

Myocysticercosis: an unusual presentation in sternocleidomastoid muscle diagnosed by high frequency ultrasonography

Mohd Ilyas¹, Arshad Bhat¹

Department of Radiodiagnosis, Sher-i-Kashmir Institute of Medical Sciences, Srinagar, India

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ABSTRACT

Myocysticercosis is rare disorder and in particular the involvement of the neck muscles is much rarer. A rare case of myocysticercosis involving the right sternocleidomastoid muscle is presented with ultrasonographic demonstration of the nidus and associated edema.

Keywords: myocysticercosis, sternocleidomastoid muscle, high frequency ultrasonography

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Cysticercosis is caused by the larval form of the pork tapeworm, *Taenia solium*. The most common sites involved are brain, spinal cord, soft tissues, orbit and skeletal muscles. Although muscular involvement is not that uncommon but the involvement of neck muscles especially isolated involvement of sternocleidomastoid is a rare and uncommon presentation.

CASE PRESENTATION

A 26-year-old male patient was referred for high frequency ultrasonography for soft tissue swelling in the right sternocleidomastoid muscle (SCM) region. The patient's blood profile didn't reveal any abnormality. There was no history of fever and malaise. On clinical examination, the swelling was firm, separate from the skin and not separate from SCM muscle. Clinically the differentials included lipoma, sebaceous cyst, abscess, hematoma,

neurofibroma, pseudotumor, parasitic cyst and enlarged lymph node. Using 12 MHz transducer, the swelling was scanned which revealed a hyperechoic focus suggestive of nidus and hypo to isoechoic in the middle of right SCM muscle with surrounding hypoechoic fluid echogenicity area suggestive of edema (Figures 1 and 2) (Video 1). The radiological differentials included myocysticercosis, and cystic peripheral nerve sheath tumour. The radiological study helped to rule out abscess, lipoma, hematoma (additionally there was no history of trauma) and other differentials as each of these conditions has a peculiar radiological appearance. The left SCM muscle was also evaluated using high frequency sonography but no abnormality was found. CT head was done (to rule out neurocysticercosis) which didn't reveal any abnormality. Preliminary diagnosis of isolated SCM myocysticercosis was made and patient referred for fine needle aspiration cytology (FNAC). The FNAC results showed polymorphonuclear infiltrate with occasional giant cells and palisading histiocytes with



Address for correspondence: Mohd Ilyas, MD., Sher-i-Kashmir Institute of Medical Sciences, , Department of Radiodiagnosis, Srinagar, India
E-mail: ilyasmir40@gmail.com, Tel: +91 941 9561234

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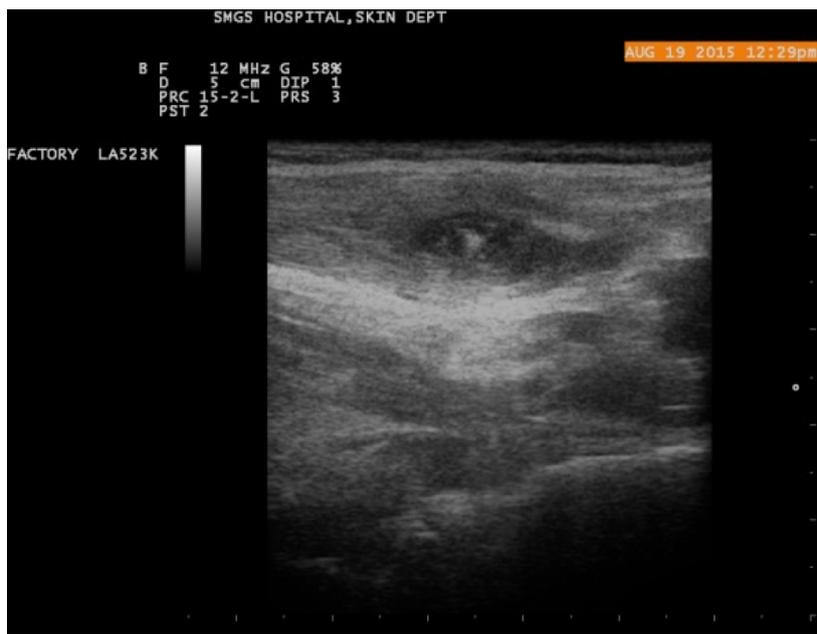


Figure 1. USG image depicting hyperechoic nidus and surrounding edema and scolex.

a part of scolex. The patient was given albendazole for 4 weeks and repeat scan done which showed marked resolution of edema.

DISCUSSION

Cysticercosis is caused by the encysted (metacestode) larvae of the tapeworm *T. solium*, which

develop after ingestion of eggs in undercooked pork or faeco-oral transmission between humans. Larvae are disseminated by hematogenous spread to neural, muscular and ocular tissues. Humans act as definitive host while the pigs act as intermediate host. The disease is endemic in virtually all developing countries, in Central and South America, Asia and Africa with the exception of Muslim countries where pork is not consumed. The perpetuation of this

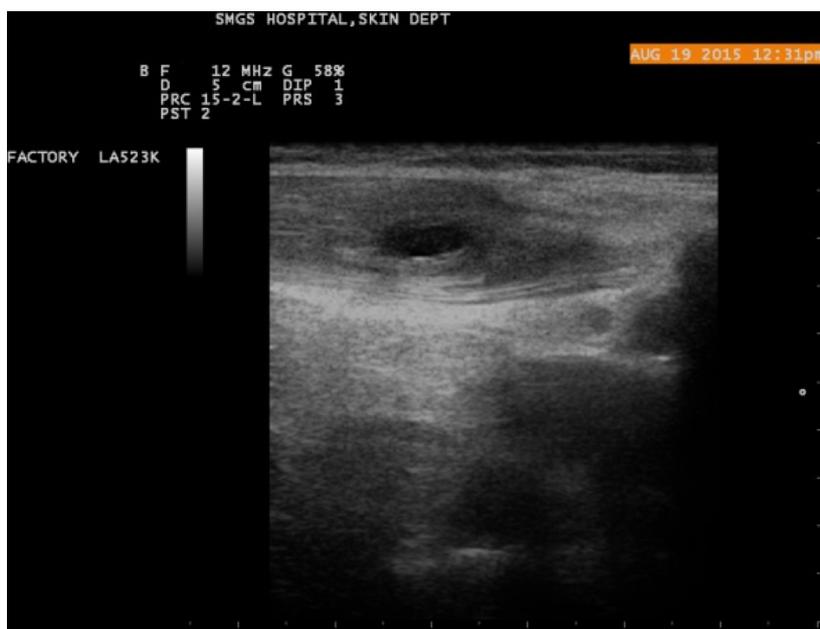
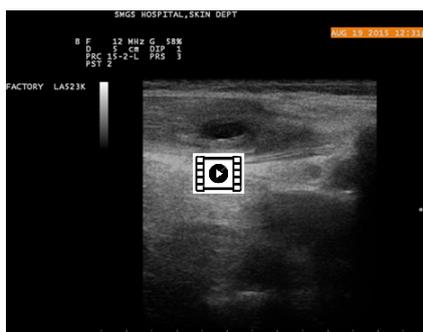


Figure 2. Demonstration of the associated edema.



Video 1. Video recording showing the surrounding normal structures and vessels and cysticercus focus.

parasitic disease is related to poor hygiene and sanitation [1]. Cysticercosis is the most common parasitic infection of the soft tissues and muscles. It can affect various other organs including the brain, spinal cord, orbit, muscle, subcutaneous tissue and heart [2]. If the eggs contaminate food sources upon ingestion they develop into larvae and result in cysticercosis. Hence, even people who doesn't consume pork, including vegetarians can develop cysticercosis. Muscular cysticercosis is uncommon in head and neck region with exception of orbital cysticercosis. It may present clinically with myalgia, pseudotumor, mass or as pseudohypertrophy which may be misdiagnosed as lipoma, epidermoid cyst, abscess, pyomyositis, tubercular lymphadenitis, neuroma, neurofibroma, sarcoma, myxoma, ganglion or fat necrosis [3]. High frequency ultrasonography is the initial and most reliable diagnostic modality for a soft tissue swelling [4]. CT scan and MRI can also be used for the diagnosis but due to expensiveness, especially in developing countries people can't afford. Imaging methods CT and USG are equally effective in identifying the cyst and the scolex [5]. The treatment of myocysticercosis depends upon location. Surgical excision is done for isolated skeletal muscle cysticercosis associated with abscess but those not associated with abscess can be treated with antihelminthic drugs with a follow-up USG at 3 weeks to check for resolution. Three types of USG presentation can be there [6];

- a. Cyst with scolex without surrounding edema (most common).
- b. Cyst with scolex and surrounding edema (as in the present case).
- c. Irregular cyst with no scolex and with surrounding edema (least common).

In the present case, as there was no abscess formation, antihelminthic was prescribed and follow-up USG done at 4 weeks post-treatment wherein marked resolution of the edema was seen.

CONCLUSION

Although myocysticercosis is a common manifestation but involvement of muscles (sternocleidomastoid in the present case) is a rare presentation. All the three presentations on USG should be kept in mind whenever a soft tissue swelling is evaluated by USG. Cysticercosis should always be part of the differential diagnosis of subcutaneous and intramuscular swellings in endemic countries like India. USG is a good modality, inexpensive and easily available tool for diagnosis of myocysticercosis. Whenever dealing with a neck swelling, the parasitic aetiology should be always kept in mind.

Authorship declaration

All authors listed meet the authorship criteria according to the latest guidelines of the International Committee of Medical Journal Editors, and all authors are in agreement with the manuscript.

Informed consent

Written informed consent was obtained from the patients for publication of this case report and any accompanying images.

Conflict of interest

The authors declared that there are no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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