Original Research Paper

Volume - 11 | Issue - 02 | February - 2021 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Orthopedic

A RARE CASE OF ISOLATED CYSTICERCOSIS OF FLEXOR DIGITORUM PROFUNDUS MUSCLE NEAR ELBOW

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ABSTRACT Human cysticercosis, a disease classified as neglected by the World Health Organization (WHO), is commonly caused by the larval stage of the pork tapeworm Taenia solium.1 Cysticercosis is a zoonosis , and is rapidly progressing in developing nation. Human cysticercosis occurs by ingestion of eggs from contaminated water and vegetables. The disease is characterized by single to multiple pea-sized developing cystic larvae (cysticerci) located in the subcutis, muscles, brain, and rarely, in the eye.2 The isolated intramuscular involvement of cysticercosis is uncommon and there are only sporadic case reports available. This paper present case of isolated cysticercosis of flexor digitorum profundus near elbow. Purpose of this paper is to present drug treatment and surgery of isolated muscular cysticercosis.

KEYWORDS : Cysticercosis ; Taenia solium ; flexor digitorum profundus ; zoonosis; scolex

INTRODUCTION

Cysticercosis is the most common parasitic infection of the soft tissues. Cysticercosis is endemic in Mexico, Central and South America, Asia, India, sub-Saharan Africa, and China. Due to increasing population mobility, cases of cysticercosis are now also being increasingly seen in developed countries.[3,4,5.]

In the natural cycle, the adult strobilar tapeworm lives in the human intestine and produces high numbers of eggs that are fecally shed in the environment.[6] When pigs ingest such eggs via contaminated food, larvae form cysts predominantly in the pig's musculature.[6] The parasite's life cycle is closed when humans consume undercooked pork containing cysticerci that thereupon develop into strobilar tapeworms in the human intestine.[6] Classical human cysticercosis develops after accidental oral uptake of infective cestode ova shed fecally by intestinally infected humans.[6]

The encysted larval form of *T. solium* called cysticercus cellulosae, can remain viable in this stage for long time in humans, even up to 10 years.[7, 8] The total number of cysts can range from a solitary lesion to several hundred. Living larvae evade immune recognition and do not elicit inflammation.[7] This phase may last for years and is often clinically silent except when cyst location or size causes signs or symptoms. When the larva dies, it induces a vigorous acute inflammatory response that may produce symptoms, depending on the anatomic location.[7, 9] The resulting acute inflammation may result in local pain and myalgia.[7] Alternatively, degeneration of the cyst may result in intermittent leakage of fluid, which elicits a chronic inflammatory response, with collection of fluid around the cyst, resulting in a mass-like, pseudotumor, or abscess-like lesion.[7] Alternatively, the cyst retracts, its capsule thickens, and the scolex calcifies.[7] The cyst may be completely calcified later on. When the muscle burden of the cyst is large, pseudohypertrophy of the muscle results, characterized by multiple nodules. Such patterns are seen in hyperendemic areas.[10]

Case report

A 30-year old healthy female, housewife, right hand dominant, visited orthopaedic OPD in January 2019 with chief complaint of pain and swelling over medial aspect of right elbow since 8 weeks . There is no history of fever, There is no history of consumption of pork or beef . She has visited local physician and orthopaedic surgeon and was being treated on the line of cellulitis/abscess. x-rays of elbow shows lytic lesion at radial tuberosity on lateral view. Lytic lesion confuses with bone pathology and MRI is done .On MRI cysticercosis abscess with isolated scolex is seen in flexor digitorum muscle and there is no bony pathology .

The patient was managed conservatively with oral anthelminthic medication (oral albendazole 15mg/kg/day divided into two doses daily for 2 weeks) and symptomatic treatment (trypsin and chymotrypsin, piroxicam and omeprazole). After two week surgery is done to remove the abscess. After anaesthesia right upper limb is cleaned and draped. On exam there is nodular swelling 2x1 cm over medial aspect of right elbow .Before incision subcutaneous aspiration of abscess with 18 gauge needle is done and around 2 ml of black brown colour abscess is drained out which is vey pungent on smell. After aspiration small incision is made on medial side of elbow, exploration is made and all remain out product of cysticercus and scolex is removed. Wound is washed with hydrogen, betadine, and normal saline. After suture bandage is applied and patient shifted to ward. Intra operative period is uneventful. During postoperative period patient has episode of mild shivering after one hour of surgery which was managed by iv steroid . There is no significant change in vitals of the patient. Patient is discharged after 48 hours, first dressing has dry suture line ,no induration at margins and no soakage. After 12 days suture was removed and patient is advised to continue anthelminthic for a period 4 weeks.

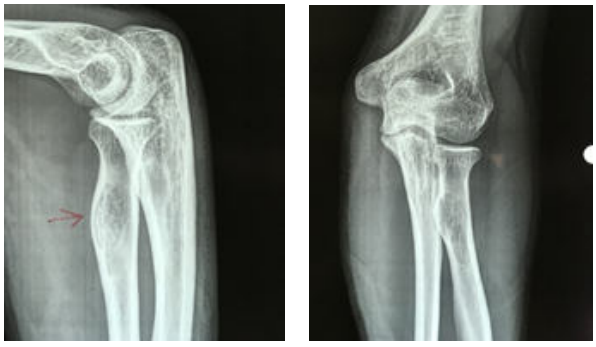

fig 1 xray Elbow

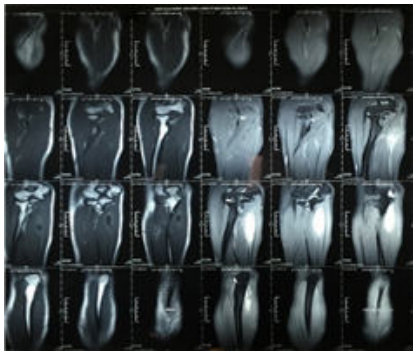

Fig 2

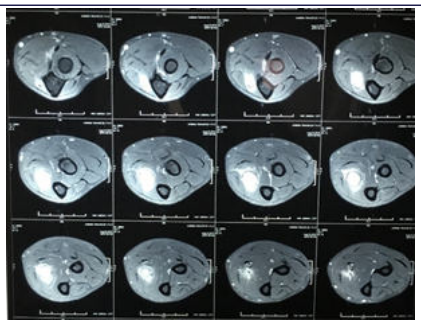

Fig 3

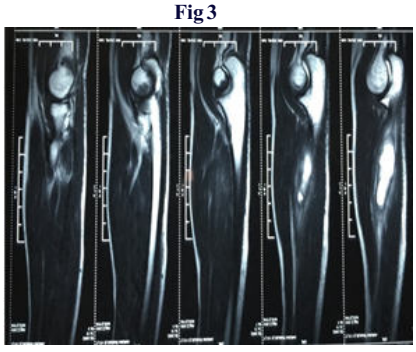

Fig 4

Fig 2-4 MRI showing cysticercus lesion

DISCUSSION.

Diagnosis of intramuscular cysticercosis is often delayed and missed due to nonspecific clinical presentations.[11] Radiological evaluation is often needed to clinch the diagnosis early. The diagnosis of intramuscular cysticercosis can be difficult clinically with several clinical differentials such as lipomas, epidermoid cysts, neuroma, neurofibromas, pseudoganglia, sarcoma, myxoma, pyomyositis, cold abscess or tuberculous lymphadenitis.[12,13]

5.1. Imaging modalities

The imaging appearance depends on the stage of the parasite.[14] In the active phase, plain radiography rarely shows cysticerci but calcified cysts are apparent on plain radiographs.[15] Multiple such cysts are seen as millet seed-shaped elliptical calcifications in the muscles on radiographs or computed tomography (CT) scan, so called starry-sky appearance.[16] Gradient refocused echo (GRE) imaging is the imaging method of choice for demonstration of the scolex in a CT calcified lesion.[17] Calcified cysts are usually detected incidentally in an asymptomatic patient.

High-resolution ultrasound has advantages of being non-invasive, non-ionizing modality which is quick to perform, easily repeated with minimum patient discomfort and at a lower cost. On ultrasonography the intramuscular cyst has a characteristic appearance of an eccentric echogenic scolex.[12, 18, 19] Four different sonographic patterns of muscular cysticercosis have been described.[20] The first type is cysticercus cyst with an inflammatory mass around it, as a result of death of the larva. The second type is an irregular cyst with very minimal fluid on one side, indicating leakage of fluid. The eccentric echogenic protrusion from the wall due to the scolex is not seen within this cyst. This type of appearance may be due to escape of scolex outside the cyst or due to partial collapse of the cyst. In the third type there is a large irregular collection of exudative fluid within the muscle with the typical cysticercus cyst containing the scolex, situated eccentrically within the collection. This may be due to chronic inflammatory reaction around the cyst. This appearance is similar to an intramuscular abscess. In all these three types of appearances, the diagnostic feature is that of the cysticercus itself, which appears as an oval or round well-defined cystic lesion with an eccentric echogenic scolex in it. Fourth is calcified cyst appearing as multiple elliptical calcifications in soft tissue.

Magnetic resonance imaging (MRI) is a gold standard technique for diagnosis of intramuscular cysticercosis. MRI is superior to CT scan in evaluating and detecting the stage of the disease and showing perilesional edema.[21,22] Recently Tripathi et al. demonstrated the role of MRI in the diagnosis of solitary intramuscular cysticercosis in six patients. MRI can show live scolex and cysts and degenerating cysts as well.[13] Typically, the cyst is hypointense on T1 weighted images (WI), hyperintense on T2WI, oval or elliptical directed along the course of muscle fibers.[11] There is presence of post-contrast perilesional enhancement.[11] Scolices can range from 1.5 to 2.5 mm in thickness with intermediate to low signal intensity on T2WI and of intermediate signal within the low-signal fluid on T1WI.[13] Edema of varying degrees can be seen in all the cases. In the initial stage, when parasite is alive, a fluid-filled lesion without peripheral enhancement is seen.[21] In this stage patient may or may not be symptomatic. In the later stage, due to leakage of fluid and resulting host response, peripheral rim enhancement and perilesional edema is seen.[21] The patient is symptomatic.[13] CT scan is more sensitive than MRI in showing small calcifications .

CONCLUSION

Isolated muscular cysticercosis poses a diagnostic dilemma for treating physicians, thus, should always be part of the differential diagnosis of subcutaneous and intra-muscular swelling. High resolution USG is a good modality for diagnosing soft tissue cercosis.

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