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

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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

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.[1-3] 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.[3] 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.
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.

**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. [2,8] 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
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.

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Conflicts of interest
There are no conflicts of interest.

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