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TEACHING FILES (GRAND ROUNDS)

MUSCULOSKELETAL CYSTICERCOSIS

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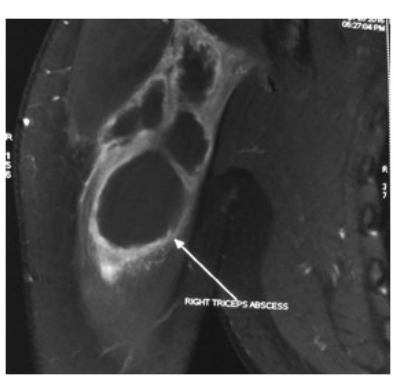
Clinical Problem

A 23 year old female was referred to us in April 2016 with right shoulder swelling for 3 months. In January 2015 she had fever and right axillary lymphadenopathy and was diagnosed to have right forearm cysticercosis as her MRI of the right shoulder showed ruptured cysticercal granuloma in the distal triceps. MRI brain at that time was normal. She was treated with albendazole at that time. The duration of albendazole is not known. Her brother was also diagnosed with neurocysticercosis in January 2016. The family used to eat a vegetarian diet. In January 2016, due to a repeat swelling in right shoulder, immunological workup was done. Her serum IgG was 952 gm/dl, IgM was 248 gm/dl and IgA was 309 gm/dl. At presentation in April 2016 she had a non-tender right upper arm swelling. MRI of the right shoulder showed a large loculated abscess involving proximal triceps (size 8.8x2.7x3.5 cm) and proximal tibia (figure 1). The fluid in the distal triceps that was seen in the Jan 2015 imaging had resolved. She was restarted on albendazole and advised to do Cysticercus Elisa IgM and IgG, stool examination and further immunodeficiency workup in form of HIV and lymphocyte subset analysis. She was also advised surgical excision of the abscess.

Figure 1. MRI of right shoulder shows large loculated abscess involving proximal triceps and proximal tibia



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How should musculoskeletal cysticercosis be treated?

Expert Opinion :

Human cysticercosis results from infection with larval stage of the pork tape worm, Taenia Solium. In its normal life cycle, human are the definitive hosts and harbor the adult parasite and shed thousands of infective eggs with feces. In areas with improper disposal of human faces and poor husbandry, pigs get infected and become the natural intermediate host. The eggs evolve into larva (Cysticercus) in the pigs and transfer this infection to humans on ingestion of undercooked pork. Humans can also acquire cysticercosis when they become intermediate hosts in the life cycle of T. solium after ingesting its eggs (feco-oral transmission), or by consuming vegetables contaminated with fecal manure.[1] On ingestion, the gastric acid and intestinal fluids help release the invasive oncospheres (embryos) which cross the bowel wall, enter the blood stream and migrate to other tissues and encyst as cysticerci.[2] Cysticerci can involve any part of the body but are most commonly detected in the brain and uncommonly in the skeletal muscle, soft tissues or eyes. [3] Isolated cysticercal swellings have been reported in literature in muscles of mastication, neck, tongue trunk, internal oblique and biceps brachia muscle.[3] Subcutaneous cysticercosis is common in Asia and Africa and presents as a small movable painless nodule, most commonly in the chest and arms. These nodules eventually become tender swollen and inflamed and gradually disappear over time. Muscular cysticercosis presents with myalgia, pseudotumor mass and pseudohypertrophy. On imaging it appears as a dot shaped or ellipsoidal calcifications following the muscle bundles in the thighs or arms.[2,4] The diagnosis can be challenging as symptoms are non-specific but should be considered in the developing world where taeniasis is endemic. The differential diagnosis of cysticercal arm swelling include lipoma, sarcoma, tissue myxoma, rhabdomyosarcoma. Diagnosis is generally made on the basis on exposure history, symptoms, serological tests and imaging.[3] High resolution ultrasound is a valuable diagnostic tool for subcutaneous cysticercosis, plain radiographs only show calcified cysticerci, MRI (identifies scolex and cyst) and CT scan are other imaging modalities used and help in showing location, number and relation of cysticerci to surrounding tissues.[5] Serological tests help in confirming diagnosis by demonstrating antibodies

against cysticercosis. Definitive diagnosis requires demonstration of parasite in the body either by FNAC/ tissue biopsy or fundoscopy or neuroimaging showing cystic lesion with scolex. [3,5]

Treatment of soft tissue cysticercosis depends on its location. Asymptomatic patients do not require specific therapy. Isolated cysticercosis with abscess in skeletal muscles or soft issue can be surgically excised. Cysts that are not associated with an abscess are treated with anti-helminths such as praziquantel or albendazole. Usually follow up USG is done after 3 weeks of medication to check for resolution.[4] Steroids may also be used along with anti-helminths to reduce associated inflammation.[6] Calcified non-viable cysticercosis is treated symptomatically and do not require anti-helminths or steroids.

In this child, the diagnosis of cysticercosis is not confirmed. Hence a surgical excision should be considered in the diagnosis to get a tissue diagnosis. Alternatively the abscess can be drained and should be sent for culture and evaluation for cysticercosis.

Compliance with Ethical Standards

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Conflict of Interest: None

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