

Isolated Intramuscular Cysticercosis of the Biceps Diagnosed on High-Resolution Ultrasonography

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Abstract

High-resolution ultrasound clinches the diagnosis of intramuscular cysticercosis which is a rare finding. Here, we present a case of isolated intramuscular cysticercosis diagnosed on high-resolution ultrasonography in a 46-year-old gentleman who presented with a linear swelling in the flexor aspect of the left arm in the long head of the biceps.

Keywords: Biceps, high-resolution ultrasonography, solitary intramuscular cysticercosis

INTRODUCTION

Cysticercus cellulosae is the larval form of pork tapeworm, *Taenia solium* which is the infective form to humans and is commonly located in the brain, striated muscle, vitreous humor of the eye, and subcutaneous tissue of the skin.^[1] Multiple cysticercal cyst is the most common presentation of muscular involvement. The unusual manifestation of this report is cysticercosis presenting as a solitary swelling of the biceps muscle. In this case report, we describe a rare presentation of isolated intramuscular cysticercosis in the long head of the biceps diagnosed on high-resolution ultrasonography and subsequently managed with albendazole conservatively. There was neither involvement of the central nervous system (CNS) nor alleged history of pork consumption.

CASE REPORT

A 46-year-old gentleman presented with the complaints of a linear thread-like swelling along the flexor aspect of the lower third of the left arm for the past 2 months. The patient reported a gradual increase in size of the swelling. Physical examination revealed a linear, firm, tender, and nonfluctuant swelling of approximately 5 mm × 10 mm along the flexor aspect of the left arm, in the lower third. The patient gave a history of never consuming pork in his lifetime. Mild

eosinophilia was noted on hematological investigations. High-resolution ultrasonography was performed using a 10 MHz high-frequency linear probe on the GE LOGIQ P9 machine. Ultrasonography revealed a well-defined linear cystic lesion measuring 6 mm × 8 mm × 12 mm Anteroposterior x Mediolateral x Craniocaudal (AP × ML × CC), with a central echogenic nidus in the left biceps [Figure 1]. There was no evidence of inflammatory phlegmon surrounding the cystic lesion. The patient was diagnosed with isolated intramuscular cysticercosis and subsequently underwent conservative treatment with anthelmintic albendazole for 1 month.

DISCUSSION

Cysticercosis is an established endemic infection in developing countries of Asia, with the infective larval form of the pork tapeworm termed as *C. cellulosae* and transmitted by the fecal–oral route.^[2] Humans are definitive hosts and pigs act as intermediate hosts.^[3] Transmission to humans is through the ingestion of eggs from contaminated water and vegetables. A form of transmission from the small intestine into the stomach due to reverse peristalsis has also been described. Eggs release oncospheres which enter the bloodstream by

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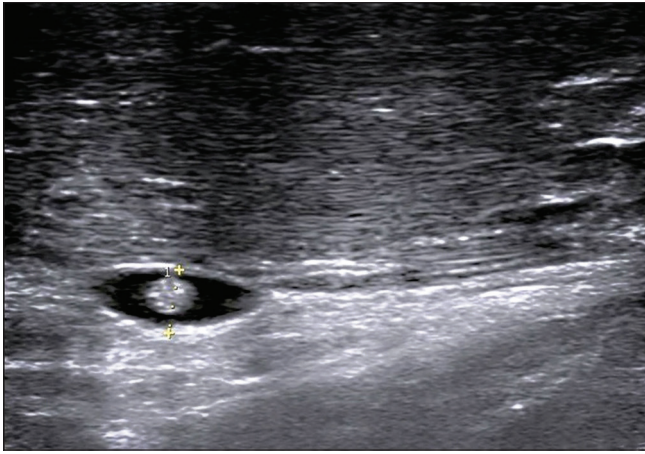


Figure 1: Longitudinal high-resolution ultrasonography image demonstrating linearly oriented well-defined cystic lesion with a characteristic hyperechoic scolex in the biceps muscle consistent with a diagnosis of intramuscular cysticercosis

penetrating the small bowel mucosa and reach various tissues. *C. cellulosae* is the encysted larval form of *T. solium*, which can remain viable for years in the CNS, muscles, vitreous humor of the eye, and subcutaneous tissues of the skin. While living larvae do not elicit any inflammatory reaction, symptoms develop when the larva dies due to the release of cyst contents, resulting in a vigorous inflammatory reaction. The differential diagnosis for cutaneous larval cestodes which manifest in the form of subcutaneous nodules includes lipoma, reactive lymph nodes, neurofibroma, and infundibular cyst.^[4] The intramuscular form of cysticercosis is asymptomatic and presents as myalgia only after the death of larva due to leakage of cyst contents, which elicits an acute inflammatory reaction.

Four high-resolution ultrasonographic appearances of intramuscular cysticercosis have been described which are pathognomonic and help clinch the diagnosis of cysticercosis.^[5] Cysticercus cyst with a surrounding inflammatory mass is the first ultrasonographic appearance of cysticercosis and is the result of death of larva. The second type of appearance on high-resolution ultrasonography is an irregular-shaped cyst with surrounding minimal fluid, which relates to leakage of fluid due to breakage of cyst wall. At this stage, there is partial collapse of the cyst and eccentric echogenic scolex is not visualized within the cyst. A third type of ultrasonographic appearance is a large irregular exudative intramuscular fluid

collection with cysticercus cyst and eccentric location of the scolex. At this stage, visualization of the cysticercus cyst within the collection is diagnostic. The fourth ultrasonographic appearance is similar to its appearance on radiography, which is a stage of calcified cysticercosis with multiple elliptical and linear calcifications in soft tissues.^[6] In the present report, we describe the first type of ultrasonographic appearance of cysticercus cyst with a central echogenic scolex.

CONCLUSION

High-resolution ultrasonography has high sensitivity and is a reliable investigation in establishing the diagnosis of isolated intramuscular cysticercosis, thus precluding the need for additional investigations. Early diagnosis of intramuscular cysticercosis on high-resolution ultrasonography and initiating prompt treatment with antihelminthic drugs form the basis of successful treatment.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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