

this patient was unable to lie down because of an uncommon muscular disorder, we see many patients who suffer from orthopnea caused by congestive heart disease and chronic obstructive pulmonary disease. Most of these patients are managed preoperatively with medical treatment, including diuretics, bronchodilator inhalers, systemic or inhaled corticosteroids, and positive inotropic cardiac drugs. However, some patients are unable to undergo surgery with these measures, and they are operated on under general anesthesia, which carries substantial risks.

In the past, several novel approaches to surgery in such patients have been attempted, including operating on the patient while standing.^{4,5} Continuous positive airway pressure ventilation may allow some of these patients to undergo cataract surgery under local anesthesia, without placing them at risk for complications of general anesthesia. Ophthalmologists should be aware of this option, which may allow, in consultation with an anesthesiologist, selected patients to undergo ocular surgery under local anesthesia in the standard supine position.

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Modified Technique of Haptic Externalization for Scleral Fixation of Dislocated Posterior Chamber Lens Implants

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PURPOSE: To describe a modified technique of haptic externalization during repositioning of dislocated posterior chamber lens implants, which facilitates placement

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of scleral fixation sutures around the haptic for implant stabilization.

METHODS: We describe a technique of repositioning a dislocated posterior chamber implant with scleral fixation sutures, which uses a small, clear corneal incision for externalization of the haptic. After a loop of 10-0 Prolene suture (Ethicon, Inc., Somerville, New Jersey) is placed around the externalized haptic, the sutures are retrieved through a sclerotomy 1.0 mm posterior to the limbus. The haptic is reimplanted into the ciliary sulcus. A separate scleral fixation bite closes the sclerotomy, and it is tied to the 10-0 Prolene sutures looped around the haptic.

RESULTS: The dislocated implant was stable and fixated in good position 5 months after surgery using this technique.

CONCLUSION: This externalization technique minimizes the extensive intraocular manipulations necessary to create a suture loop around a haptic of a dislocated implant. The clear corneal incision allows for clear visualization during externalization of the haptic. (*Am J Ophthalmol* 2001;131:129-131. © 2001 by Elsevier Science Inc. All rights reserved.)

DISLOCATION OF POSTERIOR CHAMBER IMPLANTS IS becoming increasingly common, but most intraocular lenses can be repositioned using pars plana microsurgical techniques.¹ Scleral fixation techniques are a popular way of refixating dislocated implants, and several techniques have been described.²⁻⁵ Intraocular manipulations can create a suture loop around a haptic internally, but they require intricate surgical maneuvers and increased risk of surgical trauma.²⁻⁴ Externalization of the haptic through a sclerotomy site in the pars plicata allows placement of the suture loop around the haptic externally followed by reimplantation of the haptic.⁵ We describe a modified technique of externalization of a haptic of a dislocated implant through a small corneal incision, placement of a suture loop around the externalized haptic, and subsequent retrieval of sutures through the sclerotomy site for scleral fixation. This technique has the advantage of clear visualization of the haptic during externalization and easier visualization of the nonexternalized haptic for repositioning maneuvers.

Three months after cataract surgery, a 74-year-old man developed sudden onset of blurred vision and a posteriorly dislocated intraocular lens implant in the left eye. Pars plana vitrectomy techniques were used to retrieve the dislocated posterior chamber implant with a straight serrated forceps (Figure 1, a). The implant was repositioned into the anterior chamber with the temporal haptic anterior to the iris. The temporal haptic was externalized through a 1.5-mm clear corneal incision at the 2:00 o'clock meridian after grasping with a long, thin-angled forceps (Figure 1, b). Residual peripheral capsule was adequate

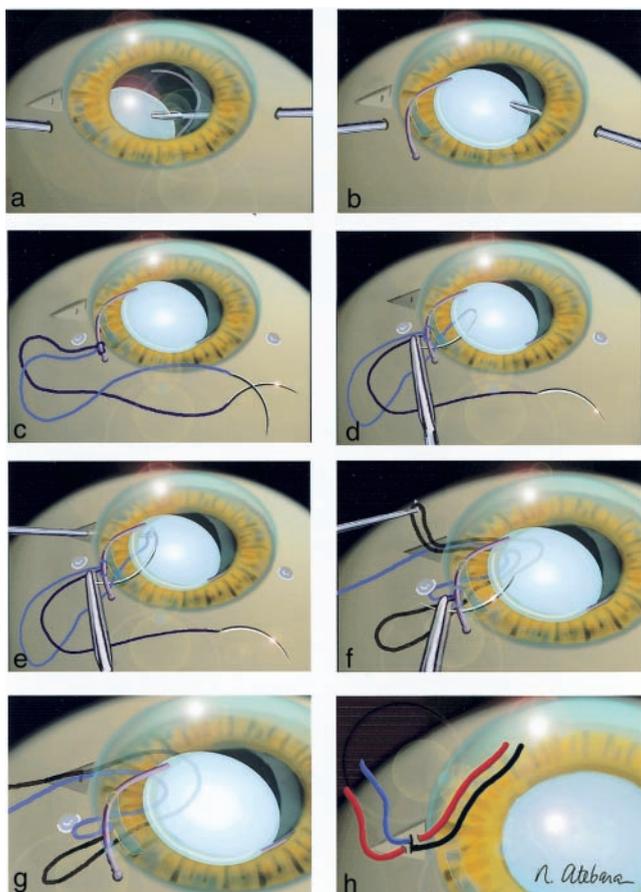


FIGURE 1. (a) After a 3-port pars plana vitrectomy, the dislocated posterior chamber lens implant was retrieved with a straight serrated forceps. To simplify the diagram, the infusion cannula is not shown, and the bed of the triangular scleral flap is shown without the attached flap. A fixation sclerotomy is present 1.0 mm posterior to the limbus underneath the scleral flap. (b) A clear corneal incision approximately 1.5 mm in length is made within one clock hour and counterclockwise from the fixation sclerotomy. The haptic is externalized through the corneal incision superotemporally. Note the implant is partially in the anterior chamber, and the nonexternalized haptic has been repositioned over residual capsule nasally. (c) A loop of a double-armed 10-0 Prolene suture (diagramed as blue and black arms) with long curved needles (CIF-4; Ethicon, Somerville, New Jersey) is placed around the externalized haptic. (d) The long curved needle of the blue arm is placed through the clear corneal incision backward. (e) A Sinskey hook is used to retrieve the suture through the fixation sclerotomy. (f) After the CIF-4 needle is backed out through the clear corneal incision and cut off, the blue arm of the suture is pulled through the sclerotomy. The black arm is retrieved using a similar technique with a Sinskey hook. (g) Both suture arms are looped around the haptic, posteriorly around the pupil and through the fixation sclerotomy with the externalized haptic ready for reimplantation. (h) The haptic is reimplanted, the implant is centered, and the sutures around the haptic are tightened. A separate 10-0 Prolene suture bite (red suture) across the sclerotomy allows closure of the sclerotomy site. This red suture is then tied together to the blue and black arms of the suture looped around the haptic resulting in scleral fixation of the haptic.

nasally, but not temporally. After the temporal haptic was externalized, the nasal haptic was repositioned with direct visualization over residual peripheral capsule (Figure 1, b). The 10-0 Prolene loop (Ethicon, Inc., Somerville, New Jersey) was placed around the externalized haptic (Figure 1, c). The double-armed 10-0 Prolene sutures were placed through the clear corneal incision with the long curved needle (CIF-4; Ethicon, Inc., Somerville, New Jersey) backward (Figure 1, d). After cutting off the needles, the Prolene sutures were then sequentially retrieved through the fixation sclerotomy using a Sinskey hook (Figures 1, e-g). A separate 10-0 Prolene suture bite (red suture in diagram) was placed across the sclerotomy (Figure 1, h) and was subsequently tied together to the sutures around the haptic. This closed the sclerotomy underneath the scleral flap and fixated the haptic to the sclera. Five months after surgery, the implant remained in the stable, central position.

The options for management of visually significant dislocations or subluxations of intraocular lens implants include observation, removal of the implant, exchange of the implant, and repositioning of implant.¹ Most implants can be repositioned, and for dislocated posterior chamber lens implants, either residual capsule or scleral fixation sutures can be used for refixation. Chan described a useful technique of externalization of haptics of dislocated implants through pars plicata sclerotomies, and reimplanting the haptics after placement of the suture loop around the haptic for scleral fixation.⁵ The advantages of externalization are minimizing intraocular manipulations to create a suture loop around the haptic,²⁻⁴ and stabilization of the implant while the suture loop is placed around the haptic. Disadvantages of this technique are the blind externalization of the haptic behind the iris, the possible risk of haptic damage, and the more posterior location of the implant during repositioning maneuvers. Our modified technique allows direct visualization of the externalization of the haptic through a clear corneal incision. The more anterior location of the implant with the haptic externalized through the cornea also facilitates repositioning of the nonexternalized haptic over residual peripheral capsular support. Alternatively, in two subsequent cases without residual capsular support, both haptics can be repositioned sequentially anterior to the iris and externalized through a clear corneal incision. A similar retrieval of sutures through both fixation sclerotomies allows both haptics to be scleral fixated using this modified technique. If an adequate anterior vitrectomy has been performed, both anterior and posterior segment surgical approaches could use this technique in creating a scleral fixation suture around the haptic of an unstable posterior chamber implant. Possible disadvantages of this modified technique include corneal endothelial trauma, need for small corneal incisions, and difficulty in manipulating the dislocated posterior chamber lens implant anterior to the iris through a miotic pupil.

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Increased Incidence of Corneal Perforation After Topical Fluoroquinolone Treatment for Microbial Keratitis

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PURPOSE: To compare the incidence of corneal perforation in eyes treated with topical fluoroquinolone or fortified antibiotics for microbial keratitis.

METHODS: A retrospective medical record review of patients hospitalized for bacterial keratitis from January 1991 through November 1999.

RESULTS: Two hundred seventy-seven cases of bacterial keratitis were identified. The incidence of corneal perforations was significantly higher in fluoroquinolone-treated eyes (18 out of 142, 12.7%) compared with eyes treated with fortified antibiotics (1 out of 135, 0.7%) (chi-square = 13.6, degrees of freedom (*df*) = 2, *P* < .001). Within the fluoroquinolone-treated group, all corneal perforations occurred in those eyes treated with ofloxacin (18 out of 125, 14.4%). Corneal perforations that occurred in the ofloxacin-treated eyes were not associated with any particular microbial isolate.

CONCLUSION: Our data suggest an increased risk of corneal perforation after fluoroquinolone treatment for bacterial keratitis compared with treatment with fortified antibiotics. Further studies are warranted to verify this association and establish possible mechanisms by which topical fluoroquinolones may alter corneal collagen or

keratocyte function. (*Am J Ophthalmol* 2001;131:131–133. © 2001 by Elsevier Science Inc. All rights reserved.)

FLUOROQUINOLONES ARE EFFECTIVE ANTIMICROBIALS with proven activity against a wide range of gram-negative and gram-positive organisms. They have good ocular penetration with reduced toxicity and, thus, are well tolerated when instilled topically. They also have the added advantage of being stable and commercially available. These characteristics have made them convenient antibiotics for use in the management of bacterial keratitis and able to replace fortified antibiotics as the mainstay of treatment. At our hospital, patients admitted with microbial keratitis for intensive antibiotic treatment have been exclusively treated with topical fluoroquinolone since 1995.

Previously, to examine the clinical efficacy of fluoroquinolone drops for treating microbial keratitis, we reviewed inpatient medical records for all cases seen at our hospital between January 1993 through December 1997.¹ We found 9.3% of patients treated with fluoroquinolone (*n* = 54) developed a corneal perforation compared with 0% of patients treated with fortified antibiotics (*n* = 84) (2-tailed Fisher's Exact Test, *P* = .008). Within the fluoroquinolone-treated group, the incidence of corneal perforation was 0 out of 15 (0%) among patients receiving ciprofloxacin compared with 5 out of 39 (12.8%) among patients treated with ofloxacin (2-tailed Fisher's Exact Test, *P* = .31). To extend these findings, we applied the identical study methods to review all patients admitted over nearly 9 years.

The International Classification of Disease discharge diagnosis codes (ICD-9/ICD-10) were used to search the patient database of the Royal Victorian Eye and Ear Hospital to identify all in-patients with corneal ulcers from January 1991 through November 1999. After medical record review, all patients with a viral or fungal cause were excluded. Over this period, 277 cases of bacterial corneal ulcers were identified, 135 eyes (48.7%) were treated with fortified antibiotics (cephazolin 5% and tobramycin 1.36%), and 142 eyes (51.3%) were treated with fluoroquinolone (see Table 1). The incidence of corneal perforations was significantly higher in the fluoroquinolone-treated eyes (18 out of 142, 12.7%) compared with the eyes treated with fortified antibiotics (1 out of 135, 0.7%) (chi-square = 13.6, degrees of freedom (*df*) = 2, *P* < .001). All corneal perforations in the fluoroquinolone group occurred in those eyes treated with ofloxacin (18 out of 125, 14.4%); the number of eyes treated with ciprofloxacin was small (17), and none of these perforated (2-tailed Fisher's Exact Test, *P* = .13).

Table 2 shows the microbiological isolates from our study. The distribution of isolates was similar for the fortified antibiotics and ofloxacin-treated groups, and no

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