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Case Report

SOFT TISSUE CYSTICERCOSIS- A RARE MANIFSTATION

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ABSTRACT
Human cysticercosis is a parasitic infestation caused by dissemination of the larval stage of *Taenia solium*. It is common in regions where humans and animals live in close contact, with poor sanitation, and with humans as dead-end hosts when *Taenia solium* eggs are ingested via faecal-oral transmission from a tapeworm host. We describe here a 42- year-old male, cook by occupation who presented with chronic neck mass. Solitary cysticercosis of muscles and soft tissue is rare and can cause a diagnostic dilemma clinically. The diagnosis of subcutaneous Cysticercosis was established on the characteristic histopathology finding following surgical excision of the lesion.

Key Words: *Cysticercus Cellularae, Subcutaneous Cysticercosis, Taenia Solium*

INTRODUCTION
Cutaneous cysticercosis in humans is an uncommon parasitic infestation. *Cysticercus cellularae* are the larval forms of the tapeworm *Taenia solium and* Cysticercosis is encystment of its larval form in various tissues of body.
Taenia solium infection and the resulting symptoms are endemic in Mexico, Central and South America, the Indian subcontinent, sub-Saharan Africa, and China. The adult tapeworms are found in the small intestine of humans, the definitive host, and the larval forms are found in the skeletal muscle of the intermediate host, the pig. Entry of the eggs into the human small intestine may occur through autoinfection or by ingestion or inhalation of egg-contaminated food or water. A human has to replace the pig in the life cycle and the eggs must mature within the human small intestine as they would do in the pig's intestine to develop cysticercosis. Finally these cysticerci spread through the intestinal wall and are carried by the blood stream to muscles, brain and subcutaneous tissues, leading to clinical manifestations (Bhalla, 2008).
Here we report a case of solitary subcutaneous cysticercosis in a 42-year-old male, cook by occupation who presented with a right cervical swelling.

CASES
The patient is a 42-year-old male, cook by occupation, presented in surgery out-patient department with an l cm, subcutaneous nodule in the right side of the neck for last two years. The nodule subsequently became painful and erythematous. There was no increase in size of the swelling. There were no other lesions elsewhere on his body. There was no history of fever, chronic cough, chronic diarrhoea or weight loss. On palpation, the lesion was firm, movable, non-tender and non-pulsatile. Ophthalmologic and neurologic examination was normal.
Laboratory evaluation of his complete blood count revealed eosinophilia (18%) and the Erythrocyte sedimentation rate (ESR) was 49 mm/hour. Routine stool examination did not reveal any parasite infestation. Computed tomography (CT) scans and Magnetic Resonance Imaging (MRI) were not done. A provisional diagnosis of dermoid cyst was made, and an excision biopsy of the nodule was performed and submitted for histopathological examination. Specimen received for histopathological examination was a single, firm cystic nodule, measuring 1 x I cm, the cut surface showed a thick walled cyst, with the small pearly-white nodule attached to cyst wall. Histopathological examination revealed a cystic cavity containing larval form of cysticercus cellulosae with a corrugated chitinous plate (Figures 1, 2). The

fibro-collagenous cyst wall showed an infiltrate of lymphocytes, plasma cells and eosinophils (Figures 3). The special stain Periodic acid Schiff was positive for the larval form of *Cysticercus cellularae*. Enzyme-linked immunosorbent assay (ELISA) test for cysticercal antibodies was negative. The subsequent follow-up care of the patient for one year was uneventful.

DISCUSSION

Cysticercosis is caused by *Cysticercus cellulosae*, the larval stage of *Taenia solium* or pork tapeworm. Man is the definitive host and acquired infection with *T. solium* is by the ingestion of insufficiently cooked pork containing the larvae. The larvae develop into adults in the small intestines. The worm attaches to the wall of the small bowel by a scolex. The pig, which is the intermediate host, acquires the infection by the ingestion of food and or water contaminated with human faeces, which contain the ova or proglottids. When ingested, the gastric juice dissolves the eggshell to release the oncosphere. The oncosphere penetrates the mucosa of the stomach and is carried via the blood to various organs (Quimosing, 1984). Clinical features vary depending on site of larvae invading, larval burden, and host reaction. The symptoms may occur 5 years after infection but may be delayed for as long as 10 to 30 years (Dixon, 1961).

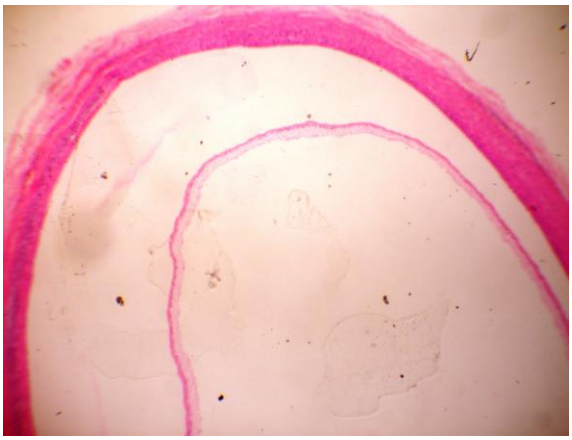

Figure 1: Photomicrograph showing cystic space with cysticercus cellulosae bladder, larval form with chitinous plate (H & E, x40)

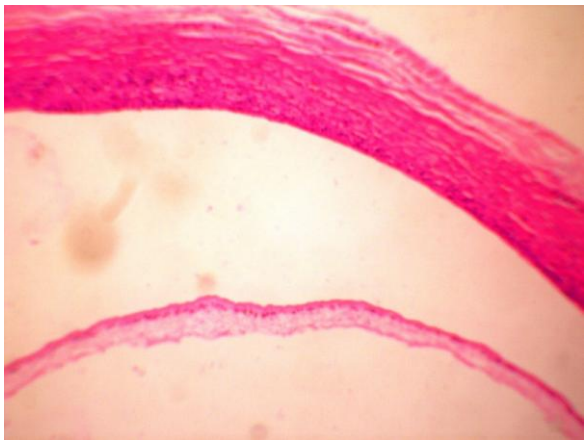

Figure 2: Photomicrograph showing cyst wall with fibrocollagenous tissue and the larval form of cysticercus cellulosae (H & E, x100)

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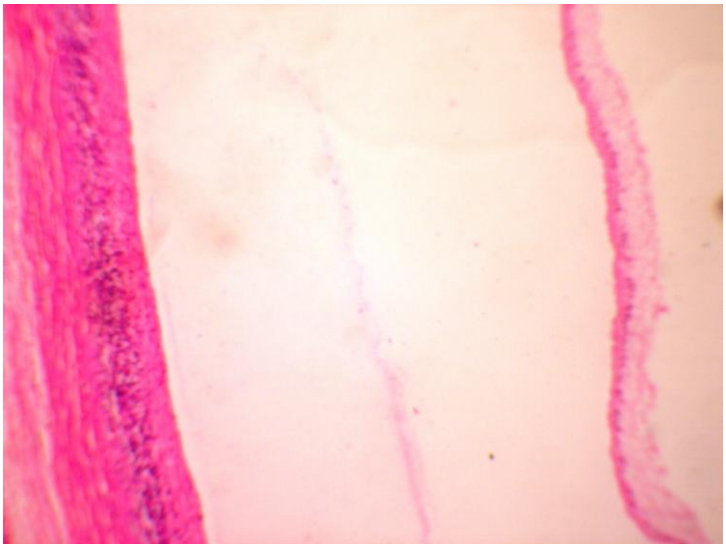

Figure 3: The fibrocollagenous cyst wall showing chronic inflammatory infiltrate and the cysticercus bladder (H & E, x100)

Cysticercus cellularae preferentially encyst in the subcutaneous tissues, in the brain, in striated muscles and in the eyes (Keane, 1982). Involvement of the subcutaneous tissue is generally asymptomatic however, the presence of skin and muscle cysts aids in the diagnosis of systemic cysticercosis (Raimer, 1978). The most serious and (potentially fatal) involvement arises when the organism invades the central nervous system (CNS). Neurocysticercosis is the most common parasitic infection of the brain and a leading cause of epilepsy in the developing world (Devi, 2007).

Computed tomography (CT) scans and Magnetic Resonance lmaging (MRI) are useful in anatomical localization of the cysts (Kumar, 1996). The primary significance for accurate diagnosis of subcutaneous cysticercosis is that it could be a possible indicator of neurocysticercosis. The differential diagnosis for subcutaneous cysticercosis includes: lipoma, neurofibroma, epidermoid cyst, sarcoidosis, scrofula, ganglion cyst, metastatic carcinoma, and lymphadenopathy (Tanaka, 2004).

Definitive diagnosis of subcutaneous cysticercosis requires histological examination of the biopsy sample showing the cysticercus as was established in our case which was provisionally diagnosed as dermoid cyst. The parasite appears as an undulating laminated membranous wall of a cysticercus (the larvae of a tapeworm), with associated marked inflammatory reaction. The cyst is composed of a thick integument and an outer surface covered with microvilli. The scolex may or may not be found in the specimen. Additionally, stool examination for ova and parasites should be performed to assess for a concomitant intestinal parasite infection. It has been reported that sensitivity of serological tests tends to be higher for patients with multiple cysts (94%) than for patients with a single cyst (28%) or calcified cysts (Kumar, 2012).

Pharmacological management with the cysticidal drugs praziquantel and albendazole is recommended for neurocysticercosis and subcutaneous cysticercosis as they help by reducing the parasite burden (Kraft, 2007). Surgical removal is indicated for localized lesions that cause obvious symptoms or for cosmetic reasons. Asymptomatic calcified cysticerci are better left alone.

Cysticercosis is a preventable faeco-oral transmitted infection and it is possible to prevent infection by avoiding undercooked food and pork, and water contaminated with human faeces as well as through health education regarding personal hygiene.

Conclusion

Cysticercosis though common in central nervous system, it can also be seen in the rare sites like the eye, skeletal muscles, and subcutaneous tissue. Physicians must be aware that Cysticercosis should always be

kept as a differential diagnosis in all kinds of subcutaneous swellings while examining subcutaneous nodules and to perform appropriate radiological investigations and biopsy for definitive diagnosis. When solitary or few nodules are present, surgical excision is effective therapy. Education of personal hygiene practices and proper food handling techniques should be performed.

REFERENCES

Ashish Bhalla, **Ashwani Sood**, **Atul Sachdev and Vandna Varma (2008).** Disseminated cysticercosis: a case report and review of the literature. *Journal of Medical Case Reports* **2** 137.

Dixon HBF and Lipscomb FM (1961). Cysticercosis. *British Medical Journal* **1**(5235) 1320.

Estelita M Quimosing, Bernardo Jorge L Conde, Catherine P Ranoa and John H Cross (1984). A Case of Subcutaneous and Cerebral Cysticercosis Treated with Praziquantel. *Philippine Journal of Microbiology and Infectious Diseases* **12**(1) 25-35.

Keane JR (1982). Neuro-ophthalmologic signs and symptoms of cysticercosis. *Archives of Ophthalmology* **100**(9) 1445-8.

Kumar A, Bhagwani DK, Sharma RK, Kavita, Sharma S, Datar S and Das JR (1996). Disseminated cysticercosis. *Indian Pediatrics* **33** 337-339.

Kumar BS and Mohan A (2012). Subcutaneous cysticercosis. *Indian Journal of Medical Research* **136** 102.

Raimer S and Wolf JE (1978). Subcutaneous cysticercosis. *Archives of Dermatology* **114** 107–108.

Robert Kraft MD (2007). Smoky Hill Family Medicine Residency Program, Salina, Kansas. Cysticercosis: An Emerging Parasitic Disease. *American Family Physician* **76**(1) 91-96.

Shanti Devi Th, Bhimo Singh Th, Suraj Singh Th, Biplab Singh N, Jatishwor Singh W, Chingsuingamba Y (2007). A rare case of disseminated cysticercosis. *Neurology Asia* **12** 127-130.

Uthida-Tanaka, Sampio MC and Veho PE *et al.*, (2004). Subcutaneous and cerebral cysticercosis. *Journal of the American Academy of Dermatology* **50**(2 suppl) 14-17.