Eye (2021) 35:1515–1517
https://doi.org/10.1038/s41433-020-0985-y

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CORRESPONDENCE

'Face down' anterior vitrectomy for unexpected posterior capsule rupture as an alternative to pars plana vitrectomy

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Received: 27 April 2020 / Revised: 13 May 2020 / Accepted: 15 May 2020 / Published online: 28 May 2020

To the Editor:

Limbal anterior vitrectomy is a common approach to tackle the vitreous prolapse during posterior capsule rupture (PCR) as it is easier to learn [1]. Pars plana vitrectomy was proposed to be better but it does require some additional skills and therefore less easy for the trainees to employ in emergency situations [2, 3].

We describe the 'face down' anterior vitrectomy with bevel facing posteriorly first at and under the plane of PCR before clearing the vitreous from the anterior chamber. Figures 1 and 2 and Videos 1 and 2 (Supplementary Material) demonstrate the technique. In brief, following recognition of PCR, the bottle height and aspiration flow rates are reduced [4]. The second instrument is gently removed and dispersive viscoelastic is injected behind the PCR. Residual lens fragment/s is/are floated into the anterior chamber by injecting the viscoelastic and the phacoemulsification probe is gently removed. Triamcinolone acetonide can be used to stain the vitreous [5]. 'Face down' anterior vitrectomy in and under the plane of the PCR is performed first. It reduces the length of traction between the cutter and vitreous base due to the proximity of the cutter to the vitreous base reducing the risks of retinal tears comparatively. Holding the vitrectomy probe with the bevel facing anteriorly ('face up') and removing the vitreous from the anterior chamber first before approaching the level of PCR may cause more traction on the vitreous base. Finally, the remaining vitreous in the anterior chamber can be removed with a 'face up' anterior vitrectomy above the pupillary plane.

We had 11 consecutive patients between January 2015 and December 2019 with PCR where 'face down' anterior vitrectomy (Supplementary Material 1) was employed with follow-up 38 of 8.6 ± 2.6 months and none had retinal complications.

The advantages of 'face down' anterior vitrectomy at and below the PCR plane first are: reduced traction on the vitreous base due to the proximity of the cutter to the vitreous base compared with the 'face up' vitrectomy in the anterior chamber. This is a simple and easy technique even in the hands of less experienced surgeons to reduce the traction on vitreous base.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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Presented in part at the European Society of Cataract & Refractive Surgery at Vienna and Paris in 2018 and 2019.

Supplementary information The online version of this article (https://doi.org/10.1038/s41433-020-0985-y) contains supplementary material, which is available to authorized users.

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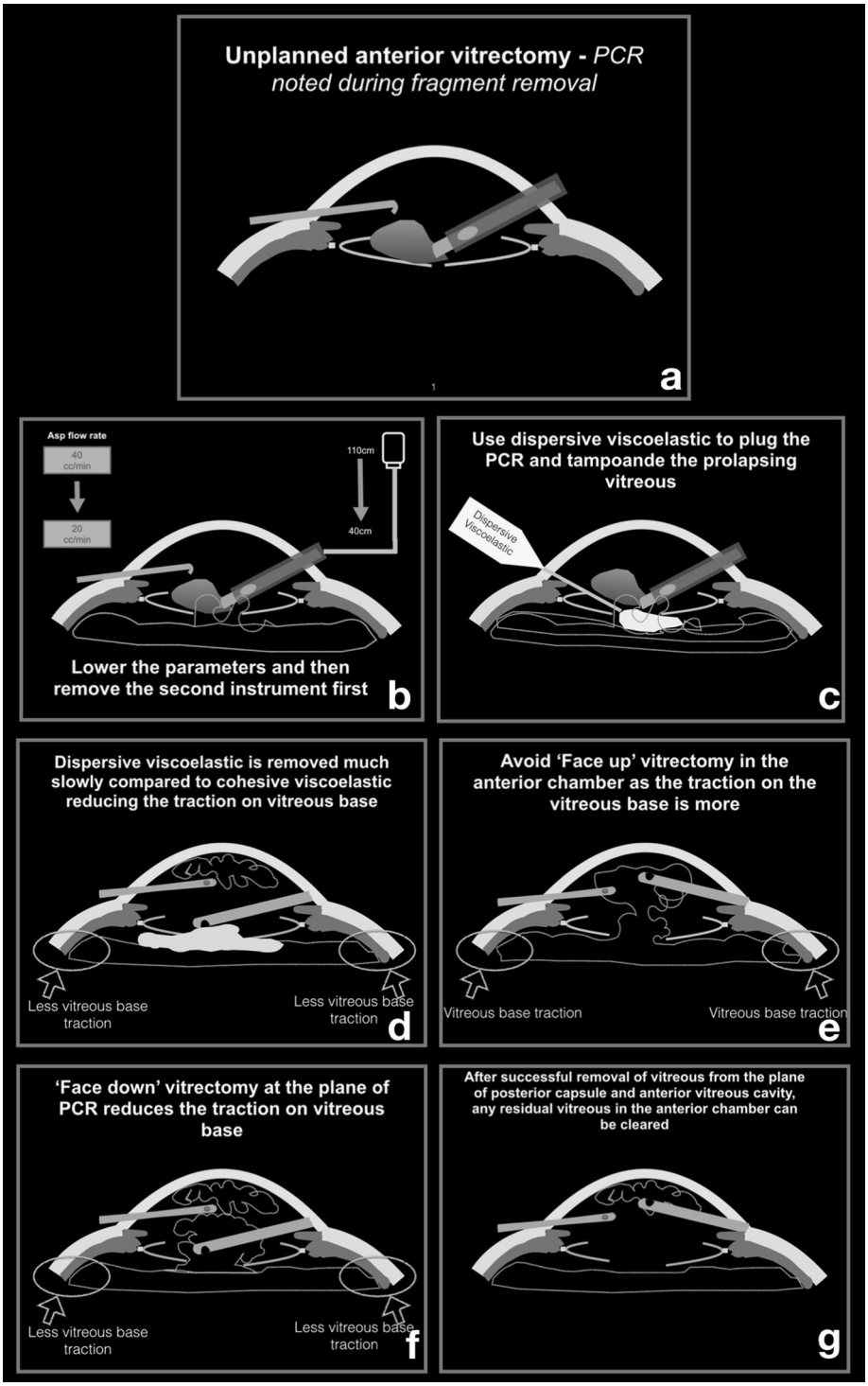

Fig. 1 Drawing showing a common scenerio of posterior capsule rupture and it's management with 'Face down' anterior vitrectomy. a Commonly encountered scenario of PCR noted during last fragment removal. **b** 'Slow motion' phacoemulsifcation parameters applied. Bottle height and aspiration flow rate lowered before gentle removal of second instrument. **c** Dispersive viscoelastic injection through the paracentesis in the place of posterior capsule and through the posterior capsule rupture (PCR) to plug the PCR and tamponade the prolapsing vitreous. The phacoemulsification probe is then removed. **d** 'Face down' anterior vitrectomy is performed at the plane of posterior capsule tear. The cohesive viscoelastic come is removed slowly with the vitrectomy and this will reduce the traction on anterior vitreous base (cohesive viscoelastic will come out as a bolous very fast and which pulls the vitreous with it causing traction to the anterior vitreous). **e** Avoid 'face up' anterior vitrectomy in the anterior part of anterior chamber first as it pull more vitreous anteriorly causing traction to vitreous base. **f** 'Face down' vitrectomy at the plane of the PCR to clear the vitreous in the plane of PCR and slightly posterior to this plane will reduce the pull on the vitreous base. **g** Once the vitreous is clear from the plane of the PCR and slightly posterior to it, any vitreous strands in the anterior chamber can be removed.

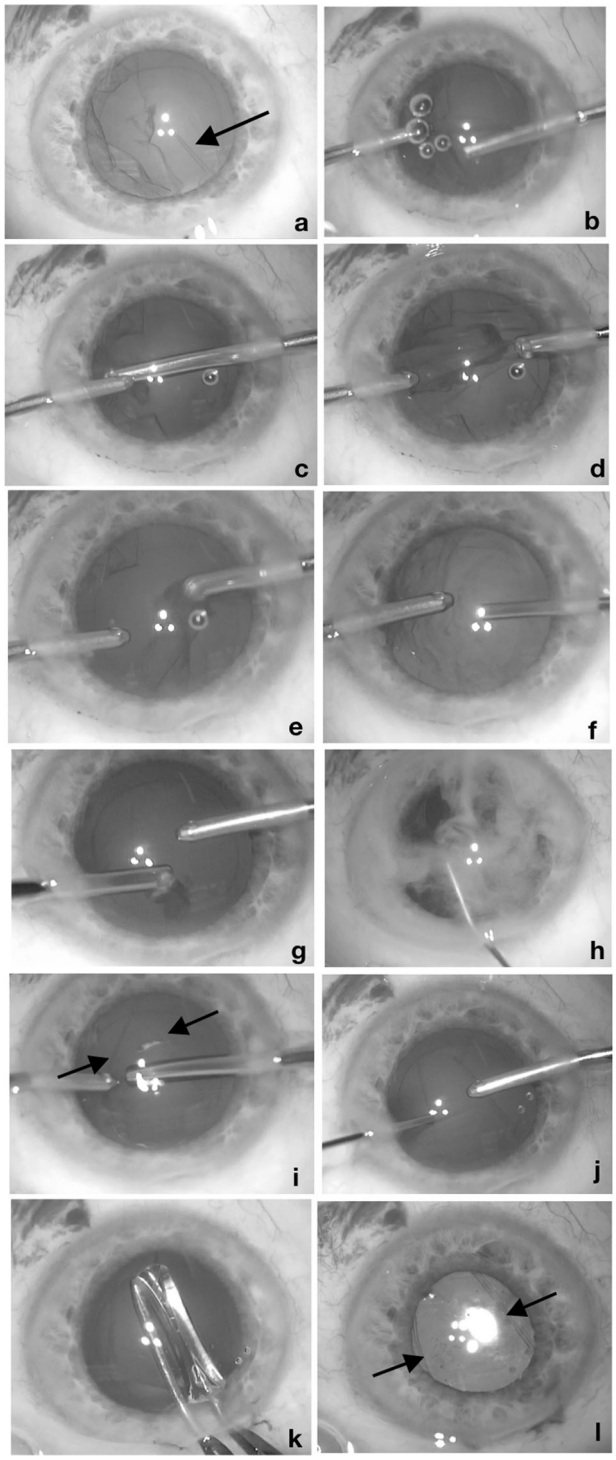

Fig. 2 Real life example of applicaiton of 'Face down' anterior vitrectomy. a PCR seen after complete fragment removal. Some residual cortex see in the capsular bag. **b** 'Face down' anterior vitrectomy at the plane of posterior capsule and anterior vitreous cavity. **c** Switching off the anterior vitrectomy to irrigation and aspiration to remove the residual cortical matter. **d**, **e** Safe irrigation and aspiration with the vitrector after switching off the anterior vitrectomy. **f** Plugging the PCR with dispersive viscoelastic before removing the irrigation. **g** Swapping the instruments in different hands to approach the residual cortex on the opposite site. **h** Injection of intracameral triamcinolone to identify any residual vitreous in anterior segment. **i** 'Face down' vitrectomy deep behind the PCR to clear any prolapsed vitreous. **j** Injection of dispersive viscoelastic in the plane of PCR first followed by sulcus and then in anterior chamber to prepare for intraocular lens implantation in the sulcus. **k** Insertion of three piece intraocular lens into the sulcus. **l** Optic capture with haptic in sulcus and optic behind the torn posterior capsule and constriction of pupil with miotic agent.