

## *Letter to the editor*

### **Needle capsulorhexis in intumescent white cataract using slow injecting viscoelastic device through an anterior chamber maintainer**

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Dear Editor,

The anterior capsulorhexis has got several intra and postoperative advantages over can opener or endocapsular capsulotomies and has become the standard capsulotomy technique for phacoemulsification (Zamini et al 2003, Neuhan TF 2004, Gimbel et al 1990). Anterior capsulorhexis can be performed using 26 G bent needle cystitome or Utratas forceps (Zamini et al 2003, Neuhan TF 2004). The needle capsulorhexis can be performed through side port incision using a viscoelastic device or with irrigating hand piece of bimanual automated irrigation aspiration system. During the performance of capsulorhexis, the globe can be stabilized either using a second instrument such as a Sinsky hook, or by holding limbal conjunctiva with a Lim's forceps. Sinsky hook introduced through a separate side port incision can lead to egress of viscoelastic device from the eye and hence risk of radial extension of capsular flap. The prerequisites for a good capsulorhexis include a deep well maintained anterior chamber, globe stabilization and properly stained anterior capsule with dye in mature cataract. All these can be achieved by the technique described by us, which is a modification of anterior capsulorhexis under anterior chamber maintainer described previously by Blumenthal et al (1990).

The actual procedure consists of making two side-ports with 20 G V lance knife (Alcon, Fort Worth Texas, USA) at 10 'O' clock and 2 'O' clock. A bent cystitome is made from 26-G needle. The ACM (Appasamy Associates, Chennai, India) with 5cc syringe filled with viscoelastic device is introduced into the anterior chamber through 2 'O' clock side port with slow viscoelastic injected to maintain deep anterior chamber. The 26-G cystitome is introduced through 10 'O' clock side-port. The relaxing incision is made in the central area of anterior capsule, and a flap is created. This flap is flipped and reflected upon the underlying capsule so that epithelial side now faces the cornea. The reflected flap is then engaged near the tearing edge and rotated in a circular manner. When almost entire circumference of the central capsular opening is achieved, the flap is pulled centripetally inwards. This joins the capsular edges from outside in to complete the capsulorhexis. During this period, the slow injecting viscoelastic through ACM irrigation maintains deep anterior chamber and stabilizes the globe. We have used this technique in 9 cases of

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uncomplicated white intumescent senile cataracts. The cases with corneal opacities or other ocular pathologies were excluded. All cases were done under peribulbar anesthesia and a complete capsulorhexis was achieved in all.

The anterior capsulorhexis is one of the prerequisites for successful and uncomplicated phacoemulsification (Zamini 2003). The needle capsulorhexis can be performed under continuous irrigation handpiece of bimanual irrigation aspiration system or by irrigating chopper, but limitation of these techniques is intumescent white and mature cataract, where needle capsulorhexis is very difficult, whereas in our technique the side port made for the second instrument is used for introducing the ACM through which slowly injected visco elastic maintained the anterior chamber deep and stable. So, the radial extension of the anterior capsule flap is minimized, which is very common in intumescent cataract. This side port can be used for bimanual irrigation aspiration system for cortical wash after phacoemulsification. In our technique, there is no need of stabilizing the globe using a Lim's forceps or Sinskey hook introduced through side port. The Sinskey hook introduced through side port can lead to egress of viscoelastic or fluid, which can lead to shallowing of the anterior chamber. Holding conjunctiva with Lims's forceps can lead to hemorrhage, tear and increased patient discomfort. This is undesirable. These problems can be overcome by using the above described technique. Our technique is especially useful for the phacoemulsification in intumescent white mature cataract, in which capsulorhexis is very difficult to perform. The described technique by us is simple and needs reapplication of already described techniques, hence can be easily mastered by all surgeons.

The ACM attached to 5cc syringe filled with continuous slowly injected viscoelastic maintains deep anterior chamber, stabilizes the globe, facilitates pupillary dilatation, helps in maintaining the eye in the position in white intumescent cataracts during needle capsulorhexis. This technique is a safe and effective way to perform needle capsulorhexis.

## References

- Blumenthal M, Arsia E, Schochet Y (1991). Lens anatomical principles and their technical implications in cataract surgery. Part I: The lens capsule. *J Cataract Refract Surg*; 17(2):205-10.
- Gimbel HV, Neuhan T (1996). Development, advantages and methods of the continuous circular capsulorhexis. *J Cataract Refract Surg*; 16:31-37.
- Neuhan TF (2004): *Capsulorhexis*. 2nd edition. Edited by: Steinert RF, Fine H, Gimbel HV, Koch HD, Lindstrom RL, Neuhan TF, Osher RH. *Cataract Surgery*, Elsevier Science, USA: 137-46.
- Zamini M, Buratto L, Savin G (2003): *Capsulorhexis*. 2nd edition. Edited by: Buratto L, Werner L, Zanini M Apple D. *Phacoemulsification :Principles and Techniques*, Slack Incorporated, Thorafore NJ, USA:83-92.

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