

## Isolated Myocysticercosis of neck– A rarity with review

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### Case Report

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**Abstract:** Cysticercosis, a parasitic infection caused by larval form of the pork tapeworm, *Taenia solium*, presents with vague clinical presentation and its unfamiliarity among clinicians make it difficult to diagnose when seen as isolated cyst. One such case of isolated cysticercosis of sternocleidomastoid muscle in an adult female, who presented with painful neck swelling, is described along with relevant literature review.

**Keywords:** Cysticercosis; *Taenia solium*; Neck swelling

### INTRODUCTION

Differentials for an isolated neck swelling would include various diagnoses depending on its location, clinical course, age of the patient, duration of symptoms and characteristics. Human cysticercosis is one of the commonest parasitic infections, caused by *Cysticercus cellulosae*, the larval form of pork tapeworm, *Taenia Solium*. It is a major public health problem in developing countries where ingestion of tapeworm eggs through contaminated food and water is common [1, 2].

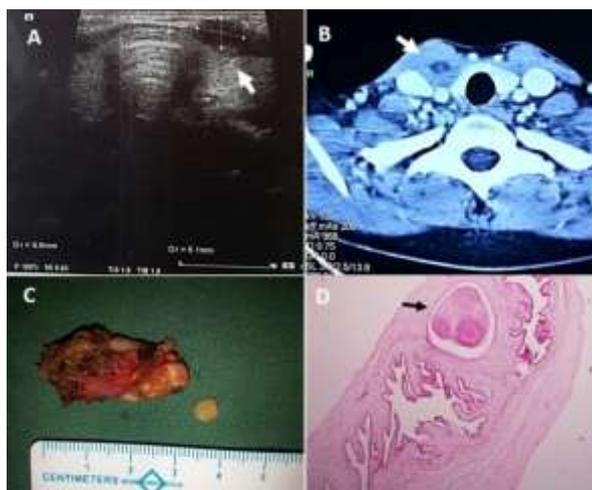
Although cysticerci can be found anywhere in the body, isolated head and neck manifestations (excluding orbital and neurocysticercosis) are rare. We describe one such rare case of isolated cysticercosis *cellulosae* of sternocleidomastoid muscle in an 18-year old female.

### CASE REPORT

An 18-year old non-vegetarian Muslim female presented to our outpatient department with complaints of gradually progressive painful swelling in right side of lower neck for the last 3 months following an episode of blunt trauma to neck. The swelling was not associated with any other symptoms.

There was no history of tuberculosis or similar complaints in her family. Examination revealed a vague swelling of size 2 x 1cm, which became less prominent on contraction of sternocleidomastoid. No other swelling or lymph nodes were palpable. Rest of the ENT examination was normal. On the basis of history and examination findings, a provisional diagnosis of mass arising within or deep to sternocleidomastoid was made. USG neck and CT scan neck revealed a well-defined nodule with solid and cystic components within right sternocleidomastoid muscle measuring 24x 16 mm suggestive of myocysticercosis [Fig.1A and 1B]. MRI

brain and orbits were normal. Examination of blood was normal except for eosinophilia. With the diagnosis of isolated painful cysticercosis *cellulosae* of right sternocleidomastoid muscle, the patient was admitted for cyst excision. During surgery the cyst was excised in toto [Fig. 1C] and sent for histopathology which confirmed the diagnosis of cysticercosis [Fig.1D]. The patient was discharged in stable condition and was advised regarding the importance of basic hygiene, eating properly cooked pork, and washing all raw vegetables thoroughly.



**Fig-1: A & B- A well-defined nodule with solid and cystic components are seen within right sternomastoid muscle suggestive of worm granuloma. (C) Specimen of excised cyst. (D) Photomicrograph showing bladder wall of cysticercus larva along with scolex (arrow). [H&E, x100]**

## DISCUSSION

Soft tissue cysticercosis is caused by the encysted larvae of *T. solium* which is endemic in countries like India, Brazil, Chile, Ecuador and South Africa [2]. Humans are the only definitive host while pigs are the usual intermediate hosts, although dogs, cats and sheep may harbour the larval forms. The pork tapeworm can cause two distinct types of infection in humans- ingestion of undercooked pork that contains cysticerci of *T. solium* leads to development of adult worms in the intestine resulting in taeniasis, while ingestion of tapeworm eggs that are excreted in the feces of a human carrier of the pork tapeworm results in cysticercosis.

The common locations for the lodgement of cysticercus larva in the decreasing order include subcutaneous tissue, brain, eye, skeletal muscle, heart, liver, lung and peritoneum [3, 4]. Head and neck (excluding orbital and neurocysticercosis) is an uncommon location for cysticercosis cellulosa infection. There are isolated case reports of cysticercosis involving tongue, masseter, lower lip, soft palate, and sternocleidomastoid muscle [5-7]. Brutto *et al.* proposed diagnostic criteria and degrees of diagnostic certainty for human cysticercosis infection [8].

Skeletal muscle involvement is usually asymptomatic and goes unnoticed for rest of the life of the patient. However, it can cause myositis especially after trauma to the cyst causing release of antigens which initiate immune reaction and inflammation around the cyst. In such cases, patient may present with fever, swelling and muscle tenderness. Most of the cysts remain viable for 5–10 years and then start degenerating, evoking vigorous host response, eventually leading to fibrosis and necrosis of the

capsule with caseation or calcification of the larvae [2]. Three types of muscular cysticercosis are described, namely myalgic type, myopathic type and mass or nodular or pseudotumor or abscess like type [9]. Leakage of fluid from the cyst with consequent inflammation results in the myalgic type of cysticercosis as in our case.

Peripheral blood eosinophilia is seen very rarely in patients with helminthic infections. Although enzyme linked immunoblot assay has greater sensitivity and specificity than ELISA for *T. solium*, the sensitivity ranges from 60- 80% in patients with single lesions [10]. Plain X ray can reveal cysticerciae only in chronic cases with degeneration and calcification. Because of the wider availability, ultrasound can be used as the initial screening modality of choice. High resolution ultrasonography demonstrates the pathognomonic finding of a well-defined anechoic or hypoechoic lesion with or without calcification, with a hyperechoic area within it representing the scolex. CT and MRI help in showing their location, number and relationship to surrounding structures [11]. Although MRI is more specific for neurocysticercosis, CT scan is the modality of choice for muscle cysts, where multiple cysts can be demonstrated in a honeycomb or leopard skin pattern against a background of muscle mass [12]. Sekhar *et al.* suggested that both USG and CT are equally effective in identifying the cyst and the scolex [13].

However, Brown *et al.* considered histopathology as the only reliable method for confirming the diagnosis of cysticercosis [7]. Careful search for possible areas of involvement of cysticercosis must be done with CT/ MRI Scan of brain and orbits, USG of whole abdomen and chest X-Ray.

Treatment of soft tissue cysticercosis depends on the location of the cysts. Isolated muscular or subcutaneous cysticercosis require no specific treatment unless it is painful, which may necessitate excision along with antihelminthic medications like albendazole or praziquantel. Recently, case reports have advocated non-operative management, even for painful masses, with antihelminthic medication and oral steroid therapy [14-17].

In summary, isolated muscular cysticercosis is a rare entity and should always be kept as a differential for painful solitary swelling in the neck, especially in developing countries. Preventive measures like proper cooking of meat, good sanitation, better hygienic practices, and habit of drinking clean and boiled water should be emphasized. Prompt recognition and early treatment of cysticercosis is always beneficial.

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