International Surgery Journal
Kalwaniya DS et al. Int Surg J. 2024 Aug;11(8):1362-1365
http://www.ijsurgery.com
pISSN 2349-3305 | eISSN 2349-2902

DOI: https://dx.doi.org/10.18203/2349-2902.isj20242134

Case Report

Diagnostic dilemma: axillary cysticercosis masquerading as breast mass

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Received: 26 May 2024
Accepted: 03 July 2024

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ABSTRACT

Cysticercosis, caused by the tapeworm Taenia solium, is a significant public health concern, particularly prevalent in developing nations. We present a case of isolated cysticercosis in the axillary region, mimicking a breast mass, in a 47-year-old woman who presented with a gradually enlarging mass in her right axilla and was initially diagnosed with fibroadenoma. However, further investigations revealed cysticercosis in the larvae, including ultrasonography and fine-needle aspiration cytology (FNAC). The patient underwent surgical excision of the cysts following a two-week course of albendazole therapy. Histopathological examination confirmed cysticercosis with a foreign body giant cell reaction. Cysticercosis typically involves muscular and subcutaneous tissues, posing diagnostic challenges due to its resemblance to other conditions. Ultrasonography, FNAC, and MRI play crucial roles in accurate diagnosis. Treatment involves a combination of surgical removal and antiparasitic medications such as albendazole. This case highlights the importance of considering cysticercosis in differential diagnosis, especially in endemic regions, and underscores the effectiveness of a comprehensive treatment approach integrating medical therapy and surgical intervention. Effective management ensures the eradication of parasitic infection and the alleviation of associated symptoms, exemplifying patient-cantered care for optimal outcomes. Increased awareness, preventive measures, and early diagnosis are essential for mitigating the burden of cysticercosis, particularly in regions with poor sanitation and high prevalence rates.

Keywords: Albendazole, Axilla, Cysticercosis, Surgical excision, Taenia solium

INTRODUCTION

Taenia solium, a tapeworm, poses a significant public health concern, particularly in developing nations, due to its association with cysticercosis. This condition affects both pigs and humans, serving as intermediate hosts for the tapeworm larvae, which can lead to cysticercosis, including neurocysticercosis (NCC) in the brain. Humans are the exclusive definitive hosts of T. solium, harboring adult tapeworms in the gut, a condition known as taeniasis. Transmission occurs when individuals ingest eggs excreted in human feces, particularly in regions where undercooked pork is consumed, facilitating fecal-oral transmission.[1] NCC is a prevalent parasitic infection of the central nervous system (CNS), notably in underdeveloped countries, where it constitutes a primary cause of epilepsy. Recent research in India, employing neuroimaging techniques, indicates a considerable disease burden in the country compared to other emerging nations. Given that cysticercosis is preventable through measures such as consuming thoroughly cooked food and avoiding water contaminated with feces, as well as being potentially eradicable, it is imperative to fully comprehend the disease burden fully, implement effective intervention strategies, and promote awareness of the condition in India. This clinical condition can include either NCC or extra neural cysticercosis (intestinal, subcutaneous, or muscular cysticerci

infection) which is one of the causes of lumps in humans. Ultrasonography is a diagnostic tool for detecting subcutaneous and muscle cysticerci. These patients can be treated medically and surgically. Here we report a case of cysticercosis involving the axillary region.

CASE REPORT

A 47-year-old woman from Bageshwar, Uttarakhand, India, presented at the General Surgery outpatient department with the primary complaint of a swelling in her right axilla persisting for one year. The swelling gradually developed over time, accompanied by occasional mild discomfort, particularly during her daily activities. Notably, there were no associated symptoms such as fever, changes during the menstrual cycle, trauma, surgical interventions, or insect bites. The patient, a homemaker residing in a village, maintained a dietary pattern comprising both vegetarian and nonvegetarian foods but denied consuming pork or beef. Additionally, there was no family history of similar complaints. Upon examination, a single mass approximately 6x6 cm in size was observed in the right axilla (Figure 1).

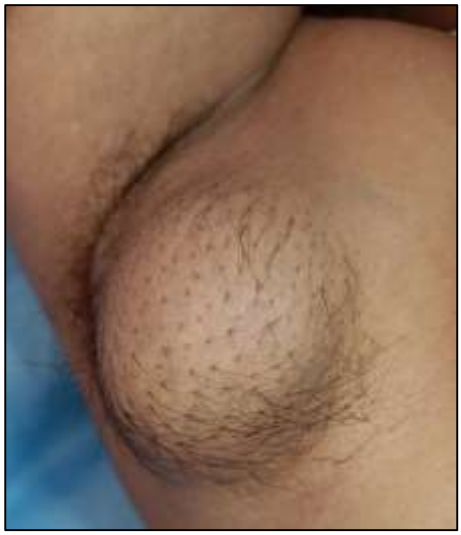

Figure 1: Lump in right axilla.

The mass displayed a globular shape, lacked fixation to the skin, exhibited slight mobility, and was mildly tender, tense, and firm in consistency, without signs of inflammation. No other palpable swellings were detected elsewhere in the body, and examinations of the central nervous system (CNS) and other systems were normal. A clinical diagnosis of right axillary fibroadenoma was established, prompting routine investigations, including ultrasonography of the right axilla with the breast, followed by fine-needle aspiration cytology (FNAC). The results from routine investigations were within normal limits. Ultrasonographic evaluation revealed a well-defined solid mass measuring 48x42 mm in size within the right axilla, featuring small anechoic shadows and poor vascularity suggestive of possible necrosis (Figure 2).

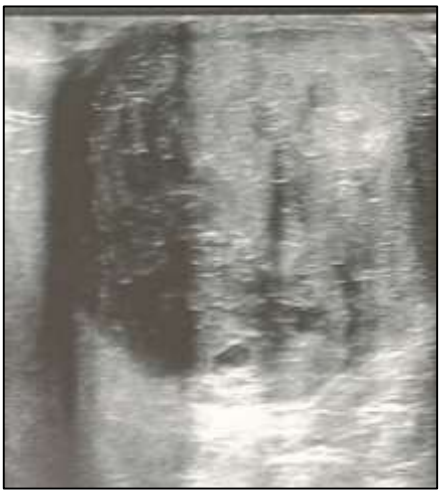

Figure 2: USG image showing a solid mass with small anechoic shadows seen within.

Following a fine-needle aspiration cytology (FNAC) procedure, the findings indicated the presence of cysticercosis larvae (Figure 3).

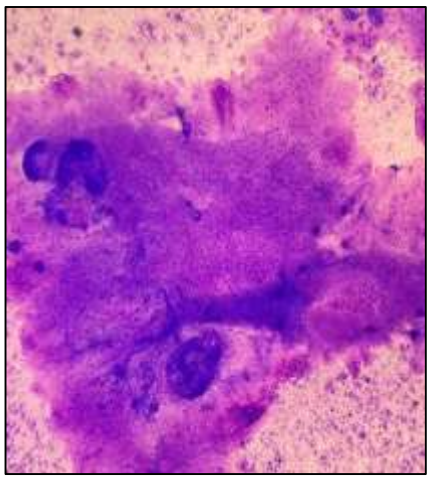

Figure 3: FNAC smear suggestive of Inflamed cysticercosis.

MRI of the axilla and chest revealed a well-capsulated and thin-walled lesion noted in the right axilla within the subcutaneous plane, measuring approximately 4.8 cm in the craniocaudal region and 4.1 cm in the transverse region, with a hypointense wall on all the sequences (Figure 4). Subsequently, the patient underwent a two-week treatment regimen with albendazole tablets (400 mg twice a day) for 2 weeks before excision of the cyst. Biopsy of the excised cyst confirmed the presence of cysticercotic larvae enclosed within a cystic space, alongside an adjacent foreign body giant cell reaction. The postoperative period was uncomplicated, and the patient recovered well. Discharge occurred on the third postoperative day postsurgery, and the patient was

advised to continue albendazole (400 mg twice a day) for an additional two weeks.

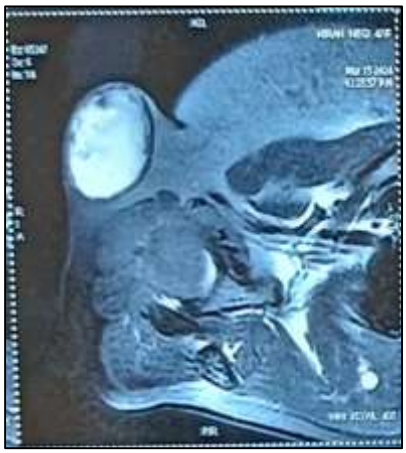

Figure 4: MRI of the right axilla showing well-capsulated and thin-walled lesion within the subcutaneous plane.

DISCUSSION

Taenia solium, a pig tapeworm larva that causes cysticercosis, spreads through fecal-oral transmission. In humans, infestation with adult tapeworms is known as taeniasis. Pigs serve as intermediate hosts, while humans are definitive hosts. Larvae can also infect domestic animals such as cats, dogs, and sheep. Human infestation typically occurs via the consumption of raw or undercooked pork contaminated with larvae. Although less common, infection can also result from ingesting food or water contaminated with T. solium eggs.[3] Once ingested, the eggs hatch into larvae in the intestines, which then mature into cysticerci after entering circulation and penetrating host tissues.[4] Cysticerci commonly affect skeletal muscle, subcutaneous tissue, the eyes, and the central nervous system. Other organs, such as the pancreas, kidney, liver, heart, and lungs may also be affected. Children are at increased risk due to increased exposure to contaminated environments.[5]

Our patient had subcutaneous swelling in the right axilla which is the rarest site of presentation of cysticercosis. Cysticercosis poses a significant public health threat in regions with poor sanitation, where pigs have access to human waste. Larvae establish themselves in tissues as fluid-filled cysts, evading the host's immune response. Subcutaneous and intramuscular cysticercosis often presents as painless, movable nodules on the arms and chest, ranging from 1 to 2 cm in size. Approximately 20% of patients may experience pain or develop abscesses. The differential diagnoses included sarcoma, myxoma, lipomas, epidermoid cysts, neuromas, neurofibromas, pseudoganglia, and tuberculous lymphadenitis. Similarly, in our case, the patient presented with large painless swelling.[6] Solitary muscular and soft tissue cysticercidal involvement is rare but serves as an indicator of potential neurocysticercosis. The diagnosis of axillary cysticercosis is challenging due to its similarities to conditions such as fibroadenoma, sebaceous cysts, lymphoma, and metastatic deposits. Our patient also had a diagnostic dilemma which was further confirmed by histopathology. Larval death within the cyst can cause fluid leakage, leading to acute inflammation and localized pain. Alternatively, cyst degeneration may result in chronic inflammation, resulting in the formation of a mass-like pseudotumor or abscess.[5] Ultrasonography reveals distinct features such as a circular cyst within a fluid collection, which initially appears as a strongly echogenic protrusion. Eccentric echogenic protrusions representing the scolex, asymmetrical cysts with extruded scolexes, and calcified cysticercus cysts can also be observed.[6] Diagnostic accuracy can be achieved through parasite fragments in aspirate smears via fine-needle aspiration cytology (FNAC). However, FNAC may not be informative if only inflammatory cells are present. Histological examination typically reveals the parasite's tegument, characterized by rounded, wavy folds, and a scolex with encircled hooklets within a hyaline membrane.

The inflammatory response primarily consists of giant cells, epithelioid cells, eosinophils, and various polymorphs. Our patient also had a histopathology report suggestive of cysticercosis with the presence of foreign body giant cell reaction. Treatment recommendations for subcutaneous and muscular cysticercosis typically involve a combination of surgical intervention and medication. Surgical removal is often necessary to eliminate cysts located in these tissues effectively. Additionally, antiparasitic drugs such as praziquantel and albendazole are commonly prescribed to target the underlying tapeworm infection. In the presented patient, who had a rare lump in the axillary region, the diagnosis was confirmed through an ultrasound scan, fine-needle aspiration cytology (FNAC), and magnetic resonance imaging (MRI). The chosen treatment regimen consisted of albendazole therapy coupled with surgical excision of the cysts.[7] This comprehensive approach ensures both the eradication of the parasitic infection and the removal of cysts causing discomfort or complications. This study provides an example of a tailored therapeutic strategy to address the unique presentation of subcutaneous and muscular cysticercosis at very unusual site, emphasizing patient-centered care and optimal outcomes.

CONCLUSION

The atypical findings in this case did not rule out infection, and they underscore the importance of personal hygiene in preventing such diseases. Clinicians should consider cysticercosis as a differential diagnosis, especially for cystic breast lesions. Although rare, axillary cysticercosis, although rare, poses a diagnostic challenge. Early diagnosis warrants prompt treatment with cestocidal medications such as praziquantel or albendazole and needful surgical intervention.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Kalwaniya DS, Singh Y, Gupta S. Diagnostic dilemma: axillary cysticercosis masquerading as breast mass. Int Surg J 2024;11:1362-5.