

Diagnostic Disparity in Solitary Cysticercosis of the Forearm in a Child

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ABSTRACT

Solitary cysticercosis of muscle is a rare disease causing diagnostic dilemma. Cysticercosis commonly affects the central nervous system and other tissues by dissemination imposing a serious health problem. We report this rare presentation of solitary cysticercosis of flexor digitorum superficialis in a five year old otherwise healthy child. The fine needle aspiration cytology and histopathological diagnosis were inconclusive but ultrasonography of the muscle clinched the diagnosis.

Keywords: Fine needle aspiration cytology; neurocysticercosis; solitary cysticercosis; Taenia solium.

INTRODUCTION

Cysticercosis caused by the larval stage of the tapeworm *Taenia solium*, is a major public health problem in the developing world. The disease is endemic in Mexico, India, South America, Sub-Saharan Africa and China.¹ Humans are the only definitive hosts of *T. solium* harbouring adult tapeworm in the intestine (Taeniasis) where as both man and pig are intermediate hosts and harbour the larvae in different internal organs.¹ Humans acquire the intermediate form by ingestion of food or water contaminated with eggs of *T. solium*. Cysticercosis may therefore develop in individuals who do not eat pork. In small intestine the eggs releases the oncosphere which crosses the gut and spread haematogenously to many tissues primarily brain, vitreous humour, subcutaneous tissue, striated muscle, tendon sheaths and other tissues.^{2, 5, 6} Neurocysticercosis is the most common and serious parasitic disease of the central nervous system (CNS).⁴ Solitary cysticercosis of the muscle without involvement of CNS is a rare entity with few literature published.^{7, 8}

We report a case of solitary intramuscular cysticercosis in a five year old child involving flexor digitorum superficialis, where the diagnosis was established by ultrasonography.

CASE REPORT

A five year old male child presented to the outpatient clinic with complaints of solitary swelling over the upper portion of right forearm since ten days. The swelling was non progressive and painless. There was no history of fever, abdominal pain, abnormal bowel habits, passing of worms, visual disturbances and convulsions. The patient did not eat beef or pork.

On examination, there was a swelling present over the right forearm at the medial aspect below the cubital fossa measuring 4 cm x 4 cm (Figure 1). It was non tender, soft with smooth surface and was non fluctuant. Systemic examination was normal. The ophthalmologic evaluation was insignificant.

The Complete Blood Count (CBC) was normal.

Fine needle aspiration cytology (FNAC) revealed sheets of neutrophils, eosinophils, degenerated nuclear debris, foam cells, macrophages and necrotic areas. The impression was that of suppurative lesion.

The histopathology revealed fibrocollagenous tissue and skeletal muscle bundle amidst which are seen rich inflammatory cell infiltrates consisting of eosinophils, neutrophils, histiocytes, lymphocytes and foreign body

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giant cells. There was no evidence of cysticercosis.



Figure 1. Swelling in the right forearm.

Ultrasonography of the forearm showed heterogenous lesion measuring 2 cm x 1 cm with central ring like structure with calcified scolex and echogenic foci situated in the muscular plane of flexor digitorum superficialis suggestive of cysticercosis (Figure 2).

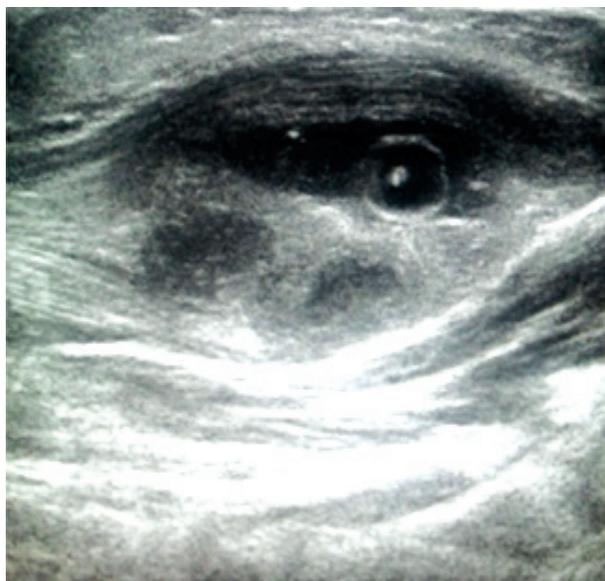


Figure 2. Ultrasonography of the swelling showing central ring like structure with calcified scolex.

The ultrasonography of abdomen and MRI of brain were normal.

DISCUSSION

Cysticercosis is a parasitic infection caused by *Taenia solium*. The definitive host are the humans, while intermediate hosts being both humans and pigs. The transmission mode is fecooral where the consumption of raw or undercooked pork and contaminated water or vegetables with *Taenia* eggs or regurgitation of eggs into the stomach from intestine of people harbouring gravid worms.^{2, 8, 9, 10}

The central nervous system and eyes are the most frequently affected sites followed by skeletal muscles, subcutaneous tissues, heart, lungs, peritoneum, kidney, liver and pancreas. The intramuscular cyst may remain asymptomatic for a long time and finally resolve by complete resorption or calcification.⁷

It is documented that as the larva grows inside the cyst they may remain minimally antigenic until the host response or chemotherapy cause gradual death of the cyst accompanied by marked inflammation and pericystic edema.¹¹

Three types of clinical manifestations of muscular cysticercosis have been described, the myalgic type; mass like, pseudotumour or abscess like type; and the pseudohypertrophic type.¹⁰

Cysticercosis involving the muscle remains asymptomatic and characteristically elliptical calcified lesions are detected incidentally on plain films.⁸

Clinically soft tissue cysticercosis can be misdiagnosed as lipoma, epidermal cyst, abscess, pyomyositis, neuroma, neurofibroma, sarcoma, myxoma, ganglion or fat necrosis.^{8, 9}

Different methods are used for diagnosing cysticercosis especially in cases with solitary lesions.

Fine needle aspiration cytology (FNAC) has been reported to be useful and cost effective for solitary cysticercal cyst. The serological tests for cysticercosis have limited sensitivity when parasitic burden is low as in solitary cyst. The radiological modes such as ultrasonography and MRI are useful in establishing the diagnosis.⁸

There are reports in the literature where sonography facilitates the diagnosis of solitary intramuscular cyst. Ultrasound can establish the diagnosis of solitary cysticercosis in the subcutaneous and intramuscular location by demonstrating the presence of scolex.

Four different sonographic appearance of muscular

cysticercosis have been described. Cysticercous cyst with inflammatory mass around it which occurs as a result of the death of the larva.

The second type is an irregular cyst with minimal fluid on one side indicating the leakage of the fluid. The eccentric echogenic protrusion from the wall caused by the scolex is not seen within the cyst due to the escape of scolex outside the cyst.

The third appearance is a large irregular collection of exudative fluid within the muscle with the typical cysticercous cyst containing a scolex situated eccentrically within the collection. This may be due to intermittent leakage of fluid from the cyst and the appearance may be similar to an intramuscular abscess but visualisation of cysticercous cyst within clinches the diagnosis^{10,12}. The third type of ultrasonography findings was seen in our case.

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