

Modifying the position of cataract incisions in triple procedure

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PURPOSE. *The authors present a surgical technique for enhancing the visualization of the lens capsule by lamellar corneal dissection and performing phacoemulsification through the partially trephined recipient bed in eyes undergoing penetrating keratoplasty combined with cataract surgery.*

METHODS. *First, the cornea was thinned by lamellar dissection in 11 patients undergoing triple procedure (penetrating keratoplasty, phacoemulsification, and intraocular lens implantation). After continuous curvilinear capsulorhexis (CCC) was performed in the closed system, phacoemulsification was carried out through the incisions that were created on the partially trephined recipient bed. The trephination was completed by excising the remaining corneal tissue and intraocular lens was implanted. At the end of the surgery, donor cornea was sutured into the recipient bed.*

RESULTS. *The cataract surgery was performed in a closed system and the cataract incision places were removed at the end of the surgery; therefore both CCC and phacoemulsification could be completed easily without any intraoperative complication in 11 eyes of 11 patients.*

CONCLUSIONS. *Phacoemulsification, through the recipient bed that is thinned by lamellar dissection, could be safely performed in a short time, under good view of the lens. (Eur J Ophthalmol 2008; 18: 891-4)*

KEY WORDS. *Triple procedure, Cataract surgery, Keratoplasty*

Accepted: April 23, 2008

INTRODUCTION

Combined penetrating keratoplasty, extracapsular cataract extraction, and intraocular lens implantation (triple procedure) was first performed by Lindstrom in 1981 (1). Since continuous curvilinear capsulorhexis (CCC) was introduced in cataract surgery, it also became a part of triple procedure (2). A well-performed CCC is an indispensable part of the triple procedure (3), because it is important to maintain the entirety of the capsule for performing an uncomplicated surgery. Most authors suggested performing the cataract surgery through sclerocorneal tunnel before trephination. But this technique requires sufficient corneal clarity for visualization of the lens. In

opaque corneas, corneal lamellar dissection could be performed (3-6) or temporary corneal grafts could also be used before cataract surgery (7) for enhancing the capsular view. Thus, the safety of the surgery increases with performing it in a closed system.

In all of these procedures the cataract incisions are placed in the recipient corneal tissue and should be closed at the end of the surgery. We herein describe a technique for modifying the position of the cataract incisions (as a temporary way) in cases with opaque corneas and performing lamellar dissection for better visualization of the capsule. Thus the phacoemulsification is performed in a closed system and the surgery is completed without cataract incision places.

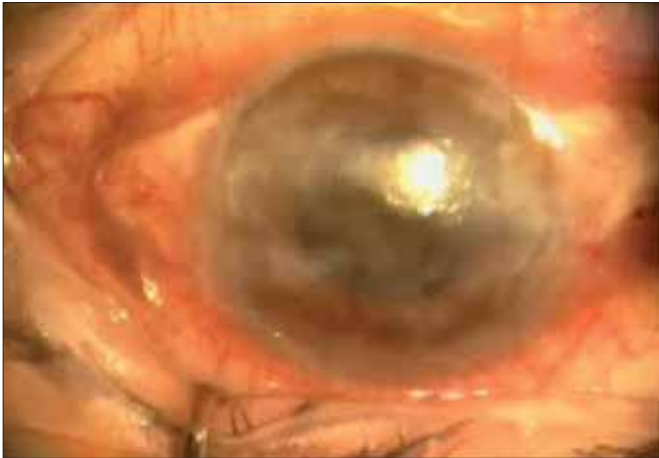


Fig. 1 - Opaque cornea and cataract.



Fig. 2 - Lamellar trephination of the cornea.



Fig. 3 - Lamellar dissection of the cornea.

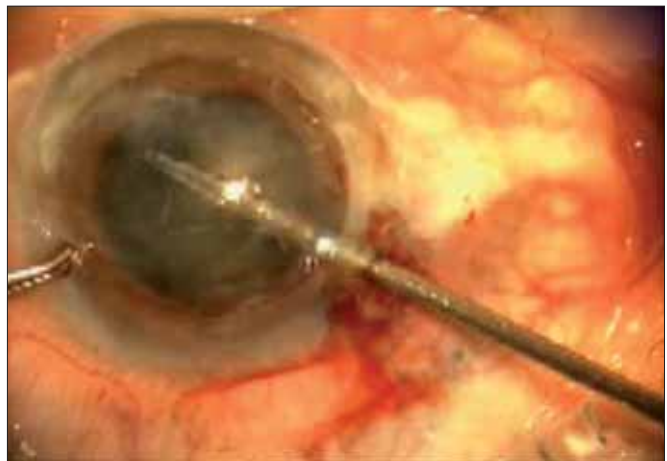


Fig. 4 - Capsulorhexis.

METHODS

Eleven eyes of 11 patients with cataract and corneal opacity owing to stromal and endothelial diseases underwent combined penetrating keratoplasty, phacoemulsification, and intraocular lens implantation. All patients were operated by one surgeon (M.B.).

Surgical technique

After marking the central cornea, a half thickness corneal incision was performed with a 7.50 mm trephine. Then, the half of the corneal thickness was removed by lamellar corneal dissection. After sufficient corneal clarity was acquired for visualization of the lens capsule, side ports were

prepared with 20 G MVR knife. Subsequently, the anterior chamber was filled with viscoelastic substance. Capsulorhexis 5.5 to 6.0 mm in diameter was performed with a microincision capsulorhexis forceps that could pass through the side port. The cataract incisions and side ports for entry of phaco probe were performed on the partially trephined recipient bed. The nucleus was fragmented into several pieces by using quick or prechop techniques. Corneal folding did not cause any intraoperative problems related to capsulorhexis and phacoemulsification. After finishing phacoemulsification through the cataract incisions, trephination was completed. Then intraocular lens was implanted into the capsular bag. Finally, the donor tissue was sutured to the recipient bed with 10.0 nylon and the viscoelastic substance in the anterior chamber was removed (1-8).

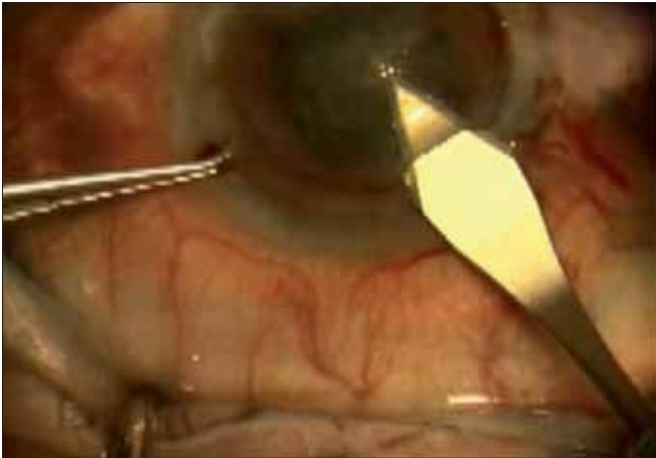


Fig. 5 - Performing the cataract incision.

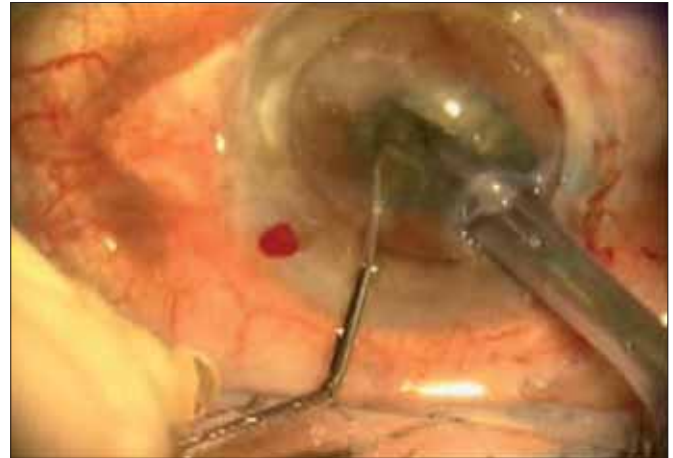


Fig. 6 - Phacoemulsification.

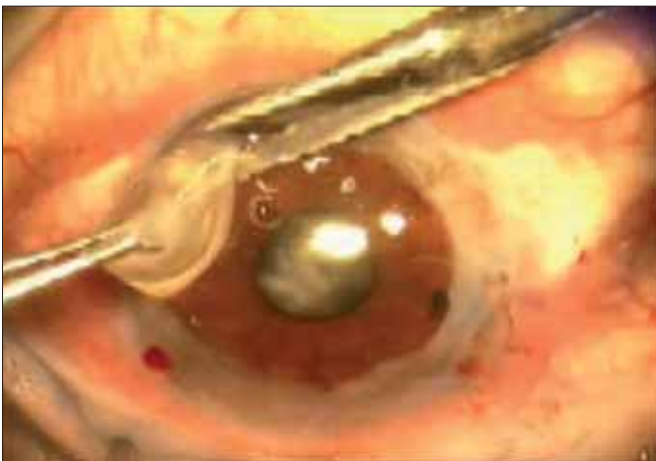


Fig. 7 - Completing the trephination.

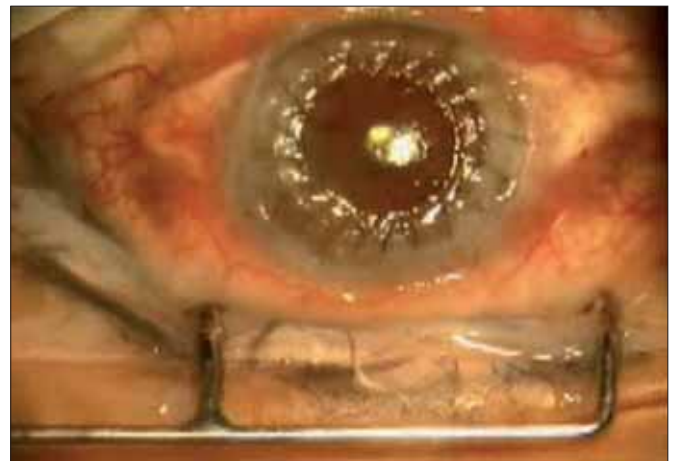


Fig. 8 - Suturing the donor cornea.

RESULTS

This study included 11 eyes of 11 patients. We did not observe any intraoperative complication associated with the technique. Mean follow-up period was 5 months (range, 1–24 months). On the first postoperative day, elevated intraocular pressure was noted in one case (9%) and postoperative corneal edema was observed in three cases (27%). These postoperative complications were treated topically and recovered within 1 week.

DISCUSSION

Triple procedure has been performed for a long time and it seems to be a safe procedure for faster visual rehabilita-

tion (3). Since capsulorhexis is a part of the surgery, intraoperative complications have been reduced significantly. Several techniques are presented for enhancing the view of the lens capsule (3, 7, 8). During open-sky cataract extraction, capsulorhexis tear occurred in almost 15% of our cases. Lamellar corneal dissection could be performed at a required depth and acquires sufficient corneal clarity for visualization of the lens capsule. But in these techniques, performing a different cataract incision causes some specific problems and an additional incision place occurs that has to be closed after the surgery. Performing the incisions for phacoemulsification on the partially trephined recipient bed is the most important part of our technique. When the trephination is completed, the incision places would be excised and removed with the

remaining corneal tissue. The incisions for phacoemulsification and side ports are not sutured. In this way, stability between the recipient bed and donor cornea is obtained and also, it is not necessary to remove the sutures in the postoperative period. Finally, the triple surgery is completed without the cataract incision places and associated postoperative complications. Long term and large series for demonstrating the efficacy of this technique on performing cataract surgery in closed system in triple procedures are required.

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The authors report no financial support or proprietary interest in any of the instruments or products mentioned in this article.

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