Disseminated cysticercosis – a rare case report

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ABSTRACT

BACKGROUND: Cysticercosis is a common tropical disease. One of the uncommon manifestations and a rare complication is its disseminated form. Neurocysticercosis is the common parasitic disease of the central nervous system. Human cysticercosis is caused by the dissemination of the embryo of Taenia solium in the intestine via the hepatoportal system to the tissues and organs of the body. The organs most commonly affected are the subcutaneous tissues, skeletal muscles, lungs, brain, eyes, liver, and occasionally the heart, thyroid, and pancreas. Widespread dissemination of the cysticerci can result in the involvement of almost any organ in the body. We report case of a 35 year old male patient presented in out-patient Department of neurology clinic with multiple subcutaneous & intramuscular nodules on trunk & both extremities, seizures & headache. After investigations he was diagnosed as case of disseminated cysticercosis involving brain, subcutaneous tissue and skeletal muscles.

Key words: Cysticercosis, Taenia solium, Seizure

INTRODUCTION

Cysticercosis is an infection with larval stage of tapeworm Taenia solium in human. Cysticercosis is encystment of its larval form Cysticercus cellulosae in various tissues of body. The larva of tapeworm Taenia solium have predilection for skeletal muscle, central nervous system, subcutaneous tissue and eye.

Taenia solium infection is endemic in Central and South America, the Indian subcontinent, sub-Saharan Africa, Mexico and China. Humans acquire cysticercosis by the feco-oral contamination with Taenia solium eggs from tape worm carriers. Disseminated cysticercosis is an uncommon manifestation of this common disease. Widespread dissemination of cysticerci throughout the human body was reported by Krishna swami about a century back in 1912. Widespread dissemination of the cysticerci can result in the involvement of almost any organ in the body. The main features of Disseminated cysticercosis include intractable epilepsy, dementia, and enlargement of the muscles, subcutaneous and lingual nodules, and a relative absence of focal neurological signs or obvious raised intracranial pressure, at least until late in the disease. Muscular pseudohypertrophy, a rare presentation, is caused by heavy infection of the skeletal muscles, which gives the patient a ‘Herculean appearance’. Fewer than 50 cases of disseminated cysticercosis have been reported worldwide, the majority being from India. As cysticerci can be found anywhere in the body, their location and size determine the clinical presentation. Here we report a case of Disseminated cysticercosis with diffuse involvement of the subcutaneous tissues, skeletal muscles, and brain.

A 35-year-old male patient presented in neurology out-patient department with multiple subcutaneous & intramuscular nodules on trunk and both extremities for last three years. Patient also had history of seizures and headache for the last 6-8 years. Swellings were insidious in onset, gradually increasing in size and not associated with pain.
There was no history of chronic cough and fever.
Examination revealed multiple subcutaneous and intramuscular nodules ranging from 1x1cm to 1.5x2cm, which were non-tender and movable. Nodules were firm in nature. General and systemic examination was within normal limits except CT scan of brain showed multiple diffuse intracranial calcifications throughout the brain parenchyma with a starry-sky appearance.
A provisional diagnosis of subcutaneous cysticercosis and neurocysticercosis was made. An excision biopsy of subcutaneous cysts was performed and sent for histopathological examination in the department of pathology.

**Pathological Examination Gross:**
Specimen received for histopathological examination were two cystic gray-white soft tissue pieces, one measuring 1.5x1cm & other measuring 1x1cm. External surface of both were gray-white smooth. On cut section both showed unilocular thick walled cyst filled with clear translucent fluid and a solid area representing scolex (figure 1).

**Figure: 1 Cut section of thin walled subcutaneous cyst containing watery fluid and a tiny white area in the center.**

**Microscopy:**
Histopathological examination revealed tortuous body of larval form with a corrugated chitinous wall and diagnosed as cysticercus cellulosae, Taenia solium larva (figure 2 & 3).

**Figure: 2 Microphotograph of Cyst wall with fibrocollegenous tissue and the larval form of cysticercous cellulosae (H & E10 xand 4x Zoom).**

**DISCUSSION**
Cysticercosis is caused by Cysticercus cellulosae, the larval stage of Taenia solium or pork tape worm. Ingested eggs pass into the bloodstream, disseminate into various organs, and form cysts, which characterize cysticercosis.4,5 Widespread dissemination of cysticerci throughout the human body was reported as early as 1912, by British Army medical officers stationed in India.3 The organs most commonly affected are the brain, subcutaneous tissues, skeletal muscles, lungs, eyes, liver, and occasionally the heart. Widespread dissemination of the cysticerci can result in the involvement of almost any organ in the body. The clinical features depend upon the location of cysts, cyst burden, and a host reaction.2 The symptoms may occur 5 years after infection but may be delayed for as long as 10 to 30 years.6 The main features of disseminated cysticercosis include intractable
epilepsy, dementia, enlargement of muscles, subcutaneous and intramuscular nodules and a relative absence of focal neurological signs or obviously raised intracranial pressure, at least until late in the disease. Clinical presentations of our patient were headache, generalized tonic-clonic seizure, multiple subcutaneous and intramuscular nodules. Bandyopadhyay et al,7 have described a case of cysticercosis with marked pseudohypertrophy of the calf and shoulder muscles. Diagnosis of cysticercosis involving muscles is difficult clinically. Cysts that reside in the muscles are difficult to palpate, as they are often deep-seated; and numerous cysts lying side by side, intramuscularly, impart a smooth, shiny, and tense appearance to the muscles.

In the series of 33 patients reported by Arora et al,(1990) 27 patients with multiple cysts and nodules had involvement of brain like as in this case.[8]

Computed tomography (CT) scans and Magnetic Resonance Imaging (MRI) are useful in anatomical localization, size and number of the cysts. CT being more sensitive than MRI in detecting small calcifications. However, MRI is more sensitive than CT as it identifies scolex and the cyst. CT image appears like a honeycomb or leopard spots.2 CT scan of the brain showing multiple scattered lesions of cysticercosis throughout the brain parenchyma, with some shows eccentric calcification (figure 5 & 6). The presence of a scolex in a cystic lesion usually suggests the diagnosis of cysticercosis.9

**Figure: 5 & 6 Brain CT scan- Non-contrast CT scan reveals cyst with hyperence dot in the brain parenchyma**

Definitive diagnosis of cysticercosis requires histological examination of the biopsy sample showing the cysticercus as was established in our case. The parasite appears as an undulating laminated membranous wall of a cysticercus (the larvae of a tapeworm), with associated marked inflammatory reaction.

Pharmacological management with the cysticidal drugs praziquantel and albendazole is recommended for neurocysticercosis and subcutaneous cysticercosis.10 Antiparasitic therapy in combination with corticosteroids and anticonvulsants should be given to reduce the inflammation surrounding the cyst and lower the risk of seizures.11 Surgical removal is indicated for localized lesions. Asymptomatic calcified cysticerci are better left alone.

**CONCLUSION**

Cysticercosis though common in central nervous system, it can also be seen in the rare sites like eye, skeletal muscles, and subcutaneous tissue. Physicians must be examine all kinds of subcutaneous swellings and perform appropriate radiological investigations and biopsy for definitive diagnosis. Cysticercosis is preventable faeco-oral transmitted infection and 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 and proper food handling techniques should be performed.

**REFERENCES**

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