

Pediatric Anterior lens capsule management, options and techniques



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Lens Capsule collagen fibers annular configuration

It consists primarily of **collagen "type 4"**; interestingly, it contains **no elastic** fibers but still highly **extensible** because of the lamellar arrangement of its collagen fibers.

(Extensibility is more pronounced in younger age allowing for more accommodation of lens)

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Clinical Anatomy and Physiology of the Visual System (Third Edition), 2012, Pages 93-108 Chapter 5 - Crystalline Lens Author links open overlay panel Lee Ann Remington OD, MS, FAAO

Why is it so important?

Anterior capsule *tear* specially in congenital cataract can lead to additional intraoperative complications, with a relatively high incidence of secondary interventions.

Additionally, a well done capsulorhexis limits the occurrence of significant postoperative **IOL tilt** and **decentration** that could lead to worse visual and refractive outcomes.

e.g Lenticular astigmatism Amblyopia

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GIANLUCA CARIFI, MICHAEL H. MILLER, CHRISTOS PITSAS, VASILIKI ZYGOURA, RAJESH R. DESHMUKH, NIKOLAOS KOPSACHILIS, AND VINCENZO MAURINO

PD00238: To study the results of phaenenulsification cataract surgery complicated by anterior capsule tear.
DESIGN: Retrospective interventional controlled case series.

METHODS: Consecutive vertex of eyes sufficing intrasperative anterior capsule tear and others with uneventful interact surgery at Moorfields Eye Hospital were investigated. Biometric, intrasperative, and postogenetive details were recorded. The exclusion criteria were combined surgical procedures, planned manual extracapsular cutaract extraction, and history of previous intrascular surgery or eye trauma. The main outcome measures were intrasperative consule complication rates, refractive and visual eutcomes, and incidence of short-term pustoperative complications. Two-sided Fisher exact and paired t tests were used for categorical and continuous data, respectively.
 RESULTS: The study and control groups included 239 and 212 energy means the tests where used data.

the furthemental value of this singleal step for improving singleal outcomes in extense; singlety. In fact, a continuous circular capsulorthexis might reduce the incidence of posterior capsule rupture,² a complication potentially associated with a slower postoperative visual improvement and increased risk for further singleaf interventions.²⁴⁴ As is well known, a permittent visual acuity distribution is also possible following posterior capsule rupture,² Additionally, a continuous capsulorthexis limits the occurrence of significant postoperative meascular lens (IOL) tilt and excertations that could lead to worse significant refuterive outcomes²⁴⁵

As a consequence, unterior capsale tear can potentially affect the quality of catanact surgery even more than postetior capsule rupture may do, it can cause a posterior capsule rupture, with longer rehabilitation, and it can also prevent an ideal lens fixation, with major postoperative refractive more refractive descriptions. Moreover, and the refractive

Here are some of the many available options in dealing with **Pediatric Anterior lens capsule**

Many Ways are available for managing ped ant capsule

- A "can-opener" capsulotomy using a cystotome.
- Vitrectorhexis, ... Moderate cutting and aspiration settings such as 800 cuts/ minute and 250 mm Hg, low flow rate, bottle height 60 are good starting points.
- Manual continuous curvilinear capsulorhexis (CCC) is still by many eye surgeons the gold standard for stability in pediatric cataract surgery.

Push-Pull capsulorhexis: my preferred technique lately!

Radiofrequency diathermy capsulotomy blade. Important in special occasions



Modified push-pull technique

Push-push technique



Another modification: One port push pull technique

MNO

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The other option



CAPSULE DIATHERMY

TECHNOLOGY SOME TIMES MATTER TOO!

All previous technique can be applied to **posterior capsule** as well.

Here is an example of a densely opacified and vasuclarized posterior capsule in a case of PFV







Take home message!

Understanding the nature and biomechanics of the anterior lens capsule and its occasional abnormalities, eases and increases the options of its Intraoperative successful management



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Obstacles we might face:

To be continued!





Almost totally, mainly Centrally Thickened capsule Use your other weapons (<u>microscissors</u>)

When neither techniques work

Thickened peripheral ant capsule reaching the center

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