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Case Report

Superior oblique muscle ocular cysticercosis: A rare presentation

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ABSTRACT

Infection with *Cysticercus cellulosae*, the larval stage of the pig tapeworm *Taeniasolium*, is referred to as cysticercosis.It is the most prevalent human ocular platyhelminth infection. Food contamination, particularly from undercooked pork, contaminated water, and vegetables, is the cause of it. It is frequently observed in areas with inadequate sanitation. We report a unique case of a 7-year-old girl who had unilateral eccentric proptosis and decreased ocular motility in downward gaze due to isolated right superior oblique muscle cysticercosis. This case requires discussion due to the unique position of the cyst, the patient's young age, and the relative rarity of this disease in the modern world.

1. Introduction

Parasitic illnesses is a widespread source of morbidity in underdeveloped nations. The pork tapeworm *Taeniasolium's* larval stage, *cysticercus cellulose*, is the source of the prevalent platyhelminthic infection known as cysticercosis.[1] Humans are the definitive hosts that have the adult parasite in their colon, while pigs are the intermediate hosts that contain the parasite's larvae. It is contracted in humans by (a) ingestion of the undercooked pork which contains infective cysticerci; (b) Ingestion of contaminated food, water, or vegetables which contains eggs of T. Solium; and (c) Eggs being regurgitated from small intestine. The central nervous system, subcutaneous tissue, skeletal and cardiac muscles, and the eye are the places where cysticerci infestation can occur.[2,3] In the Indian subcontinent, ocular cysticercosis is a frequent condition. It is a cause of avoidable blindness that can be avoided.[4] Whenever the parasite dies in human body, it leads to release of various toxic products which in turn leads to release of various inflammatory factors leading to ocular damage.[5,6] East Asia, India and Sub – Saharan Africa are the tropical areas where Orbital cysticercosis is found to be endemic. No specific sex predilection is seen. Younger individuals are observed to be more affected than older individuals with orbital cysticercosis. Risk factors includes history of travel by the person to a known endemic area for cysticercus, a history in family of parasitic infection or a visitor to the household from an endemic area.[7]

2. Case Presentation

A girl, seven years old, appeared to Ophthalmology OPD, Surat with her mother with the chief complaint of mild unilateral abaxial proptosis, restriction of movement on downward gaze, and diplopia in downward gaze in the right eye since 1 month in July 2023. (Figure 2) The patient belongs to upper lower socioeconomic class [according to modified kuppuswamy scale] and resides in slum area where inadequate sanitation is present and consumed nonvegeterian diet on occasional basis.

Both eyes' visual acuity was 6/6 during the assessment on snellen's chart. In both eyes, the orbit and adnexa were normal. Both eyes' anterior segments during slit lamp

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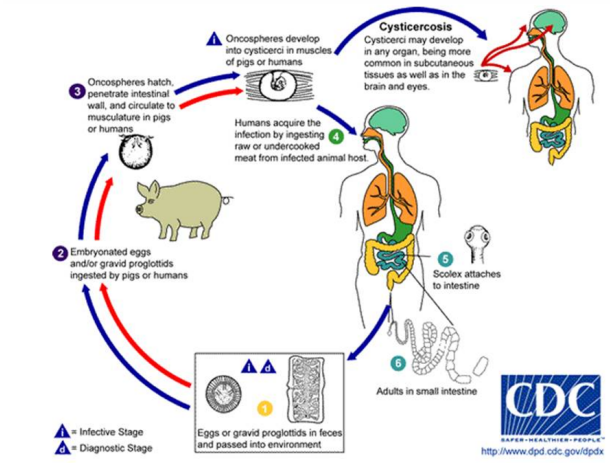

Figure 1: Life cycle

Figure 2:

examination were found to be normal. The fundus of both eyes was normal seen in complete mydriasis with the help of Indirect Ophthalmoscope. Intraocular pressure in both eyes was within normal limits measured with Goldmann applanation tonometer (GAT). Extraocular movements in RE was painless but restricted in downward gaze while in the left eye it was full, free, and painless. Measurement of proptosis was done using Leuddes exophthalmometer. In RE – 21mm and LE – 18mm. Diplopia Charting was done which revealed diplopia in a downward gaze. Regional lymph nodes were not enlarged. A provisional diagnosis of right eye superior oblique muscle palsy due to? An Orbital tumor was made. A routine blood investigation showed eosinophilia while the rest blood parameters were normal. MRI Brain with orbit with contrast was done which revealed proptosis of the right globe and a precisely defined peripherally enhancing lesion approximately of size 19.6 × 5.7 × 4.5 mm in the right orbit involving superior oblique muscle with an eccentric dot-like hypointense focus within, probably a scolex, most likely Myocysticercosis. No Neurocysticercosis lesions were noted. (Figure 3) After a thorough evaluation and MRI findings, a diagnosis of right eye superior oblique muscle cysticercosis was made. The patient consulted a PediatricNeurophysician and was advised to start oral tablet albendazole [15 mg/kg/day] and oral tablet prednisolone [1 mg/kg/day] (both tablets dosage according to the weight of the patient) for the next 4 weeks. After a 4-week period, oral albendazole was discontinued, and over the next month, oral prednisolone dosage was gradually tapered. After a few days of medication, the patient began to show improvement. The patient was called for follow-up in OPD to monitor improvement in condition. Two months later, there was a significant decrease in the condition, including less mobility restriction and diplopia.

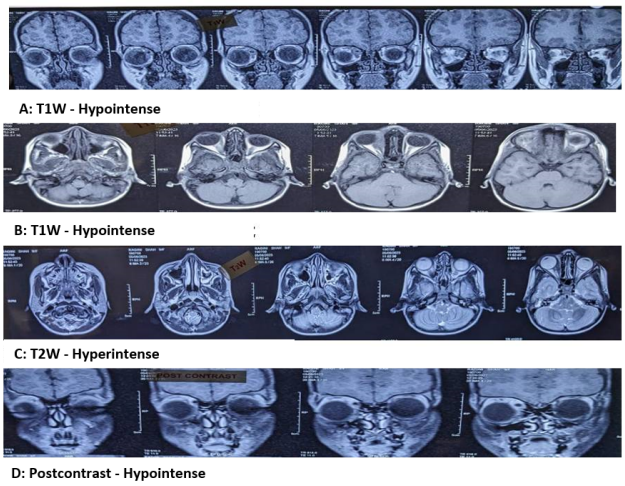

Figure 3:

3. Discussion

In the year 1830, Soemmering reported the first case of ocular cysticercosis. In the year 1836, the larva was demonstrated and extracted by Schott.[8] The intra-ocular form is usually readily diagnosed owing to its obvious visibility on a basic slit-lamp examination and the commonest symptom being vision loss, the diagnosis of extra-ocular muscle cysticercosis remains tricky and requires a high clinical index of suspicion.[9] Symptoms of ocular myocysticercosis usually involve diplopia, ptosis, ocular motility limitation, redness, and recurring pain.[10,11] It has different clinical presentations depending on the site of lodgement. It is observed that left eye is more commonly involved than the right eye, possibly because larva may be preferentially routed to the left internal carotid artery which directly originates from the aorta; however, this has not been substantially proven. The medial side of the eye has been more commonly involved than the lateral side on account of the anatomic course of the ophthalmic artery, which after giving off the lacrimal branch runs on the medial side of the orbit before diving into the terminal branches. Infestation of

the ocular adenexa is probably through the anterior ciliary artery. Through the posterior ciliary artery the parasite may reach the posterior segment.[12] Cysticerci can become lodged in the orbit, conjunctiva, outside the eye in the vitreous or subretinal region, or, extremely infrequently, inside the optic nerve.[13] The most often damaged muscle in two separate investigations on myocysticercosis is the inferior rectus and medial rectus. In our case, the cyst was present within the superior oblique muscle, and the usage of advanced technology like MRI not only helps in the diagnosis of ocular cysticercosis but also helps to rule out Neurocysticercosis and guide us regarding further management. Treatments for neurocysticercosis that include albendazole and praziquantel have been effective.[14,15] Conservative management in the form of an antihelminthic agent under cover of a steroid drug is initially tried. A close follow-up is advisable during the course of the treatment to look for any adverse events.[16] In our case, the patient received therapy for four to six weeks with a mix of oral albendazole and corticosteroids. In addition to cysticidal medications, oral steroids are advised to manage the inflammation which is caused by the dying cyst.

4. Conclusion

Due to the diverse nature of orbital cysticercosis's presentation, it is critical to comprehend the disease's nature and the possible options for additional care. In this case, an early improvement was the result of early diagnosis and treatment. Large-scale public health initiatives are needed to eradicate the disease from the region.

5. Source of Funding

None.

6. Conflict of Interest

None.

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