and buffering against postoperative intraocular pressure spikes. Pupil block, toxicity to the endothelium, and associated visual phenomenon were not observed in our study. The air bubble disappeared within 24 h minimizing such risks.This simple procedure may reduce intraocular contamination and rate of postoperative endophthalmitis.

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Sir,

Sulcus-based 25-gauge vitrectomy with transscleral intraocular lens fixation

After creating fornix-based peritomies in the 1:30 and 7:30 O'clock meridian and a partial thickness 7 mm superior limbal incision, the trocars of the 25-gauge system are passed 1.5 mm posterior to the limbus, approximately 180° apart, into the sulcus (Figure 1a–f). These are passed parallel to the iris rather than perpendicular to the sclera, and should avoid penetration of the ciliary body. A third trocar may be placed through the sulcus or pars plana. Removal of a cataractous or dislocated lens may be attempted either via the limbal incision or with the vitrectomy instruments. As the 25-gauge vitrector is inadequate to remove nuclear material, enlarging the sulcus sclerostomy to accommodate a 20-gauge vitrector or phacofragmentation device might be required. Once the indicated lens removal and vitreous procedures have been performed, the limbal incision is opened to its full extent. Infusion through one of the ports should be continued in order to maintain globe inflation. Transscleral lens fixation sutures are created by first passing one end of 10-0 polypropylene suture material into the bore of a 27-gauge needle. The needle is then passed through the sclera and into the sulcus, approximately 3 mm from the 1:30 and 7:30 o'clock trocars. The suture is retrieved from inside the eye via the limbal wound with a hook or forceps, and then passed through the eyelet on the intraocular lens (IOL) haptic (Alcon CZ-70BD). If having difficulty threading the needle, one may leave the 10-0 polypropylene suture attached to a straight needle, which could be threaded backwards into the eye through the first port and the suture then retrieved as described. The suture end is then fed back into the anterior chamber and retrieved through the adjacent trocar using 25 g forceps. An alternative method for suture placement, particularly for the transscleral suture more distal to the wound, would be to make the initial pass with the suture through the limbal wound then externally through the sulcus. After removing the trocars, the lens is placed into the eye and rotated into position. The 10-0 suture is tied externally using four to five knots. Finally, the knot is rotated into the eye through the sclerostomy. When rotated properly, it is our experience that suture erosion is not a problem. Although we have not encountered postoperative hypotony through the scleral channels, in cases of concern, it may be reasonable to use fibrin glue placed beneath the conjunctiva to promote adhesion. If not already watertight, the sclerostomy may be closed with absorbable suture, taking care not to cut the transscleral 10-0 suture in the process. The limbal wound and peritomies are closed in a standard manner. It is important that the conjunctiva completely covers the transscleral polypropylene suture in order to minimize the risk of late endophthalmitis.

Case 1

A 68-year-old man was referred for combined vitrectomy and lensectomy after blunt trauma to his right eye from a projectile spring while repairing a lawn mower. Visual acuity was 20/80 and vitreous was present in the anterior chamber. The iris sphincter had a rupture at the 2:00 meridian, and the lens was cataractous with the nasal aspect subluxed posteriorly. A cystic traction tuft, an operculated hole, and a flap tear were found on funduscopic examination. We performed a 25-guage vitrectomy using the described technique, which

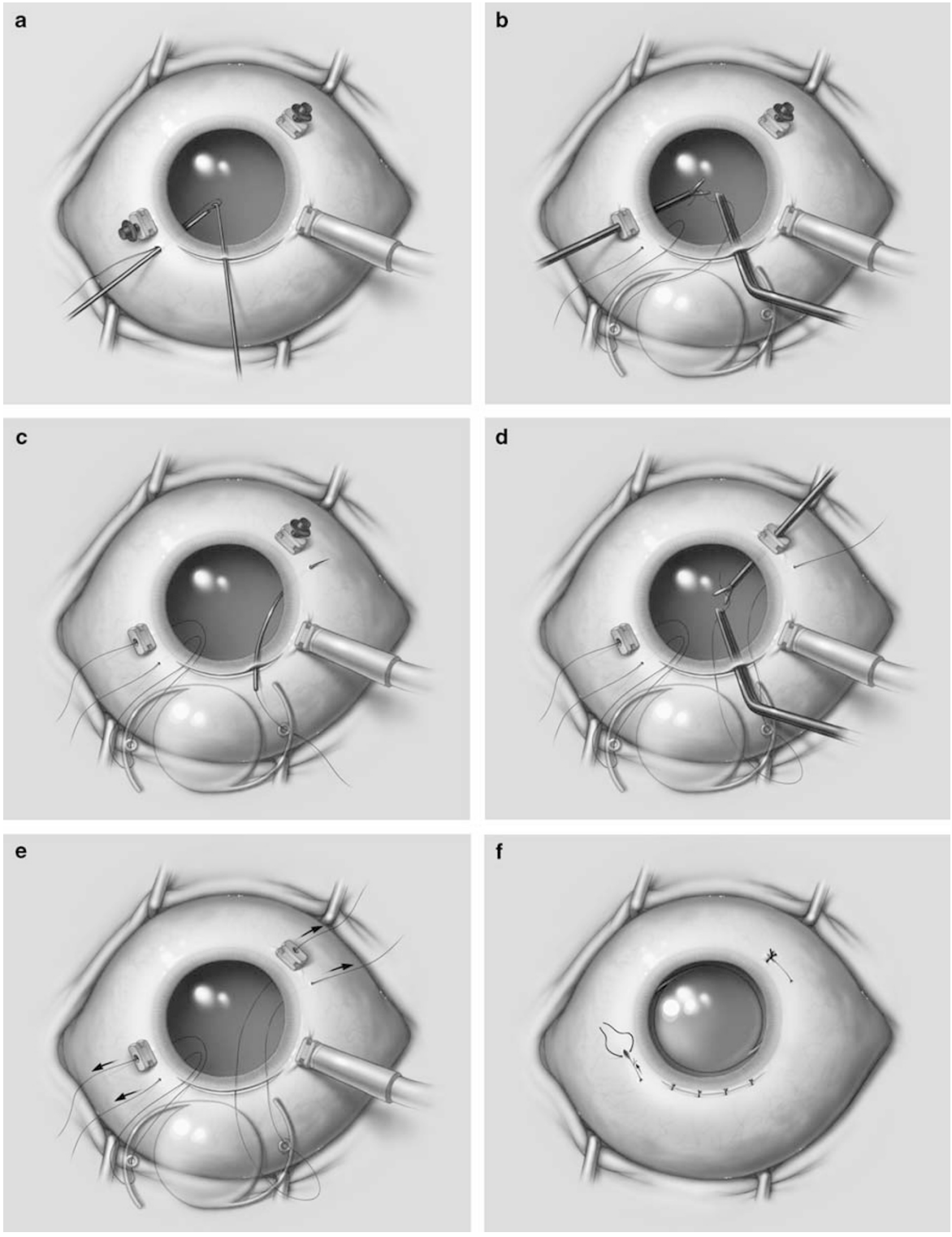

Figure 1 Transscleral intraocular lens fixation after sulcus-based 25-gauge vitrectomy. (a) A 27-gauge needle is used to pass a 10-0 polypropylene suture into the eye and adjacent to the trocar. A hook or forceps is used to retrieve the suture through the limbal wound. (b) After passing the suture through the eyelet of the IOL, it is passed back into the eye and grasped with vitrectomy forceps. (c) For the quadrant opposite the limbal wound, the second polypropylene suture may be passed through the sulcus intra- to extra-ocularly. (d) The other end of the second polypropylene suture is retrieved after passing through the other eyelet on the IOL. (e) The IOL is placed into the sulcus, the sutures are drawn tightly, and the trocars are removed. (f) The polypropylene sutures are tied externally and then rotated into the sclerostomy before suturing the sclerostomy wound. The limbal wound is also closed.

included removal of vitreous anterior to the lens. Phacoemulsification of the lens was then performed followed by endolaser treatment of the peripheral retinal abnormalities. The zonular support was deemed insufficient to support in-the-bag IOL fixation. The capsule was excised, and a posterior chamber IOL (pc IOL) was sutured transsclerally. There were no complications throughout the procedure and the postoperative course was unremarkable.

Case 2

A 45-year-old man was referred after blunt trauma to the right eye leaving him hand motion from a paintball accident. A four-clock-hour inferotemporal iridodialysis was present and was associated with a gap in the zonules allowing strands of vitreous into the anterior chamber. The lens was cataractous and subluxated nasally. In the operating room, transsulcus 25-gauge vitrectomy instrumentation was used to remove vitreous in the anterior chamber by directing the vitrector through the zonular rent and the iridodialysis. This was followed by partial cataract extraction with phacoemulsification from an anterior approach. Part of the lens could not be removed because of the extensive zonular laxity and was therefore removed with the vitrector. The temporal sclerotomy was enlarged to 20 gauge to accomplish this. The posterior chamber IOL was then sutured in place as described below. There were no complications throughout the procedure and the postoperative course was unremarkable.

Comment

Combined vitrectomy and IOL implantation may be necessary in a variety of clinical situations. In trauma cases, several factors need to be considered in preoperative surgical planning, such as the status of the lens and lens capsule. With a compromised capsule or weakened zonular fibers a scleral fixated posterior chamber IOL is an alternative to aphakia, an anterior chamber IOL or an iris fixated IOL. In 1986, Malbran *et al*[1] first described the procedure of suturing an IOL in the posterior chamber. A critical aspect of this technique is to ensure that the knot of the transscleral suture is rotated into the eye through the sclerostomy and buried, thereby minimizing the risk of suture erosion and subsequent endophthalmitis. Subsequently, several techniques have been described to bury the knot.[2–6]

In 2002, Fujii *et al*[7] described the use of a 25-gauge vitrectomy system for a variety of vitreoretinal procedures. Because of the smaller trocar size it can often be performed sutureless.[8]

We describe a new technique for performing combined vitrectomy and transscleral IOL fixation. There are multiple advantages for using the 25-gauge system in the appropriate clinical scenario. One can perform both an adequate vitrectomy and use the sclerotomy sites for multiple purposes, including the retrieval of the IOL suture with the 25-gauge forceps. The trocar site also facilitates the burial of the knot afterwards, diminishing the chance of conjunctival erosion. Using the 25-gauge system also avoids the additional surgical wounds that would be required with the traditional 20-gauge system.

Potential complications include the risk of increased bleeding from the placement of trocars through more vascular tissue than pars plana. Although this complication was not encountered in either of our two cases, increased infusion pressure could tamponade the bleeding, and the blood could be removed with the vitrector at the time of surgery.

We believe that the procedure we describe here, or variations thereof, may be considered among the useful options in the surgical management of combined anterior and posterior segment disease, given the appropriate clinical scenario.

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