CASE REPORT

Cysticercosis presenting as cervical lymphadenopathy: A rare presentation in two cases with review of literature

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Abstract

Lymphadenopathy is a rare mode of presentation of cysticercus infestation. Hence, in endemic areas, cysticercosis must be included in the differential diagnosis of superficial palpable swellings in the neck region. We report two cases of cervical lymphadenopathy which were clinically suspected to be of tuberculous etiology. However, fine-needle aspiration cytology (FNAC) revealed features of parasitic lymphadenitis consistent with cysticercosis. Our cases highlight the importance of FNAC as an initial and rapid diagnostic modality for detecting parasitic lesions manifesting as lymphadenitis. Diagnosis by the minimally invasive FNA technique prompted an early therapeutic intervention with good response in our patients.

Key words: Cervical, cysticercosis, fine-needle aspiration cytology, lymphadenopathy

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Introduction

Human cysticercosis is a parasitic infestation caused by the larval stage of intestinal cestode Taenia solium (*T. solium*). It usually affects subcutaneous tissue, brain, muscle, heart, liver, lungs, and the eyes.[1] Lymphadenopathy is a rare mode of presentation of cysticercus infestation.[2,3] We report two cases of cysticercus lymphadenitis involving the cervical lymph nodes.

Case Report

A 7-year-old male child and a 28-year-old woman, both vegetarians by their food habit, presented with multiple small posterior nodes and single upper cervical lymph node of 4 months and 2 and a half months duration respectively. In the case of the child, the father complained of the child not having good appetite for 1 month. The nodes in these patients ranged in size between 0.5 cm and 2 cm in diameter. In the first patient [Figure 1], they were firm and nontender, while there was an associated mild pain in the second case. In both cases, the clinical diagnosis considered was tuberculous lymphadenitis and the patients were referred for fine-needle aspiration cytology (FNAC). The Mantoux test was within normal limits in both cases. All hematological investigations were done and were within normal limits for age, though ESR (Erythrocyte Sedimentation Rate) was mildly elevated in the first case (ESR: 32 mm in first hour). Chest X-ray was not done in either case. ELISA for cysticercus was not done.

Fine-needle Aspiration Cytology Findings

In both the patients, FNAC was done using a 23G needle attached to a 10 ml syringe fitted in Franzen's handle. About 0.2 ml of whitish fluid was aspirated from the posterior (largest) neck node in the first patient, while 0.8 ml of whitish fluid was aspirated from the upper cervical node in the second patient. Smears were made and stained with Leishman-Giemsa, Hematoxylin-Eosin (H-E), and Ziehl-Neelsen stains. Aspirates from both the

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patients revealed the parasitic tegument and parenchyma [Figure 2] along with a polymorphous inflammatory reaction consisting of eosinophils, palisaded histiocytes, small and large lymphocytes along with their activated forms; macrophages and neutrophils [Figure 3]. Aspirate from the second case showed occasional foreign-body giant cells in addition. No hooklets or scolices were identified in both the cases, nor was there evidence of caseous necrosis.

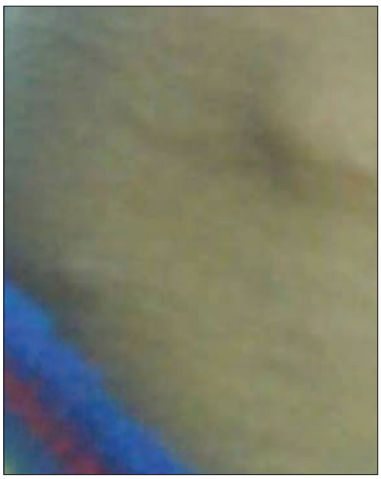

Figure 1: Largest posterior cervical lymph node (case 1)

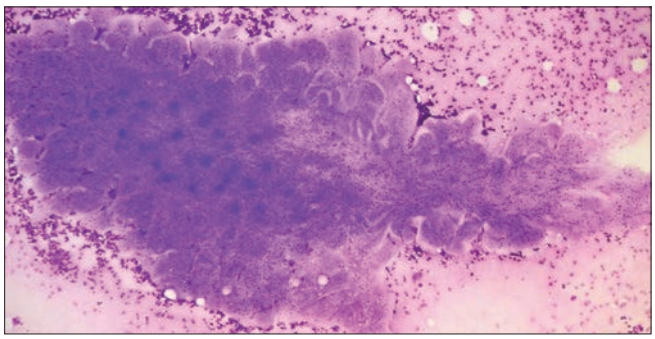

Figure 2: Characteristic wavy tegument, Leishman-Giemsa stain, ×100

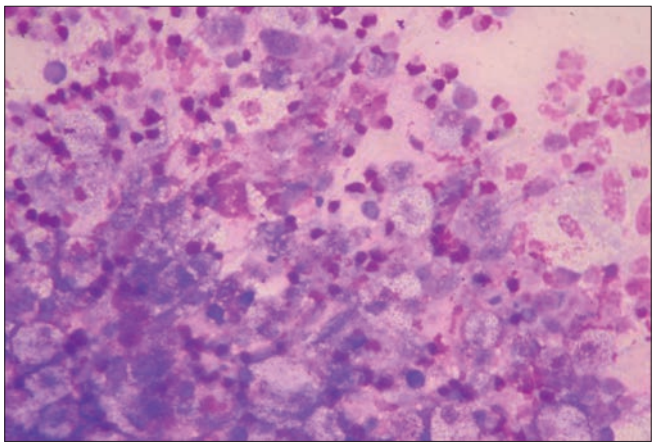

Figure 3: Inflammatory infiltrate of histiocytes, eosinophils, Leishman-Giemsa stain, ×400

A diagnosis of parasitic lesion suggestive of cysticercus lymphadenitis was given.

Clinical Course

Both the patients were treated with albendazole, following which the lymph nodes showed significant reduction in their size. A contrast-enhanced computerized tomography scan (CECT) of the brain was done to rule out coexistent neurological involvement. However, no abnormality was detected in either patient.

Discussion

Cysticercosis is a common parasitic infestation with predilection for striated muscles of the neck, tongue, trunk, subcutaneous tissue, brain, liver, lungs, orbit, meninges, etc.[1] Lymphadenopathy is a rare mode of presentation of cysticercus infestation. Sodhi *et al.* reported the case of a 7-year-old girl who manifested with submandibular lymphadenopathy while Mohan *et al.* reported a case of a 15-year-old girl who presented with mesenteric lymph node enlargement due to multiple cysticerci.[2,3] The diagnosis of cysticercosis is usually based on the clinical presentation in conjunction with FNAC, histopathology, and CT scan findings.[4]

FNAC is an extremely useful modality in the diagnosis of parasitic infections. Soft tissue cysticercosis is caused by encysted larvae of pork tapeworm *T. solium* which can cause two distinct forms of infection. The form which develops depends on whether humans are infected with tapeworms in the intestine or with larval forms in the tissues (cysticerci). Scolex of cysticercus is large, almost 1 mm in size. It has a rostellum and four suckers. Finding an entire scolex in a fine-needle aspirate is a rare event.[5] The rostellum has two rings of alternating large and small hooklets. The growing-in cysticercus may provoke a series of inflammatory reactions including infiltration by polymorphs, eosinophils, lymphocytes, plasma cells, giant cells, and macrophages followed by fibrosis and necrosis of capsule with eventual death and calcification of the larva.

Essential for the cytodiagnosis of cysticercosis are identification of the parasitic fragments including its wall and hooklets. Parasitic fragments may comprise bluish, fibrillary structures, sometimes with honeycombing, calcospherules, tegument thrown into rounded wavy folds, scolex with hooklets, and hyaline membrane surrounding it. The inflammatory reaction consists of eosinophils, neutrophils, lymphocytes, histiocytes, epithelioid cells, and giant cells in varying proportions.[6-8] A careful search for parasitic fragments should be carried out in the presence of polymorphous inflammatory infiltrate composed predominantly of eosinophils and histiocytes. Kapila *et al.* studied aspirates from 182 cases of subcutaneous cysticercosis and semiquantitated the

type and degree of inflammatory response and the amount and preservation of the parasite. They concluded that the tissue response is variable with 88-92% being eosinophils, 50-70% palisading histiocytes, 68-80% epithelioid cell granulomas, and 46-74% giant cells.[9] The tissue response to cysticercus has been divided into five stages.[10] The initial response comprises macrophages and lymphocytes followed by a well-formed layer of palisaded histiocytes. As the inflammatory response becomes chronic, eosinophils appear. Later on, polymorphs invade the necrotizing parasite. In both of our cases, the characteristic tegument layer of the bladder wall, subcuticular cells with small pyknotic nuclei along with a polymorphous inflammatory reaction consisting of eosinophils, palisaded histiocytes, small and large lymphocytes with their activated forms, neutrophils and occasional foreign-body type of multinucleate giant cells were seen. No hooklets or scolices were noticed in either of our cases, as has also been reported in other studies.[7,8] Kamal *et al*. studied 10 cases of subcutaneous cysticercosis in which the diagnosis was established by the presence of fragments of the parasite wall and mixed inflammatory infiltrate.[7] Arora *et al*. studied 298 cases of cysticercosis out of which 203 cases revealed fragments of the bladder wall and only 33 cases showed fragments of an invaginated larva such as hooklets, scolex, spiral wall, etc.[8] Finding the parasite bladder wall, hooklets, and intact larva on FNAC obviates the need for histopathological examination. Hence, FNAC is a rapid, cost-effective, and safe procedure to diagnose cysticercosis and prevent fatal neurological complications.

Conclusion

Our cases highlight the rare presentation of cysticercus infestation as cause of treatable cervical lymphadenopathy. Cysticercosis should be included in the differential diagnosis of cervical swellings especially in endemic regions. Timely diagnosis and intervention help in preventing fatal complications.

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