Trocar-assisted intrascleral sutureless fixation of a dislocated three-piece sulcus intraocular lens

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ABSTRACT

Trocar-assisted intraocular lens (IOL) reposition surgery using a scleral fixation method was performed for a patient with a dislocated sulcus IOL. Two 3-mm-long scleral tunnels 2 mm from and parallel to the limbus were formed using a 23-gauge vitrectomy trocar transconjunctivally entering the sclera at an angle of approximately 10°. Haptics were collected using a 23-gauge serrated retinal forceps entering from the trocar cannula and externalized from the scleral tunnels together with the trocar. The same procedure was applied for the other haptic. Both haptics were pushed into the scleral tunnel and a transconjunctival secure 10-0 nylon suture was placed at the scleral tunnel entry site around the haptic. Sutures were removed 1 week later. No complications occurred intraoperatively or postoperatively. At a 10-month follow-up, IOL was stabilized. IOL reposition surgery using the trocar-assisted IOL scleral fixation method is a viable alternative to intrascleral fixation surgery.

Keywords: Lens, intraocular; Lens implantation, intraocular; Sclera/surgery; Prosthesis failure; Ophthalmologic surgical procedures; Humans; Case reports

INTRODUCTION

Intraocular lens (IOL) malposition/dislocation is a possible complication of cataract surgery. The most common causes of postoperative IOL dislocation is insufficient capsular support in the early period and dislocation of the bag due to progressive zonular dialysis in the late period. The choice of decentralized vs. dislocated IOL treatment is dependent on the clinical features of the patient and the experience and preference of the surgeon. When a decentralized or dislocated IOL is extracted, it could be re-implanted in another position or switched to another type of IOL. It is important to evaluate residual capsular support to choose an optimal IOL reposition. IOL reposition may be adequate for patients with capsular support for whom scleral fixation methods are preferred in case of insufficient capsular support.

Current sutureless scleral fixation methods are popular for the treatment of aphakic patients without sufficient capsular support. Furthermore, Singh and Bhalekar used a sutureless pars plana vitrectomy method with 23-gauge serrated retinal forceps for treatment of dislocated IOL. We report reposition of a decentralized IOL previously implanted in the sulcus with a trocar-assisted, sutureless, scleral fixation method.

CASE REPORT

A 70-year-old male presented with low vision and glare 3 months after cataract surgery. An inferiorly dislocated three-piece IOL was observed in the sulcus at the initial examination (Figure 1 A). We planned to fix the implanted IOL with our sutureless technique, which requires less manipulation since IOL was not explanted. After marking the peripheral cornea at 180° between the 3 and 9 o’clock positions, two opposite corneal incisions were made with a microvitrectomy knife. The anterior chamber was filled with an ocular viscoelastic substance and the three-piece IOL was passed into the anterior chamber with the help of two Sinsky hooks (Figure 1 B). After this point, the procedure was similar to the trocar-assisted scleral fixation method, as described in our previous reports. A 3-mm scleral tunnel was formed 2 mm from and parallel to the limbus with a 23-gauge vitrectomy trocar entering the sclera transconjunctivally at an angle of approximately 10° (Figure 1 C). A second scleral tunnel was formed with the same technique 180° from the first (Figure 1 D). Afterward, 23-gauge retinal forceps were entered into the posterior camera through one of the prepared cannulas, whereas a 23-gauge retinal forceps was entered into the anterior chamber through the paracentesis to grasp the conteralateral IOL haptic. The haptic was
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Figure 1. A) An IOL is seen dislocated inferiorly in the sulcus. B) IOL is brought to the anterior chamber with the help of two Sinsky hooks. C) A scleral tunnel was formed with a trocar entering the sclera at a 10° angle. D) Two trocar were placed 180° apart. E) Haptics were captured with two 23-gauge serrated retinal forceps: one entering from the corneal incision and the other from the trocar cannula. F) The haptic were extracted together with the trocar.

Figure 2. A) The second haptic was captured with a 23-gauge serrated forceps entering from the trocar. B) The second haptic was extracted together with the trocar. C) A secure suture was placed around the haptic. D) Postoperative appearance (fixated IOL is seen centralized).

grapsed by the tip then advanced to the 23-gauge forceps. The haptic and 23-gauge cannula were explanted simultaneously from the sclerotomy (Figure 1 E). The same procedure was applied to the other haptic (Figure 2 A, B). Both haptics were pushed into the scleral tunnel and a transconjunctival safety 10-0 nylon suture was placed at the scleral tunnel entry site (Figure 2 C). The sutures were removed 1 week later. No complications occurred intraoperatively or postoperatively (Figure 2 D and 3). At a 10-month follow-up exam, IOL was stabilized.

DISCUSSION

Many complications of cataract surgery can cause IOL decentralization, such as asymmetric IOL implantation, capsular tearing, and zonular dialysis. Surgical treatment is necessary in case of glare, diplopia, or loss of visual acuity due to severe IOL decentralization or dislocation(1-3). In the literature, numerous surgical methods have been described to treat such cases. The choice of an optimal and convenient method is dependent on the condition of the capsule(2,3). In case of insufficient capsular support, IOL extraction followed by
red scleral fixation techniques, are avoided, resulting in less damage to the surrounding tissue. In addition, since this method is performed transconjunctivally, the conjunctiva is preserved for possible further intervention. Entering the instruments through a trocar also helped to avoid possible damage to the surrounding tissue(7,8). There have been relatively few reports of complications with sutureless scleral fixation, such as IOL decentralization (incidence, 1.97%-5%), cystoid macular edema (1.97%-13.3%), optic capture (2.6%-14.3%), subconjunctival haptic (19%), conjunctival erosion due to haptic exposure (12.5%), transient vitreous hemorrhage (6%-18%), and retinal detachment. None of these complications occurred in the present case(4-8). To the best of our knowledge, this is the first case of sutureless reposition IOL with the aid of a trocar.

In conclusion, IOL reposition surgery using a trocar-assisted IOL scleral fixation method is a viable alternative to intrascleral fixation surgery.

REFERENCES