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Subcutaneous Cysticercosis Mimicking Soft Tissue Neoplasm – A Case Report

Lalawmpuii Pachuau[1], Chawngthu Vanlalhlua[2]
[1]*Senior Pathologist, Department of Pathology, Civil Hospital, Aizawl, Mizoram, India.*
[2]*Associate Professor, Department of Surgery, Zoram Medical College, Mizoram, India.*
Corresponding Author: Dr Chawngthu Vanlalhlua, M.S, FAIS,FMAS,EFIAGES,FIAGES,FDFM

Abstract
Introduction: *Cysticercosis is an infection of both humans and pigs with the larval stages of the Taenia solium. This infection is caused by ingestion of eggs or gravid proglottids shed in the feces of a human tapeworm carrier. The subcutaneous form of the disease is a relatively rare clinical entity.* ***Aim:*** *The aim of this paper is to report a case of Subcutaneous cysticercosis involving the left anterior chest wall mimicking soft tissue neoplasm.* ***Material and Method:*** *This is a case of 35 years old female with complaints of lump in left anterior axillary line associated with itching for the last 5 months. The lump slowly increases in size with mild pain. On clinical examination, the lump was located subcutaneously over left lateral border of pectoralis major and firm to hard in consistency with mild tenderness. No skin change noted. Fine needle aspiration cytology was signed off as suspicious of Histiocytic tumour. Excision of lump was done under local anaesthesia and sent for histopathological examination. Histopathological examination revealed cysticercus cellulose parasite with an extensive mixed inflammatory cell infiltrate in the surrounding tissue. The patient was prescribed oral antihelminthic therapy.* ***Conclusion:*** *Subcutaneous cysticercosis is a relatively rare form of cysticercosis but should always be borne in mind during the evaluation of subcutaneous swellings. In any lumps with a subcutaneous cyst showing central cystic area containing a caseating- like whitetish fluid with covering wall, histopathological examination should always be done to confirm the diagnosis.*

Keywords: *Subcuteneous Cysticercosis, Taenia solium, Histopathological examination*

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I. Introduction

Cysticercosis is an infection of both humans and pigs with the larval stages of the Taenia solium. This infection is caused by ingestion of eggs or gravid proglottids shed in the feces of a human tapeworm carrier[1]. Though it is endemic in virtually all developing countries in Central and South America, Asia, and Africa, the subcutaneous form of the disease is a relatively rare clinical entity. Humans are infected either by ingestion of food contaminated with feces, consumption of infected raw vegetables, contaminated water, consumption of undercooked pork that harbors the larva, autoinfection and regurgitation of gravid proglottids[1,2]. Once eggs are ingested, oncospheres hatch in the small intestine, invade the intestinal wall and migrate to striated muscles, brain, liver and other tissues where they developed into cysticerci[1]. It has a worldwide distribution and is potentially harmful with variable clinical manifestations depending the location. It can be diagnosed on serology and radiology but confirmation is on histopathological examination of the involved tissue biopsy specimen[3].

II. Case Presentation

We presented a case of 35 years old female with complaints of lump in left anterior axillary line associated with itching since January 2020. The lump slowly increases in size and so patient went to a hospital where fine needle aspiration cytology was performed. The report was signed off as suspicious of Histiocytic tumour. On clinical examination, the lump was located subcutaneously over left pectoralis major and firm to hard in consistency with mild tenderness, overlying skin was intact, there was no redness. Further examination showed no other lesion at other sites. Excision of lump was done under local anaesthesia maintaining a strict aseptic measures. Patient was sent home with oral antibiotics and painkiller prescription. The excised lump was firm, greyish white measuring 3x2x4 cm. On serial slicing, cut surface shows central cystic area containing a caseating like whitish fluid. Hematoxylin-eosin stained sections show a cyst wall lined by eosinophilic material that is thrown into folds. Beneath this is myxoid degeneration of cyst wall, occasional eosinophilic spherules was also present. Surrounding stroma shows dense inflammatory infiltrates composed predominantly of foamy histiocytes which could have misguided the cytologist into believing the lesion to be of a benign histiocytic

tumour, the other components are lymphocytes, eosinophils, polymorphs and plasma cells. After the histopathological report came out, patient was prescribed oral antihelminthic therapy.

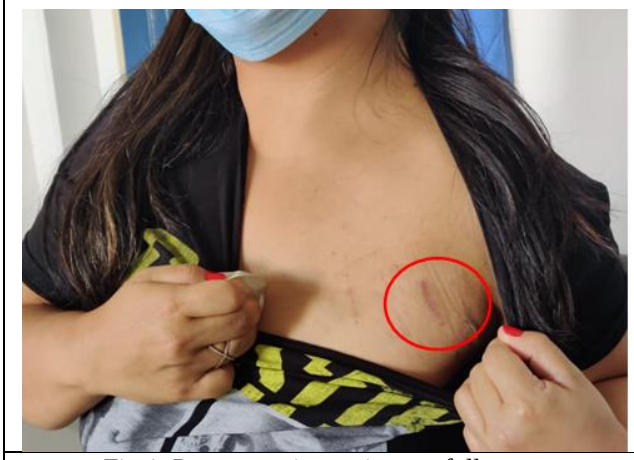

Fig 1: Post operative patient on follow up

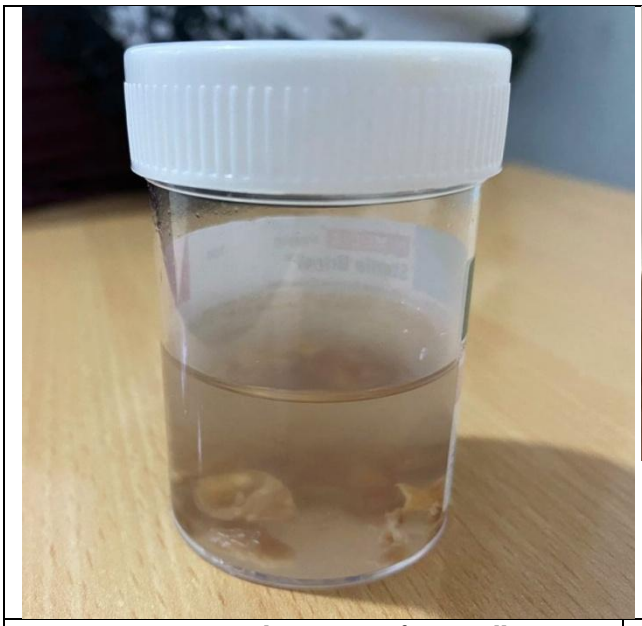

Fig 2: Excised specimen of cyst wall

Fig 3: Excised specimen of cyst wall

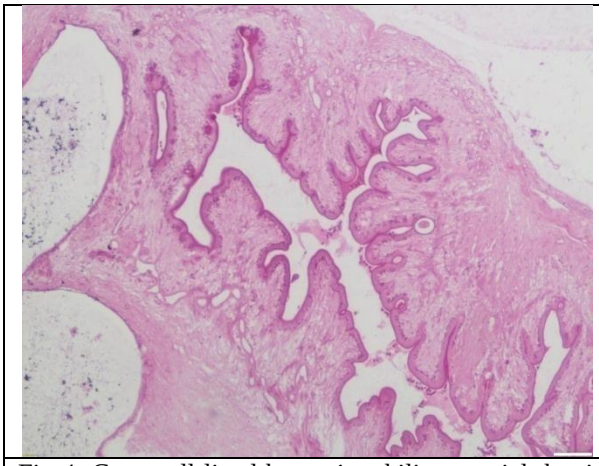

Fig 4: Cyst wall lined by eosinophilic material that is thrown into folds. H&E, x 5

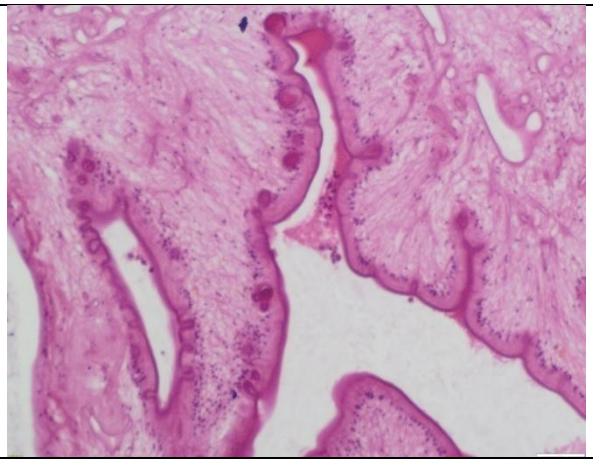

Fig 5: Lining eosinophilic material on high power. H&E, x10

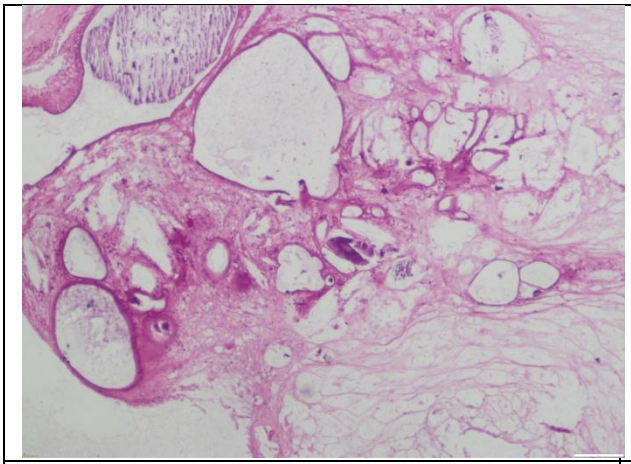

Fig 6: Myxoid degeneration of cyst wall. H&E, 10x

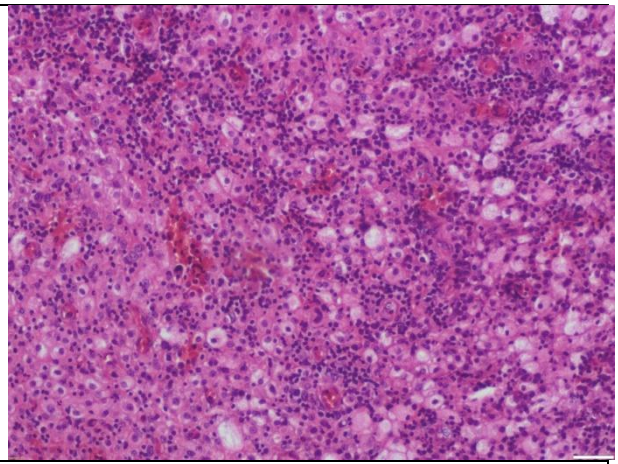

Fig 7: Dense inflammatory infiltrates composed of foamy histiocytes, lymphocytes, plasma cells eosinophils. H&E, 10x

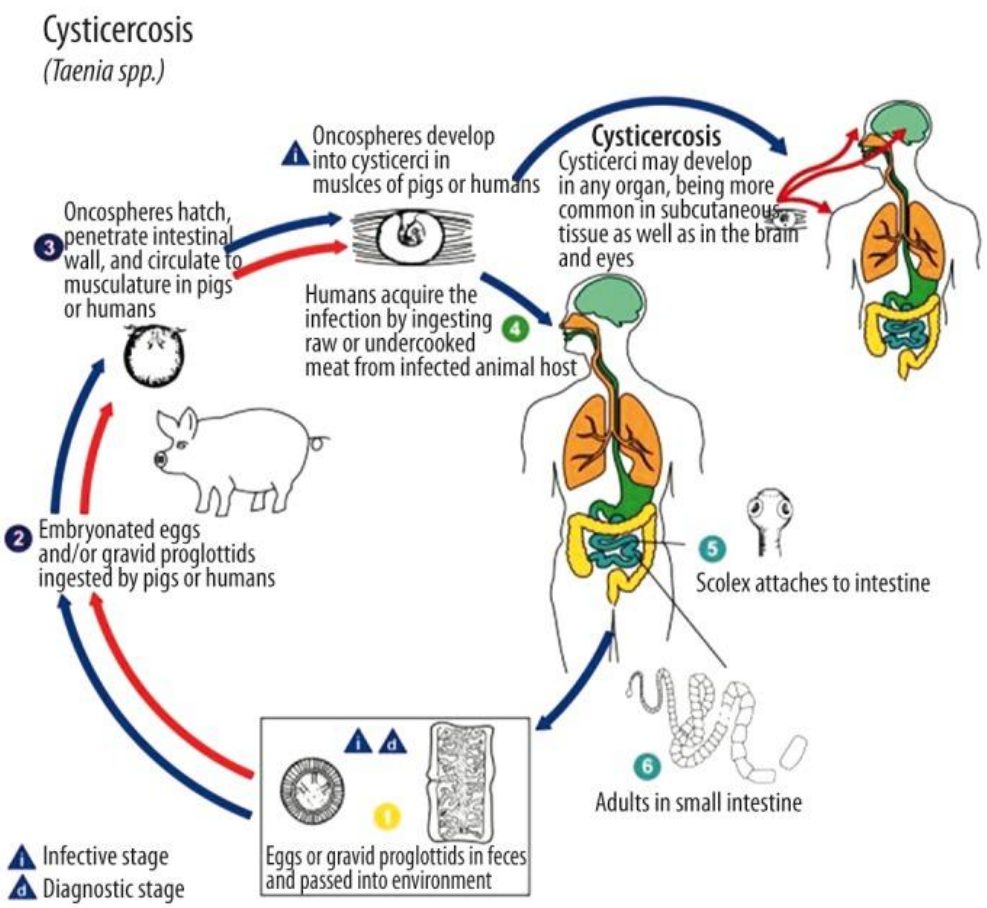

Fig 8: Life cycle of Taenia solium

III. Discussion:

In case of infection with Taenia solium, humans act as both the obligate definitive host and intermediate host. Infections as a definitive hosts rarely cause significant clinical problems. Whereas, infections in humans as intermediate hosts often causes serious clinical sequelae or death[4]. Cysticercosis is a parasitic infection caused by the larval stages of the pork tapeworm, *Taenia solium* [5,6]. Human cysticercosis has a worldwide distribution including Central and Eastern Europe, South America, Africa and tropical countries like India[7]. The perpetuation of this parasitic disease is related to poor sanitation and hygiene[8,9] .

Humans can become infected by consuming gravid proglottids either through feco-oral route or by autoinfection[10,11]. 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[12,13]. 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[14].

Cysticercosis is commonly seen in the brain and eyes, which together constitute 86% of these cases[15,16]. The remainder is mainly located in the muscles, heart, lungs, peritoneum and breast[17,18]. Subcutaneous cysticercosis is a relatively rare form of cysticercosis but should always be born 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[19].

The clinical features of subcutaneous cysticercosis depend on the location of the cyst, the cyst burden, and the host reaction[20,21]. It may cause painless or painful subcutaneous nodules[12]. Lymphadenopathy is a rare

mode of presentation of cysticercus infestation[17]. Lohra S. et al. first documented a case of subcutaneous cysticercosis involving the left anterior chest wall with ultrasound evaluation[22].

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)[23]. 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%)[24].

The diagnosis of cysticercosis can be confirmed by fine-needle aspiration cytology (FNAC) or biopsy, which shows the detached hooklets, scolex, and fragments of the spiral wall of cysticercosis cellulosae[25]. Biopsy and histologic examination containing the cysticerci is the most definitive method of diagnosis[26].

Treatment of subcutaneous cysticercosis depends on the location of the cysts[27]. Surgical excision is done for isolated soft tissue cysticercosis associated with an abscess[28]. Cysts that are not associated with an abscess can be treated with antihelminthic medications such as albendazole or praziquantel[29].

IV. Conclusion:

Subcutaneous cysticercosis is a relatively rare form of cysticercosis but should always be borne in mind during the evaluation of subcutaneous swellings. Human cysticercosis has a worldwide distribution including Central and Eastern Europe, South America, Africa and tropical countries like India. Parasitic infections should be considered in the differential diagnosis of soft tissue lesions, especially in endemic populations. Health education and good sanitary practices helped in preventing transmission of infection. In India February 10th is observed as National Deworming Day which is an initiative of Ministry of Health and Family Welfare, with a mop up day on February 15th. In any lump with a subcutaneous cyst showing central cystic area containing a caseating - like whitetish fluid with covering wall, histopathological examination should always be done to confirm the diagnosis.

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