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Case Report

A case of isolated eyelid cysticercosis masquerading as a dermoid cyst: histopathology to the rescue

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ABSTRACT

Cysticercosis is a parasitic infection caused by larval form of *Taenia Solium*. The commonest site of cysticercosis is central nervous system followed by muscles, subcutaneous tissue and eyes. But only a handful of cases of eyelid cysticercosis have been reported in the literature. We report a case of isolated eyelid cysticercosis in a three year old female child who presented with swelling on the right upper eyelid which was clinically diagnosed as dermoid cyst because of its exclusive site of presentation. Histopathology of excised eyelid swelling revealed the diagnosis of cysticercosis.

Keywords: Eyelid, Dermoid cyst, Histopathology, Cysticercosis

INTRODUCTION

Cysticercosis is a systemic parasitic infestation which is caused by larvae of *Taenia Solium (T. Solium).* This condition is observed all over the world but is particularly common in developing countries. In India prevalence of cysticercosis is high in Northern states of Bihar, Orissa, Uttar Pradesh and Punjab. Most common sites affected by cysticercosis are central nervous system, skeletal muscle, subcutaneous tissue and eye.[1] In the eye, sites of infestation are subretinal space, uvea, anterior segment, conjunctiva, optic nerve, orbit, retro-orbital space and lacrimal gland.[2] Only a few cases of an eyelid cysticercosis have been documented in medical literature till now. An isolated eyelid cysticercosis without neuro-muscular involvement is very rare.[3]

Here, we present a case of upper eyelid swelling which was clinically appearing as dermoid cyst and diagnosis of cysticercosis was made after histopathological examination.

CASE REPORT

A three year old, non-vegetarian female child brought to ophthalmic OPD complaining of progressive right upper eyelid swelling near lateral canthus measuring approximately 1×1 cm since a month. Parents gave history of trauma at the site two months back. Swelling was soft to firm in consistency, painless and mobile without any eyelid edema or erythema which was clinically presumed as a Dermoid cyst. There were no other significant symptoms. The left eye was unremarkable. Her ophthalmic evaluation was otherwise normal. Hematological investigations were within normal limit. General examination revealed no other abnormality. Her anxious parents gave the consent for excision of the mass for cosmetic reasons. Local excision of the right upper eyelid swelling was done under local anaesthesia by ophthalmologist which was not related to muscle or tendon and specimen sent for histopathological study (Figure 1). We received well circumscribed, oval, grey white mass of size 1.5×1 cm (Figure 1) with slightly gelatinous cut surface. Microscopy revealed a cystic

structure containing degenerated cysticercus larva showing three distinct layers i.e. prominent investing cuticle, loose subcuticular tissue and smooth muscle fibers along with a sucker and duct-like invaginated caudal end (Figure 2). The cyst was surrounded by fibrous pseudocapsule which showed granulomatous inflammatory reaction composed of lymphocytes, plasma cells, histiocytes and giant cells.

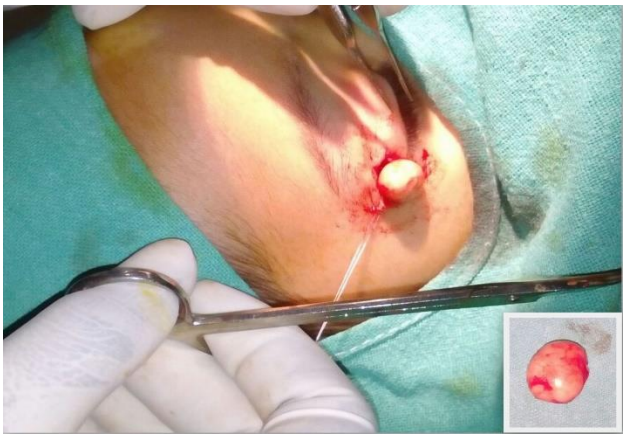

Figure 1: Intraoperatvie photograph showing swelling at right upper eyelid near lateral canthus. Inset: excised well circumscribed, oval, grey white mass.

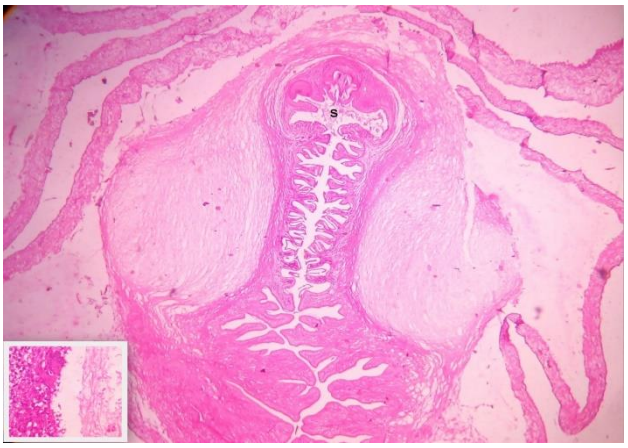

Figure 2: Microphotograph showing larval form of t. solium showing investing cuticle, subcuticular tissue, one of sucker (indicated by's') and caudal end having duct-like invaginations. Inset: granulomatous inflammatory reaction to larva.

DISCUSSION

Cysticercosis refers to the development of extra intestinal encysted larval forms of cestode T. Solium in various organs. The human becomes the intermediate host by ingestion of gravid ova contaminated with food like undercooked pork or water.[3] Central nervous system is affected in 60-90% of cases followed by skeletal muscle, subcutaneous tissue and eye. In India, ocular cysticercosis accounts for 1.4-4.5% of cases contributed mainly by subretinal space (35%) followed by vitreous and conjunctiva (22% each).[4] However, incidence of eyelid cysticercosis without muscle and central nervous system involvement is only 0.6 % which is very uncommon as cases with simultaneous involvement of brain and eye are more on record.3 In our case, no other organ was affected.

There are various modes of diagnosis of cysticercosis. Ultrasonography used to diagnose cysticercosis shows characteristic low reflective cysts and high reflective scolices inside.[5]

Computed Tomography Imaging and Magnetic Resonance Imaging shows hypodense area containing hyperdense scolex surrounded by non enhancing cyst wall and sometimes calcification that confirms the diagnosis and additionally help to rule out neurocysticercosis. Fine Needle Aspiration Cytology smears of cysticercus cyst shows clear fluid rich in eosinophils, lymphocytes, neutrophils, multinucleated giant cells, fibrillary material with embedded multiple small nuclei, and very rarely hooklets.[6]

Diagnosis can also be made by observing characteristic eggs in microscopic mounts of fecal material of an affected person. Enzyme Linked Immunosorbent Assay (ELISA) done for Anticysticercal Antibodies in serum help to confirm the diagnosis but negative result does not rule out the cysticercosis.[7] Indirect Hemagglutination Assays are also available, titer of which greater than 1:64 is considered as an indicator of active infection.

Grossly cysticercus cysts appear as oval vesicles of few millimetres to 1–2 cm in size filled with clear fluid through which the scolex can be seen as a whitish nodule of 2–3 mm diameter.[8] Histopathologically larva within the cyst cavity is surrounded by fibrous pseudocapsule showing granulomatous inflammatory reaction. The cephalic end of the larva shows scolex having four suckers. The caudal end of the larva shows duct-like invaginations giving a racemose appearance. The outer, cuticular/tegumental layer of larva appears smooth and hyalinized lined by tegumental cells. The inner layer is loose and reticular containing mesenchymal cells and spherical, bluish purple noncellular calcerous corpuscles.[9]

It is stated that the viable cysts evoke little inflammatory response, while the degenerating cyst releases antigens into the surrounding tissue that incites inflammatory response. Cyst evolves in three stages depending on host immune response. The colloidal stage shows opaque and dense vesicular fluid and hyaline degeneration of scolex with infiltration of eosinophils, lymphocytes and histiocytes. In granular stage, as the name implies coarse granules replace scolex and fibrosis of wall begins. Calcified stage follows granulomatous reaction, and calcification of parasitic debris forms a rounded, whitish, calcified nodule.[9] These evolving stages gives different morphologic presentation of cysticercous cyst. In colloidal stage, grossly cyst is transparent containing

fluid inside. In granular stage, as fibrosis begins grossly cyst may appear as opaque and firm in consistency. In calcified stage, cyst becomes firm to hard in consistency because of calcific deposits giving slightly gritty on cutting.

Medical regimen for cysticercosis includes treatment with antihelminthics like albendazol or praziquantel. It has been said that for cysticercosis tissue diagnosis is not essential for initiating treatment. However eyelid cysticercosis are managed by surgical excision.[10]

In our case, the unusual location and misleading history precluded from considering cysticercosis as a possibility. The clinical diagnosis put forth was dermoid cyst which is one of the most common non-inflammatory space-occupying orbital lesions in the pediatric population. dermoid cysts presents in first few years of life which accounts for 3-9% of orbital tumors in children. In present case patient was 3 year old child with eyelid swelling near lateral canthus which is commonest presentation of dermoid cyst for which he got operated and histopathology completely twisted the case as diagnosis came out to be cysticercosis.

CONCLUSION

As far as human cysticercosis is considered, eyelid is the least common site affected in the eye. However, diagnosis of cysticercosis should be kept in mind while dealing with isolated eyelid masses that require a high degree of clinical suspicion and accurate histopathological evidence to diagnose.

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