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A Rare Case of Isolated Infrascapular Intramuscular Cysticercosis in a 28 Year Old Female

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Abstract

Background

Human cysticercosis infection is caused by the encysted larval stage (cysticercus cellulosae) of a metacestode *Taenia solium*, the pork tapeworm. It can affect any organ or tissue including brain, eyes, heart, lungs, liver, spinal cord, muscles, subcutaneous tissue, abdominal cavity[1,2] and the symptoms depend on the site of larval encystment. Here we report an isolated case of intramuscular cysticercosis. This is a rare entity with only a few sporadic case reports available[3]. Due to vague clinical presentation and clinician's unfamiliarity with this entity, it is difficult to diagnose when seen as an isolated cyst. Hence, it is important to differentiate this condition from other similar conditions especially in a developing country like India where there is a poor access to sanitation facilities, close human animal interaction and pig being one of the major source of food. The present case responded successfully to oral medication without the need of any surgical intervention.

Case Report

A 28 year old married female presented with complaints of severe swelling over the right posterior chest wall in infrascapular region for the past 1 week, intense pain, fever (101^{o}C) and chills. Local examination by the treating physician revealed that the overlying skin was absolutely normal with no discoloration seen. Swelling was non-reducible, non-fluctuant, non-tender, diffused margins with absence of punctum. The patient's physical status was good and her medical and family history was insignificant. There was no history of cough, anorexia, fever, weight loss, trauma at the localized site, insect bite and ophthalmic complaints, headache/seizures/neurological abnormalities. Patient had a mixed diet and the history revealed consumption of sweet potato salad at a local street vendor. Systemic examination revealed no abnormality. Patient was advised topical anti-inflammatory gel, oral anti-inflammatory and empirical antibiotic treatment with Tablet Augmentin 625 mg thrice daily for 1 week in view of a localized bacterial infection with complete haemogram. After a week the patient was re-examined by the treating physician who found that there was no significant reduction in the size of swelling. Haemogram report was within normal limits with only slight increase in eosinophilic count. The patient was referred to the surgeon for his opinion who advised USG and MRI. The swelling was examined using 10 Mhz linear USG probe which revealed small cystic round lesion with echogenic projection in its cavity lying in muscle layer of right chest wall (11 x 9 x 11 mm) showing well defined margin and enhanced posterior transmission suggestive of intramuscular cysticercosis (Figure 1). No

deeper extension was established. Color doppler study revealed no vascularity in the lesion. MRI of the lesion revealed isolated cyst surrounded by inflammation of the muscles. Later Non Contrast CT scan of the brain was also advised which revealed no abnormality. Stool examination was negative for *Taenia solium* eggs. The patient was managed conservatively with oral antihelminthic medication (Oral Albendazole 15 mg/kg/day divided into two doses daily for 3 weeks) with oral steroids for 2 weeks to which the patient responded well.

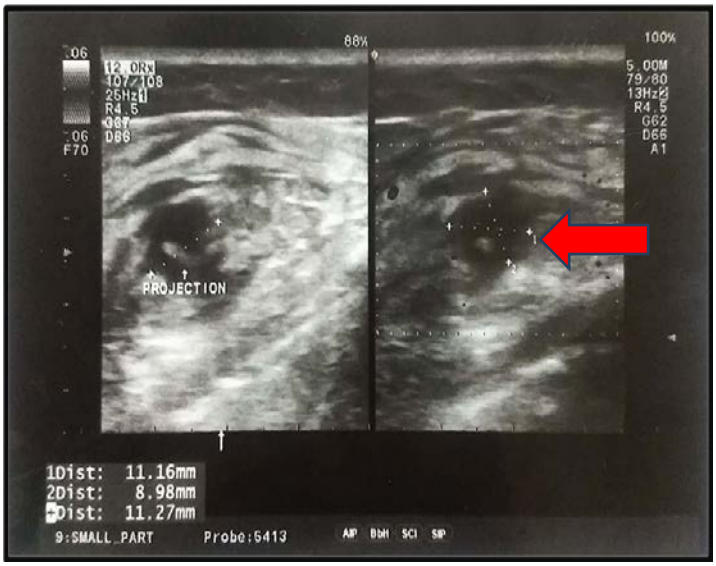

Figure 1: Red arrow showing small cystic round lesion of size (11 x 9 x 11 mm) with echogenic projection in its cavity lying in muscle layer of right posterior chest wall showing well defined margin and enhanced posterior transmission.

Discussion

Human cysticercosis is worldwide in distribution including Central and Eastern Europe, South America, Africa and tropical countries like India[4]. Cases in Western countries may be attributed to immigration and increase in travel to tropical endemic countries. The disease is a major health problem especially in the developing nations like India due to a combination of factors like overcrowding, poor sanitation and human pig contact. Northeastern states of Bihar, Odisha, Uttar Pradesh, Punjab are the endemic zones for the disease. Cysticercosis goes underreported because of lack of related studies and the unavailability of basic diagnostic imaging modalities. It is caused by the ingestion of undercooked pork containing cysticercus cellulosae[5,6]. Consumption of raw vegetables like cabbage, carrot, and radish have also been implicated as the cause of the disease[6]. Among all the forms of cysticercosis, neurocysticercosis is the most common form accounting for 60-90% of cases[7]. Most soft tissue and muscular cysticercal infection is associated with CNS involvement or multiple cysts and has been used as a marker of neurocysticercosis. Therefore, CNS involvement should always be ruled out in suspected cases of systemic involvement. Solitary muscular cysticercosis without involvement of CNS is rare causing diagnostic dilemma due to lack of specific features. In our case, CT scan of the brain revealed no abnormality. Muscular cysticercosis usually presents with these types of clinical manifestations: myalgic type; mass-like, pseudotumour/abscess-like type; and pseudohypertrophic rare type[8]. Cysticercosis can affect any age but children are predominantly affected due to the unhealthy eating habits and lack of proper hygiene. Differential diagnosis includes tuberculoma, lipoma, sebaceous cyst, abscess, epidermoid cyst, granular cell tumour, neuroma, neurofibroma, pseudoganglia, sarcoma, myxoma, pyomyositis. As there is no history of cough, anorexia, fever and weight loss, possibility of this lesion being a tuberculoma is highly unlikely. Also non responsiveness to 1 week of empirical therapy with a high end antibiotic and absence of local and systemic features of pyogenic

infection rules out the differential diagnosis of abscess. High resolution sonography plays a major role in the reliable diagnosis of isolated muscular cysticercosis[9,10,11] as it is non invasive, non ionizing and fast. MRI assesses the degree of infection and exact plane of lodgement of cyst in soft tissues. Plain X ray has no role except in the chronic cases with calcification. Serological tests are useful only if positive. In case of negative results disease cannot be ruled out. Moreover, the serological tests show high rate of false positives or cross reactivity with other parasitic infections. Confirmation of the diagnosis can done by fine needle aspiration of the cyst followed by staining with Giemsa stain. Absence of seizures/neurological abnormalities on systemic examination and a normal CT scan of the brain excludes the diagnosis of neurocysticercosis. Treatment of soft tissue cysticercosis depends on the location of the cysts[12]. Non conservative treatment/Surgical excision is done for isolated skeletal muscle/soft tissue cysticercosis associated with abscess. Recently, case reports have advocated non-operative management, even for painful masses, with antihelminthic medication and oral steroids[13,14,15]. Treatment of the musculocysticercosis in our case was done by oral albendazole which acts by inhibiting microtubule formation in the parasite and steroid to control the inflammatory phlegmon caused by the dying cyst. The patient responded well to the treatment with significant improvement in the symptoms. Serial USG after the completion of treatment is a useful tool in studying the follow up sequence of therapeutic response[16]. In our case, follow up showed absence of any relapse with significant regression in the size of swelling. Prevention mainly relies on good personal hygiene and effective fecal disposal.

Conclusion

A thorough search should be made for CNS involvement as isolated myocysticercosis is an unusual and a rare finding. In an endemic country like India, diagnosis of isolated muscular cysticercosis although rarely encountered should always be kept in mind despite normal blood investigations and vague misleading symptoms. It can be diagnosed noninvasively by USG and MRI, although confirmation can be done by FNAC without solely relying on one diagnostic modality, however associated risk of spillage of cyst contents is always there. Treatment relies on combination of oral antihelminthic and steroid combination. Surgery does not have much role as most of the lesions are asymptomatic with symptomatic lesions responding well to the conservative medical treatment. This report will help microbiologists, pathologists and clinicians with an overview of the correct diagnosis, differential diagnosis, diagnostic modalities for the benefit of patients minimizing time and health cost, avoiding mistakes and introducing appropriate treatment.

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