

## SOLITARY SUBCUTANEOUS CYSTICERCOSIS : A RARE CASE PRESENTATION

### General Surgery

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### ABSTRACT

*Taenia solium*, a parasite, in its larval stage causes Cysticercosis. It can be found throughout the body. We present a case of subcutaneous, solitary, form of cysticercosis in a middle aged lady presenting with a 3\*4 sq cm swelling in antero medial aspect of right arm. Skin fixity and localised hyperpigmentation was noted on clinical examination. She was investigated with ultrasound, MRI and FNAC which suggested the lesion to be a solitary subcutaneous variety of cysticercosis. She was planned for operative intervention and after proper pre anesthetic checkup she was managed by surgical excision of the lesion followed by anti helminthic medication. Post operative follow up was done by ultrasound.

### KEYWORDS

cysticercosis, subcutaneous, swelling, antihelminthic medication.

### BACKGROUND:

Cysticercosis is a parasitic infection caused by *Taenia solium* in its larval stage. It is mainly found in parts of Asia, Africa, Central and South America. It is prevalent in various forms throughout the body. Subcutaneous form is one of the rarely known variety. However, it is imperative for a clinician to know about this variety while evaluating a subcutaneous swelling, which is a very common OPD presentation. Following clinical evaluation, High resolution ultrasound, CT Scan, MRI (Magnetic Resonance Imaging) can be other forms of investigations. In this paper, we aim at presenting a case of Subcutaneous Cysticercosis in anteromedial aspect of arm in a young female patient. We also discuss the investigatory findings and treatment modality offered to the patient.

### CASE REPORT:

A 24 year old female attended General Surgery OPD of Burdwan Medical College & Hospital with a swelling (3\*4sq.cm) in the anteromedial aspect of right arm for last 3months. The swelling was gradually increasing in size for last 1months and painless in nature. On clinical examination the swelling was soft, non tender to touch, no raised temperature, not fixed to underlying bone, but overlying skin was adhered, margins diffuse, localised hyperpigmentation noted (Figure.1). There was no evidence of similar swelling elsewhere in the body. There was no history of fever, seizure disorder, trauma, also no significant prior operative or family history was obtained. Preliminary lab investigations showed raised CRP and leucocytosis. Clinical differentials included an Abscess, Lipoma or Solitary Neurofibroma.



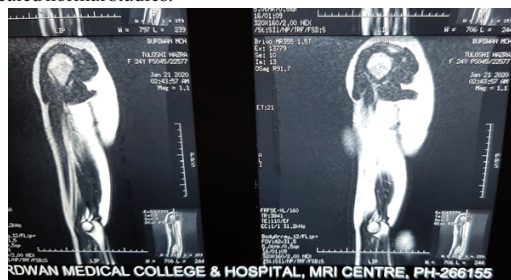
**Figure. 1**

On investigation, High resolution ultrasound showed 'a hypoechoic collection (3\*1.5 sq cm) in the subcutaneous plane in antero medial aspect of right arm. It is well-defined, thin-walled, cystic lesion with an eccentric, echogenic in the subcutaneous plane. On change of the posture of the patient, this focus showed mobility but did not cast any

distal acoustic shadowing. The hypoechoic area surrounding this cyst showed significant exudative fluid collection with diffuse, floating echoes and thin, incomplete internal septations. There were also few (around 2), floating, echogenic foci within this pericystic collection. The adjacent soft tissues were thickened and irregular, suggestive of edema. There was no e/o internal vascularity on color Doppler imaging. Suggestive of subcutaneous cysticercosis with a pericystic abscess.'

MRI of right arm showed a hyperintense (on T2) soft tissue SOL of 2.8\*1.5 sq cm without any bony extension with peripheral rim enhancement (Figure 2).

Magnetic resonance imaging (MRI) evaluation of the brain and plain radiographic evaluation of the upper and lower extremities and the abdomen which were obtained to look for disseminated cysticercosis revealed normal studies.



**Figure 2**

Fine needle aspiration cytology (FNAC) was further performed using a 22-G needle and 10-mL syringe. There were fragments of bluish material with interspersed small nuclei with cyst macrophages. Mixed inflammatory cells comprised of neutrophils, eosinophils, lymphocytes and histiocytes were seen surrounding the material. Suggestive of cysticercosis cellulosa of right arm.

After proper preoperative investigations and preoperative anaesthetic check up, she was planned for Wide Local Excision of the soft tissue lesion (Figure 3). Operation was done under regional anaesthesia and the specimen was sent for histopathological examination



**Figure 3**

HPE revealed cysticercus cellulose parasite in the tissue section with an extensive mixed inflammatory cell infiltrate in the surrounding tissue. A final diagnosis of subcutaneous cysticercosis was made. Post operative recovery was otherwise uneventful and the patient was then administered oral anthelmintic therapy. Repeat ultrasound examination at the end of this management regimen showed complete healing with no e/o any remnant or recurrent cystic lesion, abscess or edema in the subcutaneous plane.

**DISCUSSION:**

Cysticercosis is a parasitic infection caused by the larval stages of the pork tapeworm, *Taenia solium*. The disease is endemic in virtually all developing countries in Central and South America, Asia, and Africa, with the exception of Muslim countries where pork is not consumed. The perpetuation of this parasitic disease is related to poor sanitation and hygiene. Cysticercosis usually occurs as a result of consumption of food or water contaminated by human faeces containing *Taenia solium* eggs. Humans are the only definitive host in the lifecycle of *Taenia solium*. Humans can become infected by consuming gravid proglottids either through feco-oral route or by autoinfection. There is also a high risk of infection by reverse peristalsis resulting in internal regurgitation of the eggs into the stomach when the intestine harbours a gravid worm. The oncospheres penetrate the intestinal mucosa and develop into cysticerci after getting carried to various parts of the body including brain, eyes, striated muscles, liver, heart, lungs, peritoneum, breast and subcutaneous tissues. Ingestion of the undercooked pork containing these cysticerci is the exclusive path to the development of human intestinal *Taenia solium* tapeworms. By means of a single scolex or head, these cysts attach to the small intestine. Adult tapeworms develop and reside in the small intestine for a period varying from months to years. Basically, all the clinical symptoms can be attributed to the vigorous granulomatous inflammatory reaction that occurs when the larvae die.

Subcutaneous Cysticerci is a relatively rare form of cysticercosis and should be kept in mind during the evaluation of subcutaneous swellings. It can be confused with other clinical entities depending upon the location of the swelling like a lipoma, ganglion cyst, sebaceous cyst, dermoid, abscess, pyomyositis, tuberculous lymphadenitis, neuroma, sarcoma, myxoma, neurofibroma or fat necrosis. The clinical features of subcutaneous cysticercosis depend on the location of the cyst, the cyst burden, and the host reaction. It may cause painless or painful subcutaneous nodules. Lymphadenopathy is a rare mode of presentation of cysticercus infestation.

Plain radiographs rarely show cysticerci except in chronic cases when they calcify. Plain radiography in a case of subcutaneous cysticercosis can reveal single or multiple radio-dense foci giving a characteristic rice grain appearance. Radiographs are insensitive in few cases of cysticercosis, where only an irregular cyst with a surrounding edema but no scolex within is seen. Computed tomography (CT) and magnetic resonance imaging (MRI) scans are the other imaging modalities used for evaluating subcutaneous cysticerci. They help in showing the location, number, and relationship of the cysticerci to the surrounding structures. Although CT is sensitive in the visualization of tiny calcific foci, it has an inherent drawback of exposing the patient to ionizing radiation. MRI is a useful imaging adjunct to diagnose soft tissue and subcutaneous cysticercosis. It is a nonionising imaging tool and is more sensitive than CT as it identifies scolex and the cyst. Cysticercosis is seen as a cystic lesion that appears hyperintense on T2-weighted images and hypointense on T1-weighted images. Peripheral rim enhancement of the cyst wall is also known. Intramuscular cysts are oriented in the direction of the muscle fibers. The scolex is also appreciated as a tiny hypointense speck within the hyperintense cyst.

Serological tests for detecting antibodies against cysticercosis are used to confirm the diagnosis. Enzyme-linked immunoblot assay is more sensitive and specific than ELISA (Enzyme linked immune sorbent assay). However, sensitivity of serological tests tends to be high for patients with multiple cysts (94%), but substantially lower for patients with a single cyst or calcified cysts (28%).

The diagnosis of cysticercosis can be confirmed by fine-needle aspiration cytology (FNAC) or biopsy. Treatment of subcutaneous cysticercosis depends on the location of the cysts. Surgical excision is done for isolated soft tissue cysticercosis.

**CONCLUSION:**

Subcutaneous form of cysticercosis is very rare, but it should be kept in mind while evaluating a subcutaneous swelling. Following history and clinical examination, investigations to be performed are HR-USG followed by MRI. Medical management consists of anti helminthic drugs. For isolated subcutaneous lesions, surgical excision can be done followed by anti helminthic drugs and follow up with HR-USG.

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