Subluxated Cataracts & Capsule Support Devices

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Signs of Zonulysis

- May present as acute angle closure attack with shallow AC
- Zonules absent
- Decentered lens nucleus
- Irido-lenticular gap
- Star folds
- Irregular anterior chamber depth
- Vitreous in anterior chamber
- Intraoperative anterior capsule folds during capsulorhexis, pseudoelasticity

Zonulysis - Points to Note

- Site (clock position)
- Extent (clock hours or °)
- Anterior/posterior (hinged-check supine)
- Vitreous in AC

Capsule Support Devices

- Capsular bag hooks
- Capsular tension ring (CTR)
- Modified Cionni CTR: type 1L, 2L
- Ahmed capsular tension segment (CTS)
**Capsular Tension Ring**

- Promotes circular expansion of capsular bag
- Requires intact CCC
- Does not provide AP support – suture Cionni Modified CTR
  - 1 or 2 eyelet design
  - Sutured to sclera in area of greatest zonular weakness

**Capsular Tension Segment**

- Supports equator of bag unlike capsule hook
- No bag torque
- Choice of CTR

**Depends on**

- Extent of zonulysis: < or > 6 clock hours
- Strength of remaining zonules
- Disease static or progressive

**How to Insert CTR**

- Inject viscoelastic to inflate bag, and in the subcapsular plane
- Withdraw eyelet of CTR into injector and retract CTR completely
- Introduce CTR slowly by injecting it just under the anterior capsule and then release
- Angle of approach should be acute, rather than
**Cionni 1L – Scleral Flap**

Dissect conjunctiva and raise partial thickness scleral flap with hinge limbal based, centred on a point about 1.75mm posterior to limbus

Both ends of prolene 9/0 suture carrying Cionni 1L eyelet are passed through the bed of the scleral flap using ab externo method with aid of a 27 gauge needle

Tie suture appropriately ensuring IOL is centred

Replace scleral flap and secure conjunctival flap

**Cionni 2L – Corneoscleral Pocket**

Hoffman corneoscleral pockets are dissected 1.75mm posterior to limbus at sites where the Cionni 2L eyelets are located: partial thickness corneal incision at the limbus is extended posteriorly into the sclera to create a pocket without conjunctival dissection.

Both ends of prolene 9/0 suture carrying Cionni 2L eyelet are passed through the corneoscleral pocket going through full thickness of the wall of the eye using an ab externo method with aid of a 27 gauge needle

Suture retrieved from within pocket using Sinskey hook and tied directly or using Chee’s modification. Knot tension confirmed when both Cionni eyelets secured to ensure IOL centration.

**References**


**Note:** Hoffman pockets can be used with Cionni 1L CTR and scleral flaps can also be used with Cionni 2L CTR.
Subluxated Cataracts: Pearls

- IV mannitol
- Try to avoid Trypan Blue
- Deal with vitreous in AC
- 27G puncture capsule, start small tearing from intact to weak zonules
- Adequate hydrodissection
- Iris hooks for capsular bag
- Delay placement of CTR, but in severe zonulysis, place them before phaco
- Insert when equator presents
- Vertical chop, lowered parameters
- CTR external to cortical material
- I/A tease cortex trapped by CTR using side to side, rather than radial movement

Conclusion

- Important to have an intact CCC
- Support capsular bag with hooks and appropriate capsular support device
- Good visual outcomes can be achieved in these compromised eyes