Oral cysticercosis: a case report

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Abstract Cysticercosis is a common disease in developing countries. Oral lesions produced by this parasitic infestation are rare [1–7]. Diagnosis is usually made on microscopic examination. Following is a case report of a 19-year-old female patient from central India who reported to our centre with a swelling in the left cheek, which was diagnosed as cysticercosis on Fine Needle Aspiration Cytology (FNAC).

Keywords Cysticercosis · Buccal mucosa · FNAC

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Introduction

Human cestode infection may involve adult mature worms, larval forms or both. Adult cestodes inhabit the intestines of vertebrates, whereas the larval forms occur in a variety of vertebrate and invertebrate hosts. The larval form is a post embryonic stage in which internal organs are either developing or developed. The larvae are only partially functional [1]. The parasite can be ingested in the form of larvae from raw or inadequately cooked pork or in the form of eggs through fecally contaminated vegetables, food, or water as well as self-contamination or direct contact with another human carrier. The larva may develop into an adult tapeworm and colonise the human intestine. The ingested eggs develop into embryos (oncospheres) that can penetrate the intestinal wall and disseminate through vascular or lymphatic circulation, to develop into cystic larvae (*Cysticercus cellulosae*). Although any body site can have cysticercosis, the subcutaneous tissues, brain, and skeletal muscles are most commonly affected [2].

Case report

A 19-year-old female patient reported to our department with chief complaint of swelling in the left side of the oral cavity (Fig. 1). The swelling was noticed 2 months ago. The patient did not have any abnormal medical and dental history. There was no history of

habits. The patient was a non vegetarian in diet. The swelling gradually increased to present size of 1 x 1 cm. It was associated with pain which subsided on medication (analgesic). However the pain recurred after 15 days. The patient then reported to us. The patient also complained of some difficulty in mastication and swallowing.

On examination there was pericoronitis in relation to the buccally malposed mandibular left third molar. Adjacent to the tooth, there was a swelling in the buccal mucosa, slightly tender, diffuse borders, firm in consistency and was not fixed to the underlying tissues. There was no associated Lymphadenopathy observed. The patient was put on the prophylactic antibiotics and the third molar was extracted. However there was no change in the swelling. An FNAC was performed, in which *cysticercus cellulosae*, larval form of *Taenia solium* was identified. The patient was investigated further. A USG and MRI were done. Blood, urine and stool studies failed to show active parasitosis. The patient was scheduled for surgery. Excision was performed under General Anesthesia. There was no recurrence for a period of one year and the patient is still under regular follow up.

Discussion

Cysticercosis is caused by the larval stage of *Taenia solium*. The disease is more

common in endemic areas like Latin America, Asia, Africa and Eastern Europe. The incidence in developed countries is also on a rise as a result of migration [3]. Oral cysticercosis is a rare event [1–7]. It develops in humans due to ingestion of contaminated food or polluted drinking water, eating with unclean hands, consumption of raw or inadequately cooked pork and reflux of proglottids from the stomach. In the oral cavity, the most favorable sites are tongue, lips and buccal mucosa. Wilson A et al. [4] observed that an individual with cysticercosis need not be a resident of endemic areas or have a history of consumption of beef or pork. We found that the patient observed was from central India, and had a mixed diet, but she did not have the habit of consuming beef or pork. She was not immuno compromised [3]. Thus the etiology is unclear. The clinical symptoms depend upon the site and the number of cysticerci in the body. During the stage of invasion there are no symptoms or slight muscular pain and mild fever may be present. Central nervous system involvement produces serious effects. Cysticerci are well tolerated in the tissues when they are alive but evoke a toxic reaction in the surrounding tissue on death. When present in oral cavity, it is usually diagnosed as a mucocele or a benign tumor of mesenchymal origin, such as lipoma, fibroma, hemangioma, granular cell tumor, or a minor salivary gland adenoma [4]. In this case it was provisionally diagnosed as inflammatory swelling secondary to

Fig. 1 Intraoral swelling distal to second molar

Fig. 2 H & E stained FNAC

Fig. 3 USG of the lesion

Fig. 4 MRI showing the lesion in the masseter on the left side

Fig. 5 Surgical excision

Fig. 6 Excised lesion

Fig. 7 Histological appearance: A well defined connective tissue host capsule is seen

Fig. 8 Histological appearance: Linear spaces and network of folds

pericoronitis. The third molar was removed. However there was no regression in the swelling. The provisional diagnosis was questioned. Reddi SP, Morales MJ et al. [5] gives a detailed description of the possible differential diagnoses. An FNAC was performed. In such a situation FNAC is indispensable in arriving at a definitive diagnosis. It is an important aid in diagnostic procedures, can be performed on an OPD basis, quick, safe, almost painless and often useful for diagnosis of palpable masses. Besides it is cost effective. On aspiration cytology the smear showed multiple vascularized fragments and a diffuse population of polymorphous lymphoid cells, plasma cells, macrophages,

and histiocytes (Fig. 2). A few places showed epithelial histiocytes. Occasional places showed segmental material with nuclear bodies, reticulation and refractile fragments. This cytomorphology is suggestive of cysticercosis with inflammatory foreign body granulomatous reaction [3].

Further investigations in the form of blood, urine and stool examination were performed to rule out any active parasitosis [9]. However there was no significant finding in any of these investigations. USG of the lesion was performed (Fig. 3). It showed a cystic mass interwined in the fibres of masseter muscle. MRI of the lesion did not show any characteristic features

(Fig. 4). It appeared as a fluid filled cavity in between the fibres of masseter muscle. Presence of lesions elsewhere in the body was ruled out.

On surgical exposure of the site a dense fibrous mass was seen adherent to the masseter muscle in the anterior portion. It was carefully dissected and removed (Figs. 5 and 6). The resultant defect was closed primarily. Postoperative recovery was uneventful and the patient is maintaining a regular follow up.

Histologically the lesion showed a well defined host capsule surrounding a fluid filled cyst (Figs. 7 and 8). Linear spaces produced as a network of folds could be appreciated in the histological sections. These findings are in accordance with the cases reported previously in the literature [1–7]. But proper identification of the cranial and caudal ends was not possible in the sections taken.

Medicinal treatment in the form of Praziquantel or Albendazole [2,5] was not prescribed as presence of lesions elsewhere was ruled out and there has been no recurrence for the last six months.

The incidence and etiology of oral cysticercosis has been well documented. Clinically diagnosis of oral cysticercosis cannot be made. It needs to be further investigated with the help of tissue biopsy,

serology and radiologic imaging. As seen in this case, FNAC is a valuable aid in the early diagnosis of cysticercosis. Early diagnosis helps to initiate appropriate therapy either surgical or medicinal (for neurocysticercosis where surgical treatment is risky). USG, CT Scan and MRI failed to demonstrate any characteristic feature for cysticercosis. However, once a definitive diagnosis is established by an economical method like FNAC and though MRI and CT Scan are considered as expensive investigation modalities in a developing country, their use is justified in ruling out cerebral cysticercosis and lesions elsewhere in the body. Characteristic imaging features of ocular cysticercosis have been described [8]. A cystic lesion with a peripheral mural nodule representing the scolex can be diagnosed as cysticercosis. It is therefore emphasized that, cysticercosis be included in the differential diagnosis of cystic/nodular lesions of the oral cavity in patients from endemic areas; FNAC to be considered as a mandatory investigation for

such cases where a definitive clinical diagnosis is not possible.

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