

Sinskey hook and viscoelastic assisted posterior capsular plaque extraction

Rinky Agarwal, Chirakshi Dhull, Navneet Siddhu, Vatika Jain, Namrata Sharma

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 PCPs 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 capsular plaque, posterior capsule, Sinskey hook, viscoelastic

Video Available on:
www.ijo.in

Access this article online

Website:

www.ijo.in

DOI:

10.4103/ijo.IJO_2013_19

Quick Response Code:



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 cystitome and Utrata forceps, vacuum or vitrectome assisted capsulorrhesis) 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 PCPs 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].

Surgical Technique

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].

Department of Ophthalmology, Dr. Rajendra Prasad Center for Ophthalmic Sciences, All India Institute of Medical Sciences, Ansari Nagar, New Delhi, India

Correspondence to: Dr. Rinky Agarwal, Cornea, Cataract and Refractive Services, Dr. Rajendra Prasad Center for Ophthalmic Sciences, All India Institute of Medical Sciences, Ansari Nagar, New Delhi - 110029, India. E-mail: rinky.1990@gmail.com

Received: 08-Nov-2019

Revision: 04-Feb-2020

Accepted: 01-Mar-2020

Published: 23-Sep-2020

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

Cite this article as: Agarwal R, Dhull C, Siddhu N, Jain V, Sharma N. Sinskey hook and viscoelastic assisted posterior capsular plaque extraction. Indian J Ophthalmol 2020;68:2202-4.

Table 1: Clinical data of patients subjected to SVAPE technique

Age/sex	Preoperative BCVA	Etiology of cataract	Type of cataract	BCVA at 3 months	PC status at 3 months
23 years/M	20/400	Steroid induced	PSC	20/20	Intact and clear
26 years/M	CFCF	Post trauma	Total cataract	20/20	Intact and clear
44 years/M	20/400	Post PPV	Nuclear sclerosis with PSC	20/25	Intact and clear
38 years/M	HMCF	Post trauma	Total cataract	20/20	Intact and clear
33 years/F	CFCF	Post PPV	Nuclear sclerosis with PSC	20/40	Intact and clear
56 years/M	20/800	Post trauma	Nuclear sclerosis with PSC	20/25	Intact and clear
49 years/F	HMCF	Post PPV	PSC	20/20	Intact and clear

*BCVA: Best-corrected visual acuity; HMCF-hand motions close to face; CFCF: Counting fingers close to face; PPV Pars plana vitrectomy; PSC Posterior subcapsular cataract; PCP Posterior capsule plaque; PC: Posterior capsule

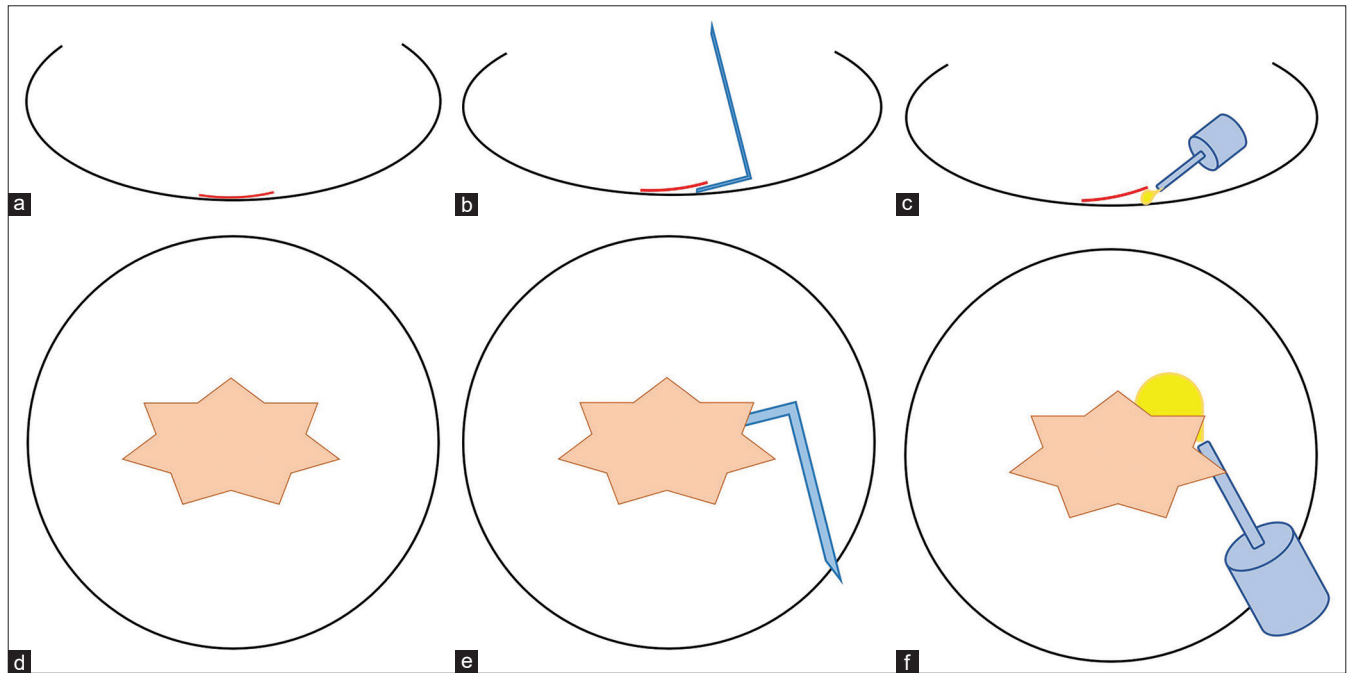


Figure 1: Animated lateral (a-c) and supine microscopic (d-f) views showing steps of SVAPE technique; intraoperative appearance of posterior capsule plaque (PCP) (a and d); lifting its edge with Sinskey hook (b and e); injection of viscoelastic underneath the lifted edge (c and f)

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 PCPs 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.

Acknowledgement

We thank our Institute for allowing us to continue with our research work.

Financial support and sponsorship

Nil.

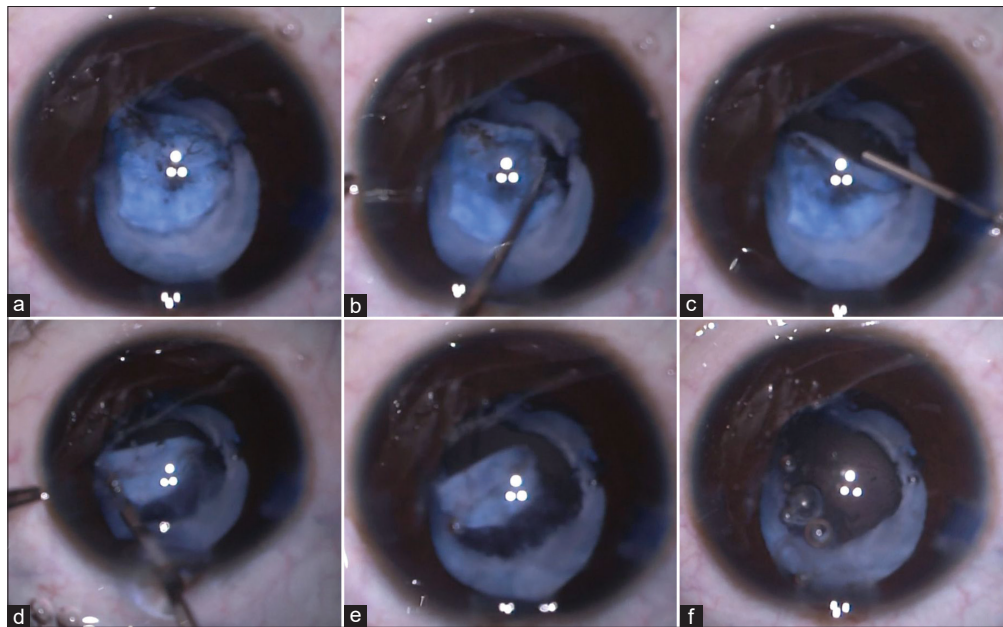


Figure 2: Intraoperative appearance of PCP (a); lifting its edge with Sinskey hook (b); injection of viscoelastic underneath the lifted edge (c); removal of residual PCP with micro-forceps (d); complete removal of PCP (e); intraoperative appearance after its complete removal (f)

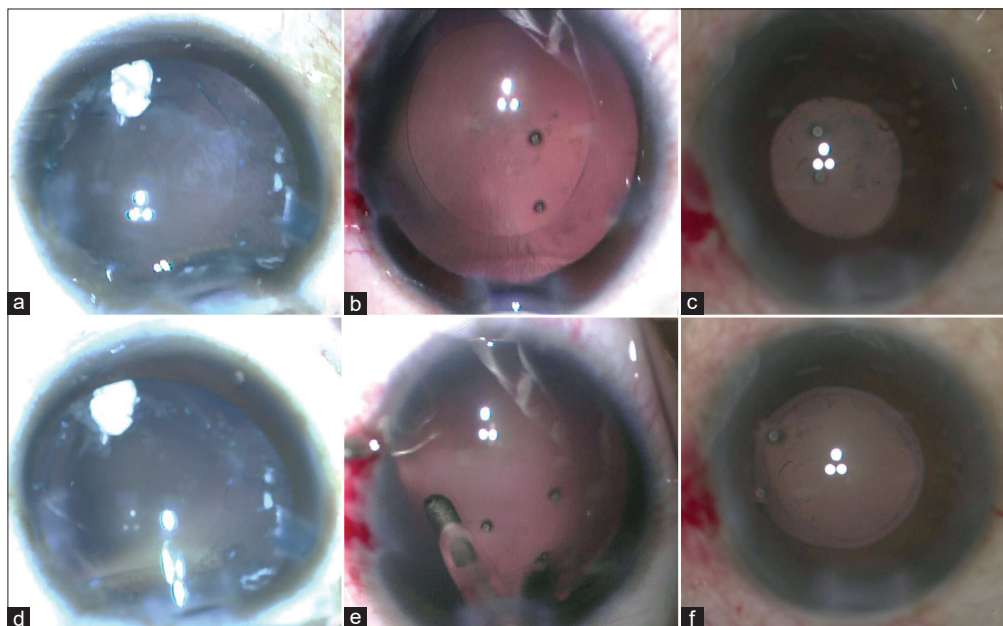


Figure 3: Intraoperative appearance of posterior capsule before (a-c) and after (d-f) removal of PCP with SVAPE technique

Conflicts of interest

There are no conflicts of interest.

References

- Vasavada A, Chauhan H, Shah G. Incidence of posterior capsular plaque in cataract surgery. *J Cataract Refract Surg* 1997;23:798-802.
- Joshi RS. Primary posterior capsular opacification in Indian rural population undergoing cataract surgery for hypermature senile cataract. *Clin Ophthalmol* 2013;7:1605-8.
- Biró Z, Kereskai L, Tsozbatzoglou A, Vasavada AR, Berta A. Histological examination of primary posterior capsule plaques. *J Cataract Refract Surg* 2007;33:439-42.
- Praveen MR, Shah SK, Vasavada AR, Vasavada VA, Asnani PK, Anwar I, *et al*. Incidence, management, and postoperative outcomes in pediatric eyes with coexisting posterior capsule plaque and cataract. *J Cataract Refract Surg* 2010;36:2094-9.
- Vasavada AR, Praveen MR, Jani UD, Shah SK. Preoperative prediction of posterior capsule plaque in eyes with posterior subcapsular cataract. *Indian J Ophthalmol* 2006;54:169-72.
- Landa G, Pham K. Manual removal of primary posterior capsular plaques using retinal end-grasping forceps. *Ophthalmol Ther* 2017;6:351-3.
- Khokhar SK. *Atlas of Pediatric Cataract*. Springer, 2019. p. 157.