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CASE REPORT

Isolated lumbar intradural extra medullary spinal cysticercosis simulating tarlov cyst

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ABSTRACT

Spinal cysticercosis is a very uncommon manifestation of neurocysticercosis, which is caused by the larvae of *Taenia solium*. Here, we present a rare case of isolated lumbar intradural extramedullary neurocysticercosis, initially thought to be Tarlov cyst. A 40-year-old man, presented with low backache for 1-year with radiation of pain to right leg for 3 months. The patient was treated successfully with the surgical removal of the cyst, followed by medical treatment. Spinal neurocysticercosis should be considered in the differential diagnosis in high-risk populations, with new symptoms suggestive of a spinal mass lesion.

Key words: Cysticercosis, intradural extramedullary, neurocysticercosis, spinal cysticercosis, *Taenia solium*

Introduction

Cysticercosis is the most common parasitic disease of the central nervous system and is caused by cysticercus cellulosae, the metacestode state of *Taenia solium*.[1-3] Spinal involvement of cysticercosis is very rare (incidence = 1-3%).[1,3,4] As per Colli *et al*.[5,6] spinal distribution of cysticerci is as follows: 34% in the cervical; 44.5% in the thoracic; 15.5% in the lumbar and 6% in the sacral region. It is an endemic condition to Brazil, Peru, Mexico, Korea, India, South America, Tropical African, and Southeast Asian countries.[7-9] In this report, we present a rare case of spinal intradural extramedullary cystic lesion at L5 level, which was treated by surgical excision, followed by medical treatment.

Case Report

Presentation

A 40-year-old male suffered from severe low backache for 1-year and pain in right leg for 3 months. Neurological examination showed no motor deficit.

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Imaging

Contrast-enhanced magnetic resonance imaging (MRI) of the lumbar spine revealed well-defined intradural extramedullary cystic lesion, which was isointense on T1-weighted and hypointense on T2-weighted images at the L5-S1 level, with intense contrast enhancement [Figure 1], initially thought to be Tarlov cyst.

Operative procedure

We performed L5 laminectomy. Intraopertively, there was no extradural lesion, on opening dura at L5 level, we performed longitudinal durotomy to identify the intradural extramedullary lesion. At first, we detected moderate, severe adhesion of cauda equina and did not expect anything such as hematoma or cystic lesion. After a more dissection of the cauda equina, a well-capsulated cysts adherent to sacral roots and adjacent dura was noted. After the careful incision of the cystic wall under the microsurgical techniques, clear cystic fluid was gushed out, and it was sucked out by the suction. The grape-like multiple whitish small masses within the cyst were found and removed in a piecemeal fashion. Duroplasty with fascia done and wound closed after copious irrigation with saline.

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Immediately after the operation, the patient showed improvement of his low backache and right leg pain. He was discharged 4 days after surgery. MRI after surgery showed total excision of the cystic mass [Figure 2].

Histopathology

Histopathological examination revealed the presence of larval forms of cysticercus with a fibrous pseusocapsule [Figure 3].

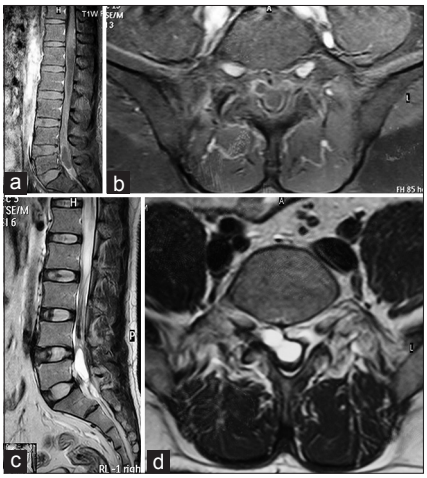

Figure 1: Magnetic resonance imaging of the lumbo-sacral spine. Contrast sagittal and axial T1-weighted images showing one cystic structures with an avid ring of enhancement at L5 level with displacement of the roots peripherally (a and b). T2-weighted images showing hyper intense lesion at L5 level (c and d)

Follow-up

Subsequently, he was treated with albendazole (15 mg/kg/day) for 4 weeks to prevent recurrence. Corticosteroid treatment was also added to reduce the inflammatory reaction during the early postoperative period.

Discussion

Cysticercosis is the most common parasitic infection of the central nervous system and results from direct ingestion of cysticercal eggs contaminated by human or porcine feces. The incidence of the spinal cysticercosis ranges from 1% to 3% compared with intracranial cysticercosis.[3,10] Colli *et al*. suggested the hypothesis of "sieve effect" at the transition level between intracranial and intraspinal subarachnoid space to account for the relatively lower incidence of the spinal cysticercosis.[11]

Spinal cysticercosis can occur in either the subarachnoid space or the spinal cord. Subarachnoid location of the spinal cysticercosis occurs most frequently in approximately 80% of cases.[1,12] There are several routes for disseminating parasite to spinal subarachnoid space. The most reliable route is the cerebrospinal fluid (CSF). It is thought to result from larval migration through the ventricular system into the spinal subarachnoid space.[11] Intramedullary cysticercosis is considered, as a result, from the hematogenous spread, but Paterakis *et al*. suggested that, as well as CSF dissemination, hematogenous migration is also possible in cases of extramedullary cysticercosis.[1,4,11]

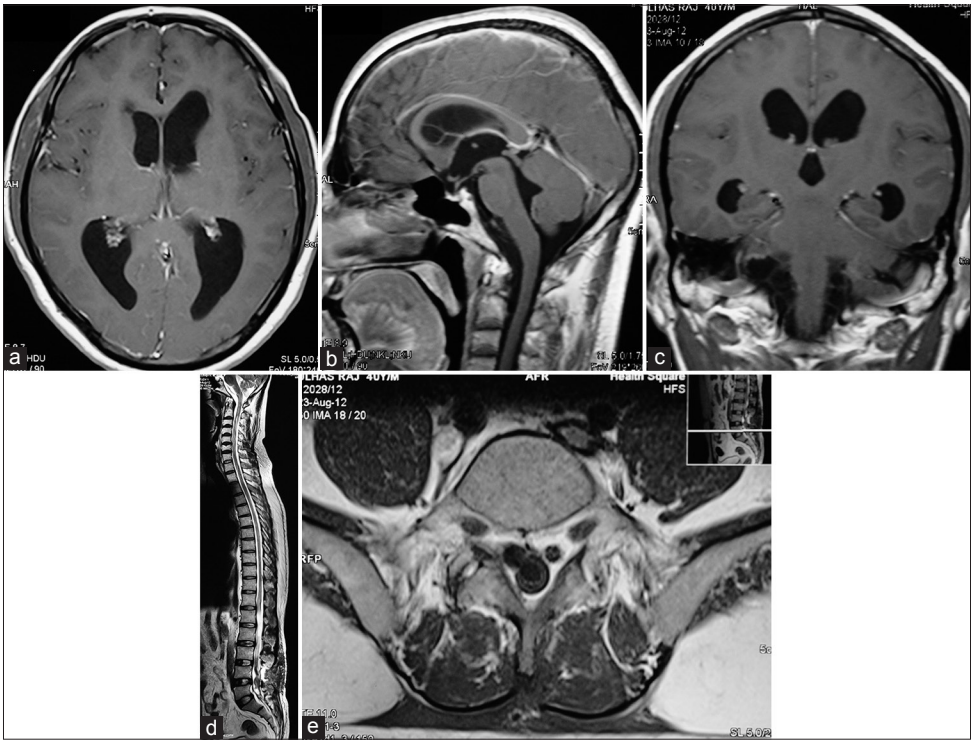

Figure 2: Contrast magnetic resonance imaging of brain showing no intracranial lesion (a-c), Postoperative T2-weighted sagittal image (d) and axial contrast T1-weighted image (e) Complete excision of lesion at L5 level with no evidence of concurrent lesion on screening of whole spine

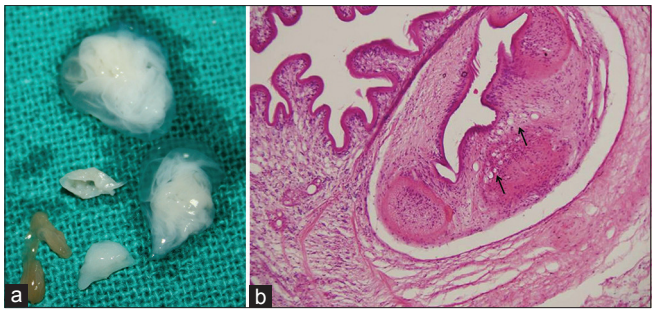

Figure 3: Resected gross specimen, (a) and photomicrograph of hematoxylin and eosin stained section, (b) cysticercus cellulosae with an undulating bladder wall and scolex. Three suckers along with rows of hooklets (arrow) can be identified on the scolex (×200, original magnification)

More detailed evaluations for the spinal cysticercosis are usually necessary before treatment for the following patients:[13] (1) The patient with a history of the intermittent neurologic symptoms including, typical back pain, radicular leg pain with progressive motor weakness; (2) the patients showing inflammatory reaction such as diffuse leptomeningeal enhancement with cystic lesion on MRI; (3) those who came from endemic areas.

According to some authors, nearly 50% of patients who underwent spinal surgery for the spinal cysticercosis have experienced continued, or recurrent symptoms attributed to arachnoidal inflammation.[11,14,15]

MRI is the diagnostic study of choice for evaluating the spinal cysticercosis because it provides noninvasive images of a large area of the spinal cord, cauda equina and any potential intraspinal pathological entity.[9] Because MRI can demonstrate the various pathophysiological stages of the spinal cysticercosis, there are no unique radiological features.[7,8,15] Furthermore, other pathologies, such as arachnoid cysts, dermoid cysts, hydatid cysts, tuberculosis, sarcoidosis and forms of subarachnoid neoplasia, have similar radiologic findings.[2,3] Furthermore, the complete assessments of entire neuraxis are mandatory in cases of the spinal cysticercosis, because solitary lesion is extremely rare. In our case, there was no other lesion on screening whole cranio-spinal axis [Figure 2].

As surgical excision can give a definite diagnosis and alleviate compressive symptoms, majority considered surgery as first-line treatment.[3,11,16] According to the American Society for Microbiology Current Consensus Guidelines for Treatment of Neurocysticercosis,[17] the treatment of the spinal cysticercosis, intra- or extramedullary, is primarily surgical. Hamed and El-Metaal.[18] suggest that surgical treatment of the spinal cysticercosis is appropriate for the exact diagnosis and efficient treatment due to nonavailability of immunologic tests and short mean period of medical observation in the developing country that is an endemic area. Surgical treatment, nevertheless, is not always a guarantee for a good prognosis. In addition, as surgery related high mortality and morbidity rate (15 and 85%, respectively) have been reported, medical treatment with cysticidal drugs may be tried.[2,10] Albendazole and praziquantel are still the most commonly used cysticidal drugs that are able to destroy most of the spinal and intracranial parasites. However, very high doses of albendazole for viable cyst may increase the inflammatory reaction around the cysticerci during its degeneration, and could result in neurological worsening.[11] Simultaneous administration of steroid is necessary for prevention of neurological deterioration due to inflammatory reaction.

Conclusion

Spinal cysticercosis is extremely rare and it is very difficult to make accurate diagnosis only by observing the neurologic symptoms or radiologic findings. Spinal neurocysticercosis should be considered in the differential diagnosis in high-risk populations with radicular pain without motor deficit with spinal cystic lesion in endemic area.

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Conflicts of interest

There are no conflicts of interest.

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