CASE REPORT

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Phacoemulsification After Penetrating Keratoplasty Due War Injury at Young Adult

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ABSTRACT

Introduction: It is known that phacoemulsification of cataracts after penetrating keratoplasty there are always some difficulties and of course a higher rate of different intraoperative complications. Phacoemulsification after PK may cause significant endothelial injury and affect long term graft survival. **Aim:** The aim of this report is to describe one of these cases and the possible ways to manage them. **Case report:** We report a case of a 31-year-old female patient, with a cataract on her left eye. She reported that when she was 10 years old, she was admitted to regional hospital in Bosnia and Herzegovina due perforative corneal war injury. At the age of 11 years at Germany on her left eye corneal transplantation was performed. She reported that she wasn't ever seeing quite good, due high myopia. Twenty years after war injury she was admitted to hospital. At that moment patient has been ophthalmologically examined (visual acuity testing, biomicroscopy, tonometry, ultrasound of both eyes with biometry and ophthalmoscopy). At the day of admission to the hospital on slit lamp we found occlusion of pupil and complicated cataract. Her only wish was to get operated due cosmetic reasons. Before surgery her visual acuity on her left eye was light perception. Thirty days after surgery her visual acuity was 0,1 without correction. **Conclusion:** It is concluded that cataract surgery in patients after keratoplasty is more complicated. Therefore, these patients should be managed with utmost care and operated by an experienced surgeon.

Keywords: war injury, keratoplasty, phacoemulsification.

1. INTRODUCTION

Formation of cataracts can be accelerated after penetrating keratoplasty (PK) and these eyes may need after penetrating keratoplasty also cataract surgery. There are three main reasons why after PK, accelerated formation of cataracts can occur. The most common is that there is a progression of pre-existing, immature cataract. The other two reasons are iatrogenic. First iatrogenic reason could be due bed manipulation during surgery. In this case the surgeon could damage lens capsule during keratoplasty. This is very rare but it could happen. Second iatrogenic cause of cataract is so called drug-induced cataract from postoperative long-term steroid use (1).

Currently all over the world is accepted combined surgery which includes PK, cataract extraction, and intraocular lens (IOL) implantation. This procedure is very effective and very often termed as the triple procedure. Different authors have reported that the main advantage of this so called triple procedure is that elimi-

nate costs and the inconvenience of a second procedure, which is of great benefit for the older patients (2, 3). It is also very important to emphasize that this triple procedure, has one big disadvantage which is inaccuracy in IOL power prediction. For the first time combined extraction and PK was reported in year 1966. by Katzin and Meltzer (4). Already in year 1976, Taylor added IOL insertion (5). It is also reported that during cataract surgery in eyes that have undergone PK previously exist few advantages but as well few disadvantages. After PK, cataract extraction and IOL implantation may give the operator better refractive outcomes (6). Post-keratoplasty astigmatism could be corrected by implanting a special IOL, called toric IOL. It is advised that cataract extraction should always be postponed at least twelve months after PK procedure. The operating team should wait for the cataract surgery until all the sutures are removed and graft curvature is very stable. The second surgical procedure could also have other disadvan-

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Figure 1. Before the surgery anterior segment of the eye

Figure 2. After the surgery, the anterior segment of the eye

tages such as expenses and risks of a second anesthesia, endophthalmitis, and expulsive bleeding, in addition to damage to the graft endothelium (7). Despite the advantages associated with both approaches, there is no consensus over the superiority of either one with respect to the conflicting results of different studies (8). A questionnaire among anterior segment surgeons in United Kingdom showed that triple surgery appears to be more popular (9).

Here we describe the intraoperative surgical details and postoperative clinical course of a 31 year-old female who underwent phacoemulsification with intraocular lens implantation following cataract development twenty years after PK.

2. CASE REPORT

A 31-year-old woman presented to a clinic with complicated cataract. She reported that when she was 10 years old, she was admitted to regional hospital in Bosnia and Herzegovina due perforative corneal war injury. At the age of 11 years at Germany on her left eye corneal transplantation was performed. She reported that she wasn't ever seeing quite good, due high myopia. Twenty years after war injury she was admitted to hospital. At that moment patient has been ophthalmologically examined (visual acuity testing, biomicroscopy, tonometry, ultrasound of both eyes with biometry and ophthalmoscopy). Ocular examination on admission day to hospital revealed her best visual acuity to be 0,9 RE (right eye) and light perception on her LE (left eye). Results on his slit lamp revealed no pathological findings on right eye and on left eye we found occlusion of pupil and complicated cataract. Her pupil size and reaction on right eye was normal, while reaction on her left eye was slow. Her ocular movements were normal in all gazes. Her intraocular pressure was also normal. Examination of the right fundus revealed a myopic, tilted disc, peri-papillary atrophy and staphyloma. The vitreous was quiet and retinal vessels were of normal caliber. Details on the founts of left eye were impossible to asses due the changes in anterior segment (Figure 1).

An ultrasonographic evaluation was performed on both eyes and a measurement of depth of anterior cham-

ber. Depth of anterior chamber on her left eye was 3,2 mm and axial length (AL) of her lef eye was 29mm.

Operation was performed in local peribulbar anesthesia, which was achieved using 2% lidocaine, with anti-septic preparation based on povidone - iodine use, 10% on periocular area skin during dilation and 5% into conjunctival sac on the operating table and vancomycin (1.0 mg/0.1 mL) intracameral injection at the end of the procedure. Phacoemulsification was performed under operating microscopes Operative Microscope OPMI Visu 150 Carl Zeiss Meditec Inc, Dublin, using Alcon Infiniti® Vision System Fort Worth Texas USA, sodium hyaluronate (Provisc® Alcon) as viscoelastic and surgical instruments Alcon and Geuder AG Heidelberg Germany. We performed cataract extractions with phacoemulsification. The implantation of posterior chamber intraocular lens was done using an adequate injector. The remaining viscoelastic material was aspirated from the anterior chamber (Figure 2).

Follow up was performed on days 1 and 7, and then after one month and 10 months. Postoperatively, the patient used dexamethasone-neomycin polymyxin B eye drops four times a day for 1 month. One month after cataract surgery her best visual acuity on operated left eye was 0.1 without correction. The patient achieved a best-corrected visual acuity of 0,2 without correction at 10 months' follow-up with a clear corneal graft.

3. DISCUSSION AND CONCLUSION

It is known that phacoemulsification of cataracts after penetrating keratoplasty there are always some difficulties and of course a higher rate of different intraoperative complications. The key point for successful phacomulsification is continuous curvilinear capsulorhexis. Continuous curvilinear capsulorhexis in complicated cataracts it is more challenging. Often, the capsule is more fragile and there is high intracapsular pressure, so capsulorhexis tear tends to escape to the periphery. Despite there is always a higher rate of intraoperative complications, we are confident when we are saying that complicated cataracts such are cataracts after PK can be safely operated on with phacoemulsification technique. The main goal of the surgeon should always be not to cause

any kind of endothelial injury. It is reported by Kim and others (9) that phacoemulsification-related endothelial cell loss in transplanted corneas is higher than that in normal corneas. We are emphasizing that during cataract surgery, operating team should approach to each patient individually. This case is unique due high myopic, perforative corneal war injury, corneal transplantation and twenty years after that formation of cataract. Apart of that, this particular patient wanted to get operated only due cosmetic reasons and she wasn't expecting to see any better. Also the other reason why this case is unique is the fact that in region of Bosnia and Herzegovina and as well in the neighbor countries there is no similar publication. Due all facts mentioned before these kind patients should be managed with utmost care and operated by an experienced surgeon. It is also very important to have in mind that cataract surgery following penetrating keratoplasty is safe and effective procedure, with a low but definite risk of corneal graft failure. In patients with clear graft and visually significant cataract, cataract extraction alone is preferred over repeat keratoplasty and cataract extraction (10). The type of IOL is important to correct high postkeratoplasty astigmatism (11).

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- **Conflicts of interest:** All authors have none to declare.

REFERENCES

1. Alok Sati Lt Col, Ramappa M, Chaurasia S. Case report- Cataract following endothelial keratoplasty (EK) in a child. *Medical Journal of India*. 2013; 69:398-9.
2. Lee JR, Dohlman CH. Intraocular lens implantation in combination with keratoplasty. *Ann Ophthalmol*. 1977; 9: 513-8.
3. Javadi MA, Feizi S, Moein HR. Simultaneous Penetrating Keratoplasty and Cataract Surgery. *Journal of Ophthalmic and Vision Research*. 2013; 8(1): 39-46.
4. Katzin HM, Meltzer JF. Combined surgery for corneal transplantation and cataract extraction. *Am J Ophthalmology*. 1966; 62(3): 556-60.
5. Taylor DM. Keratoplasty and intraocular lenses. *Ophthalmic Surgeon*. 1976; 7(1): 31-42.
6. Shimmura S, Ohashi Y, Shiroma H, Shimazaki J, Tsubota K. Corneal opacity and cataract: triple procedure versus secondary approach. *Cornea*. 2003; 22: 234-8.
7. Pineros OE, Cohen EJ, Rapuano CJ, Laibson PR. Triple vs nonsimultaneous procedures in Fuchs' dystrophy and cataract. *Arch Ophthalmol*. 1996; 114: 525-8.
8. Burdon MA, McDonnell P. A survey of corneal graft practice in the United Kingdom. *Eye (Lond)*. 1995; 9: 6-12.
9. Kim EC, Kim MS. A comparison of endothelial cell loss after phacoemulsification in penetrating keratoplasty patients and normal patients. *Cornea*. 2010 May; 29(5): 510-5.
10. Nagra PK, Rapuano CJ, Laibson PL, Kunimoto DY, Kay M, Elisabeth J. Cataract extraction following penetrating keratoplasty. *Cornea*. 2004; 23(4): 377-9.
11. De Sanctis U, Eandi C, Gringolo F. Phacoemulsification and customized toric intraocular lens implantation in eyes with cataract and high astigmatism after penetrating keratoplasty. *Journal of Cataract and Refractive Surgery*. 2011; 37(4): 781-5.