

Cysticercosis of the oral cavity: an often misdiagnosed entity

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Abstract

We present a case report of a single lesion of cysticercosis cellulosa, a parasitic infection caused by the larval stage of *Taenia solium* (pork tapeworm), presenting as a soft tissue swelling of the lower lip. We stress the importance of knowledge about oral manifestations of parasitic infections.

Key words: *Taenia Solium*; Cysticercosis; Oral Cavity; Lip

Introduction

Cysticercosis cellulosa is a parasitic infection caused by the larval stage of *Taenia solium* (pork tapeworm), which very rarely manifests in the oral cavity. *Taenia solium* infections are common in developing countries, in areas where there are poor sanitation facilities and where there is a close association between humans and animals. Cysticercosis commonly involves the central nervous system, eye, subcutaneous tissue, skeletal muscle and heart.¹ Oral cysticercosis usually presents as painless, nodular masses. Surgical excision of the oral lesions is the treatment of choice,² usually performed unknowingly. However, for symptomatic lesions involving other regions, drugs such as praziquantel and albendazole are used.

Case report

A 20-year-old man presented to our department with a painless lip swelling of three months' duration. Over the previous two years, he had been in the habit of chewing paan (Betel leaf filled with powdered tobacco with spices), which he apparently discontinued when the lip swelling developed. No other significant past medical history was elicited.

On examination of the lower lip, a smooth swelling of approximately 1 cm in diameter was observed (Fig. 1). The swelling was non-tender, non-compressible and cystic in consistency.

Routine blood investigations were within normal limits.

Surgical excision was planned and performed, with a provisional diagnosis of mucocele.

The excised specimen had a thick capsule and was firm in consistency. Pathological examination confirmed it to be cysticercosis cellulosa.

After seven days, when the patient reported for follow up, a detailed history revealed that he was a non-vegetarian and hailed from a rural area where sanitation facilities were poor. The patient was informed of the diagnosis and was asked to report for further evaluation, for which he defaulted.

Discussion

Cysticercosis cellulosa is caused by the larval stage of the pork tapeworm, *Taenia solium*. Humans are the definitive host for *Taenia solium*, which grows to approximately 6–10 feet. Pigs are the intermediate host. However, humans do rarely become the intermediate host, and this is when cysticerci develop and manifest clinically. Tapeworm infections commonly occur in rural areas where there are poor sanitation facilities and a close association between humans and animals, particularly pigs; this is the reason why such lesions are not common in developed countries. Infection generally occurs with the consumption of partially cooked meat. The viable larvae are uncovered from their cystic wall by the gastric acid. These larvae start growing after fixing themselves to the intestinal wall and start releasing embryonated eggs and proglottides in the faeces.

Humans become intermediate hosts when they ingest embryonated eggs. This happens because of faeco-oral contamination, improper sanitation and, rarely, due to internal regurgitation of the embryonated eggs from the intestine into the stomach. The eggs hatch to form larvae which migrate to various regions of the body and cause cysticercosis. Clinically, cysticercosis is mostly asymptomatic; however, rarely, it becomes symptomatic, with signs and symptoms dependent on the site of involvement.

Oral cysticercosis is rare and usually manifests as painless, nodular masses. Most of the cases reported in the literature have involved such painless, nodular masses. Except for a few cases in which fine needle aspiration cytology was performed pre-operatively,³ almost all the reported lesions have been diagnosed as cysticercosis only after histopathological examination (Fig. 2), including ours (see Table I). Cysticercosis is rarely included in the pre-operative differential diagnosis, due to the relative rarity of the condition, inadequate knowledge of parasitic infections and their oral manifestations, and, most importantly, due to negligence when taking the medical history. We stress the importance of obtaining a detailed history of the patient's habits and habitat. Knowledge of

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FIG. 1
Oral cysticercosis mimicking mucocele.

the patient's socio-economic status and food habits can greatly assist correct diagnosis of a solitary nodular oral lesion if cysticercosis is included in the differential diagnosis.

- **Cysticercosis cellulosae is a parasitic infection caused by the larval stage of *Taenia solium*, which very rarely manifests in the oral cavity**
- ***Taenia solium* infections are common in developing countries, in areas where there are poor sanitation facilities and where there is a close association between humans and animals**
- **Oral cysticercosis usually presents as painless, nodular masses; surgical excision of the oral lesions is the treatment of choice**
- **This paper describes a case of a single lesion of cysticercosis cellulosae, presenting as a soft tissue swelling of the lower lip**

The signs and symptoms of cysticercosis with systemic involvement depend on the site affected. Cerebral

TABLE I

PRE OPERATIVELY MIS DIAGNOSED CASES OF ORAL CYSTICERCOSIS

Authors	Cases (n)	Site (lesions; n)	Pre-operatively diagnosed?
Puppin <i>et al.</i> ¹	1	Tongue	No
Jain <i>et al.</i> ²	1	Tongue	No
Saran <i>et al.</i> ³	5	Tongue (4) Cheek (1)	Yes (FNAC)
Romero <i>et al.</i> ⁴	1	Cheek	No
Fazakerley <i>et al.</i> ⁵	1	Lip	No
Nigam <i>et al.</i> ⁶	6	Oral cavity	No
Mazhari <i>et al.</i> ⁷	8	Cheek (4) Lip (2) Tongue (1) Gums (1)	No

Note that oral cysticercosis was not included in the pre-operative differential diagnosis of any reported case. FNAC = fine needle aspiration cytology

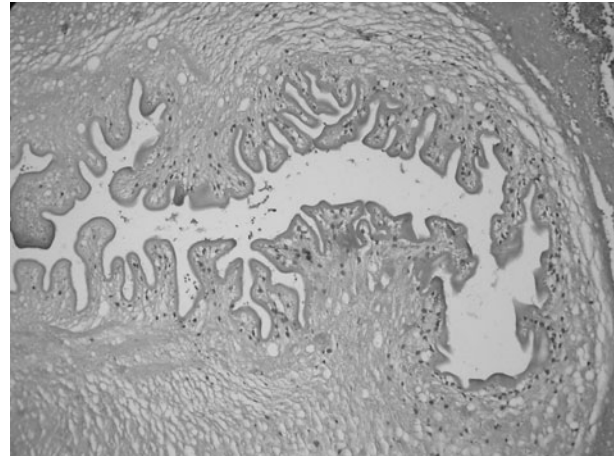


FIG. 2
Photomicrograph showing larval form of *Taenia solium* (H&E; ×40).

cysticercosis may present with seizure, headache, etc, while iridocyclitis and cardiac arrhythmias are manifestations of eye and heart involvement, respectively. Oral cysticercosis usually presents as a solitary lesion. The diagnosis of oral cysticercosis always mandates the assessment of systemic involvement. Investigations assisting the diagnosis of cysticercosis include stool examination and serological tests (namely, enzyme-linked immunosorbent assay and enzyme-linked immunoelectrotransfer blot).⁴ The enzyme-linked assays usually demonstrate cysticercosis antibodies. Computerised tomography and magnetic resonance imaging of the brain are mandatory in order to rule out cerebral involvement.

After these investigations have been performed, it is then important that the excised specimen be studied histologically,⁴ as oral cysticercosis is usually not considered in the pre-operative diagnosis. Histopathological examination confirms the diagnosis of cysticercosis.

The management of cysticercosis is also site-dependant. Praziquantel and albendazole are commonly used for cases of neuro-cysticercosis. Surgical excision of accessible solitary lesions is still the 'gold standard' of treatment, with no evidence of recurrence.

Conclusion

It is necessary to consider cysticercosis in the differential diagnosis of cases of painless, nodular lesions of the oral cavity, and to take a detailed history of the patient's habits and social status, which will to some extent assist in the diagnosis of cysticercosis.

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