Subcutaneous nodules preceding convulsions due to neural cysticercosis

Sir,

Cysticercosis is the most common parasitic infestation of the central nervous system, muscle and subcutaneous tissue,[1] caused by tissue-invading larval forms of the pork tapeworm, *Taenia solium*.[2] The ova of the pork tapeworm are spread via the fecal-oral route. The ingested ova develop into larvae (cysticerci) and lodge in soft tissues, especially the skin, muscle, and the brain. Cysticerci are fluid-filled oval cysts, approximately 1–2 cm in diameter, with an internal scolex. The eggs are found in human feces because humans are the only definitive hosts. The most commonly affected age group is that of 5–9 years and there is no gender predilection. Central nervous system involvement is seen in 60–90% of patients with cysticercosis while 50–70% have epilepsy. However, association of neural and subcutaneous cysticercosis is not common.

A five year-old female child presented with low-grade fever since the past five months and multiple swellings all over the body since two months. She also had pica since two months. There were no other complaints. There was no history of known contact with tuberculosis patients, or of measles or whooping cough in the past.

On examination, the patient was found to be febrile (100°F) and pale. Multiple rounded, firm, non-tender subcutaneous nodules of varying size (0.5–1 cm) were present on the scalp, back, abdomen and limbs [Figure 1]. Two submucosal nodules were present on the left buccal mucosa. Systemic examination was within normal limits; fundus was normal.

In the Pediatric ward, the patient was given oral antimalarials and antipyretics for fever. On the 4th day, she developed three episodes of seizures-the first episode was an unprovoked, left-sided seizure lasting for two minutes. She developed two more episodes of generalized, tonic-clonic seizure after 30 minutes. Parenteral phenytoin was started and maintained; there was no postictal neurological deficit.

Her hemogram was unremarkable except for a raised absolute eosinophil count (405/mm^3) and raised erythrocyte sedimentation rate (105 mm at one hour). The Mantoux test was negative and the antistreptolysin titre, C-reactive protein, antinuclear antibody and rheumatoid factor were all insignificant or absent. Serum cholesterol levels, renal and liver function tests were all normal. Urine and stool examinations were normal and a perianal swab revealed no

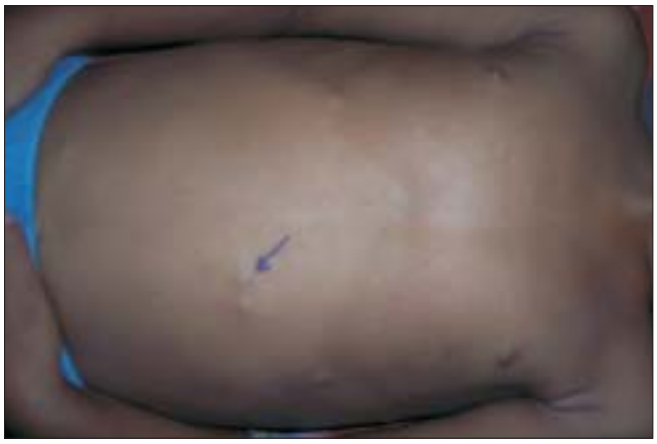

Figure 1: Subcutaneous nodules on trunk

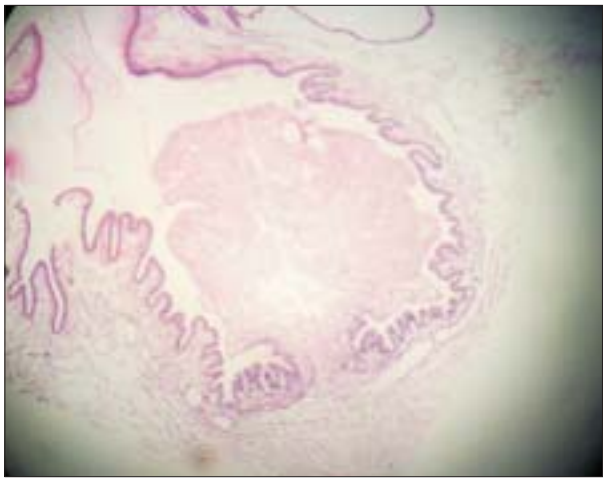

Figure 2: Histopathplogy showing cysticercosis larvae

organisms. Chest X-ray, ultrasonography of the abdomen, and 2D-echocardiograph were normal. X-rays of the limbs revealed no soft tissue calcifications. Cerebrospinal fluid analysis was normal.

A computed tomography scan of the brain revealed multiple granulomas and vesicular stage of neurocysticercosis (NCC).[3] Excision biopsy of a subcutaneous nodule showed cysticerci (larval stage of *T. solium*) [Figure 2].

This confirmed the diagnosis of neurocysticercosis with cysticercosis cellulosae cutis. The patient was started on oral albendazole (10 mg/kg/day)[4] and phenytoin (5 mg/kg/day). Oral prednisolone (1 mg/kg/day) was given for 15 days in a tapering regime. The patient was discharged after 15 days and advised to complete a 28 days' course of albendazole.[4] On follow-up after two weeks, the patient was found to be afebrile and the subcutaneous nodules had reduced in size and number. The patient continued phenytoin (5 mg/kg/day) for three months.

Tapeworm infestation is common in developing countries where crowding and poor sanitary conditions allow many opportunities for fecal contamination of food and water. Cysticercosis is the most common parasitic disease of the central nervous system worldwide, but cysticercosis cutis has been reported much less frequently. Cutaneous parasitism by larval cestodes can take the form of subcutaneous nodules,[1] generating a clinical differential diagnosis of infundibular cyst, lipoma, neurofibroma, reactive lymph nodes, granular cell tumor as well as malignant tumors. Patients usually have multiple subcutaneous nodules, as in our case. These are firm, mobile, and sometimes painful, occurring mainly on the trunk and extremities. Cutaneous cysticercosis can be a clinically indolent disease or can be associated with visceral and central nervous system involvement, as in this case.

The prerequisite of successful treatment with anti-helminthics is early diagnosis. Histopathological examination of excised nodules is the most definitive way of diagnosis, excluding other entities. Treatment options include surgery, praziquantel (3.5 g/day), and albendazole[4] (1 g/day). In this case, we have given albendazole[4] and phenytoin, along with prednisolone, which was highly effective at the dosages used, resulting in progressive regression of the lesions without any side effects.

Thus, cysticercosis should be considered in cases of subcutaneous nodules occurring in individuals in or from endemic areas; even without signs of central nervous involvement.

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