Case Reports

Disseminated Cysticercosis

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Disseminated cysticercosis (DCC) is an uncommon manifestation of a common disease. Only 22 cases have been reported worldwide and all but 4 were from India; 4 of these cases were reported in children(l). We report a patient with diffuse involvement of the central nervous system and muscles with cysticerci.

Case Report

An 11-year-old boy, resident of Haryana was brought to the Hindu Rao Hospital, Delhi with complaints of generalized increase in muscle mass of 8 months duration, abnormal mentation and diminution of vision of 4 months duration. The patient had the look of a muscle man ('Veritable Hercules') *(Fig. 1).* There was bilateral proptosis. A subconjunctival cyst 5 mm in diameter was visible on the lateral aspect of the palpebral conjunctiva of right lower lid. There was symmetrical generalized hypertrophy of limbs, trunk, neck and face muscles. Muscles were non-tender and the overlying skin could be easily pinched. There was no myotonia. The patient was conscious though disoriented with an incoherent and slurred speech. All the cranial nerves were normal. The muscle tone was normal and the power 3/5 in all muscle groups. Deep tendon reflexes were diminished. Superficial reflexes were present and plantars showed a flexor response. Fundus examination showed bilateral papilledema with secondary optic atrophy.

Investigation revealed the hemoglobin level of 8.5 g/dl, white blood cells 11,400/ cu mm with 69% polymorphs, 19% lymphocytes and 12% eosinophils. The erythrocyte sedimentation rate was 25 mm in the first hour. The blood level of creatine phosphokinase was 131 IU/1 (normal less than 130 IU/1). Liver function tests, X-rays of the skull and soft tissues, electro-cardiogram, echocardiography and CSF examination were normal. Ultrasonographic examination of the abdomen was also normal.

Contrast enhanced CT head showed multiple punctate enhancing lesions in the supra and infratentorial compartments *(Fig.*. 2). CT of muscles showed multiple cysts in paraspinal, abdominal wall and in leg muscles giving a "honey comb" effect. Magnetic resonance imaging revealed entire brain parenchyma to be full of multiple cysticerci in various stages of evolution.

Muscle biopsy was taken from the gastrocnemius muscle under localT anesthesia. Cysts poured out as soon as the skin was incised. Histopathological examination showed *Cysticercosis cellulosae* with variable amount of local mononuclear infiltration. Blood and CSF ELISA were positive for cysticercosis. Stool examination was normal and blood ELISA negative for cysticercosis in family contacts.

A final diagnosis of DCC was made

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Received for publication: February 24,1995; Accepted: June 7,1995

Fig. 1. Bilateral proptosis and muscle hypertrophy involving neck, trunk, shoulder, arm, thigh and calf muscles

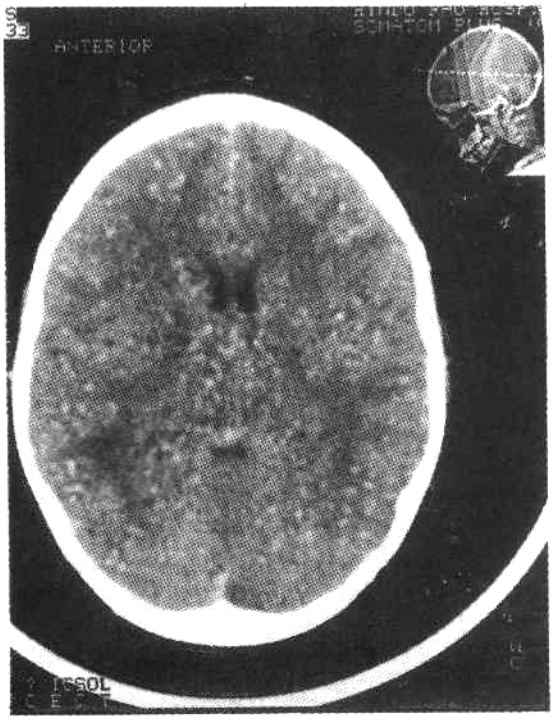

Fig. 2. CT head showing "starry night effect" due to cysticercosis.

and child treated with parenteral dexamethasone (for 7 days) and albendazole in a dose of 15 mg/kg/day for 30 days. During treatment the child showed deterioration in sensorium and recurrent left sided convulsions which were treated with intravenous mannitol and dilantin.

The patient was discharged after approximately 6 weeks of hospital stay. The muscle bulk markedly reduced and the subconjunctival cyst disappeared. There was some improvement in activity but the mentation was almost the same. There was evidence of left upper limb monoparesis. A repeat CT scan of the ehad taken 3 months after completion of treatment showed marked reduction in the number of cysts *(Fig. 3).*

Discussion

The syndrome of DCC is characterized by pseudomuscular hypertrophy (100%), palpable subcutaneous nodules (87%), seizures (78%) and abnormal mentation (65%)(1). There is diffuse symmetrical painful or painless enlargement of all group of muscles associated with weakness and easy fatiguability. The blood creatine phosphokinase level may be normal or raised and electromyography may show a myopathic pattern(2).

CT scan and magnetic resonance imaging are useful in anatomical localisation of the cysts and documenting the natural history. MRI is more sensitive than CT as it identifies scolex and live

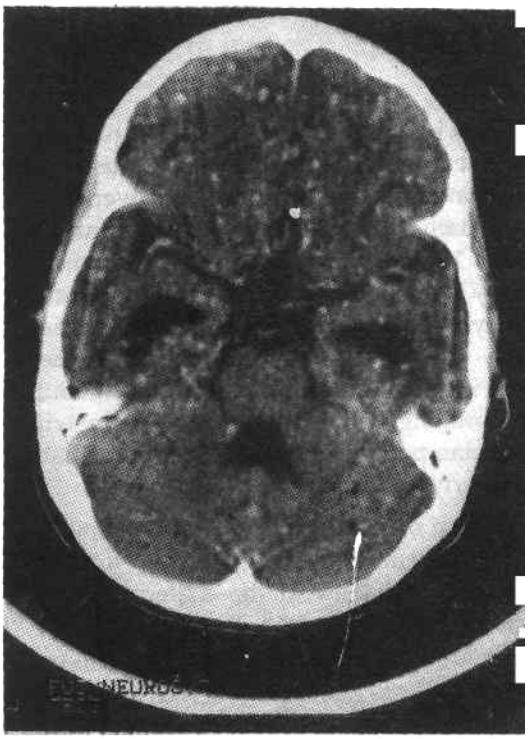

Fig. 3. Follow-up CT head showing marked reduction in number of cysts.

and live cysts, cysts in cistemal space and ventricles and the response to therapy(3). Serological tests for detecting antibodies against cysticercosis are used to confirm the diagnosis. Enzyme linked immunotransfer blot is more sensitive and specific than ELISA(4).

Management of DCC is symptomatic (antiepileptics and steroids), surgical (removal of cysts and ventriculoperitoneal shunt) and cysticidal. The role of treatment with albendazole (15 mg/kg/day for 30 days) or praziquantel (10-15 mg/kg/day for 6-21 days) is controversial. These drugs hasten the death of the cysts which may occur even in the absence of such treatment. Neurocysticercosis is a serious disease with potentially life threatening complications. Patient with active cysts remain at risk of serious complications. It is therefore recommended that all patients with multiple cysts should receive treatment with cysticidal drugs(5). Following treatment cysticidal syndrome characterised by features of raised intracranial tension may occur in 50% cases. Efficacy of treatment should be monitored by repeat CT after 3 months. All the 3 patients reported by Wadia, *et al.(l),* who received praziquantel, died.

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