Surgical Technique

Sinskey hook and viscoelastic assisted posterior capsular plaque extraction

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Posterior capsule plaques (PCPs) are a rare cause of suboptimal vision after eventless cataract surgery. While these can be managed with posterior capsulotomy, violation of the posterior capsular integrity and associated vitreous disturbances may lead to sight-threatening complications. Viscoseparation and peeling of PCPs with the aid of retinal end-grasping forceps and irrigation and aspiration have also been described in adults for getting rid of PCPs with minimal disturbance of PC and vitreous. While Sinskey hook (SH) has been used to peel PCFs in children, the combined use of SH with viscoseparation for removal of PCP, particularly for adults, remains vaguely described in the literature. Presently, we describe a method of SH and viscoelastic assisted PCP extraction (SVAPE) in adult eyes with centrally located PCPs.

Key words: Posterior capsule plaque, posterior capsule, Sinskey hook, viscoelastic

Posterior capsule plaques (PCPs) are a rare cause of suboptimal vision after eventless cataract surgery.[1,2] These can be managed with posterior capsulotomy performed either in the primary (with cystiome and Utrartara forceps, vacuum or vitrectome assisted capsulorrhexis) or in the secondary (membranectomy or laser capsulotomy) sitting.[3,4] However, primary capsulotomy can violate the integrity of posterior capsule (PC), cause vitreous disturbance, and necessitate vitrectomy.[5] While these can be undertaken in patients already planned for vitrectomy (for example, children), loss of PC integrity may prevent successful in-the-bag placement of intraocular lens (IOL) and may also result in sight-threatening complications due to vitreous loss. Second, not all PCPs can be amenable to secondary capsulotomy due to its thickness, size, and adhesions with PC and carry the risk of IOL damage.

Viscoseparation and peeling of PCPs with the aid of retinal end-grasping forceps and irrigation and aspiration (IA) probe in the primary sitting has been described in adults for getting rid of PCPs with minimal disturbance of PC and vitreous.[2,6] While Sinskey hook (SH) has been used to peel PCFs in children, the combined use of SH with viscoseparation for removal of PCP, particularly for adults, remains vaguely described in the literature.[6,7] Presently, we describe a method of Sinskey hook and viscoelastic assisted PCP extraction (SVAPE) in adult eyes with centrally located PCPs [Table 1].

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In eyes with residual PCP after phacoemulsification, a plane is created between the PCP and the PC by gently and carefully lifting one of its margins away from the PC with the aid of SH. Following this, a VES (preferably a cohesive VES) is injected (using 30-gauge cannula) underneath this lifted edge to mechanically dissect the PCP away from the PC [Figs. 1 and 2, Video 1]. The PCP is further dissected with short side-wards motions of SH at either margins of the lifted plaque till a sufficiently large flap that can be lifted easily with micro-forceps or IA probe is created. The choice of forceps or IA probe depends on the size, thickness, and adhesions of PCP. Following this, the posterior chamber IOL is safely injected in the bag and wound hydrated or sutured.

We have employed this technique in seven patients with successful in-the-bag IOL implantation and noted good gain of visual acuity and a clear and intact PC till 3-month follow-up [Fig. 3 and Table 1].
Discussion

As thick PCPs can cause visual disturbances in the postoperative phase and may not always be amenable to laser capsulotomy, leaving them in situ during primary cataract surgery may not be desirable. However, as previously mentioned, inadvertent PC tear can occur during removal of these plaques, especially if they are large and/or densely adherent to the PC. Initial separation of PCP with a blunt instrument such as SH in our technique may be associated with minimal damage to the PC in comparison to other techniques where a cystitome is used to puncture the PCP or PC. We believe that this may allow for a safe in-the-bag placement of IOL and also aid in preventing resultant complications associated with vitreous disturbances. In addition, mechanical dissection of PCP away from the PC by use of VES and sideways dissection of its margins with SH in our technique may reduce adhesions between these two structures. This may decrease the risk of inadvertent PC tear by circumventing the need for forceful adhesiolysis sometimes required with direct peeling of PCP with forceps. This technique may be particularly advantageous in silicone oil-filled eyes where inadvertent rupture of PC during PCP removal can result in unplanned loss of oil and also while operating cataracts secondary to ocular trauma where the PCP may be densely fibrous and adherent to the PC.

Conclusion

To conclude, SVAPE can be a useful technique of plaque removal in adult eyes with centrally located PCPs. However, while this technique can be employed for all types of PCP's anterior to the PC, the PCPs located posterior to the PC may not be amenable to this technique and may require capsulotomy. In addition, larger comparative studies are required to evaluate the long-term effects of this technique on the postoperative visual outcomes and the clarity and integrity of PC.

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Conflicts of interest
There are no conflicts of interest.

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