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Case Report

Unveiling the unseen: Disseminated cysticercosis with ocular involvement disguised as circinate retinopathy

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Abstract

Cysticercosis, a parasitic disease caused by Taenia solium is a major preventable public health issue in the developing countries. It occurs due to poor sanitation via feco-oral contamination. Neurocysticercosis is the most common manifestation and dissemination is rare. Ocular cysticercosis has varied presentations based on site of involvement and host's immune response, giving rise to diagnostic challenge to the health care providers. Cyst rupture leads to severe inflammation results in hemorrhages, exudates around the cyst which can resemble ring like pattern, thus mimic circinate retinopathy. Direct visualization of the cyst is often diagnostic of cysticercosis. We report a 52-year male who is known case of Diabetes mellitus presented with altered sensorium and diagnosed with disseminated cysticercosis (Neuro and Myo cysticercosis). Patient was started on treatment with Tab. Albendazole 400mg BD and Inj. Dexamethasone 8mg intravenous BD. Patient referred for ophthalmic examination. His UCVA 6/12 in both eyes and BCVA in both eyes 6/9, color vision impaired in both eyes (1/24). Fundus examination showed hard exudates in ring like pattern in both eyes and a greyish translucent cyst in inferonasal quadrant of left eye. Cysticercosis is one of the preventable causes of blindness. Thus, High suspicion and careful examination helps in timely intervention thereby preventing the morbidities.

Keywords: Cysticercosis, Circinate retinopathy, Dissemination, Steroids, Anti helminths.

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1. Introduction

Cysticercosis, a parasitic infestation caused by cysticercus cellulosae, larval form of Taenia solium (otherwise known as Pork tapeworm). It is transmitted through feco-oral contamination by the infected eggs in food or water resulting in development of larval form cysticercosis and consumption of improperly cooked meat-pork resulting in Taenia in intestine – Taeniasis.[1] Dissemination is a rare manifestation of cysticercosis and the commonly affected system is central nervous system causing Neurocysticercosis[2,3] and it is one of the preventable cause of epilepsy. Ocular and adnexal involvement is around 13% to 46% of the systemic cysticercosis.[4] Ocular cysticercosis is one of the preventable causes of blindness and it can be intra - ocular or extra - ocular. Ocular cysticercosis have varied presentations depending on the site of involvement of the cyst and the host's immune response to it.[4] Thus becomes a clinical challenge to the ophthalmologists. Most common clinical presentations are epilepsy, altered mental status, headache, proptosis, impaired vision, recurrent eye pain, floaters and diplopia. A high index of suspicion and appropriate investigations help us in diagnosing and initiate appropriate treatment thereby preventing the morbidities. Here, we report a case of disseminated cysticercosis (Neuro-cysticercosis, myo-cysticercosis) with ocular involvement but disguised as circinate retinopathy. The aim is to highlight the importance of early recognition, accurate diagnosis, treatment and raise awareness about the need for high clinical suspicion in endemic areas to prevent misdiagnosis.

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2. Case Report

A 52-year-old alcoholic male, a known case of Diabetes mellitus presented to Medicine department with complains of giddiness, altered sensorium was evaluated and diagnosed with disseminated cysticercosis. CT and MRI Brain showed Nodular calcified stage of neurocysticercosis (**Figure 2** and **Figure 3**), CT Abdomen showed features suggesting Myo cysticercosis (**Figure 1**). Treated with Tab. Albendazole 400mg BD and Inj. Dexamethasone 8mg intravenous BD. After 1 week (post antihelminthic and steroid treatment), patient was referred for ophthalmic examination. Complaint of blurring of vision present. No history of any consumption of undercooked meat-pork. His UCVA in both eyes 6/12 and BCVA 6/9 in both eye and color vision was impaired (1/24) in both eyes. Extraocular movements, Eyelids, Anterior segment were normal in both eyes. Fundus examination by indirect ophthalmoscope showed hard exudates arranged in circinate pattern throughout the retina in both eyes and in left eye – a tiny greyish white cystic lesion along with a tract extending into vitreous cavity surrounded by hard exudates in the inferonasal quadrant and a pre retinal hemorrhage adjacent to it (**Figure 4**). B-scan was normal (**Figure 5**). OCT Macula of both eyes done, showed incomplete posterior vitreous detachment, foveal contour maintained, Intraretinal hemorrhage and IS-OS junction disruption (**Figure 6**). Since the patient was referred 1week post treatment, there was no evidence of vitritis and may be due to regression of cyst fundus findings were resembling circinate retinopathy but the presence of cyst in left eye and CT and MRI findings favored towards diagnosis of cysticercosis. Patient was asked to continue Tab. Albendazole 400mg BD for 14 days, Inj. Dexamethasone 8mg intravenous BD for 1 week, Both eyes eye drop Nepafenac 4times/day and other medications Tab. Levipil 500mg BD, Tab. Thiamine100mg BD. After 2 weeks patient was reviewed and BCVA and fundus findings were same. His color vision improved, 10/24 in right eye and 3/24 in left eye. Patient is on regular follow up.

Figure 1: CT Abdomen showing multiple calcifications distributed diffusely throughout the skeletal muscle's s/o Myocysticercosis

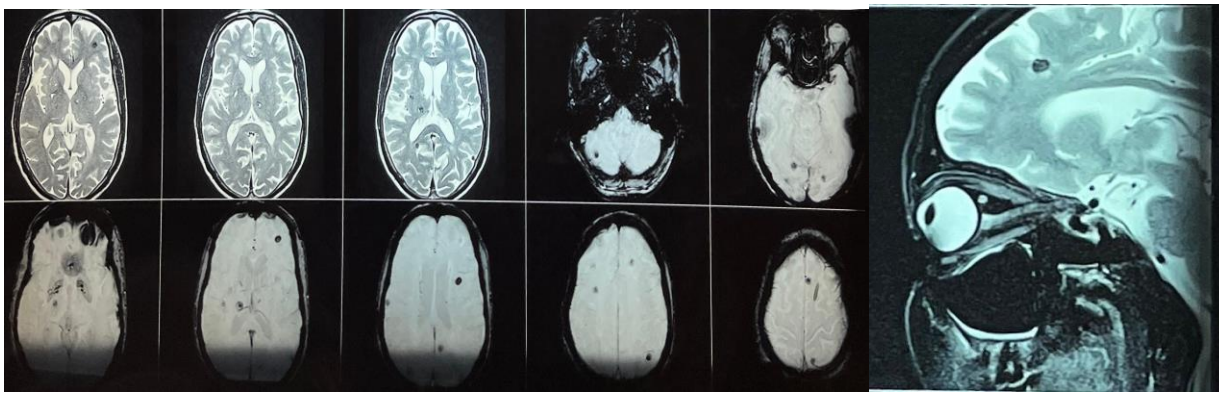

Figure 2: MRI Brain with orbit showing multiple punctate GRE blooming of varing sizes noted in brain parenchyma – likely calcific nodules of Neurocysticercosis

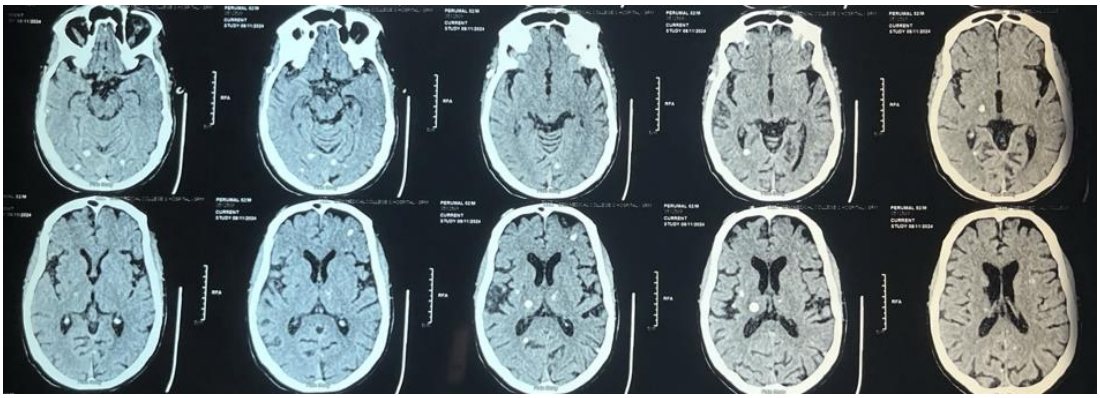

Figure 3: CT brain showing multiple calcified lesions diffusely spread out in the brain parenchyma

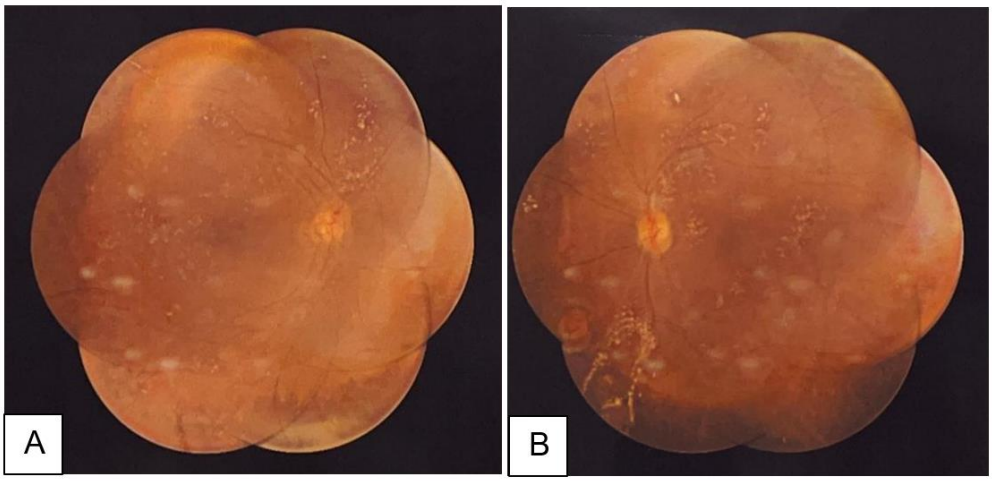

Figure 4: Fundus image **A**): Right eye – Hard exudates in circinate pattern; **B**): Left eye – Hard exudates in circinate pattern and translucent cyst in inferonasal quadrant

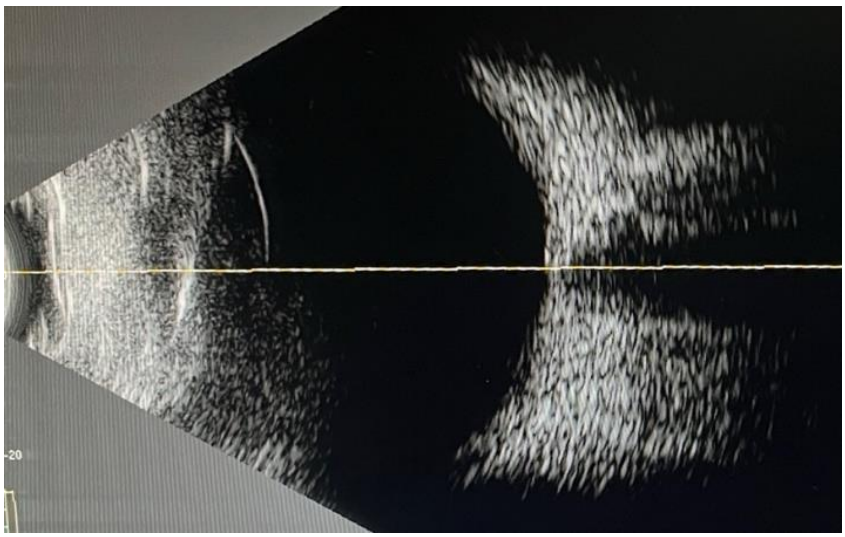

Figure 5: B-scan of left eye (Post treatment with Anti - helminth and Steroids and due to regression of cyst – B- scan appears normal)

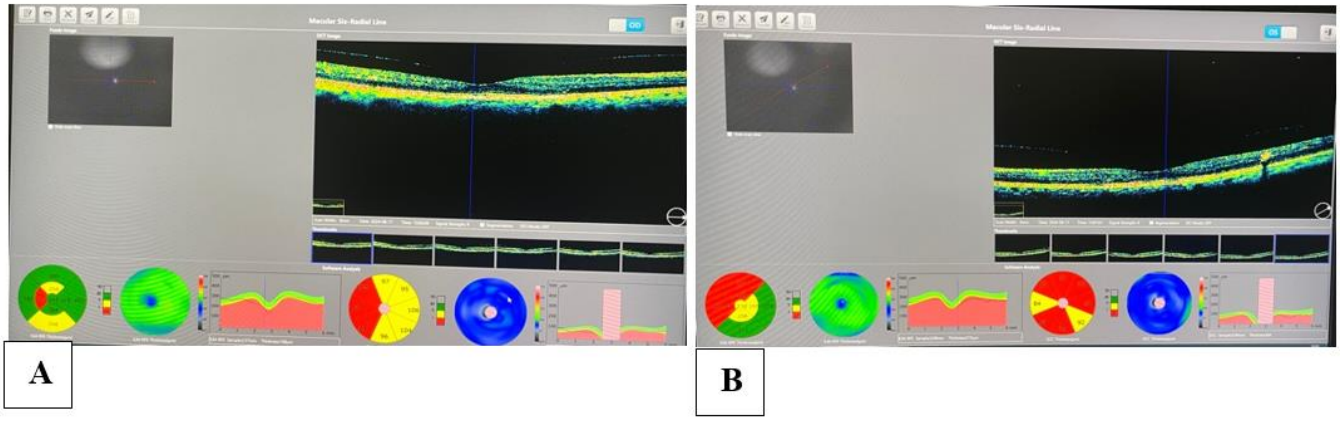

Figure 6: OCT Macula of Right eye (**A**) and Left eye (**B**)

3. Discussion

Cysticercosis is caused by larval form of the cestode, Taenia solium. Cysticercosis occurs globally but highest rates in developing countries with poor hygiene, poor health habits, poverty.[1] Consumption of undercooked meat-pork results in Taeniasis and contaminated food and water through feco – oral transmission results in Cysticercosis. Humans are the definitive host who harbor the adult parasite in the intestine and pigs being intermediate host harboring larvae. After ingestion, the eggs of Taenia hatch into larvae, which enters the bloodstream through gut and reaches various tissues – particularly central nervous system, eye and skeletal muscles where they develop into cysts producing the diverse clinical features. Commonly affected system is CNS and dissemination are rare.[3-5] Extra parenchymal neurocysticercosis – more severe form complicates diagnosis and management.[6] Parasite reaches the eye through high flow choroidal circulation via short ciliary arteries and is usually unilateral but bilateral involvement occurs in disseminated cases. And left eye is more commonly involved because of direct origin of left internal carotid artery from aorta which directs the larvae.[7] Symptoms varies according to the site of involvement and many patients are usually asymptomatic. Cysticercosis leads to retinal edema, exudates and hemorrhages due to infiltration of macrophages and eosinophils.[8,9] As the cyst matures, it breaks and the parasite dies causes intense inflammation leading to severe uveitis, vascular occlusion, vitreoretinal proliferation and exudative retinal detachment.[8,9]

Circinate retinopathy, a ring like pattern of exudates, due to vascular leakage and accumulation of lipoproteins which is commonly associated with conditions like diabetic retinopathy. Inflammation which occurs due to death of the larval cysts, triggers immune response and cause retinal damage and exudates which can mimic circinate retinopathy.

In this patient, though fundus findings resembling circinate retinopathy, by careful examination by IDO - identified a cyst. Thus, hard exudates which seen as ring like pattern is due to post inflammation following cyst rupture.

Direct visualization of the cyst either by fundoscopic or slit lamp examination or B – scan ultrasound is important in diagnosing ocular cysticercosis and other imaging modalities like CT, MRI and serological testing is helpful in diagnosing disseminated cysticercosis.[5] Ocular cysticercosis can present as intraocular cysts and also as extraocular or orbital, making diagnosis challenging. Treatment for cysticercosis is oral Albendazole 15mg/kg/day or Praziquantel, steroids 1.5mg/kg/day in tapering dose, intravitreal steroids and surgical removal of the ocular cyst or destruction of the cyst by photocoagulation, cryotherapy, diathermy, and pars plana vitrectomy. Steroids are given because the treatment as such can cause intense inflammation.[10] Cysticercosis continues to be a major health burden, mainly in endemic areas, necessitating public health intervention, early recognition and treatment.

4. Limitation

1. Patient was referred after initiation of the treatment (Albendazole 400mg BD for 14 days, Inj. Dexamethasone 8mg intravenous BD). So fundus appearance before treatment was not seen.
2. Differentiating from other retinal pathologies was challenging because of absence of classical clinical signs.

5. Conclusion

Cysticercosis is one of the preventable causes of blindness and it is prevented by practicing appropriate sanitation and personal hygiene. Health education also plays an important role in preventing the disease. Cysticercosis has manifold clinical presentation and it needs a heedful evaluation for timely diagnosis and to provide appropriate treatment, which can prevent the progression and morbidity of the disease.

6. Source of Funding

None.

7. Conflict of Interest

None.

References

1. Centers for Disease Control and Prevention. Neurocysticercosis - Neglected Parasitic Infections in the United States. Division of Parasitic Diseases and Malaria, CDC. Available from: https://www.cdc.gov/parasites/npi/index.html.
2. Grover AK, Puri P. Orbital Myocysticercosis presenting as subconjunctival abscess. *Indian J Ophthalmol.* 1996;44(4):229–31.
3. Kumar A, Bhagwani DK, Sharma RK, Kavita, Sharma S, Datar S, et al. Disseminated cysticercosis. *Indian Pediatr*. 1996;33(4):337–9.
4. Dhiman R, Devi S, Duraipandi K, Chandra P, Vanathi M, Tandon R, et al. Cysticercosis of the eye. *Int J Ophthalmol*. 2017;10(8):1319–24.
5. Butala C, Brook TM, Majekodunmi AO, Welburn SC. Neurocysticercosis: current perspectives on diagnosis and management. *Front Vet Sci*. 2021;8:615703.
6. Mahale RR, Mehta A, Rangasetty S. Extraparenchymal (racemose) neurocysticercosis and its multitude manifestations: a comprehensive review. *J Clin Neurol*. 2015;11(3):203–11.
7. Li JJ, Zhang LW, Li H, Hu ZL. Clinical and pathological characteristics of intraocular cysticercosis. *Korean J Parasitol*. 2013;51(2):223–9.
8. Del Brutto OH, Rajshekhar V, White AC Jr, Tsang VC, Nash TE, Takayanagui OM, et al. Proposed diagnostic criteria for neurocysticercosis. *Neurology*. 2001;57(2):177–83.
9. García Franco R, Arias Gómez A, Guzman Cerda J, García Roa M, Ramirez Neria P. Submacular cysticercosis successfully treated through conservative management: case report. *Case Rep Ophthalmol*. 2020;11(2):315–21.
10. Sharma R, Dey AK, Joshi K, Thakkar H. Ocular cysticercosis with intermittent blindness. *Ann Parasitol*. 2015;61(4):295–7.

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