



## INTRA MASSETERIC CYSTICERCOSIS- A RARE PRESENTATION

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## ABSTRACT

Cysticercosis occurs when man is infested with the larvae of *Taenia solium*. Isolated muscle involvement especially of the head and neck region is a rarity in a case of cysticercosis infection. It can present as a diagnostic dilemma for clinicians. We present a case of masseteric cysticercosis in a 12 year old girl, which is a rare manifestation. Being a non invasive investigation, Ultrasonography was the imaging modality used for diagnosis and treatment was with antihelminthics. Cysticercosis of the Maxillofacial region should be included as a differential diagnosis for any swellings in the head and neck region. Treatment is mainly conservative by medical management also taking into consideration the preventive measures.

## KEYWORDS

cysticercosis, masseteric, ultrasound

Cysticercosis represents infestation caused by the larval stage of the tapeworm *Taenia solium*. (1) In the life cycle of the cestode, humans serve as either a definitive or an intermediate host. The life cycle of *T. solium* is complex requiring two mammalian hosts: a definitive host, in which the worm reaches sexual maturity, and an intermediate host, through which it propagates further. Humans are the only definitive hosts for adult *T. solium*. (1)

Disease is acquired by consumption of inadequately cooked pork. Pigs serve as natural intermediate hosts. Cysticercosis is an endemic disease in developing countries seen extensively in India, Indonesia, China, Africa, Peru and Mexico. (2) Cases occur occasionally in non-endemic areas. (2)

Reported prevalence of oral cysticercosis is 4.1%. (3) Common sites of involvement in the oral region are buccal mucosa, tongue, masseter, temporalis and lips. (4-6)

The location of cysts in order of frequency is the central nervous system, subcutaneous tissue and striated muscle, vitreous humour of the eye and, rarely, other tissues. Cysticerci in the muscles generally do not cause symptoms; they present as nodules and can be felt as lumps under the skin, and tend to appear and disappear, or they can present as muscular pseudohypertrophy. (7)

## CASE REPORT:

A 12 year old female child presented to the ENT HNS OPD with complaints of a swelling over the Right cheek since two months duration causing facial asymmetry and associated with intermittent pain. The swelling was initially small in size and gradually increased to size of about 5X4 cm. There was no associated pain over the swelling. Patient gave history of intermittent fever which was low grade and not associated with chills and rigors. History of reduced appetite was present since 2 months. There was no history of difficulty in mouth opening or chewing. Although the patient had a mixed diet, there was no history of consumption of pork. She had no history of trauma over the cheek and no history of dental infections or tooth extractions in the past.

On general examination, she was conscious and coherent with normal gait and was adequately built. Signs of pallor were seen in palpebral conjunctiva and nail bed.

Extra oral examination revealed a solitary diffuse swelling contributing to facial asymmetry was present over the right cheek extending from the posterior border of the mandible to the anterior border of the masseter and from the superior border of the mandible to the malar prominence inferosuperiorly, measuring 5 cm anteroposteriorly and 4 cm superoinferiorly. Skin over the swelling was stretched and appeared erythematous. On bimanual palpation the swelling was firm in consistency, tender, non fluctuant and fixed to the masseter on clenching of teeth. Refer Appendix [Fig 1(a)(b)(c)]

Intraoral examination was normal and revealed no dento alveolar

source of infection and no restriction in mouth opening. Mandible movement was free and unrestricted. The mass size did not change with chewing or swallowing food. Right Parotid gland appeared normal. Neck and Fundus examination were normal. Systemic examination normal and no other swellings were detected elsewhere in the body.

Complete hemogram and chest radiograph study were normal. Patient underwent sonographic examination and MRI examination which suggested evidence of cysticercosis of the masseter. **Ultrasound of soft tissue right cheek**-A well defined thin walled cystic lesion measuring 0.7X0.6 cm with a hyperechoic eccentric scolex within the cyst, involving the right masseter muscle. Surrounding the cyst there is a 3.2 X 1.8 cm mixed echogenic collection. Refer Appendix [Fig 2 a,b] **MRI Brain** showed normal brain parenchymal tissue.

The patient was managed conservatively with 200 mg Albendazole BD for 28 days. A follow-up ultrasound was done after 15 days which revealed reduction in size of the lesion and a third follow-up ultrasound was done after 3 months which revealed complete resolution of the lesion. Refer Appendix [Fig 3]

## DISCUSSION:

*Taenia solium* exists worldwide but its most prevalent in Mexico, Central and South America, Asia, India, sub-Saharan Africa and China [8] Human is the definite host in tapeworm life cycle and is infected due to ingestion of tapeworm eggs from contaminated food, water, uncooked/undercooked pork meat or due to regurgitation of eggs into stomach from small intestine harboring gravid worm. The worm develops and excretes eggs in small intestine of the human being. The egg reaches the pig (the intermediate host) intestine through fecal contamination and develops cysticercosis. The human becomes the intermediate host occasionally due to regurgitation of eggs into the stomach from small intestine by reverse peristalsis. The egg develops into encysted form of larvae (*Cysticercosis cellulosae*) and enters the blood stream and results cysticercosis in different organs of body. [9]

Cysticerci can be found anywhere in the body but are most commonly detected in the brain, spinal cord, skeletal muscles, subcutaneous tissue, heart or eye. Isolated muscle and subcutaneous tissue involvement by cysticercosis is rare [10]. In this case, Right Masseter muscle was involved.

These cysticerci can remain viable at this stage for as long as 10 years in humans. Living larvae evade immune recognition and do not elicit inflammation. When the larva dies, it induces a vigorous granulomatous inflammatory response that depends on the anatomic location. [11] The clinical presentation of cysticercosis depends on the number and location of cysticerci, as well as the extent of associated inflammatory response or scarring. Neurological manifestations, known as neurocysticercosis, are most common and may manifest as seizure, hydrocephalus and signs of raised intracranial tension [12]

In the muscular form, three distinct types of clinical manifestations have been described: the myalgic type; the mass-like, pseudotumour or abscess-like type; and the rare pseudohypertrophic type. During the death of the larva, there is leakage of fluid from the cyst. The resulting acute inflammation may result in local pain and myalgia. Alternatively, degeneration of the cyst may result in intermittent leakage of fluid, eliciting a chronic inflammatory response, with collection of fluid around the cyst, resulting in the mass-like type, the pseudotumour type or the abscess-like type, as was seen in our case. Alternatively, the cyst retracts, its capsule thickens and the scolex calcifies[11]

On ultrasound, cysticercosis can appear as the cysticercus cyst with an inflammatory mass around it, as a result of the death of the larva. The second type can be seen as an irregular cyst with very minimal fluid on one side, indicating the leakage of fluid. 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. The fourth sonographic appearance is seen as multiple elliptical calcifications in soft tissue. These four appearances on high resolution ultrasonic are pathognomonic of cysticercosis and a definitive diagnosis can be made with great confidence. [13]

Surgical removal is indicated for localized lesions that cause obvious symptoms, however medical management with antihelminthics such as either praziquantel or albendazole has been recommended for neurocysticercosis and subcutaneous cysticercosis[11,12]The case reported is of pseudohypertrophic type according to sonological characteristics and was managed conservatively with antihelminthics namely albendazole and oral steroid Prednisolone in accordance with paediatric dosage.

Preventive measures include thorough cooking of pork meat and vegetables, proper sanitation, early detection of the worm and adequate treatment after detection.

**CONCLUSION:**

Cysticercosis of the head and neck, especially involving the faciomaxillary region should always be considered as a differential diagnosis for any patient presenting with swellings involving head and neck area. Ultrasonography plays a very important role in the diagnosis of cysticercosis. Being non invasive, it is the first investigation which is preferred. However histopathology is the Gold standard for confirmation of the diagnosis of cysticercosis. Surgical management is indicated in case of abscess type of subcutaneous cysticercosis. Conservative management is with antihelminthics and also taking necessary preventive measures.

**APPENDIX:**



Fig 1(a)

Fig 1(b)

Fig 1(c)



Fig 2(a)

Fig 2(b)

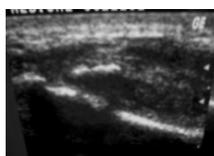


Fig 3

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