Case report:

Isolated intramuscular cysticercosis : a rare condition and a diagnostic challenge

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Abstract:

Cysticercosis is an infection of pork tapeworm, Taenia Solium. It is difficult to diagnose an isolated intramuscular cysticercosis due to vague clinical symptoms. We report a case of 30 year old male presenting with a vague lump on the left shoulder. On imaging it was found out to be a case of isolated intramuscular cysticercosis. The diagnosis was further confirmed on fine needle aspiration and histopathology examination. This case report highlights the importance of considering cysticercosis as a differential to soft tissue swellings apart from being a rare entity.

Key Words: Cysticercosis; intramuscular; calcospherules

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Introduction:

Cysticercosis is no longer an endemic disease of the developing countries only. It is a 'global problem', because of the influx of immigrants from endemic areas[1,2]. The encysted tape warm larva can lodge in subcutaneous tissues, muscles, eyes, nervous system and many other organs of human body leading to variable presentation. Most soft tissue and muscular cysticercal infection is associated with central nervous system involvement or multiple cysts[1,7]. Solitary cysticercosis of muscle without involvement of central nervous system is a rare entity and there are only a few case reports in the literature[2,3,5,6]. It causes diagnostic dilemma as there is a lack of specific features. We present a case of solitary intramuscular cysticercosis in a 30 year male involving the left deltoid muscle, where the diagnosis was established by ultrasonography and magnetic resonance imaging. The purpose of this case report is to consider cysticercosis as a differential diagnosis in cases of soft tissue swellings, apart from reporting it as a rare entity.

Case report : A 30 year old man presented to us in the outpatient department with a complaint of swelling over the left shoulder region for the past 6 months. Patient had no history of trauma, pain, signs of inflammation and constitutional symptoms. Examination revealed a non tender, firm , 5.0 × 4.0 cm firm swelling in the anterior deltoid region .No other palpable swellings were present in other parts of the body. Clinically it was diagnosed as a case of lipoma. Ultrasonography revealed the presence of myocysticercosis with the presence of a scolex[Figure 1a].Subsequent MR examination confirmed the same[Figure 1b].

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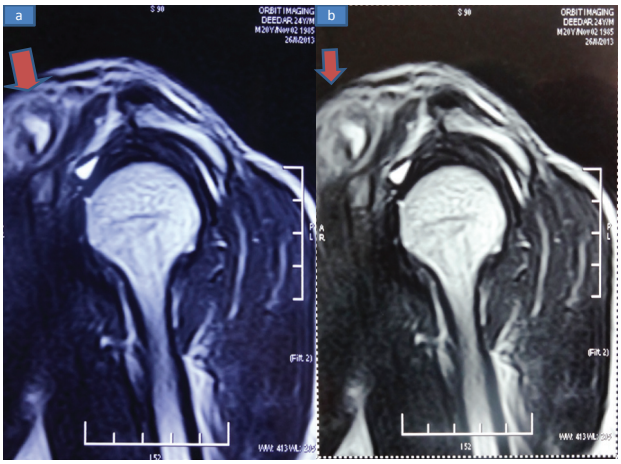

Figure 1 a) MRI study shows T1W hypointense and T2W hyperintense cystic lesion(arrow) involving clavicular part of deltoid muscle b) USG left shoulder shows evidence of well defined hypoechoic cystic lesion(arrow) with eccentric echogenic nodule suggestive of scolex with marked surrounding inflammatory reaction

Fine needle aspiration was done from the lesion which revealed cysticercal bladder wall, neutrophilic infiltrate and calcospherules [Figure 2]. Diagnosis of intramuscular cysticerccosis was made. Surgical excision was performed & sample was sent for histopathology examination.

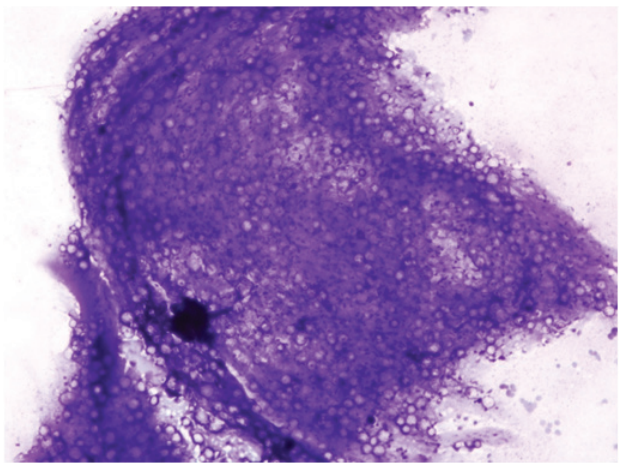

Figure 2 shows bladder wall of cysticercus and calcareous corpuscles.(Geimsa x100)

On gross examination, it was an elliptical tissue piece within the resected muscular cuff measuring 4.0 x 3.0 x 2.5 cms. Cut section showed a tiny cyst surrounded by pale, fibrous tissue. Microscopically, there was a cyst with a coiled parasite. The cyst was surrounded by dense fibrous wall and showed prominent investing cuticle with presence of single degenerating sucker, aggregated subcuticular cells, smooth muscle fibres inflammation, presence of calcospherules and fragments of wall. The final diagnosis of intramuscular cysticercosis was confirmed on histopathology.

Discussion :

Cysticercosis is a disease caused by infection with the larval form of Taenia solium. Infection occurs after ingestion of ova containing viable oncospheres , usually by consumption of raw or undercooked pork, faecally contaminated water or vegetables. The ova hatch in the intestine and develop into larvae that invade the intestines, enter the vasculature and develop in the tissues. Although any organ or tissue may harbor cysts, the brain, muscle ,subcutaneous tissue and eyes are the most commonly recognized affected tissues[1,2,4,5,7]. However, almost all the clinical manifestations are due to infections of the brain. Humans are the only definitive hosts of T. solium whereas pigs are the intermediate hosts.

Cysticercosis is common in Mexico, Central and South America, Africa, India, China, Eastern Europe, and Indonesia. Solitary muscular and soft tissue cysticercal involvement is a rare disease per se and it has been used as a marker of neurocysticercosis. Therefore, central nervous system or ocular involvement should be ruled out if systemic involvement is suspected[1-7]. The intramuscular cyst may remain asymptomatic for a long time and finally disappear quietly; rarely do they calcify. In very rare situation as in the present one; they might become inflamed and manifest as a growing area of redness, edema and pain. Inflammation of the tissue suggests death or degeneration of the parasite with leakage of the antigens and cellular response of the body[4,7]. In this case the cyst wall might have ruptured because of trauma and the antigens inside the wall have leaked into the surrounding area inciting an inflammatory reaction. Three types of clinical manifestations of muscular cysticercosis have been described: the myalgic, myopathic type; the nodular or mass like type and the pseudo hypertrophy type in which multilocular cyst forms in a group of muscles[4]. Our patient had the mass like type presentation, which simulates benign neoplastic conditions of muscles or an intramuscular abscess.

The clinical features depend on the location of the cyst, the cyst burden, and the host reaction[8]. Subcutaneous cysticercosis may cause painless or painful subcutaneous nodules[8]. Muscular cysticercosis may present clinically with myalgia, pseudotumor and pseudohypertrophy[9,10]. Clinically,

soft tissue cysticercosis can be misdiagnosed as lipoma, epidermoid cyst, abscess, pyomyositis, tuberculous lymphadenitis, neuroma, neurofibroma, sarcoma, myxoma, ganglion, or fat necrosis[11]. Clinicians should always consider cysticercosis in the differential diagnosis whenever a patient presents with painful or painless swelling of long duration. Plain radiographs rarely show cysticerci except in chronic cases when they calcify. However, in most cases, high-resolution sonography can facilitate the diagnosis of muscular cysticercosis. Computed tomography and MRI scans are the other modalities used for imaging muscular cysticerci, showing their location, number, and relationship to the surrounding structures[1,2,4,5,7] .

High-frequency USG has become relatively inexpensive and is a readily available and reliable diagnostic modality for the diagnosis of soft tissue cysticercosis. The most common USG appearance of soft tissue cysticercosis described is that of an intramuscular abscess with an eccentrically situated typical cyst with a scolex within. This appearance may be due to chronic intermittent leakage of fluid from the cyst due to degeneration of the cyst, resulting in a chronic inflammatory response with a fluid collection around the cyst[9]. The second most common appearance was that of a typical cysticercosis cyst with a scolex within and surrounding mild edema but no abscess. Such patients may present with subcutaneous nodules or pseudohypertrophy of muscles if multiple cysts are present[9]. The least common appearance was that of an irregular cyst with no scolex within but with minimal fluid surrounding the cyst on one side indicating leakage of fluid[9]. The non-visualization of the scolex may be due to escape of the scolex outside the cyst or partial collapse of the cyst during larval death[9]. Such patients present with myalgia[9].

MRI is also used to diagnose soft tissue cysticercosis, since many patients with soft tissue swelling often go directly for MRI[11]. Cysticercosis is seen as a cystic lesion that appears hyperintense on T2W and hypointense on T1W images. Peripheral rim enhancement of the cyst wall is also known. Intramuscular cysts are oriented in the direction of the muscle fibers[12]. The scolex is also appreciated as a tiny hypointense speck within the hyperintense cyst[12]. The diagnosis of cysticercosis can be confirmed by fine-needle aspiration cytology (FNAC) or biopsy, which shows the detached hooklets, scolex, and fragments of the spiral wall of *Cysticercosis cellulosae*[13]. Sometimes, the larval parts may not be seen in the specimen, but an inflammatory reaction consisting of large numbers of eosinophils and histiocytes can still be seen.

Treatment of soft tissue cysticercosis depends on the location of the cysts[8]. Surgical excision is done for isolated skeletal muscle or soft tissue cysticercosis associated with abscess[8]. Cysts that are not associated with abscess can be treated with antihelminthic medications such as albendazole or praziquantel[10]. Follow-up USG is done after three weeks of antihelminthic medication to look for resolution of the lesion.

Conclusion

Cysticercosis, thus, should always be part of the differential diagnosis of subcutaneous and intra-muscular swellings particularly in India.

Conflict of interest: Nil

Ethical Approval: This case report was published after getting approval from the Ethics Committee of NDMC Medical College & Associated Hospitals,Delhi.

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