Isolated and silent spinal neurocysticercosis associated with pseudotumor cerebri

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Incidence of spinal neurocysticercosis (NCC) is rare. Isolated spinal NCC is still rarer. We present here a case report where a young lady presented with all the clinical features of pseudotumor cerebri (PTC), where medical treatment for PTC failed and the presence of cysticercous in spinal canal was detected only on the operation table, while doing a lumbo-peritoneal shunt (LP shunt) to save her vision. Diagnosis could be confirmed only after the histopathology report was received. She did not have any direct evidence of spinal involvement, thereby eluding correct diagnosis. In English literature, we could not find any report of isolated and silent spinal NCC associated with PTC. In addition, we could not find any report of recovery of cysticercous larva through the Touhey’s needle injury, although this was an incidental finding. In endemic areas, isolated spinal NCC should be suspected in patients presenting with PTC.

Key words: Isolated, neurocysticercosis, pseudotumor cerebri, silent, spinal

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Pseudotumor cerebri (PTC) is characterized by features of raised intracranial pressure, papilledema, normal imaging of brain and normal composition of cerebrospinal fluid (CSF). Therapy of PTC is directed towards its etiology, when it is known. While diffuse involvement of brain parenchyma by neurocysticercosis (NCC) may give rise to features of PTC, requiring LP shunt, for relief, isolated spinal NCC is not known to be associated with it. We report, for the first time, a case of PTC associated with isolated spinal NCC. Incidentally, the cysticercous larva was also recovered through the Touhey’s needle injury, which is also being reported for the first time.

Case Report

A 35-year-old married lady was referred to us for headache and progressive blurring of vision since 6 months. Most of the time, her headache was accompanied by vomiting. Her menstrual cycle was normal. Her height was 150 cm and weight 71 kg. Her pulse was 80/min, blood pressure 140/90 mm of Hg. Her pupils were equal and reacting to light; visual acuity was finger counting in both eyes with secondary optic atrophy. Rest of the nervous system and all other systems were clinically normal. Her hemogram, biochemical parameters and thyroid profile were within normal range. Magnetic resonance imaging (MRI) of her brain done earlier and contrast enhanced computerized tomographic (CT) scan of brain done on admission were also normal. Opening pressure of CSF, during lumbar puncture, was 300 mm of water and it was clear; CSF sugar was 50 mg/dl, protein 32 mg/dl and cell count 1; culture was sterile. She had received acetazolamide and advised surgery 3 months back by our ophthalmologist, which she refused at that time. Perimetry done during her previous visit showed inferior altitudinal and nasal field defect encroaching central fixation in the left eye [Fig. 1] and inferior altitudinal and nasal field defect in the right eye [Fig. 2]. With the diagnosis of PTC with impending blindness, lumbo-peritoneal (LP) shunt was undertaken under general anesthesia. Attempts to put Touhey’s needle initially at L3/L4 interspace and then at L4/L5 interspace resulted in CSF coming out under pressure, with outflow of CSF ended abruptly, for which it was decided to put the shunt into lumbar subarachnoid space under vision by open method. A elongated structure resembling a torn nerve root or filum terminale [Fig. 3] came out at the suction tip, when attempt was being made to dissect the interspinous space. Shunt procedure was completed. We could not ascertain the mother tissue of the 5-cm long specimen [Fig. 3]. The specimen was sent for tissue diagnosis. On the 8th postoperative day histopathology report revealed...
the diagnosis of cysticercosis. She was given albendazole (tablet Zentel® 400 mg, manufactured by SmithKline Beecham Pharmaceuticals) 400 mg twice-a-day to be taken orally for 30 days. The lady was cured of headache immediately after surgery, but her vision, at the end of 1 year, recovered marginally to VA 10/200 in both eyes. MRI of spine done during follow-up was normal.

Discussion

Neurocysticercosis is the commonest parasitic infestation of the central nervous system. Infestation of brain, spinal cord, their meninges, subarachnoid space or eyes by the cystic form of larva of Taenia solium is defined as NCC. Isolated spinal NCC is the infestation of spinal cord or its meninges by larva of Taenia solium in the absence of intracranial involvement. The word ‘silent’ is used here to denote the absence of clinical
features of the involvement of spinal cord or nerves in the presence of spinal NCC.

Spinal cysticercosis is thought to be due to downward migration of larvae from the cerebral to the spinal subarachnoid spaces with possible ventriculoependymal infiltration or hematogenous dissemination.6,7 Incidence of spinal NCC is in-between 0.7 and 3% of all NCC.5,6 But contribution of isolated spinal NCC is only 25% in them.5 Spinal NCC usually presents with back pain, features of neural tissue involvement like motor weakness, sensory deficits or bladder and bowel involvement.5,6 It may also present with features of arachnoiditis like hydrocephalus and findings in CSF.7 Very small cysts in lumbar subarachnoid space can take a long time to produce clinical symptoms due to the copious space available there.5

Definition of PTC includes features of raised intracranial pressure, papilledema, normal imaging of brain parenchyma with normal or small-sized ventricles and normal composition of CSF.1,2

Our patient did not have any sign or symptom related to spinal location of NCC. Diagnosis was made only after histopathology report was received on 8th day after surgery. Since histopathological diagnosis of NCC is an absolute criteria to diagnose the disease, no other tests were performed to confirm it. She was prescribed a course of albendazole to treat other larva, which might be present in the subarachnoid space, because we could not move the patient immediately for MRI scan, which is 500 km away from the hospital. Other immunological tests, although helpful in diagnosis and follow-up of the disease,2,6,7 cannot localize the lesion.2 We hesitated to undertake myelogram or CT myelogram, to know the presence of cysts in spinal canal, as lumbar puncture might damage or block the shunt system. However, MRI scan of the spine which could be taken up after 6 months did not show any evidence of cyst. Obstruction to the CSF flow at arachnoid villi or subarachnoid space is the usual mechanism to give rise to PTC in patients with subarachnoid NCC. Since the spine was scanned long after a course of albendazole, we do not know for certain whether more cysts were present in the spinal canal at the time of presentation.

Patients suffering from NCC can develop symptoms of PTC.1,4 But in such patients the cyst is usually present intracranially, which is detected easily by CT scan or MRI scan of the brain.2 A case of hydrocephalus is reported in a patient of isolated spinal NCC.5 But CSF analysis of that patient was abnormal prompting the author to go for MRI scan of spine which revealed the diagnosis.

But, in our case, we could not prove for sure whether the spinal cysticercus was the cause for PTC, since it was otherwise silent. The association of spinal NCC with features of PTC, in our patient, prompts us to hypothesize that the presence of silent spinal NCC could be the reason for PTC and in the endemic area it should be looked for in patients with clinical features of PTC.

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