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CYSTICERCOSIS OF ANTERIOR ABDOMINAL WALL

General Surgery

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ABSTRACT

Cysticercosis, an infection with the larval form of pork tape worm, *Taenia solium*, commonly presents with multiple muscular cysts or CNS involvement. In the developing world, it is a major health concern. An isolated soft tissue cysticercosis of the trunk is uncommon and may be difficult to diagnose. Traditional treatment is surgical excision and a course of deworming agents. Here we report two unusual cases who presented with abdominal wall swelling without central nervous system or ophthalmic involvement.

KEYWORDS

INTRODUCTION

Human cysticercosis is caused by infestation with larvae (cysticercus cellulosae) of pork tapeworm *Taenia solium,*[1] and is endemic in India.[2] Man is an intermediate and pig is a definitive host. The occurrence of cysts in humans in order of frequency is the central nervous system, vitreous humor of the eye, striated muscle, subcutaneous tissue and rarely, other tissues.[3] Most muscular disease is associated with central nervous system involvement, presence of multiple muscular cysts or both.[4] Isolated muscular involvement without central nervous system involvement is a rare finding, [5] and because of the nonspecific symptoms, isolated soft tissue cysticercosis is very difficult to diagnose.[6]

A literature search revealed paucity of data on isolated soft tissue cysticercosis with only handful of cases reported so far.[7,8,9] We are reporting here two cases of isolated myocysticercosis in the abdominal wall which produced diagnostic dilemma on clinical presentation, accurately diagnosed by ultrasound and MRI examination and successfully treated by surgical excision followed by oral antihelminthic. In Indian scenario, this case needs documentation in the medical literature so that clinicians can consider it in differential diagnosis of an asymptomatic lump in the abdominal wall.

CASE REPORTS

Case 1

A healthy 17 years old boy residing in a suburban locality, presented with a gradually progressive painless swelling over lateral abdominal wall in right iliac region for last 4 months. He is a non-vegetarian but did not consume pork any time. He denied history of any contact with farm animals. He did not have any neurological symptoms like seizures or visual disturbance. A smooth and firm swelling of size 2cm X 2cm was detected in parietes of right lumbar region[Fig. 1]. No other swelling was encountered elsewhere in body. Systemic examination was unremarkable.

Investigations revealed total leukocyte count of 4000/mm^3 with no significant rise in eosinophil count (2%). Fine needle aspiration cytology (FNAC) was suggestive of a benign spindle cell lesion. Abdominal ultrasound revealed a well-defined anechoic cystic lesion in intramuscular plane, measuring 12.5 X 6.5 X 6.5 mm, showing a single thick septum measuring about 3mm. No significant color flow in the lesion was seen. USG was suggestive of cyst with septations. MRI showed a well-defined lesion of size approx. 1cm X 0.7cm X 1 cm in right external oblique muscle in right lower lumbar region suggestive of intra-muscular cysticercosis [Fig. 2]. MRI brain and ophthalmic examination were unremarkable. Surgical excision was done and histopathology revealed irregular cystic lesion lined by granulation tissue, inflammatory & giant cells, lumen filled with cysticercus cellulosae, showing undulating eosinophilic structure and necrotic material. The post-operative period was uneventful and the patient was given a course of tablet albendazole starting preoperatively with dose of 15 mg/kg/day for 3 weeks.

Case 2

An 18 yrs old male, resident of an urban locality presented with a painful parietal swelling over right iliac region, which had gradually increased in size over the past one and half months. There was no history of trauma. There was no other swelling elsewhere in the body. He did not give any history of seizures and/or visual disturbance. Patient was non-vegetarian, but did not give any history of consumption of pork at any time and denied any contact with farm animals.

A firm, tender swelling of 5cm x 5cm swelling was present in parietes of right iliac region. No other swelling was encountered elsewhere in the body. Systemic exam was unremarkable.

Investigations revealed total leukocyte count of 5000/mm^3 with a slight rise in eosinophil count (4%). FNAC was suggestive of a cystic lesion. Abdominal ultrasound showed a well-defined hypoechoic lesion with surrounding anechoic edema noted in the intramuscular plane in the right iliac fossa without any vascularity & was suggestive of cysticercosis. CT showed a well-defined cystic lesion, measuring 7 x 9 mm in between the internal oblique and transverse abdominus suggestive of an infective cyst [Fig.]. Further investigations did not reveal any foci of cysticercosis in the brain or eye. Swelling was excised and was sent for Histopathology of excised mass was suggestive of inflammatory myopathy. The post-operative period was uneventful and the patient was started on tablet albendazole started preoperatively with dose of 15 mg/kg/day was continued for 3 weeks.

DISCUSSION

Neurocysticercosis (NCC) is the most prevalent infection of the central nervous system and is the greatest cause of acquired epilepsy worldwide.[10] Muscles are involved most of the times along with involvement of central nervous system. Isolated muscular involvement by only one cyst is rare. Three different clinical manifestations of muscular cysticercosis are described, that includes the myalgic, myopathic type; the nodular or mass like type and the pseudohypertrophy type in which multilocular cyst formation occurs in group of muscle.[11] During the death of the larva, there is leakage of fluid from the cyst and the consequent acute inflammation, which result in myalgic type of cysticercosis. Alternatively, degeneration of the cyst may result in slow intermittent leakage of fluid, eliciting a chronic inflammatory response, with collection of fluid around the cyst, resulting in the mass like, pseudotumor or abscess like type.[12]

The other common pseudotumors with similar presentation like lipomas, neurofibromas, epidermoid cysts should be considered in differential diagnosis. Blood counts are not helpful, which may occasionally show raised eosinophil counts in some patients and are vague indicators of helmenthic infestation. Serological test for specific anticysticercal antibodies has low sensitivity when the parasite burden is low as in solitary lesions. A variety of laboratory methods are available to support the diagnosis. The lentil-lectin glycoprotein enzyme-linked immunoelectrotransfer blot (LLGP-EITB) remains the optimal assay for clinical diagnosis, while antigen detection is useful to monitor patients after antihelminthic treatment.[13]

Plain radiographs rarely show cysticercie unless they are degenerated and get calcified. Radiological modalities like CT, MRI and USG play crucial role in establishing the diagnosis of cysticercosis. Computed tomography is useful in diagnosing CNS cysticercosis,[14] and not beneficial in musculoskeletal lesions. MRI assess the degree of infection and exact plane of lodgement of cyst in soft tissues. It can also show characteristic appearance of solitary cyst and a scolex within it. However, findings may differ according to the growth stage of parasite and host's immune response.[6] The typical features on MRI were fluid-equivalent signal and peripheral rim enhancement indicating parasitic cyst. Visualization of inflammatory edema around such a cyst is a characteristic feature of cysticercal cyst. In our case 1, MRI showed typical cyst with scolex whereas in case 2,it was inconclusive. Muscular cysticercie can be reliably diagnosed on ultrasound.[3,12] In recent years ultrasound has emerged as a precise and reliable diagnostic tool for imaging intramuscular cysticercosis. Four different types of sonographic appearances of cysticercosis have been described by Vijayaraghavan.[12] First type of appearance is a cysticercus cyst with an inflammatory mass around it, as a result of the death of the larva. Second appearance is an irregular cyst with very minimal fluid on one side, indicating the leakage of fluid. The eccentric echogenic protrusion from the wall due to the scolex is not seen within the cyst. This may be because the scolex escapes outside the cyst, or because of the partial collapse of the cyst. The third appearance 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 intermittent leakage of fluid from the cyst, leading to florid inflammatory exudates. Fourth appearance is of calcified cysts appearing as multiple elliptical calcifications in soft tissue similar to the pathognomonic millet seed-shaped elliptical calcifications described on plain radiograph. In both cases lesion was picked up on ultrasonography. FNAC or excisional biopsy provides most definitive diagnosis by identification of scolex or the parasitic fragments.[7] However, FNAC was inconclusive in both cases while biopsy showed cysticercus cellulosae only in one case.

In this report, both the proved imaging techniques helped in diagnosing myocysticercosis, i.e. MRI in one case and ultrasound in second case. Neural and ophthalmic involvement was excluded although the patient had no contributory history of seizures, neurological deficit or defective vision. As per our knowledge only few cases of reported isolated muscular cysticercosis underwent this screening to rule out NCC and ocular cysticercosis.[6,14] In absence of multiple muscular cysts and other systemic clinical features, it is not feasible to do whole body MRI to exclude cysts in rarely mentioned sites, though it is recommended by some authors.[6]

Treatment of cysticercosis depends on the site of involvement, number of cyst and symptoms of the patient. Isolated soft tissue cysticercosis can be treated with surgical excision and/ or with antihelminthic medications such as albendazole or praziquantel in conjunction with steroids.[3] In our cases, surgical excision was combined with 3 weeks therapy with albendazole. In recent past some case reports,[3] have emphasized on successful nonsurgical management of this disease, which was not adopted by us due to patient's concern about the lesion. Surgical excision of isolated soft tissue cysticercosis usually suffices if concurrent involvement of central nervous system and ocular disease has been ruled out. Individuals with muscular cysticercosis are a health concern; but they do not pose a public-health risk unless they carry an intestinal tapeworm. Only the tapeworm carriers and the infected pigs are important in respect of transmission.

CONCLUSION

Isolated muscle cysticercosis should always be considered as one of the differential diagnosis in a patient from endemic setting as ours, presenting with small muscular pseudotumor of uncertain etiology. Diagnosis can be confirmed with the help of USG, MRI and FNAC. Such cysts can be treated with antihelminthics and/or with appropriate surgical intervention where needed.

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