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IMPORTANCE OF NEUROIMAGING TECHNIQUES IN DIAGNOSING A CASE OF PTOSIS (ORBITAL CYSTICERCOSIS) : A CASE REPORT

Ophthalmology

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ABSTRACT

- Cysticercosis is a parasitic infestation caused by the larval form of the tapeworm, Taenia solium (T. solium). The common sites for cysticerosis include the brain, eyes, and skeletal muscle. Ocular or adnexal involvement is commonly seen with the commonest ophthalmic site being subretinal space and the vitreous cavity.
- However, only a handful of cases of orbital cysticercosis have been reported in the past. We report a rare and unusual case of isolated eyelid cysticercosis in a 12year old female masquerading as an asymptomatic slowly growing subcutaneous painless mass menifested as a ptosis.
- Clinical, serological, and radiological examinations are needed to diagnose
- As MRI brain and USG findings were suggestive of cysticercosis,patient was started oral steroids and oral albendazole
- Four weeks of oral albendazole (15 mg/kg) and oral steroids (1.5 mg/kg) in a tapered dose are the recommended treatment for both NCC and orbital cysticercosis
- Without evidence of an eosinophilia and stool ova and cysts and without a positive ELISA-test for cysticercosis the pathognomonic appearance of the thickened muscle, the cyst and the scolex inside should lead to the diagnosis cysticercosis
- Prognosis is best for patients who seek treatment early and whose imaging studies normalize after initial infection.

Aim: To study importance of neuroimaging techniques in diagnosing rare causes of ptosis.

KEYWORDS

INTRODUCTION

One of the most important parasites which frequently causes blindness in humans is the cysticercus cellulosae. Cysticercus cellulosae, the larval form of the pork tapeworm Taenia solium, is the causative organism of cysticercosis. Cysticercus cellulosae may become encysted in various bodily tissues, usually the eyes, central nervous system and subcutaneous tissues. Acquired strabismus, diplopia, recurrent redness, and painful proptosis are some of the clinical signs in patients with orbital cysticercosis. Ocular involvement is usually unilateral but bilateral involvement may occur in cases of disseminated cysticercosis.

DISEASE

Cysticercosis is a parasitic infection caused by the larval form of the cestode, Taenia solium (T. solium), also known as a pork tapeworm.[1] Cysticercosis affects various parts of the body. When it affects the central nervous system, it is called neurocysticercosis (NCC) and often leads to seizures and epilepsy.[2] In fact, NCC is the leading cause of adult onset epilepsy in the world.[1] In addition to NCC, ocular or orbital cysticercosis can also occur.[3]

Orbital/ocular cysticercosis

Orbital/ocular cysticercosis (OOC) is a preventable cause of blindness.[3] The larval form of T. solium that causes OOC is Cysticercus cellulosae.[3]The disease affects thousands of people in developing nations.

OOC can result in a number of manifestations depending on the location of the cysts. The ocular adnexa have been noted to be the most common site of disease in India.[4][5][6] Although OCC is less common in the Western world, the posterior segment of the eye is one of the most common sites of infection. Kruger-Leite et al reported that 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.[7] When the extraocular muscles are involved, the superior rectus is the most common.[8] If the cyst is found in the subconjunctival space, it is thought to be from spread from the adjacent muscles.

Anterior segment cysticercosis

Anterior segment cysticercosis is very rare. The route of entry of the cyst into the anterior chamber is debated, but one theory is that it enters via the anterior chamber angle.[4]

Posterior segment cysticercosis

Within the posterior segment, cysts can occur in the retinal, subretinal, or vitreal space. Inferotemporal subretinal cysts are the most common in the posterior segment.[9] It is hypothesized that the parasite travels to the posterior segment via the short ciliary arteries.[3] It is very uncommon for the optic nerve to be involved.[10]

Etiology, Pathogenesis, and Transmission

As noted above, cysticercosis is caused by the cestode Taenia solium.1 Infection of this parasitic occurs when humans ingest the eggs of the cestode through three possible sources:

1. Contaminated food and water infested with the eggs (hetero-infection),
2. Auto-infection by ingesting the ova of the existing parasite
3. Retrograde peristalsis causing the transport of mature proglottids bearing eggs from bowel to stomach (internal auto-infection).[3]

Humans are the definitive host, while pigs are the intermediate host and harbor the cestode in their intestines. After humans ingest the eggs, the eggs lose their protective capsule secondary to exposure to gastric acid. The eggs mature into larvae which migrate in the bloodstream and eventually penetrate tissues such as the brain, eye, and striated muscle.[11]

Differential diagnosis

Differential diagnosis of Orbital Cysticercosis includes orbital idiopathic myositis, lesions causing compressive optic neuropathy, such as tumors and metastases, muscle abscesses and hematomas. Other parasitic infections should also be included in the differential, such as hydatid cysts.[3]

The differential diagnosis for NCC includes CNS lesions such as abscesses and tumors.[17]

Case report

24 y/o Hindu female residing at Rajasthan, presented to our tertiary care hospital with complain of painless, gradually progressive drooping of right upper eyelid since 1 month. Patient had complain of fever since a month which was not documented. On eliciting detailed history, patient was vegetarian by diet.

On examination ,

Best corrected visual acuity was 6/6 in both eyes.

Intra ocular pressure with Goldmann applanation Tonometry was- OD- 18 OS- 22 mmhg

Examination of right upper eyelid revealed moderate ptosis with no signs of acute inflammation. She had painless ocular movements and ophthalmoplegia with maximum restrictions of upward gaze. On palpation, non tender subcutaneous mass was noted on right upper eyelid, of approximately 2 cm * 1 cm which was freely mobile and skin pinch test was negative. Anterior segment examination was within normal limits and pupils were bilaterally symmetrical and normally reacting to light. Fundus examination and cranial nerve examination were normal. The search for other soft tissue swelling over the body did not reveal anything. Systemic examination was insignificant.

Ptosis evaluation:

Ptosis evaluation

Right eye		Left eye
0 mm	Margin to reflex distance 1	5 mm
5 mm	Margin to reflex distance 2	6 mm
5 mm	Palpebral fissure height	11 mm
Normally reacting to light	Pupillary reaction	Normally reacting to light
Absent	Lid crease	Absent
Absent	Lagophthalmos	Absent
Good	Bell's	Good
4-5 mm	Levator palpebrae superioris action	12 mm
Present	Frontalis overreaction	Absent
Negative	Ice pack test	Negative

MANAGEMENT

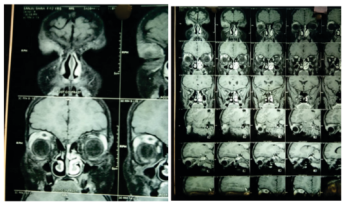
The diagnosis of myocysticercosis is based on clinical, serologic, and radiological findings. The clinical findings may occasionally be non-specific and hence, nondiagnostic. The serology in myocysticercosis may show false positive reports.

We advised the patient to undergo array of routine investigations and advised MRI Brain with orbits.

Heamogram Within normal limits IG* 0.6% (normal upto 0.4%) Thyroid function tests Within normal limits X-ray chest (posteroanterior view) Within normal limits Acetyl choline receptor antibody Negative

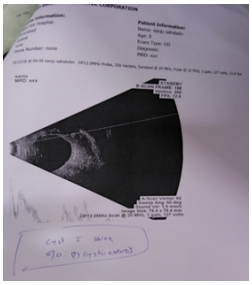
Interestingly MRI revealed the actual cause of ptosis in this patient to be Orbital Cysticercosis.

MRI findings:



MRI reveals a hypointense cystic lesion and hyperintense scolex within the extraocular muscle.

B-scan on the first visit of the patient:



B-scan ocular ultrasonography reveals a well-defined cystic lesion with clear contents and a hyperechoic area suggestive of a scolex.

B-scan after one month follow up:

Serial B-scan ocular ultrasonography or CT scanning of the orbit helps to follow the resolution of the cyst, which is recognized by the disappearance of the scolex.

DISCUSSION

Orbital Cysticercosis was not potential diagnosis in this patient, who is vegetarian by diet. But with help of neuroimaging techniques, proper treatment was started to this patient.

Treatment

As MRI brain and USG findings were suggestive of cysticercosis,patient was started on oral steroids and oral albendazole.

Four weeks of oral albendazole (15 mg/kg) and oral steroids (1.5 mg/kg) in a tapered dose are the recommended treatment for both NCC and orbital cysticercosis.

RESULTS

Patient responded to the treatment with resolution of ptosis and ophthalmoplegia.

Ptosis table

CONCLUSION

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.

Without evidence of an eosinophilia and stool ova and cysts and without a positive ELISA-test for cysticercosis the pathognomonic appearance of the thickened muscle, the cyst and the scolex inside should lead to the diagnosis cysticercosis.

Prognosis is best for patients who seek treatment early and whose imaging studies normalize after initial infection.

REFERENCES

1. DeGiorgio CM, Medina MT, Durón R, Zee C, Escueta SP. Neurocysticercosis. *Epilepsy Curr*. 2004;4(3):107–111. doi:10.1111/j.1535-7597.2004.43008.x
2. ↑ Jump up to: 3.00 3.01 3.02 3.03 3.04 3.05 3.06 3.07 3.08 3.09 3.10 3.11 3.12 3 Dhiman R, Devi S, Duraipandi K, et al. Cysticercosis of the eye. *Int J Ophthalmol*. 2017;10(8):1319–1324. Published 2017 Aug 18. doi:10.18240/ijo.2017.08.21
3. ↑ Jump up to: 4.0 4.1 Sekhar GC, Lemke BN. Orbital cysticercosis. Ophthalmology. 1997;104:1599–1602.
   Jump up ↑
4. Malik SR, Gupta AK, Choudhry S. Ocular cysticercosis. Am J Ophthalmol. 1968;66(6):1168–1171.
   Jump up ↑
5. Reddy PS, Satyendran OM. Ocular cysticercosis. Am J Ophthalmol. 1964;57:664–666.
   Jump up ↑
6. Kruger-Leite E, Jalkh AE, Quiroz H, Schepens CL. Intraocular cysticercosis. Am J Ophthalmol. 1985;99(3):252–257.
   Jump up ↑
7. Rath S, Honavar SG, Naik M, Anand R, Agarwal B, Krishnaiah S, Sekhar GC. Orbital cysticercosis: clinical manifestations, diagnosis, management, and outcome. Ophthalmology. 2010;117(3):600–605.
   Jump up ↑
8. Gemolotto G. A contribution to surgical treatment of intraocular cysticercosis. Arch Ophthalmol. 1955;59:365–368.
9. ↑ Jump up to: 10.0 10.1 Goyal JL, Das S, Kumar S, Chauhan D, Baheti U, Sangit V. Retrobulbar cysticercosis masquerading as optic nerve glioma. Orbit. 2007;26(1):61–63.
10. ↑Jumpupto:11.011.111.2 Pushker N, Bajaj MS, Betharia SM. Orbital and adnexal cysticercosis. Clin Exp Ophthalmol. 2002;30(5):322–333.
    Jump up ↑
11. World Health Organization Control of neurocysticercosis, Report by Secretariat, 55th World Health Assembly Provisional agenda item 13.18 A55/23, 5 April 2002.
    Jump up ↑
12. Ong S, Talan D, Moran G, Mower W, Newdow M, Tsang VCT, Pinner RW. the Emergencyt IDNET Study Group. Neurocysticercosis in radiographically imaged seizure patients in U.S. emergency departments. Emerg Infect Dis. 2002;8:608–613.
    Jump up ↑
13. Auzemery, A., Andriantsimahavandy, A., Esterre, P., Bouat, C., Boitte, J.P. and Huguet, P. Ocular cysticercosis. *Medecine tropicale: revue du Corps de sante colonial*.1995;*55* (4 Pt 2):429-433.
    Jump up ↑
14. Chandra A, Singh MK, Singh VP, et al. A live cysticercosis in anterior chamber leading to glaucoma secondary to pupilary block. *J Glaucoma*. 2007 Mar. 16(2):271-3.

15. ↑Jumpupto:16.016.1 Deschenes J. Ocular Cysticercosis. *Medscape*. 2019.
16. ↑Jumpupto:17.017.1.17.217.3 Zafar, MJ. Neurocysticercosis: Clinical Presentation. Medscape. 2019
Jump up ↑
17. Murthy GR, Rao AV. Sub-conjunctival cysticercosis. Indian J Ophthalmol. 1980;28(2):77–78.
Jump up ↑
18. Wadhwa V, Kharbanda P, Rai S. How reliable are serological tests in diagnosis of cysticercosis? Indian J Med Microbiol. 2006;24(1):78–79.
Jump up ↑
19. Honavar SG, Sekhar CG. Ultrasonological characteristics of extraocular cysticercosis. Orbit. 1998;17(4):271–284.
Jump up ↑
20. Proano JV, Madrazo I, Avelar F, Lopez-Felix B, Diaz G, Grijalva I. Medical treatment for neurocysticercosis characterized by giant subarachnoid cysts. *N Engl J Med*. 2001 Sep 20. 345(12):879-85.
Jump up ↑
21. Beri S, Vajpayee RB, Dhingra N, Ghose S. Managing anterior chamber cysticercosis by viscoexpression: a new surgical technique. Arch Ophthalmol. 1994;112(10):1279–1280.
Jump up ↑
22. Rangel-Castilla L, Serpa JA, Gopinath SP, Graviss EA, Diaz-Marchan P, White AC Jr. Contemporary neurosurgical approaches to neurocysticercosis. *Am J Trop Med Hyg*. 2009 Mar. 80(3):373-8.
Jump up ↑
23. Carpio A, Hauser A. Prognosis for seizure recurrence in patients with newly diagnosed neurocysticercosis. Neurology. 2002;59:1730–1734.
24. https://www.djo.org.in/articles/23/2/orbital-cysticercosis.html
25. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5554854/
26. https://onlinelibrary.wiley.com/doi/full/10.1034/j.1600-0420.2001.079004408.x Last