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Case Report

Subcutaneous cysticercosis mimicking tenosynovitis: a rare case with radiological revelation

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ABSTRACT

Subcutaneous cysticercosis is a rare manifestation of cysticercosis, caused by the larval stage of *Taenia solium*. It presents as a swelling or a palpable cystic mass. We describe a 43-year-old female who presented with subcutaneous swelling over her right hand, gradually increasing in size over ten days. Initially, tenosynovitis was suspected clinically. However, an ultrasound of the hand revealed a well-defined, cystic lesion with eccentric echogenic foci and peripheral oedema suggestive of cysticercosis. She was treated with oral albendazole, leading to significant improvement. This case report emphasizes the importance of considering parasitic infections as a potential cause of subcutaneous swelling. It also highlights the significance of utilizing diagnostic imaging for definitive diagnosis and timely treatment.

Keywords: Subcutaneous cysticercosis, Subcutaneous swelling, Tenosynovitis

INTRODUCTION

Cysticercosis, a parasitic infestation caused by the larval stage of *Taenia solium*, is highly endemic in countries like Africa, Latin America, and Asia.[1] In India, it appears to be more prevalent in northern states like Bihar, Uttar Pradesh, and Punjab.[2] The disease is caused by ingestion of contaminated food or water containing eggs of this tapeworm. Once inside the human body, the larvae migrate through various tissues and organs, causing symptoms that vary depending on the organ affected.

The subcutaneous form is a relatively rare entity.[3] It presents as a subcutaneous nodule or swelling and clinical features depend on the location of the cyst and can be easily confused with other common conditions like tenosynovitis, lipoma, sebaceous cyst, ganglion cyst, or abscess. The diagnosis is made based on clinical features and imaging studies such as ultrasound, CT, or MRI, and serological studies.

This case report serves as a reminder that subcutaneous cysticercosis should be considered as a differential diagnosis of patients presenting with subcutaneous swelling and prompt diagnosis and early treatment can prevent complications associated with this condition.

CASE REPORT

A 43-year-old female visited the rheumatology OPD with complaints of swelling and pain in her right hand for 10 days, Figure 1. The swelling started from the medial side of the right thumb and gradually progressed to involve her entire right hand and the medial side of her wrist. She also had difficulty moving her wrist joint and noticed local redness. There was no history of fever. There was no prior history of trauma or infection, and she had no other significant medical history. On examination, she had subcutaneous swelling on the dorsum and palmer aspect of the right hand extending to the wrist joint and restricted movement at the wrist joint, 1st carpometacarpal, and 2nd to 4th metacarpophalangeal

joint. However, her opposite hand's joints were normal and her systemic examination was unremarkable.

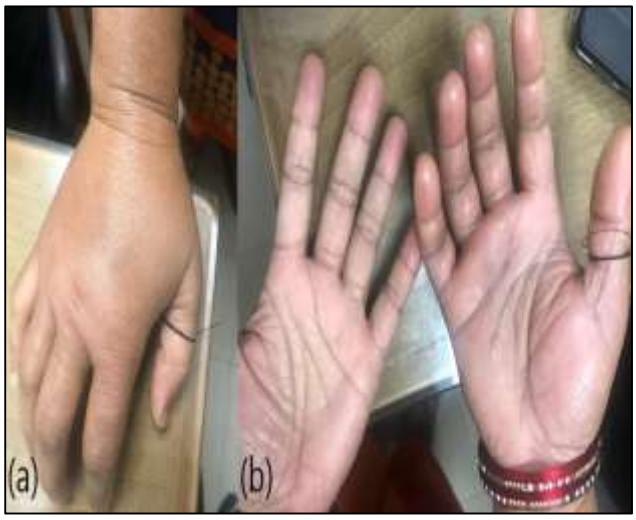

Figure 1: (A) Clinical photograph showing a swelling over right-hand dorsal aspect; and (B) clinical photograph showing a swelling over right-hand palmer aspect.

Her complete blood counts revealed normal results. However, her erythrocyte sedimentation rate was elevated to 44 mm in 1 hour, and C- reactive protein levels were 19 mg/dl. Her liver and renal function tests were normal. Her uric acid level was normal. Her immunological workup including rheumatoid factor, anti-CCP, ANA IF, ANA profile, P ANCA, C ANCA, and HLA B27 was negative. Infectious workup including routine cultures, Mantoux test, and procalcitonin were negative. Therefore, tenosynovitis of the right flexor tendon sheath was provisionally diagnosed, and NSAIDs were prescribed.

Further investigations were carried out before planning intra-lesion steroids by performing musculoskeletal ultrasonography which revealed a 5×3 mm^2, well-defined, thin-walled, cystic lesion with an eccentric echogenic focus measuring around 1.5 mm in diameter in the subcutaneous plane. The hypoechoic area surrounding the showed significant exudative fluid collection with thickening of surrounding soft tissue indicative of edema, Figure 2. MRI of the hand showed a well-defined area of abnormal signal intensity along the flexor tendon sheath on the anterolateral aspect of hand. The swelling was seen as a longitudinal loop of hyper-intense signal. Soft tissue edema extended to 2, 3, and 4^{th} metacarpals, Figure 3. These findings were suggestive of ruptured cysticercosis along the flexor tendon sheath.

The patient was started on oral albendazole (15 mg/kg/day) for four weeks, accompanied by analgesics. At the two-week follow-up, there was a significant decrease in the size of swelling and pain and subsequent follow-ups showed no evidence of any residual or recurrent disease. This case underscores the importance of considering rare infectious etiologies in patients presenting with atypical swelling and the crucial role of imaging modalities in the diagnosis, particularly when clinical and laboratory modalities are inconclusive.

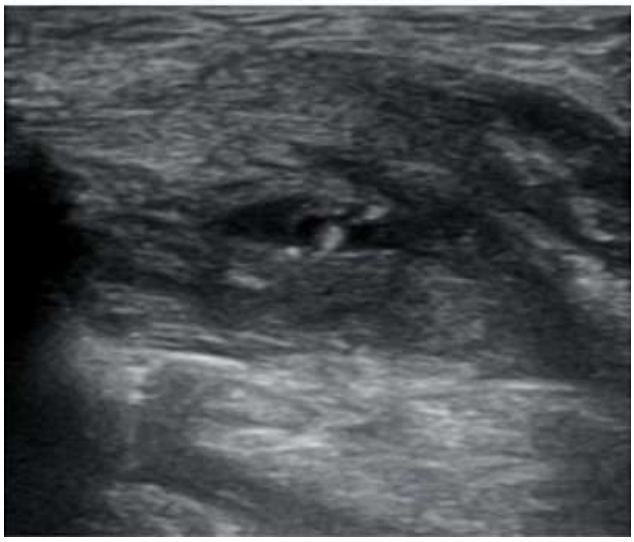

Figure 2: Ultrasound of the right wrist showed a 5×3-mm, well-defined, thin-walled, cystic lesion with an eccentric, echogenic focus measuring around 1.5 mm in diameter in the subcutaneous plane. The hypoechoic area surrounding this cyst showed significant exudative fluid collection within. The adjacent soft tissues were thickened and irregular, suggestive of edema.

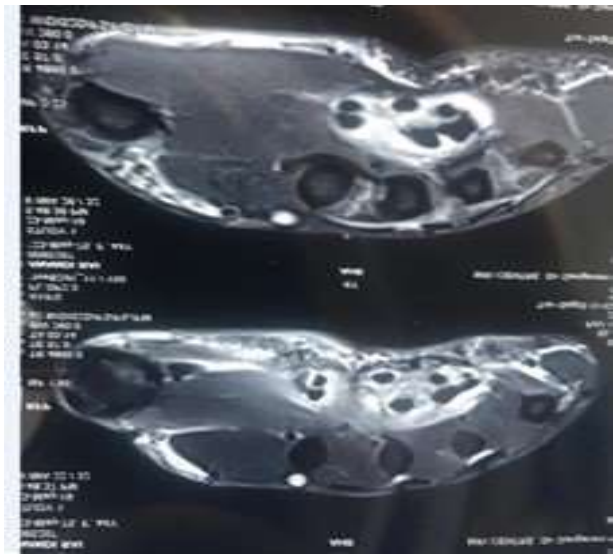

Figure 3: MRI of right hand showing a well-defined area of abnormal signal intensity along the flexor tendon sheath on the anterolateral aspect of the hand. Swelling is seen as a longitudinal loop of hyper-intense signal. Soft tissue edema also extends to 2, 3 and 4 metacarpals. Findings are s/o ruptured cysticercosis along the flexor tendon sheath.

DISCUSSION

Cysticercosis is caused by larval stage of *Taenia solium* and is commonly seen in developing countries where pork is a dietary staple. However, with increasing travel and globalization, subcutaneous cysticercosis is now being reported in developed countries as well.[1] The infection is acquired through the fecal-oral route by accidental ingestion of food or water contaminated with the ova. Humans are the only definitive host in the life cycle of this tapeworm. The adult worm lives attached to the small intestine. The oncosphere hatched from the eggs penetrates the gut mucosa, transforms into cysticerci after getting into various parts of the body including brain, eyes, striated muscles, liver, heart, lung, peritoneum, or subcutaneous tissue, and forms cysts.

While cysticercosis typically involves the central nervous system, which accounts for 60-90% of cases, subcutaneous cysticercosis is a rare condition caused by the development of cysticerci in the subcutaneous tissues.[3,4] The most common presentation of this disease in of painless subcutaneous swelling. The manifestation significantly varies owing to the mercurial nature of cyst location, contributing to potential diagnostic errors. In our case, the clinical manifestation of unilateral pain and wrist swelling was misleading, causing an initial diagnosis of tenosynovitis. However, the utilization of imaging modalities, specifically ultrasound and MRI in our case, proved crucial in establishing the correct diagnosis. It is important to note, however, that histopathological examination through biopsy specimen analysis stands as a gold standard in diagnosing cysticercosis.[5]

The treatment of subcutaneous cysticercosis involves the use of oral anti-helminthic, mostly albendazole, which has been shown to be effective in killing larvae. If left untreated, it can lead to complications such as local inflammation, abscess formation, or even rupture of the cysticerci as in our case. Therefore, early diagnosis and treatment are essential to prevent such complications.

CONCLUSION

While cysticercosis is a rare condition, it is essential to consider this infectious etiology in patients presenting with subcutaneous swelling, especially in developing countries. Clinicians should remain vigilant and recognize the mercurial nature of the cyst location, which often contributes to diagnostic errors. Ultrasound, a safe, cost-effective, and widely available imaging tool, proves invaluable for diagnosing subcutaneous cysticercosis, avoiding unnecessary fine needle aspiration cytologies.

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