SECONDARY CAPSULOTOMY USING THE FEMTOSECOND LASER

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Do’s
- Program laser to perform corneal incision and capsulotomy only
- Ensure anterior capsule calipers aligns with OCT image of anterior capsule
- Use ‘Custom’ centration setting for capsulotomy
- Increase energy and depth of penetration of the laser for capsulotomy

Don’ts
- Forget to cut any fibrotic or uncut areas with micro-scissors prior to removing anterior capsule flap
- Forget to make circumferential tearing motion while lifting cut flap
SMALL PUPIL MANAGEMENT DURING FEMTO CATARACT SURGERY

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**Take Home Points**

**Do’s**
- Small pupil can be effectively handled: Step wise approach (Shugarcaine-Viscomydriasis-Malyugin ring placement)
- Staged procedure in a sterile environment if FSL/OR in same location
- Viscomydriasis also helps deepen AC
- Malyugin ring is a viable option for pre-FSL miosis
  - Manually confirm the automated outline of the anterior capsule during FSL procedure
  - Carefully inspect capsulotomy intra-operatively to ensure it is complete

**Don’ts**
- Forget to ensure homogeneous OVD fill for Malyugin ring placement/Viscomydriasis
- Forget to consider intraoperative reverse pupillary block - REVIEW INTRAOP OCT
- Proceed with FSL if AC has air bubbles
- Forget to adjust FSL energy parameters for capsulotomy (increase energy and depth of penetration)
Advantages of Femtosecond Laser Assisted Cataract Surgery in Traumatic Cataracts

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1. Femtosecond Laser Assisted Cataract Surgery in a Subluxated Traumatic Cataract

There are two critical steps for successful cataract surgery in subluxated cataracts: performing a CCC and stabilizing the capsular-bag, which cannot be performed without an intact CCC. The risk of further zonular damage and lack of adequate counter-traction make it difficult to perform a manual capsulorhexis in a subluxated lens with zonular loss.

• Femtosecond laser permits a circular capsulotomy centered on the subluxated capsular-bag in a closed chamber based on intraoperative imaging thus permitting use of capsular-support hooks, and fragmentation of the lens nucleus, with no additional zonular stress, helping to reduce potential complications in such challenging cases.

2. Femtosecond Laser Assisted Cataract Surgery In Pre-Existing Posterior Capsule Rupture Following Closed Globe Injury

• Intraoperative visualization of posterior capsule rupture on anterior-segment OCT images.
• Manual adjustment of the laser delivery zone to increase the posterior capsule safety distance.
• Fragmentation of the lens into quadrants without softening, using a single repetition pattern, in a closed chamber without the creation of corneal incisions.
• The circular capsulotomy permitted sulcus fixation of a three-piece intraocular lens with optic capture

3. Femtosecond Laser Assisted Cataract Surgery in a Patient with a Corneal Scar, Iridocorneal Adhesion and Traumatic Cataract Following Penetrating Trauma
• Femtosecond laser is contraindicated in cases with severe corneal opacities and corneal abnormalities.

• However, in eyes with a dense opacity and iridocorneal-adhesions where preoperative imaging can demonstrate that the extent of the scar lies outside the laser delivery zone, the laser may be used and the capsulotomy position, depth and energy parameters modified to successfully perform a capsulotomy while avoiding the area of the corneal scar based on intraoperative imaging which also allows assessment of anterior and posterior capsular integrity.
Femtosecond laser in patients with zonular instability

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Both cases to be shown demonstrate the utility of using the femtosecond laser in cases of zonular instability or absence.

In case 1, the eye has an axial length greater than 30mm and has undergone previous vitrectomy. The femtosecond laser is used to provide much greater control and precision of capsulorhexis and nucleus disassembly in a situation where generalized zonular insufficiency and lens/iris diaphragm instability are highly likely. Routine settings of the femtosecond were employed. For phacoemulsification, IOP, AFR, and vacuum were all reduced.

In case 2, obvious phacodenesis was visible preoperatively. The femtosecond laser was used to create a capsulorhexis that if made manually would have likely caused dislocation of the lens. The capsular opening was made smaller than normal, 4.6mm, to provide for greater expansion with hooks or support devices. Successful creation of the capsulorhexis allowed placement of capsular support hooks and removal of cataract without compromising capsular integrity. It then facilitated placement of capsular tension ring and sclerally fixated capsular support segments. Routine settings of the femtosecond were employed. For phacoemulsification, IOP, AFR, and vacuum reduced. The femtosecond laser facilitated the anatomically ideal result in this high risk/complexity case.