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Cysticercosis of Cheek: A Case Report

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Abstract

Cysticercosis is a common disease in developing countries caused by larval stage of the pork tapeworm, *Taenia solium* infection. Extra oral lesions produced by this parasitic infestation are rare. Here we present a case of healthy patient, who presented with unilateral cheek swelling which on ultrasound, surgical excision, followed by histopathological investigation diagnosed to have cysticercosis.

Keywords: Cysticercosis; Cheek swelling; *Taenia solium*; Pork tapeworm

Introduction

The larval stage of the pork tapeworm (*Taenia solium*) infects the human, causing cysticercosis. The disease constitutes a major public health problem in developing countries like India, Indonesia, China, Africa, Peru, Mexico, where there is poor access to sanitation facilities and close interaction between humans and animals, it has also become an important parasitic disease in developed countries, such as the United States, particularly in California and other states with a large immigrant population [1-3].

Subcutaneous tissues, brain, muscles, heart, liver, lungs, and peritoneum are more frequently affected. Intraoral involvement is rare. When it affects the mouth, it preferably occurs in the tongue, labial or buccal mucosa, and, in some cases, the mouth floor. Cheek muscles involvement are rarely reported [3-6].

They present usually as a painless nodular swelling. The diagnosis can be obtained by history, clinical examination, ultrasonography followed surgical removal of the oral lesion and histopathologic analysis, which can identify the T. solium larva [4-7].

Case Report

A 23 years old male medical student presented with the complaint of swelling right cheek since 1 month which was associated with pain, since 15 days. Swelling was insidious in onset, gradual in progression, there was no increase or decrease in size of swelling and it was associated with dull aching pain, which was relieved on medication. There was no history of tooth pain or fever. He had mixed diet and there was no history of any extra habits (Figure 1).

On examination there was a solitary firm nodular, bidigitally palpable swelling measuring 1.5 × 2 cm in the right cheek surrounded by area inflammation. Swelling was tender, associated with local rise in temperature and freely mobile in all direction but does not move when the underlying muscle is taut. Oral examination did not reveal any pathology (Figure 2). Based on history and clinical evidence, differential diagnosis of lymphadenitis, parotid sialotithiasis, cysticercosis, soft tissue abscess and salivary gland or mesenchymal tumors were considered.

Blood investigation showed haemoglobin: 14.2 gm/dl Total count: 7200 cell/mm^3 absolute eosinophil count -140 cell/mm^3 peripheral smear showed normocytic normochromic blood picture. Other investigations were within normal limits.

Ultrasonography was done, it showed well defined cystic lesion in right cheek suggestive of infective/inflammatory etiology/ Granulomatous cysticercosis (Figure 3).

Surgical removal of the cyst was done by intra oral approach using horizontal incision. Cystic lesion was found adherent to the lateral aspect of buccinators muscle (Figure 4).

Cystic lesion measuring 1 × 1.5 cm was excised and send for histopathological examination.

Microscopic examination showed skeletal muscle and fibro fatty tissue with the lesion consisting of structure resembling cyst cercus with degenerative changes and presence of calcareous corpuscles surrounded by inflammation consisting of eosinophil's, lymphocytes, plasma cells and giant cells with area of fibrosis, all of which was suggestive of granulomatous inflammatory lesion secondary to parasitic infestation-dead cyst cercus cellulose. Patient was followed up for 3 months; he did not have any further complaints.

Discussion

Cysticercosis is infection with the larval stage of the parasite, *Taenia solium*. Human beings acquire cysticercosis through faecal-oral contamination with *Taenia solium* eggs from tapeworm carriers. Thus, vegetarians and other people who do not eat pork can acquire cysticercosis. Water, wind, flies, and other indirect means of infection play little part in transmission. Internal autoinfection by regurgitation of proglottids into the stomach in taeniasis has been proposed but not proven [1].

The disease constitutes a major public health problem in many parts of the world, including China, Southeast Asia, India, sub-Saharan Africa, and Latin America. It has become a 'global problem' even in developed countries, because of immigration from endemic areas. [3-6,8,9]. The most frequently affected decade was the third (32%), followed by the fourth decade [10].

Humans are the only definitive hosts for T. solium; pigs are the

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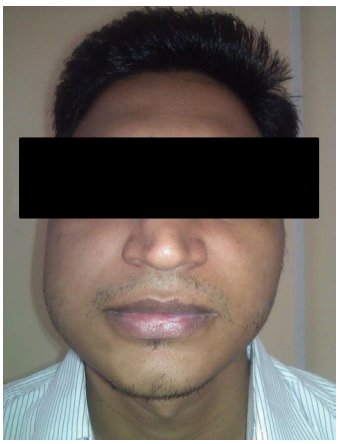
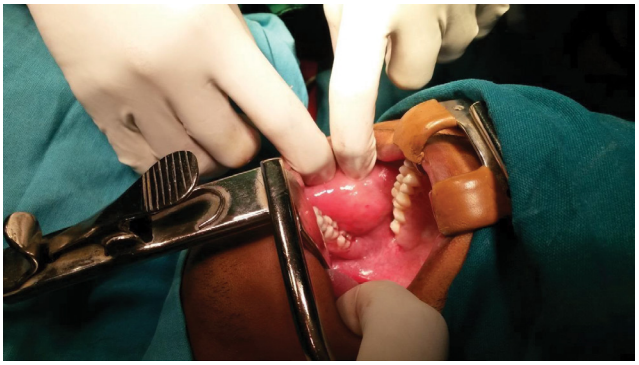


Figure 1: Swelling of right cheek.



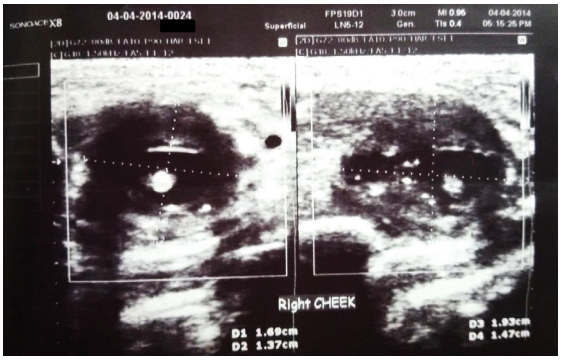


Figure 2: Ultrasonography done on cysticercosis.

usual intermediate hosts, although dogs, cats, and sheep may harbor the larval forms Infection with the adult worm takes place by the ingestion of uncooked or ill-cooked pork containing encysted larvae of *Taenia solium*. The larval wall is destroyed by secretions in the stomach, releasing the tapeworm head which passes into and attaches to the intestinal mucosa, and grows into an adult worm in 5-12 weeks .Eggs and proglttids are passed into the faeces. Eggs are thick shelled and hence are not destroyed in the soil for days to months. When pigs or humans ingest the eggs, the gastric secretions break the egg wall. The oncospheres are released which penetrate the intestinal wall , enter the mesenteric venules ,spread throughout the body, and reach the subcutaneous and intramuscular tissues, eye, brain and other body sites [5,9,11].

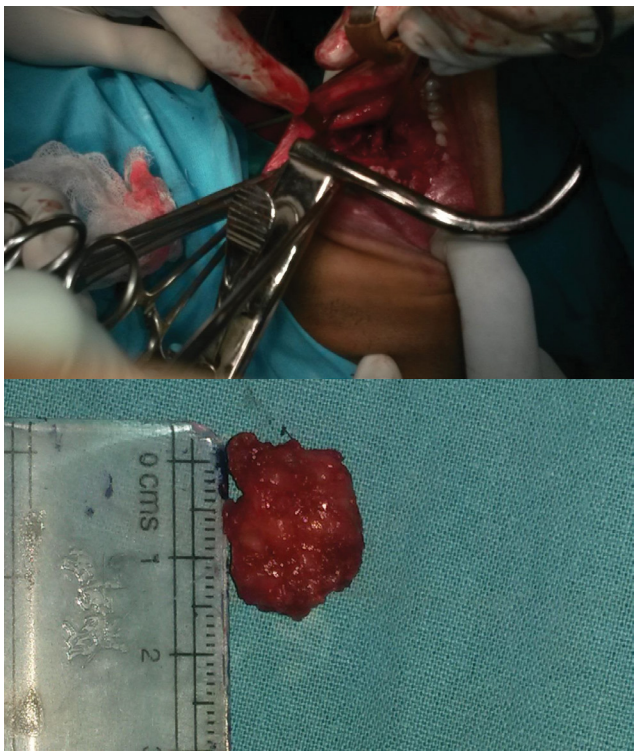


Figure 3: Fibro fatty tissue cyst is observed.

There is predilection cysticercosis for striated muscle of the neck, tongue, and trunk. Within 60 to 90 days, the encysted larval stage develops. These cysticerci can survive for long periods. Three types of clinical manifestations are described in the muscle form: the myalgic type; the mass-like, pseudotumour or abscess-like type; and the rare pseudohypertrophic type Very rarely, they become inflamed and manifest as a growing area of redness, oedema and pain. Inflammation of the tissue suggests death or degeneration of the parasite with leakage of the antigens and cellular response of the body, like in our case. The differential diagnosis of muscular cysticercosis includes lipomas, epidermoid cysts, dermoid cyst, granular cell tumours, neuroma, neurofibromas, pseudoganglia, sarcoma, myxoma, pyomyositis or tuberculous lymphadenitis, benign lesions of salivary gland origin and deep-seated mucocele, and soft tissue cysts [4,5,11-14].

The diagnosis of cysticercosis can be confirmed by fine-needle aspiration cytology (FNAC) or excision biopsy, which shows the detached hooklets, scolex, and fragments of the spiral wall of *Cysticercosis cellulosae.* The growing larva in cysticercosis may provoke a series of inflammatory reactions including infiltration of neutrophils and eosinophils, lymphocytes, plasma cells and at times giant cells, followed by fibrosis and necrosis of capsule with eventual caseation or calcification of the larva. Cysticerci may remain alive for many years. The first stage of involution of cysticerci is the colloidal stage, in which a viscous, turbid fluid replaces the transparent vesicular fluid. Additionally, the scolex shows signs of hyaline degeneration. Thereafter, the cyst wall thickens and the scolex is transformed into coarse mineralized granule is termed the granular stage [5,6,8,10,11].

High resolution sonography provides all information available with MRI and more with regards to muscle pathology. Vijayaraghavan described four different sonographic patterns of muscular cysticercosis. The first type is cysticercus cyst with an inflammatory mass around it,

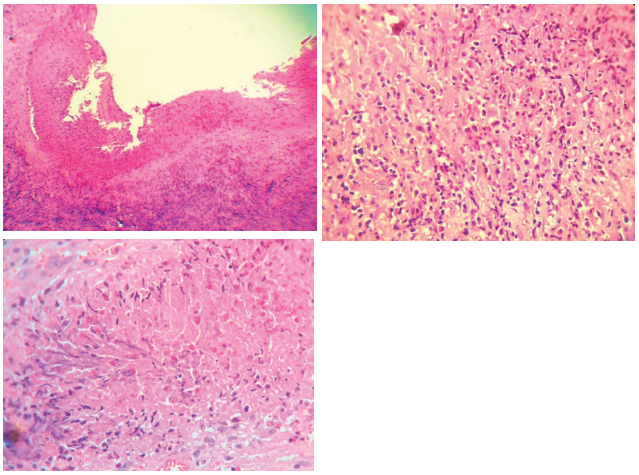


Figure 4: Inflammation of eosinophil's, lymphocytes, plasma cells and giant cells

as a result of the death of the larva. The second type is an irregular cyst with very minimal fluid on one side, indicating a leakage of fluid. The eccentric echogenic protrusion from the wall due to the scolex is not seen within the cyst. The third appearance is a large irregular collection of exudative fluid within the muscle with the typical cysticercus cyst containing the scolex, situated eccentrically within the collection. This appearance is similar to an intramuscular abscess. In all three of these types of appearances, the salient diagnostic feature is that of the cysticercus itself, which appears as an oval or round well-defined cystic lesion with an eccentric echogenic scolex in it, as was seen in the present case. The fourth sonographic appearance is that of calcified cysticercosis [11].

Similar case was reported by Sujatha Dysanoor, Jyoti Pol where intramuscularcysticercosis was in buccinator muscle. Patient noticed increase in the size of the swelling associated with pain, following anthelmintic use and skin over the swelling was tense and shiny. They performed incision and drainage along with curettage of granulation tissue, due to reinfection of swelling [10]. But in our case we have opted for surgical excision directly, which would have given a better prognosis, lesser morbidity to the patient.

Surgical excision is done for isolated skeletal muscle or soft tissue cysticercosis diagnosis, lesion causing problems or causing cosmetic issue [2,3,5,10]. Medical management Cysticercosis includes anti-helminthics like Albendazole, Praziquantal, and Niclosamide [1,9,10,15].

Conclusion

In all inflammatory/cystic lesions, the possibility of cysticercosis should be kept in mind. Ultrsonologist plays a significant role in diagnosis, of cheek swelling. Surgical management places a better role in localized cysticercosis.

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