International Journal of Current Pharmaceutical Research

ISSN- 0975-7066 Vol 16, Issue 4, 2024

Case Study

# OCULAR CYSTICERCOSIS: A CASE REPORT

**ADITYA KASHYAP, SHALOO NEGI*, SMRITI SHARMA**

**Department of Ophthalmology, Pt Jlngmc, Chamba, Himachal Pradesh, India**
***Corresponding author: Shaloo Negi; *Email: negi.shaloo@gmail.com**

***Received: 15 Apr 2024, Revised and Accepted: 04 Jun 2024***

**ABSTRACT**

Ocular cysticercosis, though rare, can be extraocular or intraocular. Ocular manifestations usually occur as a part of a systemic infection and can lead to partial or complete visual impairment over a 3-5 y period. The parasite reaches the posterior segment of the eye *via* the high-flow choroidal circulation through the short ciliary arteries. A 35 y old female patient presented to us with history of blurring of vision in right eye over one week. Fundus examination revealed an oval translucent cyst of about 4 mm in diameter. The patient underwent USG B scan, which revealed well-circumscribed cystic lesion in posterior vitreous.

**Keywords:** Ocular cysticercosis, Orbital cysticercosis


DOI: https://dx.doi.org/10.22159/ijcpr.2024v16i4.5018 Journal homepage: https://innovareacademics.in/journals/index.php/ijcpr

## INTRODUCTION

Ocular cysticercosis, though rare, can be extraocular (subconjuctival, in orbital tissues) or intraocular (vitreous, subretinal space, or anterior chamber). Ocular manifestations usually occur as a part of a systemic infection and can lead to partial or complete visual impairment over a 3-5 y period. CNS involvement also poses a major threat; therefore, a prompt and accurate diagnosis along with the right treatment options are tremendously important [1]. Cysticercosis is a disease closely related to improper hygiene and sanitary conditions. Therefore prevention by health education of the population is an important aspect of disease control. Prevention is possible by avoiding the consumption of undercooked or raw pork, proper washing of hands after using toilets and before food handling and by washing and peeling of raw vegetables and fruits before eating. Ocular and orbital cysticercosis has varied clinical manifestations depending upon the site of involvement, stage of the cyst and the host-immune responses. With the advent of the new imaging techniques, ocular and orbital cysticercosis is now increasingly diagnosed even in non-endemic zones. A high index of suspicion along with characteristic features on imaging helps us to establish an accurate diagnosis and initiate appropriate treatment depending upon the site of involvement [2].

## CASE REPORT

A 35 y old female presented to us with history of painless blurring of vision in right eye over one week. There was no history of pain, watering and redness. Patient denies consuming any undercooked pork, trauma to eye or any other similar episodes in past. At evaluation, BCVA in right eye was 6/6 p and left eye 6/6. Pupillary reactions was normal. Extraocular movements are full in all gazes. IOP was 16 mm of hg both eye. Anterior segment showed no abnormalities for both eye. Fundus examination revealed a oval translucent cyst of about 3 mm in diameter with pigment dusting its wall floating in the retina. Laboratory evaluation revealed a white cell count of $4.3x10^3$/ul with normal eosinophil count. Hb was 14.3 g/dl and ESR was 15 mm/h. The patient was advised B scan, which revealed well-circumscribed round-shaped cystic lesion with thin echogenic wall in posterior vitreous along the retinal surface measuring approximately 2.7 x 2.3 mm in size. The lesion was seen on the temporal aspect of posterior surface at distance of approx. 2.2 mm from optic nerve. The patient had undergone a CT scan and MRI Brain in order to rule out the infection of CNS. CT scan and MRI brain was normal. Based on all, a diagnois of ocular cysticercosis was made.

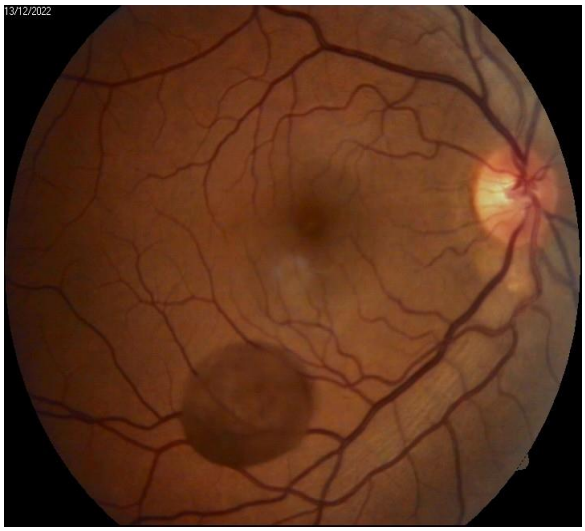


**Fig. 1: Fundus picture showing free floating cyst in retina**

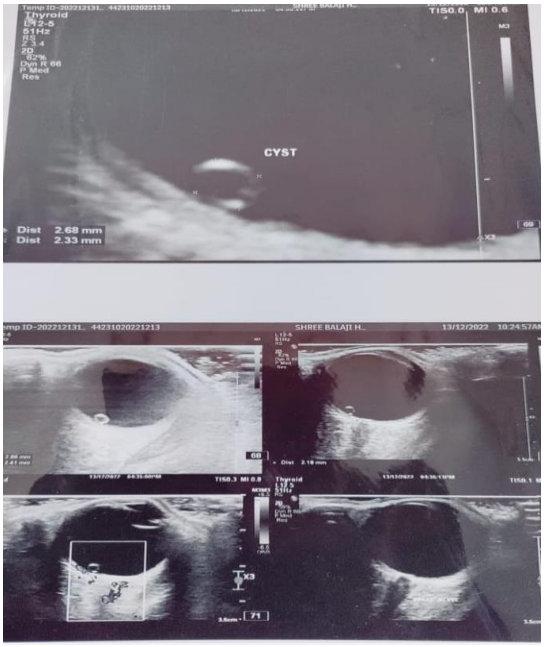


**Fig. 2: USG B scan showing well-circumscribed round shaped cystic lesion with thin echogenic wall in posterior vitreous**

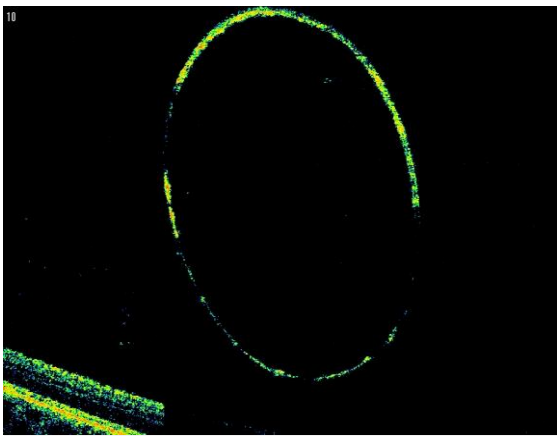

**Fig. 3: Optical coherence tomography showing cyst**

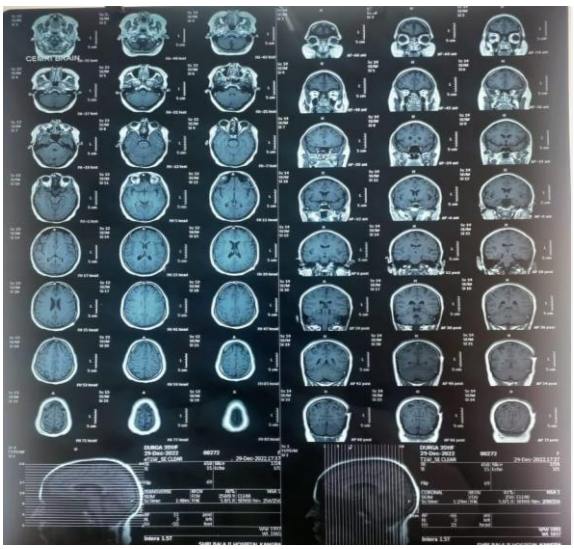

**Fig. 4: Normal MRI scan, which was done to rule out intracranial neurocysticercosis**

## DISCUSSION

Cysticercosis is a parasitic tissue infection caused by larval cysts of the tapeworm Taenia solium, cysticercus cellulosae. Human beings are definitive hosts that harbor the adult parasite in the intestine and pigs are the intermediate hosts harboring the larvae. After ingestion, the eggs of Taenia solium hatch into larvae, which can pierce the gut to reach the bloodstream and enter various tissues (particularly the central nervous system, eyes and striated muscle) where they develop into cysts producing the clinical syndrome of cysticercosis. Both the taeniasis (tapeworm intestinal infection) and cysticercosis (involving muscles, subcutaneous tissues, CNS and eyes) occur globally, but the highest rates of infection are found in developing countries with inadequate sanitation. Ocular dissemination of cysticercus cellulose is a rare condition, although it is acknowledged [1]. The parasite reaches the posterior segment of the eye *via* the high-flow choroidal circulation through the short ciliary arteries. The macular region being the thinnest and most vascularized, the larvae lodges itself in the subretinal space from where it perforates and enters into the vitreous cavity. In this process, the parasite can cause a retinal detachment, macular hole or incite an inflammatory response. As the cyst develops, it causes atrophic changes of the overlying retinal pigment epithelium. Sometimes, it may cause exudative retinal detachment and focal chorioretinitis. The central retinal artery is the most likely route for cysticercosis involving the optic nerve head. Very few cases of optic nerve cysticercosis have been reported in literature [3].

Ocular cysticercosis has a varied presentation depending upon the site of involvement, the number of lesion and the host immune response. In contrast to Western literature, Indian studies have reported ocular adnexa as the most common site of involvement. While the most common site of localization reported in Western studies is the posterior segment, in the Indian literature the ocular adnexa is the most common site [2]. In a study reported by Kruger-Leite *et al.* [4], 35% of the cysts were found in the subretinal space, 22% in the vitreous, 22% in the subconjunctival space, 5% in the anterior segment, and only 1% in the orbit.

Wender *et al.* [5]. have reported 8 patients with ruptured cyst in the eye, four of them located in the subretinal space. In cases where the medium is cloudy, as in intravitreal disease, B-scan ultrasound could be very helpful in establishing the diagnosis [6]. Chadha [7] *et al.* found intravitreal cysticercosis with exudative retinal detachment. Rani[8] *et al.* found ocular tuberculosis and acquired cysticercosis of the eye and brain.

Main treatment for retinal and sub-retinal cysticercosis is surgery. Cysts deep within the orbit difficult to treat with surgery can be treated with a 4-week regimen of oral Albendazole 15 mg/kg/d in conjunction with oral steroids 1.5 mg/kg/day in a tapering dose over a one-month period. Steroids are prescribed because the treatment can increase inflammation in some cases [9]. As anthelminthic therapy can lead to severe inflammation in the event of a live cyst degenerating, surgical removal of the parasite in toto is the mainstay of treatment. Systemic cysticercosis should be ruled out especially neurocysticercosis, with adequate neurosurgical examination and management of the same, as it would require anthelminthic therapy with steroid cover after intracameral cyst removal [10].

## CONCLUSION

Intraocular cysts are avoidable and irradicable cause of blindness related to inappropriate self-hygiene. Appropriate sanitation and personal hygiene is important in control of fecal contamination of water and food. Therefore prevention by health education of the population is important. A high index of suspicion with characteristic features on imaging helps us to establish an accurate diagnosis. Prompt diagnosis and treatment can prevent progress of disease and loss of vision.

## FUNDING

Nil

## AUTHORS CONTRIBUTIONS

All the authors have contributed equally

## CONFLICT OF INTERESTS

There is no conflict of interest

## REFERENCES

1. Musa J, Rakovica L, Tandili A, Hallunovaj L, Horjeti E, Guy A. A case report on intraocular cystocercosis and the occurrence of a live free floating cyst in the anterior chamber of the eye. Arch Clin Med Case Rep. 2020;4(5):774-8. doi: 10.26502/acmcr.96550264.
2. Dhiman R, Devi S, Duraipandi K, Chandra P, Vanathi M, Tandon R. Cysticercosis of the eye. Int J Ophthalmol. 2017 Aug 18;10(8):1319-24. doi: 10.18240/ijo.2017.08.21, PMID 28861361.
3. Madan VS, Dhamija RM, Gill HS, Boparai MS, Souza PD, Sanchete PC. Optic nerve cysticercosis: a case report. J Neurol Neurosurg Psychiatry. 1991;54(5):470-1. doi: 10.1136/jnnp.54.5.470, PMID 1865218.
4. Kruger Leite E, Jalkh AE, Quiroz H, Schepens CL. Intraocular cysticercosis. Am J Ophthalmol. 1985;99(3):252-7. doi: 10.1016/0002-9394(85)90352-6, PMID 3883789.
5. Wender JD, Rathinam SR, Shaw RE, Cunningham ET. Intraocular cysticercosis: case series and comprehensive review of the literature. Ocul Immunol Inflamm. 2011;19(4):240-5. doi: 10.3109/09273948.2011.580074, PMID 21770801.
6. Chadha V, Pandey PK, Chauhan D, Das S. Simultaneous intraocular and bilateral extraocular muscle involvement in a case of disseminated cysticercosis. Int Ophthalmol. 2005;26(1-2):35-7. doi: 10.1007/s10792-005-8248-2, PMID 16779570.
7. Rani A, Pushker N, Kulkarni A, Rajpal R, Balasubramanya R, Bajaj MS. Simultaneous ocular and systemic cysticercosis and tuberculosis. Infection. 2006;34(3):169-72. doi: 10.1007/s15010-006-2195-3, PMID 16804662.
8. Guillory SL, Zinn KM. Intravitreal cysticerus cellulosae: ultrasonographic and fluorescein angiographic features. Bull N Y Acad Med. 1980;56(7):655-61. PMID 6932237.
9. Sharma R, Dey AK, Joshi K, Thakkar H. Ocular cysticercosis with intermittent blindness. Ann Parasitol. 2015;61(4):295-7. doi: 10.17420/ap6104.22, PMID 26878629.
10. Beri S, Vajpayee RB, Dhingra N, Ghose S. Managing anterior chamber cysticercosis by viscoexpression: a new surgical technique. Arch Ophthalmol. 1994;112(10):1279-80. doi: 10.1001/archopht.1994.01090220029012, PMID 7945028.