Intradural Neurocysticercosis of Lumbar Spine: A Case Report

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Abstract

Study Design Case report.

Objective Cysticercosis (parasitic infection caused by *Taenia solium*) is the most common parasitic infection of the nervous system. However, spinal neurocysticercosis is rare. It can present as an extraspinal or intraspinal lesion, with intramedullary being the rarest location. The symptoms can vary from vague backache and radiculopathy to cauda equine syndrome.

Methods We report a 32-year-old man who presented with neurocysticercosis in the lumbar spine and cauda equine syndrome. He had low backache for 1 month, hesitancy in micturition, and decreased perianal sensation for the previous 2 days. Magnetic resonance imaging revealed an intradural extramedullary lesion extending from L2–S1 that was hyperintense in T2- and hypointense in T1-weighted images.

Results Because the patient presented with cauda equine syndrome, urgent decompressive laminectomy was done from L2–S1, and the thin-walled cysts with clear fluid were removed. Histopathologic examination confirmed neurocysticercosis. The perianal sensation and the bladder control recovered completely.

Conclusion Neurocysticercosis should be considered in the differential diagnosis in patients presenting with a similar picture, and urgent surgical decompression should be attempted to prevent further worsening of the neurologic symptoms.

Keywords
- spinal neurocysticercosis
- *Taenia solium*
- cauda equina syndrome
- laminectomy

Introduction

Cysticercosis (a parasitic infection caused by *Taenia solium* with humans being the intermediate host and pigs being the definite host) is the most common parasitic infection of the nervous system and is the most common cause of acquired epilepsy.[1] It more commonly involves the brain than the spine,[2,3] but there have been case reports of neurocysticercosis of the spine. Its presentation can vary from extraspinal (vertebral) or intraspinal (intradural extramedullary or intramedullary),[4] with intramedullary being the rarest.[5] The symptoms may range from vague pain to cauda equine syndrome. Here, we report a case of 32-year-old man with intradural extramedullary cysticercosis in the lumbar spine presenting as cauda equine syndrome.

Case Report

A 32-year-old man with no medical comorbidities presented with low back pain for the previous 1 month. The continuous, dull, and nonradiating pain was insidious in onset. There was no night pain. He also had hesitancy in micturition and decreased perianal sensation for the previous 2 days. On examination, his motor power was normal. There was reduced perianal sensation. X-ray of the lumbosacral spine was normal. Sagittal T2-weighted magnetic resonance imaging (MRI) showed well-defined hyperintense lesion with similar

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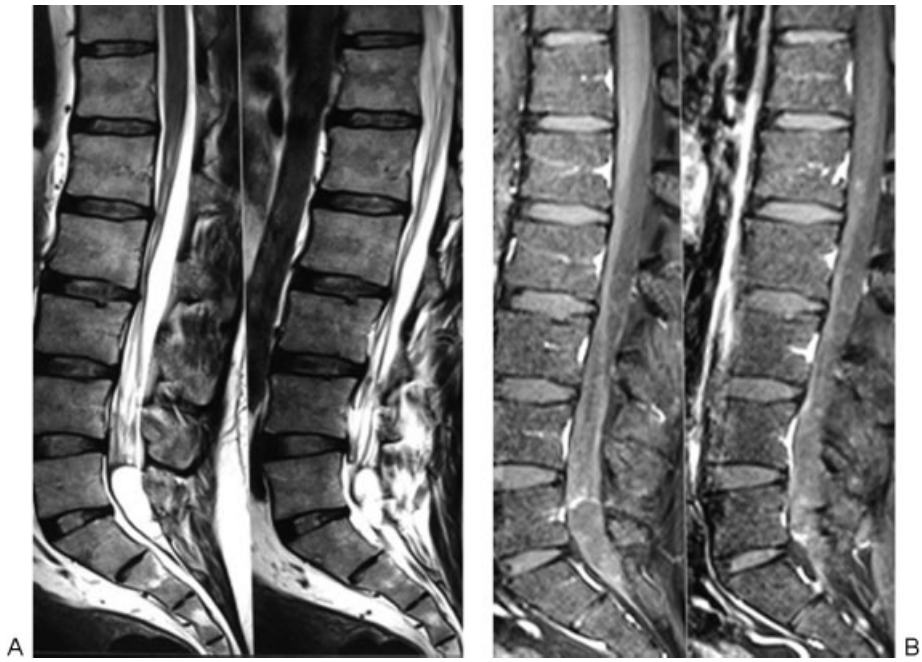

Fig. 1 (A) Sagittal T2-weighted magnetic resonance imaging (MRI) showing well-defined hyperintense lesion with similar intensity to that of cerebrospinal fluid in the L5–S1 region. (B) The lesion appeared hypointense in the T1-weighted MRI.

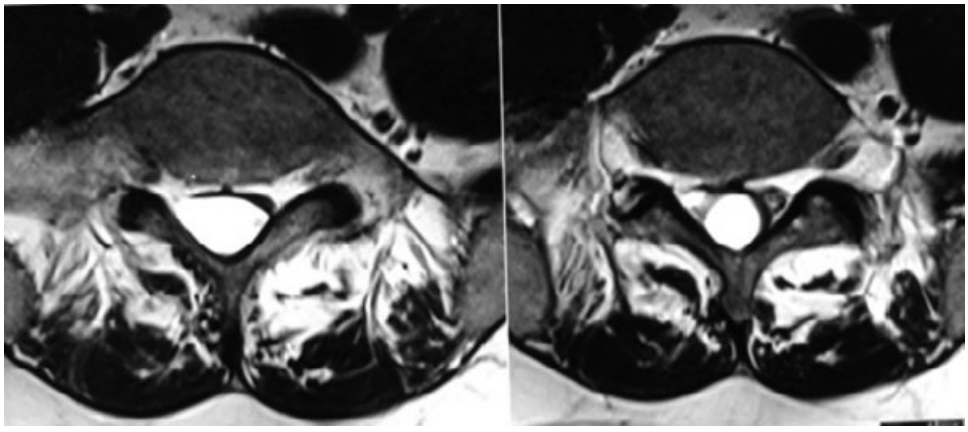

Fig. 2 Axial T2-weighted magnetic resonance imaging showing intradural extramedullary location of the lesion.

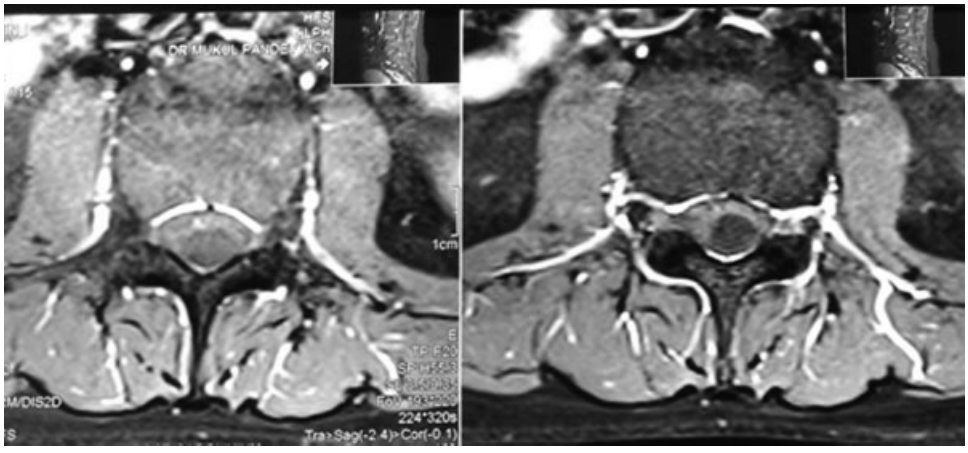

Fig. 3 Axial T1-weighted magnetic resonance imaging showing intradural extramedullary hypointense lesion.

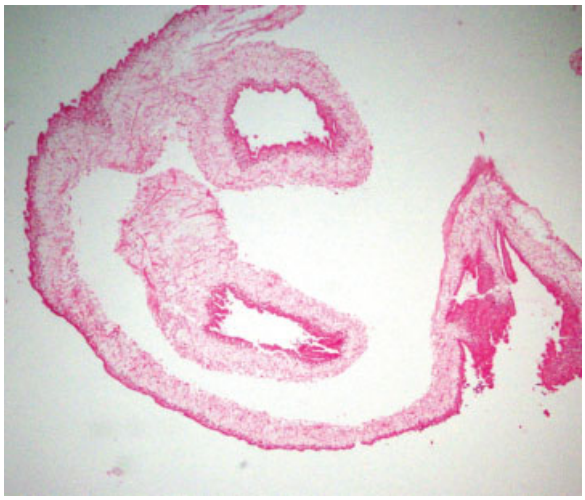

Fig. 4 Biopsy picture showing the cyst with cyst wall.

intensity to that of cerebrospinal fluid (CSF) in the L5–S1 region (►**Fig. 1A**). The lesion was hypointense in the T1-weighted MRI (►**Fig. 1B**). The T2-weighted axial images showed an intradural extramedullary location of the lesion with compression of the thecal sac extending from L2 to S1 (►**Figs. 2**, **3**). Preoperatively, it was diagnosed as an intradural extramedullary lesion, probably a subarachnoid cyst or hydatid disease with cauda equine syndrome, and urgent decompression of the cystic lesion was planned. The patient underwent laminectomy from L2 to S1 at 2 days after presentation. Intraoperatively, multiloculated thin-walled cysts were found with clear fluid communicating with each other extending from L2 to S1, which was removed in toto and sent for histopathologic examination. The biopsy report confirmed cysticercosis (►**Fig. 4**). The patient was discharged with oral albendazole 400 mg twice daily for 15 days. The postoperative period was uneventful. The patient had relief of the perianal sensation on the fifth postoperative day, but the hesitancy in micturition persisted for 3 weeks postoperatively, after which he had complete relief of all his symptoms. MRI screening of whole spine at 5 months postoperatively showed no evidence of the cysts (►**Fig. 5**).

Discussion

Spinal neurocysticercosis is a rare form of cysticercosis, with isolated intradural extramedullary or intramedullary being rarest. The most common location for these cysts is at the thoracic level, although it can present anywhere in the spine. The patient can present varied symptoms ranging from vague pain, radiculopathy, paresthesia, numbness, and weakness of limbs to frank cauda equine syndrome. The symptoms depends on the size, location, and number of cysts and the presence or absence of any inflammation, but symptoms are most often due to the mass effect of these cysts.[5,6] The symptoms can worsen with the presence of inflammation.

Plain radiographs are of less value as sometimes calcifications of the cysts or soft tissues can be seen, which is quite rare. Blood investigations may show raised eosinophilic and white blood cell counts, but not often. Serum inflammatory markers may be high in cases associated with inflammation. MRI aids in diagnosing these lesions, wherein they appear as hyperintense well-defined lesions in T2-weighted images and hypointense in T1-weighted images.[7] Often, neurocysticercosis may mimic other cysts or intradural extramedullary

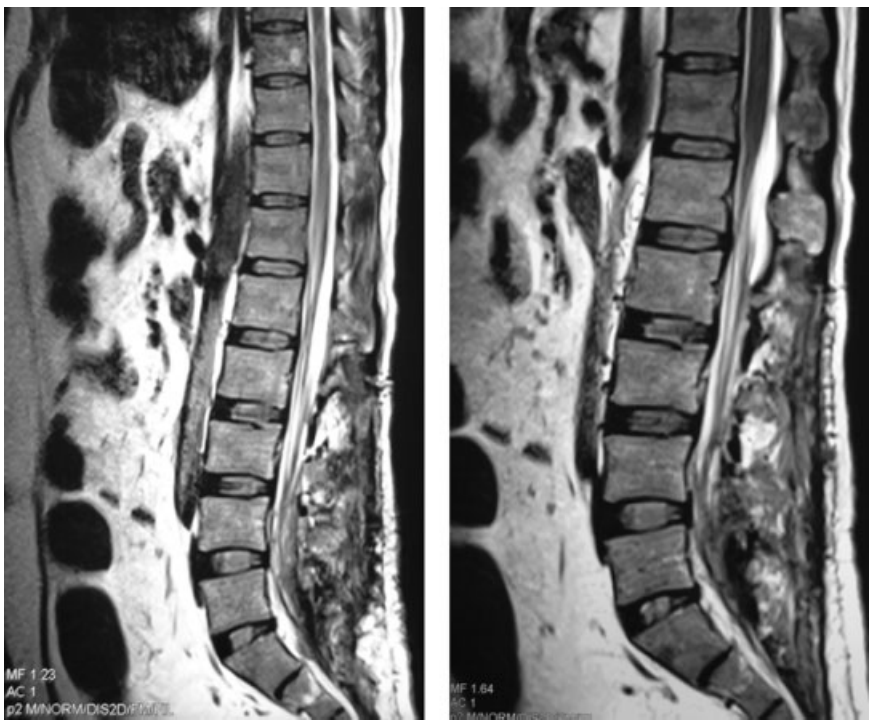

Fig. 5 Sagittal T2-weighted screening magnetic resonance imaging 5 months postoperatively shows no evidence of the cysts.

tumorous conditions. CSF examination may show low or normal glucose levels, increased proteins, lymphocytic pleocytosis, and eosinophilia. Enzyme-linked immunosorbent assay or enzyme-linked immunoelectric transfer bolt assay of CSF or serum may help in the diagnosis.[8]

In our case, because there was no history of neurocysticercosis and the patient was not from an endemic region of cysticercosis, CSF examination was not performed. The patient presented to the emergency room with symptoms of cauda equina syndrome, and decompression of the spine was performed as quickly as possible to prevent further neurologic deterioration. There are no clear guidelines for the medical management of spinal neurocysticercosis due to the rarity of the disease. Mohanty et al reported a 75% rate of satisfactory outcome after surgery and cysticidal treatment.[9] Medical treatment with albendazole is effective in neurologically stable patients. But when the patient presents with symptoms of spinal cord compression due to the mass effect, then surgical excision of the cysts and decompression of the cord in the form of laminectomy and removal of the mass remains the treatment of choice. It should be done as early as possible to prevent irreversible neurologic damage.[10] Because there are no clear guidelines for the combined approach to these patients, we feel that it is better to start anticysticidal drugs, especially albendazole, which has been proved effective in spinal neurocysticercosis. Qi et al have stated in their study that preoperative adjunctive treatment with albendazole can consolidate the lesion and thus induce a clear plane of dissection during surgery.[11]

Conclusion

Though spinal neurocysticercosis is a rare disease, it should be considered in the differential diagnosis in patients presenting with a similar picture. Both medical and surgical treatment play a vital role in the management of this condition, but in cases of neurologic deficit because of the mass effect of the lesion, urgent surgical decompression should be attempted to prevent further worsening of the neurologic condition.

Disclosures
Sudhir Ganesan, none
Shankar Acharya, none
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Rupinder Chahal, none

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