than normal
- Avoiding leakage helps – smaller incisions
- Biaxial can help to minimise chamber fluctuation
- Torsional phaco minimises chamber turbulence
Lens iris diaphragm retropulsion syndrome

Phaco probe in eye before BSS turned on

As BSS is turned on viscoelastic is pushed back to block pupil and lens iris diaphragm moves posteriorly suddenly

This causes pain and a very deep AC

And here is a new sign

**CASE REPORT**

**Multifocal iris sphincter ruptures: New sign of the lens-iris diaphragm retropulsion syndrome**

Robert H. Osher, MD, James M. Osher, MD, Robert J. Cioni, MD

We describe the case of a 78-year-old highly myopic woman who had bilateral phacoemulsification with posterior chamber intraocular lens implantation. During surgery, the anterior chamber was extremely deep and the pupil was excessively dilated, consistent with lens-iris diaphragm retropulsion syndrome (LIDRS). Subsequent biomicroscopy revealed multifocal iris sphincter ruptures, a new finding associated with LIDRS.

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Various methods have been described to overcome this problem:

- Operate with low bottle height
- Use the Cionni manoeuvre – lift the iris opposite the side port with an instrument to break the posterior pupillary block and allow the chamber to shallow

After Cionni manoeuvre:

AC returns to physiological depth and surgery can continue as normal

The Cionni manoeuvre is all very well and is extremely useful in eyes where a sudden AC deepening was not expected but the patient under topical will still feel pain!
I have devised a modification to the Cionni technique which prevents LIDRS completely. It works for both post-vitrectomy eyes and highly myopic eyes.

Dealing with LIDRS in post-vitrectomy eyes

- Put irrigation bottle down to 40cm
- Put phaco needle and sleeve in eye with fluid off
- Place second instrument in side port to allow easy egress of fluid
- Lift iris opposite side port
- Press foot pedal to foot position 2 to allow eye to fill but also draw fluid out
- Return irrigation bottle to normal height with no change in AC depth
- Each AC re-entry requires these steps

Avoiding LIDRS published in JCRS 2010

Surgery on first a post-vitrectomy eye and then a highly myopic eye

Placed phaco probe into eye without irrigation on
With appropriate manoeuvres post-vitrectomy eyes having cataract surgery although potentially challenging can be dealt with to produce satisfactory outcomes.

In conclusion

Or you could use the new Centurion phaco with low IOP setting and slow IOP ramp

Using Centurion with slowed IOP ramp in vitrectomised eye

Thank you