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CASE REPORT

Cysticercosis Cellulosae of Sternocleidomastoid Muscle

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ABSTRACT

Cysticercosis is an infection caused by the larval form of the pork tapeworm *Taenia solium*. We present a rare case of a 25-year-old adult presenting with neck swelling in the upper part of neck appearing to arise from sternocleidomastoid (SCM) muscle. A definitive diagnosis could not be established on the basis of computed tomography and fine needle aspiration cytology (FNAC). The patient was taken up for incision biopsy, which confirmed cysticercosis. The case is reported to reinforce the fact that parasitic etiology should be kept in mind while dealing with a case of neck swelling.

Keywords: Cysticercus cellulosae, Infection, Muscle, Neck, Sternocleidomastoid, *Taenia solium*.

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INTRODUCTION

Cysticercosis is an infection caused by the larval form of the pork tapeworm *Taenia solium*. Most often, it involves the central nervous system, eyes, and subcutaneous tissues.[1] Besides these, other areas of head and neck are rare locations for lodgment of the cysticercosis larva.

Taenia solium has a complex two-host life cycle. Human beings are the only definitive host and harbor the adult tapeworm, whereas both humans and pigs can act as intermediate hosts and harbor the larvae or cysticerci. Humans develop intestinal infection with adult tapeworm after ingestion of contaminated pork or may develop cysticercosis after ingestion of *T. solium* eggs. After ingestion, cysts evaginate, attach to small intestine by their scolex, and mature into adult worm. Adult tapeworm produces proglottids which become gravid and are passed in feces. Pigs or humans become infected by ingesting embryonated eggs or gravid proglottids. After eggs are ingested, they hatch in the intestine and release oncospheres, which penetrate the intestinal wall. Oncospheres travel through bloodstream to striated muscles and to brain, liver, and other organs where they develop into cysticerci.[2]

We present a rare case of an adult presenting with neck swelling, which turned out to be isolated myocysticercosis of sternocleidomastoid (SCM) muscle, treated successfully with excision and antihelmenthic therapy.

CASE REPORT

A 25-year-old male presented to the outpatient department with complaint of gradually progressive swelling on the left side of the neck. It started with a pea-sized swelling 3 months earlier when the patient first noticed it and gradually increased to the present size. There was no history of pain in throat, difficulty in swallowing, nasal obstruction, nasal bleed, fever, headache, unconsciousness, or seizures. There was no history of painful neck movement, difficulty in speech, or voice change. There was no history of similar disease or tuberculosis in his family.

Clinical examination showed 2.5 × 1.5 cm normal temperature, nontender, firm swelling with ill-defined margins on the left lateral neck at middle 1/3rd of SCM muscle. It was nonpulsatile, free from overlying skin, but was fixed to underlying tissue and could not be differentiated from SCM muscle. The examination of ear, nose, and throat was normal.

On the basis of history and examination, the differential diagnosis of tuberculosis of cervical lymph node and secondaries with nodal metastasis was kept.

Patient underwent fine needle aspiration cytology, which was suggestive of epithelial tumor.

Contrast-enhanced computed tomography (CECT) of neck showed well-defined cystic mass of size 20 mm × 10 mm × 9 mm on the left side of the neck in the medial part of SCM muscle (Fig. 1).

With CECT scan suggesting a diagnosis of cysticercosis, the patient was further inquired about his dietary history and any other swelling in his body. He was a nonvegetarian and there was no history of any coexistent swelling in his body. He was referred for ophthalmic and neurological evaluation to rule out any other foci of cysticercosis, which were normal.

The diagnosis of isolated left side neck swelling (cysticercosis) was kept, based on radiology, but due to inconclusive supportive investigations and clinically

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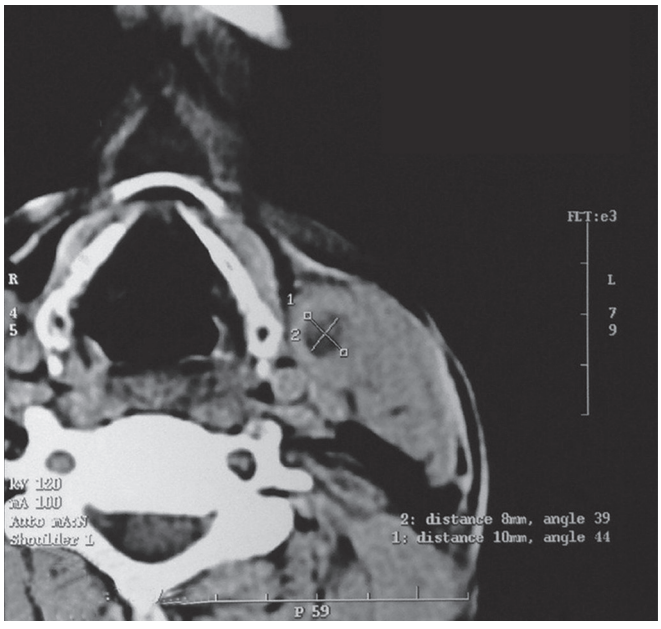

Fig. 1: Contrast-enhanced computed tomography of neck scan showing well-defined cystic mass of size 20 mm × 10 mm × 9 mm on left side of the neck in the medial part of SCM muscle.

Fig. 2: Postoperative view of excised cyst

firm swelling in lymph node area (level III), a decision for incision biopsy of the swelling was made.

The collar incision was made under local anesthesia; firm, white color, adherent SCM fibers were seen with a cyst situated deeply. Intraoperatively, 2 cm × 1.5 cm, semitransparent cysticercosis larva with chalky white scolex inside was seen within the fibers of SCM muscle (Fig. 2), which was removed *in toto*, along with biopsy of surrounding muscle fibers.

The histopathology showed an encysted parasite's tortuous body wall and hooklets. Muscle wall showed intense infiltration by eosinophils, lymphocytes, plasma cells, and histiocytes. The findings were conclusive of cysticercosis.

Patient was discharged on tab. Albendazole 400 mg BD for 3 weeks, Tab. Amoxiclav 625 BD for 5 days and Tab. Aceclofenac + Paracetamol BD for 3 days. The subsequent follow-up done at 3 weeks showed no evidence of any residual swelling, confirmed by repeat CECT neck.

DISCUSSION

Cysticercosis refers to the parasitic infestation by the larval stage of *T. solium*. It occurs when humans are infested by the larva of *T. solium*, acting as intermediate host. It results from the ingestion of tapeworm eggs through contaminated food and water or dirty hands or eating undercooked meat (pork). Interestingly, review of literature suggests that most of these cases are reported from developing countries where the standard of health and hygiene is poor. High incidence of cysticercosis has been reported from countries like Brazil, Chile, Ecuador, South Africa, and India.[3]

The most common location for the lodgment of cysticercus larva is subcutaneous tissue, brain, and muscles.[4] Other less common locations are heart, liver, lung, and peritoneum.[4] Of the muscular cysticercosis, skeletal muscles[5] are commonly involved.

Head and neck (excluding orbital and brain) is an uncommon location for cysticercosis. The review of literature showed cysticercosis of tongue,[6] masseter,[6] lower lip,[7] soft palate,[7] and SCM muscle.[8]

Majority of the case reports suggest that muscular cysticercosis presents as a painless swelling[7]; however, few reports suggest that it can be painful, possibly due to myositis, or in active stage. Clinical suspicion of cysticercosis is difficult unless this differential diagnosis is kept in mind and due importance is given to history. In this case, tuberculosis of cervical lymph node and secondaries with nodal metastasis were kept as principal clinical differential diagnosis. In the absence of constitutional symptoms and radiological findings, the possibility of these two was ruled out. The other common swellings having similar presentation may be lipomas, neurofibromas, epidermoid cysts and pyomyositis.[11]

The results of serological tests for such patients may not be positive, and histopathology remains the only reliable method for confirming the diagnosis of cysticercosis as found in cysticercosis involving only the SCM muscle of an otherwise healthy pregnant woman, where an enzyme-linked immunoelectrotransfer blot assay for cysticercosis was nonreactive.[8]

Plain X-ray has no role except in chronic cases with calcification. High-resolution sonography is considered

pathognomonic of cysticercosis, and a definitive diagnosis can be made with greater confidence.[9]

Contrast-enhanced computed tomogram and magnetic resonance imaging[7] help in showing their location, number, and relationship to surrounding structures.

A study suggested usefulness of serial ultrasonography studying the temporal sequence of therapeutic response of albendazole in the management of myocysticercosis.[10]

CONCLUSION

Cysticercosis is an infection of Cestodes, or tapeworms (larvae), which are segmented worms. Cysticercosis is not likely to be the first diagnosis as the otolaryngologist has in mind when regarding swelling in the head and neck area. We conclude that parasitic infestation should be considered as differential diagnosis in any neck swelling.

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