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ORAL CYSTICERCOSIS: A RARE CASE REPORT AND COMPREHENSIVE LITERATURE REVIEW

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ABSTRACT

Cysticercosis, a potentially fatal parasitic infection caused by the larval stage of the tapeworm Taenia solium, typically affects various tissues in humans. While oral cysticercosis is rare, it poses diagnostic challenges due to its resemblance to benign oral lesions.

Here, we present a case of oral cysticercosis in a 24-year-old male with a painless swelling on the left lateral border of his tongue. Initially misdiagnosed as a lipoma, surgical excision under general anesthesia revealed a cystic mass containing a parasite consistent with cysticercosis. Histopathological examination confirmed the diagnosis, emphasizing the importance of considering parasitic infections in the differential diagnosis of oral lesions.

This case underscores the need for thorough evaluation and microscopic examination to ensure accurate diagnosis and appropriate management of oral cysticercosis

KEYWORDS

Cysticercosis, Diagnosis , Histopathological , Oral lesions ,Taenia solium

INTRODUCTION

Platyhelminthes have a life cycle involving an egg phase, a larval stage, and an adult stage, with each stage requiring a different host. Cysticercosis is a potentially fatal parasitic disease that infrequently affects the oral region in humans. It is caused by infection with the larval stage of the tapeworm Taenia solium (T. solium), which inhabits the muscles and other tissues of pigs, the intermediate hosts [1]. Humans, the definitive hosts, become infected by consuming undercooked pork containing cysticerci or by accidentally ingesting T. solium eggs. Thus, the primary route of acquiring cysticercosis is fecal-oral, rather than through pork consumption. The disease commonly affects subcutaneous tissue, the brain, muscles, heart, liver, lungs, and eyes. It is a serious condition because ingested eggs develop into embryos (oncospheres) that penetrate the intestinal wall and spread via the vascular or lymphatic system, developing into cystic larvae (cysticercus cellulosae) [2,3] .

Oral cysticercosis is rare, difficult to diagnose, and not well-documented in the literature. Here, we report a case of oral cysticercosis to emphasize the importance of performing histopathological evaluation and routine microscopic examination on even seemingly benign lesions for accurate diagnosis [4].

The differential diagnosis of oral cysticercosis encompasses several benign conditions that manifest with similar clinical features. Mucoceles, resulting from salivary gland duct obstruction, present as painless, fluid-filled swellings. Fibromas, benign connective tissue tumors, manifest as firm nodules, commonly on the buccal mucosa or tongue [5]. Pyogenic granulomas, characterized by rapid growth and a friable appearance, present as red or purple nodules prone to bleeding. Lipomas, composed of adipose tissue, manifest as soft, mobile masses, often in the buccal vestibule. Benign salivary gland tumors, such as pleomorphic adenomas or Warthin tumors, present as painless, slow-growing masses. Granular cell tumors, originating from Schwann cells, present as firm nodules, typically on the tongue or buccal mucosa. Rhabdomyomas, rare benign tumors of striated muscle tissue, may present as painless masses on the tongue [3, 6]. Additionally, hemangiomas, benign vascular tumors, present as compressible, red or bluish lesions [7].Osteomas and peripheral solitary osteomas of the mandible should also be considered, presenting as bony protuberances on the mandible. These conditions should be considered alongside oral cysticercosis in the differential diagnosis, and histopathological examination may be necessary for confirmation [8].

CASE REPORT

A 24-year-old male patient presented to the Department of Oral and Maxillofacial Surgery at DY Patil Hospital in Navi Mumbai, Maharashtra, India, complaining of a painless swelling on the left lateral border of his tongue for two years. Initially, the patient had consulted an ENT specialist and was advised to undergo excision of the lesion, but he did not follow up and instead took Ayurvedic medicines for 8-9 months without improvement.

The patient then visited an oral and maxillofacial surgeon and was advised to be admitted for further evaluation and treatment. He reported that the swelling, initially the size of a peanut, was soft and slow-growing. There was no history of trauma or discharge from the area, and no other similar swellings elsewhere on his body. The patient worked as a laborer and had a history of facial palsy six years prior. His medical history was otherwise non-contributory. The patient had a history of chewing tobacco and alcohol use for 5-6 years, which he had quit 10 days before the consultation. Due to financial constraints, he declined an MRI of the tongue with contrast. There was no extra oral finding noted. **(Figure 1)**

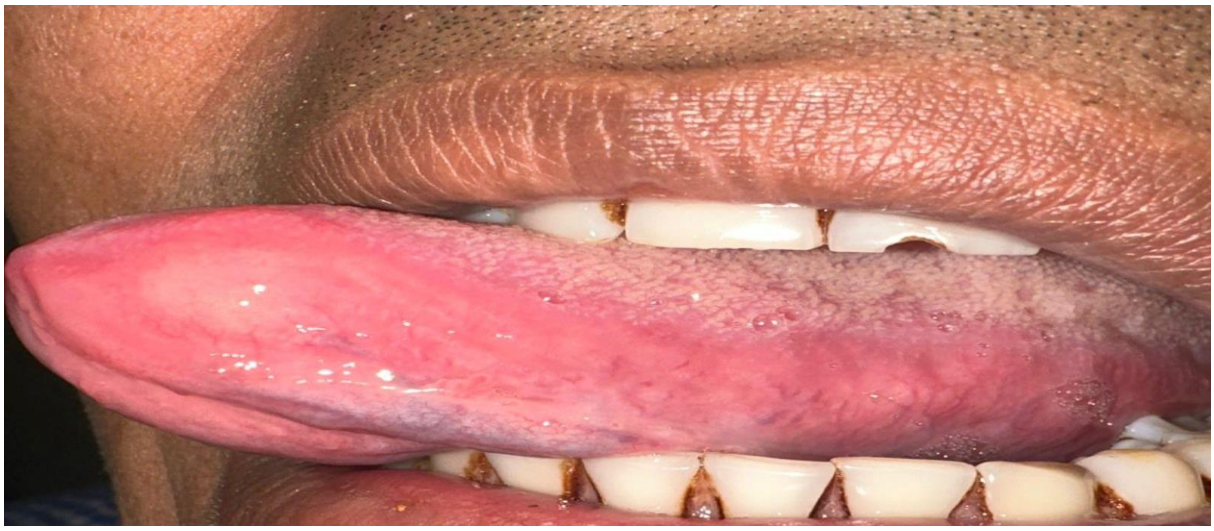

Figure 1: Extra oral Photograph of the Lesion

During the intraoral examination, a well-defined, smooth submucosal swelling measuring approximately 1.5 cm in diameter was observed on the left lateral border of the tongue. The swelling appeared nodular and was soft to the touch, non-tender, and non-compressible, with intact overlying mucosa. The clinician provisionally diagnosed the swelling as a lipoma. However, other differential diagnoses considered included reactive lesions such as focal fibrous hyperplasia, mucocele, benign mesenchymal tumor, and benign minor salivary gland tumor.

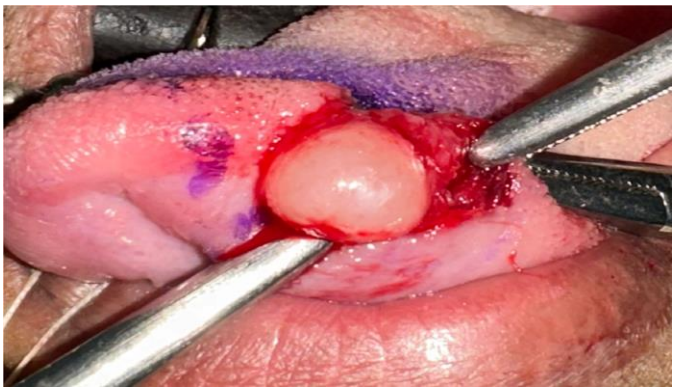

Figure 2: Intraoral examination of the Lesion

After obtaining informed consent from the patient, the surgeon opted for surgical excision under general anesthesia, as the patient was not cooperative for excision under local anesthesia. During the surgical procedure, the lesion was found to be encapsulated and adherent to the underlying connective tissues. It was dissected out using sharp dissection, and suturing was performed.

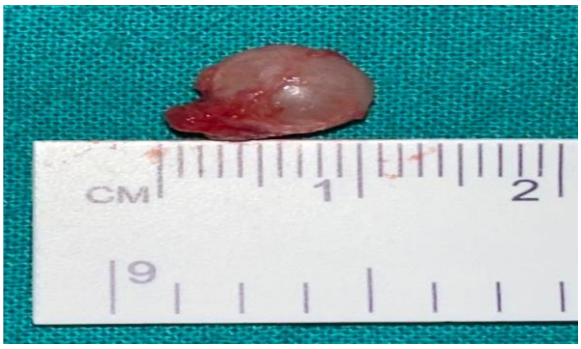

Figure 3: Surgical excision of the Lesion

Upon macroscopic examination, the excised lesion appeared well-circumscribed, soft, and whitish in color. Tissue samples were sent for processing, revealing a cystic mass measuring 1 cm in diameter. The cyst wall was measured to be 0.1 cm thick, and the cystic content was watery. Microscopic examination of the specimen showed a cyst wall containing a parasite with irregularly shaped membranous foldings and a scolex with hooklets. A single, viable, and invaginated parasite was identified. These features were indicative of cysticercosis affecting the left anterior third of the tongue. The patient was scheduled for regular follow-up appointments but was subsequently lost to follow-up.

DISCUSSION

The tapeworm consists of a scolex (head) and proglottids (caudal end), with each proglottid containing thousands of eggs released through feces [9]. Pigs become infected by ingesting eggs from contaminated soil, while humans acquire the larval form by consuming undercooked infected pork, leading to adult worm development in the small intestine [10]. Humans act as definitive hosts, harboring adult worms, while pigs serve as intermediate hosts, harboring larval stages. Larvae can penetrate mucosa, enter blood vessels and lymphatics, and distribute throughout the body, favoring organs such as the brain, muscles, skin, liver, lungs, and heart. Outside the intestinal mucosa, larvae eventually die, causing granuloma formation, scarring, and calcification, typically around 3 months later, resulting in cysticerci [11].

Cysticercosis is endemic in regions like Latin America, India, Eastern Europe, and Southern Africa, but can occur in non-endemic regions due to increased immigration and travel-related tapeworm infections [12]. The disease predominantly affects striated muscles but can impact various tissues and organs, including oral and perioral tissues. Symptoms may include headache, fever, myalgia, seizures, increased intracranial pressure, obstructive hydrocephalus, meningitis, and mental disorders [13]. Oral cysticercosis is rare and typically presents as a swelling, resembling a mucocele, with a differential diagnosis depending on the lesion's location. Although dissemination may occur, systemic complications are uncommon in patients with oral lesions, as larvae are often located in deep tissues and may remain asymptomatic. However, patients with oral cysticercosis should undergo medical evaluation, as symptomatic disease typically results from central nervous system involvement. Neurocysticercosis is a common cause of acquired epilepsy in the developing world, and MRI of the brain is the preferred diagnostic tool [4, 5, 6].

Recent studies have associated neurocysticercosis with local malignant tumors, such as glioblastoma multiforme, and malignant hematological diseases. Diagnostic tools include radiological imaging and serology, with fine-needle aspiration cytology and immunodetection methods also being utilized [14]. Treatment typically involves surgical enucleation, with anthelmintic drugs such as praziquantel and albendazole effective in treating disseminated cysticercosis. Prognosis in the maxillofacial region is generally good, with low recurrence rates, while prognosis in other sites depends on the location and number of larval localizations [15].

CONCLUSION

Oral cysticercosis, although rare, presents unique diagnostic and management challenges. This case report highlights the importance of considering parasitic infections in the differential diagnosis of oral lesions, especially in endemic regions. The comprehensive literature review provides valuable insights into the clinical presentation, diagnosis, and management of oral cysticercosis, emphasizing the need for histopathological evaluation and routine microscopic examination for accurate diagnosis. Early detection and appropriate management are crucial to prevent potential systemic complications, particularly central nervous system involvement, which can lead to severe neurological symptoms. The association of neurocysticercosis with local malignant tumors underscores the importance of further research into the pathogenesis and treatment of this complex parasitic infection. Overall, increased awareness, prompt diagnosis, and multidisciplinary management involving surgical intervention and anthelmintic therapy are essential for optimizing patient outcomes and reducing the burden of oral cysticercosis. Continued research efforts are needed to advance our understanding of this condition and improve patient care globally.

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