Cysticercosis of the Breast Masquerading as Fibroadenoma

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Abstract

Cysticercosis in humans occurs due to larval infestation of the cestode *Taenia solium*. It is a common parasitic public health problem especially in developing countries. It can affect any part of the body and can have variety of clinical presentations that can create diagnostic dilemmas. Herein we report one such unusual manifestation of this parasite as breast lump in a 28-year-old female who was suspected as a case of fibroadenoma breast.

Keywords: Breast, Cysticercosis, Cytology, Histopathology, Fibroadenoma.

Introduction

Cysticercosis is a worldwide public health problem which is mainly prevalent and encountered in the developing countries as open air defecation as well as food and water contamination acts as a nidus. It is a parasitic infestation of humans that is caused by *Cysticercus cellulosae*, the larval form of pork tape worm, *Taenia solium (T. solium)*.[1] Any organ can be affected by it but most commonly it involves the skeletal muscle, subcutaneous tissues, brain, eyes, heart, liver, lungs, and peritoneum. Breast is rather an uncommon site for this parasite to harbor. In breast, either it is diagnosed incidentally or patient presents with a breast lump.[2] We present one such unusual case of cysticercosis breast in a 28-year-old female who presented with a mobile breast lump simulating clinically as fibroadenoma.

Case Report

A 28-year-old female presented to the surgical outpatient department with a mobile painless left breast lump which she had since last 2 months. She was a housewife by occupation and a vegetarian by diet. On local examination, the lump was located in the upper outer quadrant of the left breast and measured 2×2 cm in size. It was well circumscribed, soft-to-firm in consistency and non-tender. The overlying skin and the nipple-areolar complex was normal. The contralateral breast was normal. There was no axillary or cervical lymphadenopathy. A clinical diagnosis of fibroadenoma left breast was made. Her general and systemic examination was normal. Her hematological and biochemical parameters were within normal limits.

Fine needle aspiration cytology (FNAC) was done. On aspiration, thin yellow fluid was aspirated which on microscopy showed presence of larval bladder wall and calcareous corpuscles in the background of a mixed inflammatory infiltrate consisting of neutrophils, eosinophils and lymphocytes (Fig. 1). Based on these cytomorphological features, a diagnosis of cysticercosis breast was made. However, the lump size reduced after the aspirate but it did not resolve completely. Therefore, the lump was excised along with part of the mammary tissue. Grossly, the specimen was irregular, grey white, cystic to nodular and measured 1×1cm. The external surface was smooth. On cut section, yellowish fluid was drained out and a cyst was seen. Histopathological sections showed a cyst which comprised of three layers-the outer cuticular layer, the middle cellular layer and the inner fibrillary layer forming a racemose pattern. The scolex was not identified. The surrounding breast tissue showed hemorrhagic granulation tissue and lymphoplasmacytic infiltrate. Based on these features, a final diagnosis of cysticercosis breast was made.

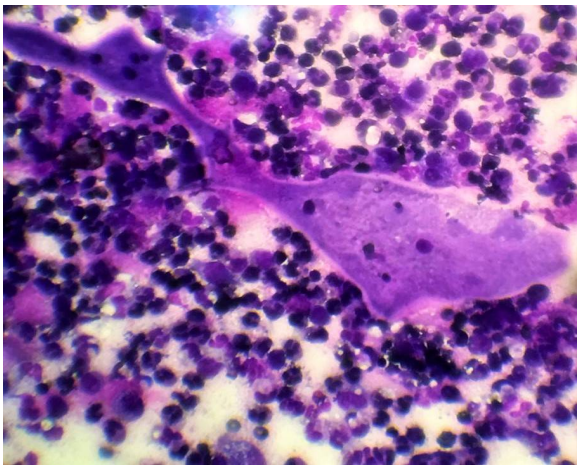

Figure 1.Larval Bladder Wall against an Inflammatory Background (Giemsa, 40×)

An extensive search was made to exclude the infestation at the other sites. The radiological examination of the whole body was normal. No eggs or proglottids could be appreciated on her stool examination. The patient was started with oral Albendazole 400 mg twice daily, for 28 days, to which she responded well.

Discussion

Human cysticercosis occurs due to the ingestion of eggs of *T. solium* which predominantly occurs in the areas where there is poor sanitation, and unhygienic overcrowded living conditions, allowing increase in the chances of fecal contamination with food and water.[3] In the normal life cycle of *T. solium*, humans are definitive hosts and pigs are intermediate hosts. Infection with the adult worm is caused due to ingestion of inadequately cooked pork infected with encysted larvae (cysticercus). The larva develops into an adult worm in the intestinal mucosa within 5-12 weeks. Eggs and proglottids are passed in the feces, and this remains the source of infection for pigs and humans. Oncosphere from the ingested egg released in the presence of gastric secretions penetrates the intestinal wall to enter the mesenteric venules and reaches various sites of the body.[4] It is commonly found in the skeletal muscle, subcutaneous tissues, brain, eyes, heart, liver, lungs, bone and peritoneum.[5,6] The breast is an unusual site for the cysts to form and only few such cases have been reported in the literature.[2,7-9]

The diagnosis of cysticercosis at unusual sites may cause diagnostic dilemma to the treating clinicians and can cause misdiagnosis as well as unnecessary surgical interventions. Clinically, cysticercosis of the breast is often confused with benign and malignant lesions of the breast. Similar to the present case, many other authors have reported its confusion with fibroadenoma.[2,10] A history of residence, eating habits, travel in a parasite endemic area or the presence of infected animals in a patient's environment should always be taken into account. As the present case was a vegetarian, eating contaminated raw vegetables or fruits could have been the mode of infection. However, a diagnosis of cysticercosis is mainly made by radiological and cytological findings, gross morphology of the cyst with scolex, and histopathological features.

Radiologically, it can be detected by X-ray by the visualization of calcifying cysticerci while ultrasonography usually demonstrates a cystic lesion. Magnetic resonance imaging (MRI) and computed tomography (CT) are useful in detecting and evaluating specific stages of cysticercosis. Initially, when the parasite is viable, a cyst without peripheral enhancement is seen. Peripherally enhancing cystic lesions are subsequently observed, which indicates the inflammatory response that occurs after the death of the parasite.[11] In our case, radiology of the other parts of the body was normal.

Cytology plays an important role in its diagnosis, but it is limited by varying cytomorphological features of cysticercosis.[12] However, on FNAC, demonstration of fragment of larval bladder wall, hooklets and calcareous corpuscles confirms the diagnosis of cysticercosis. In the presence of marked necrosis, its diagnosis often becomes difficult. Hooklets and calcareous corpuscles remain the only recognizable parasitic structures in such cases.[13] The host tissue response is extremely variable and it ranges from an insignificant response to the markedly cellular response, which consists of epithelioid cell granulomas and histiocytes. It initially comprises macrophages and lymphocytes followed by the appearance of palisaded histiocytes. Eosinophils and

plasma cells appear still later. Subsequently, neutrophils surround and invade the parasite, leading to its degeneration. Epithelioid cell granulomas can also be present in the later stages. Foreign body giant cells are invariably present in surrounding inflammatory zone.[12] This fact was supported by Kala et al. who also documented the whole spectrum inflammatory reaction against the parasite in their study.[14] In the present case, FNAC was quite helpful as larval bladder wall, calcareous corpuscles and intense inflammatory reaction were quite evident. However, on the contrary, some authors have documented that FNAC was non-contributory for its diagnosis.[1,9]

Therefore, diagnosis of cysticercosis in unusual sites, such as the breast, can be definitely done only by histological demonstration of the parasite. The characteristic cyst wall is multilayered and comprises characteristic external cuticular layer, middle cellular layer and the internal layer.[6] All these three layers were appreciable in the current case, leading to its definite diagnosis.

Conclusion

This case highlights the fact that the breast is one of the uncommon sites for cysticercosis and can mimic other tumors of the breast. Thus, one should keep parasitic lesions as a differential diagnosis in females presenting with breast lump.

Conflict of Interest: None

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