Cysticercosis is an infection by the larval stage of the pork tapeworm *Taenia solium*. After ingestion by humans dissemination of the larvae occurs through the hepatoportal system following penetration into the intestinal wall. The larvae subsequently lodge in skeletal muscle, subcutaneous tissues, brain, spinal cord, eyes, and heart muscle. Primary vertebral body cysticercosis is extremely rare, with only 3 previous reports in the indexed literature.

**Case Report**

**History and Presentation.** This 40-year-old woman presented with sensory loss below the xiphisternum, progressive lower-limb weakness of 2 months' duration, and urinary incontinence during the preceding 3 weeks. Neurological examination revealed hypertonia and Medical Research Council Grade 0/5 strength in the lower limbs and a graded sensory loss below the T-6 dermatome. An MRI scan of the thoracic spine showed a vertebral lesion at the T-5 level. The lesion was predominantly hypointense on T1- and T2-weighted images and demonstrated a few hyperintense areas with minimal contrast enhancement (Fig. 1). The soft-tissue component of the lesion extended into the spinal canal, causing cord compression. A few thin septations were noted in the intracanalicular portion of the lesion. A CT scan of the thoracic spine also demonstrated the lytic nature of the lesion; trabeculae and a sclerotic rim were seen on the anterior aspect. The posterior elements were intact (Fig. 2). A CT scan of the abdomen, brain, and chest did not reveal any other lesions.

**Operation and Postoperative Course.** The T-5 vertebral body lesion was approached via a right anterolateral thoracotomy through the fifth intercostal space. The lesion was extrapleural and had not invaded the rib. A relatively avascular soft-tissue component, consisting of some white fibrous tissue with a few small cysts, was seen protruding into the spinal canal and caused cord compression (Fig. 3A). The fibrous tissue and cysts were not adherent to the dura, and none of the cysts had any intradural extension. The fibrous tissue, which had replaced the vertebral body, was seen to break at places on manipulation with biopsy forceps. This precluded en bloc resection of the lesion. Care was taken to deliver the cysts unruptured, using biopsy forceps. The destroyed vertebral endplates were curetted and drilled with a thin bur until bleeding from normal bone was encountered. After total excision of the lesion, anterior stabilization at the T-5 level was performed with the SynMesh system (DePuy Synthes). Further instrumentation could not be performed through an anterolateral approach in view of the high-thoracic location of the lesion and a relatively osteopenic spine. Therefore, we performed a posterior

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**Key Words**
- cysticercosis
- magnetic resonance imaging
- spine
- vertebral body
- infection

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This article contains some figures that are displayed in color online but in black-and-white in the print edition.
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T3–7 fusion with Repofix Hartshill rectangle (GESCO) and iliac crest graft. There was no reactive chest effusion in the postoperative period; CSF analysis was not performed either preoperatively or intraoperatively.

Pathological Examination. The cortex of the thinned-out vertebral body was found to contain white cysts of various sizes, the largest measuring 2 cm. Histopathology revealed cysticercus cellulosae cysts (Fig. 3B). The patient was discharged on albendazole (15 mg/kg/day for 3 weeks) and was mobilized with a thoracolumbar brace, which she was advised to wear for 3 months. A CT scan of the thoracic spine obtained at the 6-month follow-up visit revealed adequate neural decompression and good fusion of the spinal canal (Fig. 4 upper). Her motor strength had improved to Grade 4/5 in the lower limbs, and she was ambulant without support. The bladder dysfunction persisted. At the last postoperative review, which was performed at the outreach telemedicine center of our institute in her home state 1 year later, her motor power and bladder dysfunction remained unchanged. A chest radiograph performed at this follow-up showed no evidence of destruction in the adjacent vertebral bodies (Fig. 4 lower). Because the patient is poor, she declined repeat MRI evaluation in her hometown or travel to our institute.

Discussion

Humans act as intermediate hosts when eggs of *T. solium* are ingested, which can subsequently give rise to cysticercosis. Central nervous system cysticercosis is classified into the following types according to location: parenchymal, subarachnoid, intraventricular, and spinal. The spinal type has a reported frequency of 1.6%–13%, with most reports describing lesions of the intradural compartment.

Spinal neurocysticercosis is classified into an extraspinal type, which occurs in the vertebral body, and an intraspinal type, which occurs in the epidural, subarachnoid, or intramedullary compartments. Of the 3 previously reported cases, the first involved the lamina and pedicle of the cervical spine, the second demonstrated involvement of the thoracic spine, and the third involved the lumbar spine together with the psoas muscle. These
cases had postsurgical follow-up ranging from 3 to 5 months. Our report highlights the occurrence of a solitary extradural cysticercosis lesion of the vertebral body without clinical or radiological evidence of involvement of any other organ system.

This patient presented with thoracic compressive myelopathy due to destruction of the T-5 vertebral body and also due to cord compression caused by the mass of cysticercal cysts and reactionary granulomatous tissue. At surgery, the vertebral body was found to be replaced by avascular white tissue that was flaky and contained cysts of various sizes (Fig. 3A). The completely extradural lesion was seen to compress the dural sac and its contents from outside. It involved the intervertebral disc space above and below the T-5 body and had thinned out the lower part of T-4. There was no extension of the lesion into the paraspinous muscle. Anaphylactic reactions have not been reported with decompression of cysticercal lesions; therefore, no special antispillage precautions were undertaken intraoperatively.

Albendazole is used (at a dose of 15 mg/kg/day for 3–4 weeks) in the treatment of systemic and disseminated cysticercosis. The advantage of albendazole over praziquantel (in a dose of 50 mg/kg/day for 15–20 days) is that the former has better CSF penetration, allowing superior destruction of subarachnoid and intraventricular cysts. Besides, albendazole can be coadministered with corticosteroids for antiinflammatory effect. Methotrexate can be used as a steroid-sparing agent in patients who develop side effects from steroids or require them for an extended period. Immunological tests were not performed in our patient preoperatively due to a low clinicoradiological suspicion of cysticercosis and the need for emergent neural decompression.

It is surprising to note that reported cases of primary bone cysticercosis are much fewer than reports of subarachnoid or intramedullary cases. We hypothesize that this finding may be related to the fact that adult bone is comparatively less vascular than neural tissue, choroid plexus, or skeletal muscle.

A differential diagnosis of vertebral body parasitosis should be entertained in cases of atypical radiological findings, which include the absence of contrast en-
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hancement on Gd-enhanced images and the presence of cystic areas within the lesion, which are not suggestive of hemorrhage. Radioisotope scans that show increased uptake are indicative of active disease. Given the relative avascularity of the lesion, total excision of the lesion along with instrumented spinal stabilization should be attempted to decompress neural structures.

Disclosure

The authors report no conflict of interest concerning the materials or methods used in this study or the findings specified in this paper.

Author contributions to the study and manuscript preparation include the following. Conception and design: Furtado. Acquisition of data: all authors. Analysis and interpretation of data: Furtado. Drafting the article: all authors. Critically revising the article: all authors. Reviewed submitted version of manuscript: all authors. Approved the final version of the manuscript on behalf of all authors: Furtado. Administrative/technical/material support: Rao.

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