

Case Report

Intra Corneal Cleft Secondary to Ocular Massage after Ahmed Valve Surgery

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Abstract

Purpose: To report a case of acute intra corneal cleft in a patient undergoing ocular massage following Ahmed valve implantation.

Case Report: Acute intra corneal cleft occurred in a patient following the use of ocular massage to reduce IOP and bleb formation after Ahmed glaucoma valve insertion. Previous history of the patient was Fuchs heterochromic iridocyclitis without any report of trauma to his eye or any other ophthalmic disorders. The slit lamp examination revealed huge localized corneal bulla formation with a diameter of 3 mm in the superior mid peripheral corneal region of the right eye just after ocular massage, which persisted after 6 months of follow up.

Conclusion: Digital ocular massage might cause the occurrence of intra corneal cleft. Although this might be a very rare complication, we should consider it as an adverse effect of ocular massage.

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Introduction

Digital ocular massage is a common method for management of intraocular pressure (IOP) after trabeculectomy surgery and is considered efficient and safe when performed by an expert ophthalmologist¹. Previous studies report a 20 % drop in IOP among 50 % of patients after ocular massage in hypertensive phase after Ahmed valve surgery¹. However, complications including secondary endophthalmitis, bleb rupture, hyphema, hypotony, iris incarceration, choroidal hemorrhage, corneal ectasia, shallowing of the anterior chamber and keratoconus-like corneal hydrops are well described in case of inappropriate massaging^{2,3}. To the best of our knowledge, in this report we present the first case of intra stromal cleft, secondary to ocular massage following Ahmed valve implantation, in English literature.

Case Report

This case report was approved by the ethics committee of Basir Eye Health Research Center, Tehran, Iran, and written consent was obtained from the patient to report his case. A 40 year old man presented to our glaucoma department, Basir Eye Clinic, Tehran, Iran, with a history of Fuchs heterochromic iridocyclitis. Patient had a history of previous trabeculectomy in his right eye 3 years ago and at the first visit to our clinic had an IOP of 40 mmHg, measured by the Haag-Streit Goldmann applanation tonometer AT 900. Due to his history of Fuchs heterochromic iridocyclitis he was using four IOP lowering medications including timolol, dorzolamide, latanoprost ophthalmic solution, and brimonidine eye drop. The detailed slit lamp examination revealed grade 1+ of inflammatory cells in the anterior chamber (AC), accounting for 6-10 cells per field. The visual field index (VFI) was 80 % and the cup

to disc ratio (CDR) was 0.4. Patient underwent Ahmed glaucoma valve (AGV) implantation in his right eye due to the rise of IOP. The postoperative drug regimen included topical betamethasone 0.1 % and ciprofloxacin eye drops every 2 and 6 hours, respectively. In the first and second postoperative weeks, IOP was measured as 10 and 12 mmHg, respectively. During the third postoperative week, the IOP in his right eye increased to 20 mmHg. The pressure decreased to 10 mmHg after three seconds of ocular massage; however, he developed an acute localized intra corneal bulla just after ocular massage. Examination by slit lamp revealed a huge localized corneal bulla with diameter of 3 mm in the superior mid peripheral corneal region of the right eye (Figure 1). At this point bromocriptine and timolol were initiated for the patient. A follow up exam after 6 months revealed an intracorneal cleft, visual acuity of 10/10 and IOP of 12 mmHg. Based on clinical examinations, we diagnosed the patient with corneal epithelial cleft, which remained persistent 6 months after ocular massage.

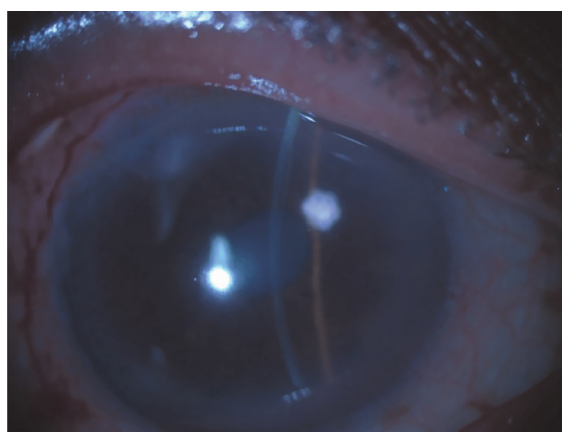


Figure 1: Slit lamp photograph showing localized corneal bulla in the superior mid peripheral corneal region after ocular massage

Discussion

Digital ocular massage is a well known method for IOP control following trabeculectomy surgery. The purpose of digital ocular massage is to increase aqueous flow in surgical site, which leads to enlargement of the filtration bleb, reduction of IOP and inhibition of scar formation³. However, there are no guidelines regarding the optimum duration of ocular massage or the applied force.

The effect of massage after glaucoma drainage device (GDD) implantation is yet to be established. A hypothesis for effectiveness of ocular massage is that it forces aqueous flow from eye through the Ahmed valve, which subsequently eliminates the inflammatory markers from the tube and valve¹. The other hypothesis is that ocular massage might reduce IOP by affecting bleb morphology¹.

The response to ocular massage is variable and mostly temporary, with rare but well defined

complications^{2,3}. Various case studies have reported serious complications for ocular massage including acute keratoconus-like corneal hydrops, keratectasia^{4,5}, IOP increase up to 100 mmHg⁶, bleb rupture⁷, and iris incarceration into the trabeculectomy site⁸.

To the best of our knowledge, acute intracorneal epithelial cleft secondary to ocular massage following GDD surgery, has not been reported elsewhere in the English literature. Also, most of the complications in previous studies occurred after vigorous and frequent massaging; while in our case, intra corneal bulla appeared immediately after three seconds of a single ocular massage.

Conclusion

Digital ocular massage might cause the occurrence of intra corneal cleft. Although this might be a very rare complication, we should consider it as an adverse effect of ocular massage.

References

1. Smith M, Geffen N, Alasbali T, Buys YM, Trope GE. Digital ocular massage for hypertensive phase after Ahmed valve surgery. *J Glaucoma*. 2010;19(1):11-4.
2. Kane H, Gaasterland DE, Monsour M. Response of Filtered Eyes to Digital Ocular Pressure. *Ophthalmology*. 1997;104(2):202-6.
3. Ali M, Akhtar F. Ocular digital massage for the management of post-trabeculectomy under filtering blebs. *J Coll Physicians Surg Pak*. 2011;21(11):676-9.
4. Fakhraie G, Vahedian Z. Post Filtering Surgery Globe Massage-induced Keratoconus in an Eye with Iridocorneal Endothelial Syndrome: A Case Report and Literature Brief Review. *Journal of ophthalmic & vision research*. 2016;11(3):319-22.
5. Baldassare R, Brunette I, Desjardins D, Amyot M. Corneal ectasia secondary to excessive ocular massage following trabeculectomy with

- 5-fluorouracil. *Canadian journal of ophthalmology Journal canadien d'ophtalmologie*. 1996;31(5):252-4.
6. Honda Y, ichiro Kawano S, Negi A, Koizumi K. Pressure profile of ophthalmic surgical procedures: an experimental study on the rabbit eye. *Ophthalmic Surgery, Lasers and Imaging Retina*. 1982;13(5):387-91.
7. Miller GR, Kurstin J. Ruptured filtering bleb after ocular massage. *Archives of Ophthalmology*. 1966;76(3):363.
8. Segrest DR, Ellis PP. Iris incarceration associated with digital ocular massage. *Ophthalmic Surgery, Lasers and Imaging Retina*. 1981;12(5):349-51.

Footnotes and Financial Disclosures

Conflict of interest:

The authors have no conflict of interest with the subject matter of the present manuscript.