Modified intraocular lens injector assisted rescue technique for failed viscoexpression in a case of intracameral cysticercosis

Rouli Sud, Pallavi Sharma, Brijesh Takkar[1,2], Sumeet Khanduja

Intracameral cysticercosis is a rare disease, and surgical management with viscoexpression is the preferred technique. We discuss a novel technique for removal of anterior chamber parasitic cysts and present it as an alternative to the conventional viscoexpression. Our technique uses a custom-made assembly combining an intraocular lens (IOL) cartridge with an aspiration cannula. We compare its utility with the preexisting surgical methods.

Key words: DMEK injector assembly, intracameral cysticercosis, surgery for cysticercosis

Access this article online

Quick Response Code:

Website: www.ijo.in

DOI: 10.4103/ijo.IJO_1488_19

Ocular cysticercosis can involve the subconjunctival space, anterior chamber, extraocular muscles, subretinal space or the vitreous cavity. Posterior segment involvement is the more frequent site.[1-4] The presence of live intracameral parasitic is a rare condition. The most favored technique of extracting the cyst from the anterior chamber is viscoexpression, in which viscoelastic is injected in the anterior chamber followed by subsequent methodic decompression leading to extrusion of the cyst in a gush of leaking viscoelastic.[5] Other described techniques include extraction with capsule forceps, cryoextraction, and erysiphake extraction.

We describe a new technique of in toto cyst extraction of intracameral cysticercosis using a custom-made intraocular lens (IOL) cartridge and simcoe aspiration cannula assembly.

Department of Ophthalmology, Kalpana Chawla Government Medical College and Hospital, Karnal, Haryana, [1]Department of Ophthalmology, All India Institute of Medical Sciences, Bhopal, Madhya Pradesh, [2]Smt Kanuri Santhamma Centre for Vitreoretinal Diseases, LV Prasad Eye Institute, Hyderabad, India

Correspondence to: Dr. Sumeet Khanduja, Department of Ophthalmology, Kalpana Chawla Government Medical College and Hospital, Karnal - 132 001, Haryana, India. E-mail: drkhanduja@gmail.com

Received: 14-Aug-2019 Revision: 23-Oct-2019
Accepted: 10-Nov-2019 Published: 20-Apr-2020

Cite this article as: Sud R, Sharma P, Takkar B, Khanduja S. Modified intraocular lens injector assisted rescue technique for failed viscoexpression in a case of intracameral cysticercosis. Indian J Ophthalmol 2020;68:932-4.

This technique was deployed as a rescue maneuver following failed viscoexpression.

Case Report

A 56-year-old woman presented for presbyopic correction. Best-corrected visual acuity was 20/20 in both eyes. On slit-lamp examination, a translucent cyst with a central scolex, approximately 2 mm in diameter was seen floating freely in the anterior chamber of the left eye. The cyst wall had a shiny tinge to it and exhibited intermittent undulating movements on exposure to bright light [Fig. 1]. A clinical diagnosis of live anterior segment cysticercosis was made. There was no associated inflammatory reaction in the anterior or posterior segment and fundoscopy was normal. The examination of the right eye was unremarkable.

Neuroimaging was done to rule out intracranial cysts, where multiple parenchymal cysts were detected. After discussion with the neurologist, ocular surgery was planned prior to initiation of anti-helminthic drugs. During the surgery, a 2 mm limbal incision was made and 2% hydroxypropyl methylcellulose was injected into the anterior chamber. Viscoexpression was attempted; however, it led to iris prolapse from the wound site [Fig. 2]. Realizing the posterior placement of incision, the possibility of the cyst getting entangled or ruptured was imminent. Hence, further viscoexpression was avoided. Active aspiration of the cyst was planned as a rescue procedure. For this, a descemet membrane endothelial keratoplasty (DMEK) tissue injector assembly was made using an IOL cartridge. This assembly consists of a locking butterfly cartridge used for injecting hydrophobic IOLs and a straight lacrimal cannula attached to the aspirating end of the simcoe cannula [Fig. 3]. The lacrimal cannula is cut along with the rubber tube and is inserted in the lumen of the butterfly cartridge. The cartridge is then locked and is ready for use. Visco-elastic was reinjected and the IOL cartridge was carefully inserted into the anterior chamber. It was brought close to the cyst gently, and the cyst was aspirated into the injector in one fluid movement [Fig. 4]. Subsequently, visco-elastic was removed from the anterior chamber. Histopathology analysis confirmed a cyst with a scolex and hooks, consistent with diagnosis of cysticercus cellulose.

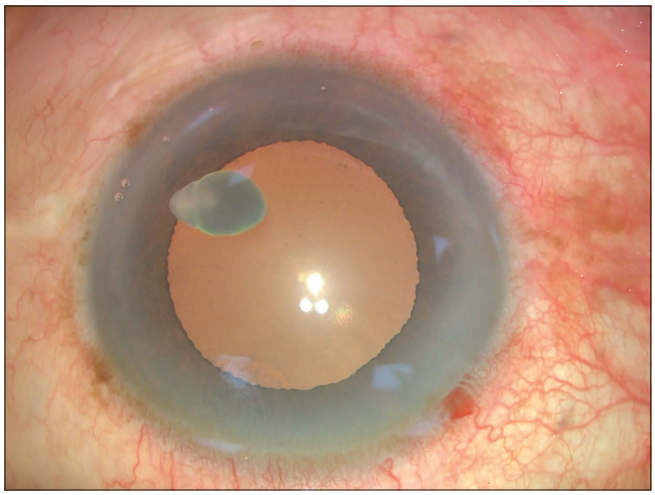

Figure 1: Clinical photograph following anesthesia before initiation of surgery Intracameral cysticercus can be seen with scolex

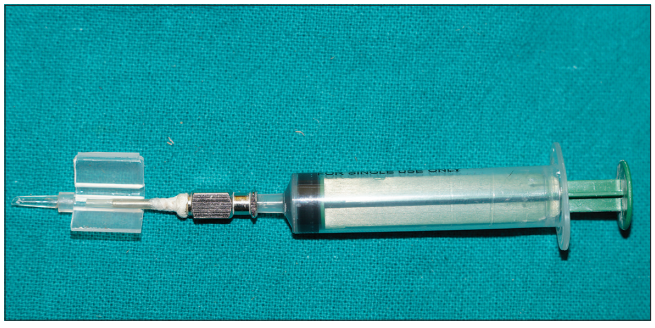

Figure 3: Image shows the DMEK injector assembly including its components (IOL cartridge, cut lacrimal cannula, and simcoe cannula harbored on a syringe)

Discussion

The presence of an intraocular live cyst, as judged by its motility, is a potential threat to visual acuity and necessitates urgent management.[2,6] Neurological involvement must be ruled out in every case suspected of ocular cysticercosis.[2,7] The surgical removal of the live cyst in-toto is the preferred therapeutic option to prevent inflammatory reaction and ocular damage.[2,5] To the best of our knowledge, our technique is the only report of active extrusion of anterior chamber cysticercosis. Viscoexpression is by far the most commonly performed technique for anterior chamber parasitic cysts. The current procedure was adopted, as a rescue maneuver in our case after viscoexpression appeared hazardous. It may be

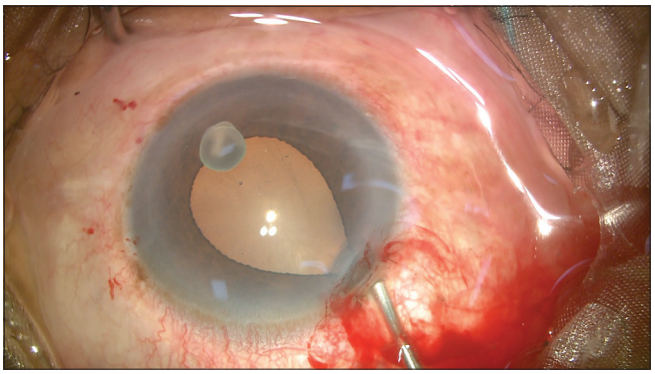

Figure 2: Intraoperative image depicting limbal incision with prolapsing iris, following an attempt to visco-express the cyst

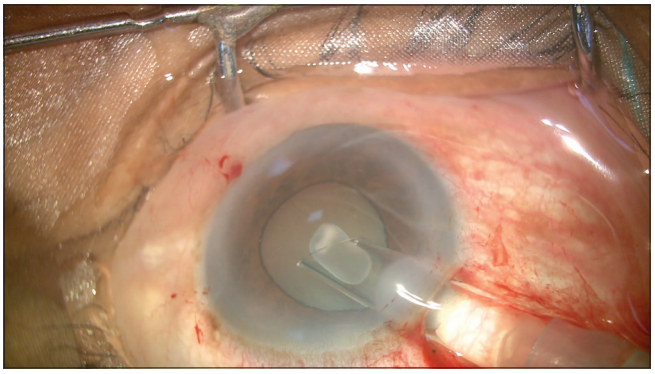

Figure 4: Image shows successful active aspiration of the cyst into the IOL cartridge

considered as an alternative technique for intracameral cyst removal. This technique is advantageous in avoiding ocular hypotony as may happen during passive viscoexpression and obviates the risk of the cyst being entangled in the uveal tissue or at the port site. It also allows in toto extraction rather than *in vivo* cyst lysis.[2]

The creation of the extraction assembly is the only disadvantage, but all the parts of the assembly are usually available readily at any general ophthalmic operation theatre. In contrast, the commercially available DMEK injectors are not readily available in developing nations where cysticercosis is endemic. Further, these injectors are expensive.[8] Therefore, the modified injector assembly employed by us is a good tool in such settings. Other simple modifications of DMEK injectors described, e.g., using intravenous catheters instead of the aspiration cannula used by us,[9] may also be employed in such situations.

As intracameral cysticercosis is a very rare entity, it is not possible to validate our technique against conventional viscoexpression. It may thus be used as an alternative or rescue technique in appropriate situations.

Ethical approval

All procedures performed were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Sinha S, Takkar B, Venkatesh P, Khanduja S. High-resolution fourier-domain optical coherence tomography findings in subretinal cysticercosis. Retina 2012;32:643-4.
2. Azad S, Takkar B, Roy S, Gangwe AB, Kumar M, Kumar A. Pars plana vitrectomy with *in vivo* cyst lysis for intraocular cysticercosis. Ophthalmic Surg Lasers Imaging Retina 2016;47:665-9.
3. Takkar B, Mehdi MU, Ahmed NR, Chandra P, Vanathi M. Anterior segment optical coherence tomography of live ocular cysticercosis. Clin Exp Ophthalmol 2014;42:896-8.
4. Takkar B, Goel G, Rathi A, Dube M. Atypical histopathology findings in presumed epibulbar cysticercosis. BMJ Case Rep 2018;2018. pii: bcr-2018-227534. doi: 10.1136/bcr-2018-227534.
5. Takkar B, Chandra P, Kumar K, Vanathi M. Toxic granulomatous anterior uveitis in live intracameral cysticercosis masquerading as leukocoria. Can J Ophthalmol 2014;49:e140-1.
6. Bypareddy R, Takkar B, Chawla R, Sachdeva N, Azad SV, Tripathy K. Mobile subretinal cysticercus imaged by spectral-domain optical coherence tomography with motion tracker. Retin Cases Brief Rep 2018;12:272-4.
7. Gaur N, Takkar B, Singh J, Sharma P. Bilateral near total blindness due to miliary neurocysticercosis. BMJ Case Rep 2017;2017:bcr2017219999.
8. Droutsas K, Lazaridis A, Kymionis GD, Chatzistefanou K, Moschos MM, Koutsandrea C, *et al*. Comparison of endothelial cell loss and complications following DMEK with the use of three different graft injectors. Eye (Lond) 2018;32:19-25.
9. Kim EC, Bonfadini G, Todd L, Zhu A, Jun AS. Simple, inexpensive, and effective injector for descemet membrane endothelial keratoplasty. Cornea 2014;33:649-52.