Case Report

Incidental diagnosis of cutaneous cysticercosis on cytology: a case report

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Abstract

Human cysticercosis is a parasitic disease caused by the larval form of *Taenia solium*. It commonly affects brain, skeletal muscle, subcutaneous tissue, and eye. In subcutaneous tissue, it presents as painless palpable nodules mimicking various clinical conditions. Here, we are reporting such an interesting case of cutaneous cysticercosis, presented by a 26-year-old female patient at left cervical region, which was clinically misinterpreted as tubercular lymphadenitis but diagnosed by fine needle aspiration cytology because of the presence of larval cuticle and parenchyma in a background of mixed inflammatory infiltrate, and confirmed subsequently by histopathology.

KEY WORDS: Cutaneous nodule, cysticercosis, fine needle aspiration cytology

Introduction

Human cysticercosis is a systemic illness caused by the larval form of pork tapeworm, *Taenia solium*. It commonly affects brain, skeletal muscle, subcutaneous tissue, and eye.[1] Outside central nervous system (CNS), it causes no major symptoms. Cutaneous cysticercosis usually presents as small painless nodule that can mimic various clinical conditions depending on their sites and nature.[2] Fine needle aspiration cytology (FNAC), being a cost-effective diagnostic procedure, is widely employed for the characterization of cutaneous nodules. As rare in the eastern region of India, we are presenting such a cutaneous swelling that was cytologically diagnosed as cysticercosis and later confirmed by histopathology.

Case Report

A 26-year-old Hindu woman presented with approximately 2 cm in maximum diameter, firm swelling of 6-month duration over lower neck on the right side [Figure 1]. There was no history of fever. Though it was assumed clinically as tubercular lymphadenitis, it was sent for confirmation by FNAC.

The aspiration from the swelling yielded whitish granular fluid. The smears were air-dried as well as wet-fixed in 95% ethyl alcohol and stained with Leishman–Giemsa and Papanicolaou stains. Smears showed larval cuticles with pyknotic vegetative nuclei in a background of mixed inflammatory infil-

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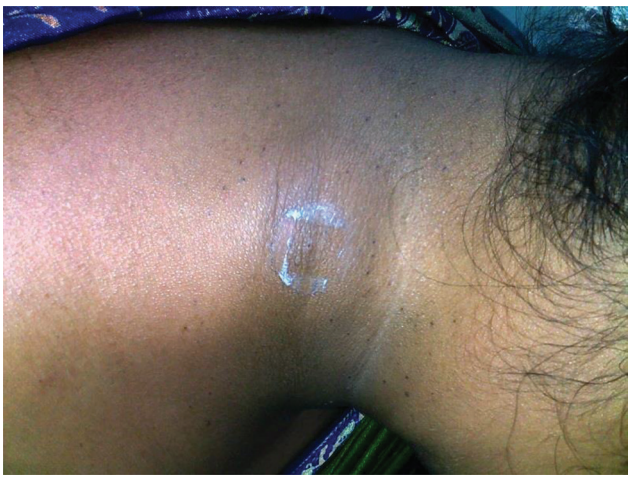

Figure 1: Clinical photograph showing cutaneous nodule over lower neck on right side.

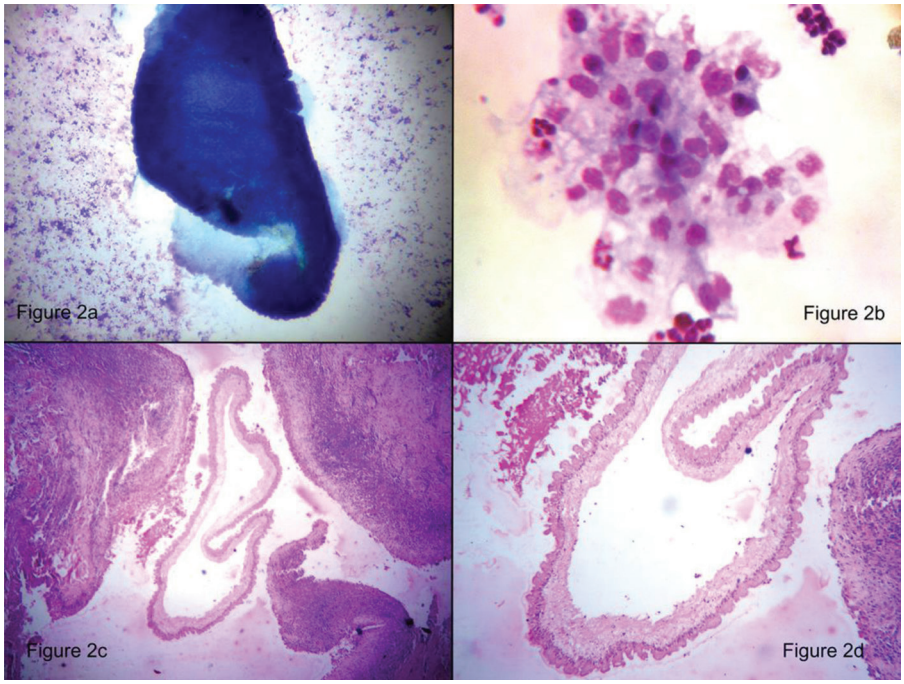

Figure 2: (a) Photomicrograph from cytology showing part of intact cuticle along with mixed inflammatory cells (Leishman–Giemsa stain: 4 × 10 magnification). (b) Photomicrograph from cytology showing aggregation of histiocytes forming granuloma (Leishman–Giemsa stain: 40 × 10 magnification). (c) Photomicrograph from histopathology showing part of cysticercus with inflammatory cells in the surrounding stroma (hematoxylin–eosin stain: 10 × 10 magnification). (d) Same photomicrograph with higher magnification (hematoxylin–eosin stain: 40 × 10 magnification).

trate comprising neutrophils, eosinophils, and aggregates of histiocytes along with intact larval structure [Figure 2a and 2b]. A diagnosis of a parasitic lesion, provisionally cysticercosis, was offered on cytology.

Subsequently, the swelling was surgically excised and sent for histopathological examination. Hematoxylin-Eosin-stained sections from the specimen confirmed our cytological diagnosis of cysticercosis [Figure 2c and 2d].

Discussion

Cysticercosis is most prevalent in Latin America, sub-Saharan Africa, China, India, and Southeast Asia.[1] In India, disease prevalence varies in different states because of differences in socioeconomic status, ethnicity, food habits, and religious rituals. Cysticercosis appears to be more prevalent in the northern states including Bihar, Uttar Pradesh, and Punjab.[3]

In natural life cycle, humans are the definitive host and pigs are the usual intermediate host for *T. Solium*. By ingesting undercooked pork containing cysticerci, the larval stage, humans acquire infection that leads to intestinal tapeworm infection. Ingested cysticerci attach to intestinal wall and develop into mature adult tapeworms that produce mild abdominal symptoms. Adult tapeworms consist of scolex that has suckers and hooklets that attach to intestinal wall, a neck, and many flat segments called proglottids containing male and female reproductive organs. The most distal proglottids contain many eggs and are shed in the feces. In the human cysticercosis, they become intermediate host either by ingestion of foods contaminated with *T. Solium* eggs or by autoinfection. From the eggs, the larvae hatch, penetrate gut wall to disseminate hematogenously, and encyst many organs.

Involvement of the CNS is clinically the most alarming manifestation of the cysticercosis that can present with headache, nausea, vomiting, changes in vision, dizziness, ataxia, confusion, and most importantly with seizures. However, encystment of larvae can occur in almost any tissue. In subcutaneous tissue, it presents as palpable nodules that can often be misinterpreted clinically as lipoma, neurofibroma, or tubercular lymphadenitis as in this case.

However, the presence of eosinophils, neutrophils, aggregates of histiocytes, and pyknotic vegetative nuclei in the aspirate of this subcutaneous swelling arouse the suspicion of parasitic lesion. In fact, viable cysticerci may not cause any inflammatory response and can evade host immune defenses by producing taeniaestatin and paramyosin, which inhibit complement activation.[4] When they degenerate, the infiltration of surrounding tissue by polymorphous inflammatory cells occurs. Diagnosis of cysticercosis could be made confidently when fragments of larval cuticle and parenchyma were identified.

The other important parasitic lesion that can come as a differential diagnosis is hydatid cyst but subcutaneous tissue is an unusual location for it and the presence of laminated membrane and hooklet is typical for it, which was absent in this case.

Although not common in day-to-day clinical practice, cysticercosis should be kept in mind as a differential diagnosis in cutaneous nodules especially in endemic areas. FNAC can act as a reliable, cost-effective, and outpatient-based tool for diagnosis of this parasitic disease and may even obviate the need for open biopsy.[5,6] The only drawback with FNAC is the remote chance of hypersensitivity reaction in susceptible individuals.

Though cutaneous cysticercosis does not cause any alarming symptoms, it often points toward involvement of other internal organs including CNS.[7] A diagnosis of cysticercosis is important as it calls for a diligent search for the parasite in vital organs, where it causes significant morbidity and can even prove to be fatal.

Conclusion

Cutaneous cysticercosis, presenting as cutaneous nodules, often can be clinically misdiagnosed as tubercular lymphadenitis, neurofibroma, lipoma, and so on. FNAC, as a simple procedure, can be used to diagnose this condition reliably and may even obviate the need for biopsy.

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