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Case report

Tuberculosis – 'The great masquerader' presenting as a dumb-bell-shaped intradural extramedullary tumor in a 20-year-old female

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ABSTRACT

Tuberculosis has been known as the great masquerader for its varied presentations. We present an extraordinary case of a 20-year-old female who presented with paraparesis of two months. MRI showed an intradural, extramedullary dumb-bell-shaped, spinal cord tumor. With a provisional clinicoradiological diagnosis of benign nerve sheath tumor (schwannoma/neurofibroma), laminectomy was done. But after durotomy, frank pus was drained from the site of lesion and the laboratory investigations of the tissue and pus obtained proved it to be tubercular. This is a rare case reported in the literature where tuberculosis is mimicking as a dumb-bell-shaped, spinal cord tumor.

1. Introduction

Tuberculosis is an ancient disease, which has been seen to involve almost every organ of the body in myriad presentations.[1] It has mimicked various disease pathologies, and hence causing a diagnostic dilemma. In the literature, there are many instances of tuberculosis spine mimicking meningioma; however, an intradural tuberculoma presenting as a dumb-bell-shaped tumor has yet not been described anywhere to the best of our knowledge.[2,3] Here, we are presenting an interesting and rare example of how intraspinal tuberculosis with classical picture of intradural, extramedullary spinal cord tumor and causes paraplegia.

2. Case report

A 20-year-old female presented with complaints of insidious onset gradually leading to progressive weakness of both lower limbs along with decreased sensations below the waist for over the past two months. There was no associated history of back pain, deformity in the spine, fever, loss of body weight/appetite, and bladder or bowel complaints. She did not give any history of trauma, any urological procedures, recent vaccination, or any history suggestive of a recent viral infection. The general and systemic examination was within normal limit. There was no tenderness or deformity in spine. On neurological examination, higher mental functions and upper limbs were normal. On the other hand, there was clasp-knife spasticity in lower limbs with bilateral ankle clonus. Muscle power of lower limbs was grossly 2/5. Superficial abdominal reflexes were absent in lower abdominal quadrants and Babinski's sign was present bilaterally. The Beevor's sign was also present. Sensory examination revealed more than 80% subjective sensory loss below L1 dermatome with loss of bladder and bowel sensation. A provisional diagnosis of compressive myelopathy at vertebral level of D7 and spinal level of D10 was made. Hematolgical investigations were essentially normal. Plain radiographs of spine were normal. MRI scans showed an ill-defined, dumb-bell-shaped homogenous T1 iso- to hypointense and T2 iso- to hyperintense, intradural, extramedullary soft tissue lesion at the level of D7-D8 vertebral body causing anterolateral displacement of cord (Figs. 1 and 2). A provisional, clinic radiological diagnosis of nerve sheath tumor was made and the patient was planned for surgical decompression. Because of progressive neurological deterioration with loss of bladder and bowel control, the patient required absolute surgical decompression.

A T-shaped incision was made centering over D9 spinous process; posterior approach was used; and after laminectomy at D9 and D10 vertebrae, the dural surface was found to be thickened and irregular, and there was a 0.5 cm × 0.5 cm raw surface. On slitting the dura, CSF was not reached. Hence, further, the laminae

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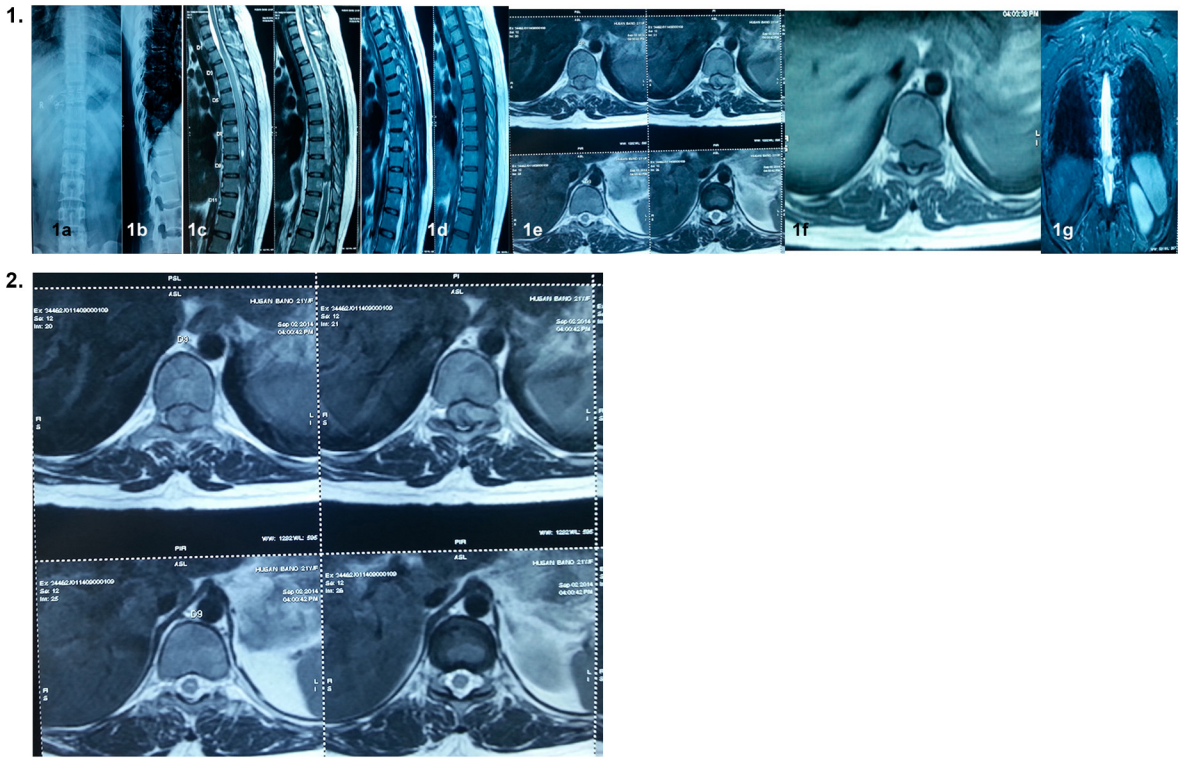

Figs. 1 and 2. Seemingly normal plain radiograph; MRI scans showing an ill-defined dumb-bell-shaped lesion on axial section hypointense on T1 and isointense or hyperintense on T2-weighted images, and lesion is extramedullary.

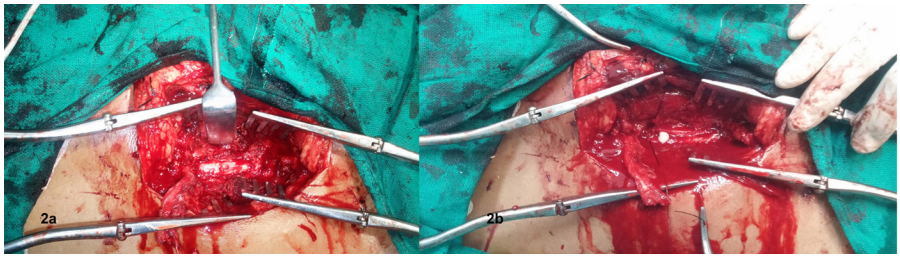

Fig. 3. The surgical exposure of spine with the thick pus evacuated after incising the dura.

were cleared using high-speed oscillating burr. On further slitting the dura, a bead of pus came out (Fig. 3). This was immediately sent for G. stain, AFB stain, TB PCR, culture, and sensitivity. There was associated granulation tissue surrounding the pus, which was removed to decompress the cord, and this was sent for frozen section biopsy. Dural repair with 4-0 nylon continuous suture was done.

The results showed acid-fast bacilli on smear and granulomas consistent with the diagnosis of tuberculosis (Figs. 4 and 5). The patient was started on antitubercular therapy, now consisting of 4 drugs (Rifampicin, Isoniazid, Pyrazinamide, and Ethambutol). She was given intensive-phase therapy for 3 months and continuation phase of the therapy for 9 months (Rifampicin and Isoniazid). There was complete neurological recovery 6 months post-surgery. The chemotherapy was stopped 12 months back and there are no clinicoradiological signs suggestive of recrudescence of disease.

3. Discussion

Dumb-bell-shaped tumors, in the context of spinal cord tumors, are those that grow from the spinal canal through the intervertebral foramen, with the latter producing narrow waist, giving its characteristic shape. Ozawa et al. studied the incidence of dumb-bell-shaped tumor in 674 cases of spinal cord tumors. The incidence of dumb-bell-shaped tumors was 18% (n = 118), of which 81 (68.64%) were schwannomas.[1] They are usually neurogenic, with benign nerve sheath tumors (schwannoma/neurofibroma) being the most common lesion.

Granulomatous lesions of the spine presenting as spinal tumor syndrome are variously called extradural tuberculoma, extradural extraosseous granuloma, intradural extramedullary tuberculosis, spinal arachnoiditis, and chronic adhesive arachnoiditis. Because all of these present as compressive myelopathy (spinal tumor syndrome) without obvious radiological lesions, it has been suggested that they be classified together as intraspinal tubercular granuloma.[2] In particular, an intradural, extramedullary tuberculoma is extremely rare. Till 2010, only 30 case reports have been found in the literature.[3–10]

In this case, the radiologist reported the dumb-bell-shaped tumor widening the neural foramina on left side as a nerve sheath tumor (schwannoma/neurofibroma). Till date, many reports of patients previously having suffered from tubercular meningitis followed by tuberculoma (extradural/intradural)

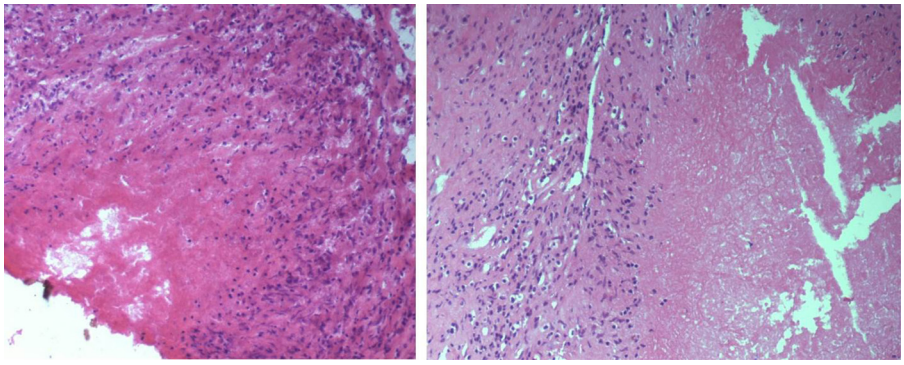

Fig. 4. Histopathological examination of the resected tissue showed multiple epithelioid cell granuloma with central caseous necrosis suggestive of tuberculosis.

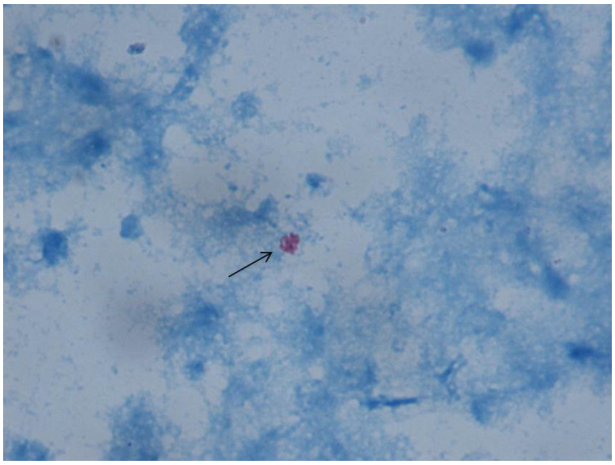

Fig. 5. Ziehl–Neelsen (ZN) staining of the aspirate was performed and demonstrated acid-fast bacilli, which confirmed tubercular etiology.

leading to paraparesis have been described. But, presentation of tuberculosis as a dumb-bell-shaped tumor has yet not been described or reported in the literature till date, to the best of our knowledge.

Thus, in conclusion, the tuberculosis of spine mimics various pathologies of spine and should be kept in the differential diagnosis of all intradural and extradural pathologies of spine.

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Conflicts of interest

The authors have none to declare.

References

1. Ozawa H, Kokubun S, Aizawa T, Hoshikawa T, Kawahara C. Spinal dumb-bell tumours: an analysis of a series of 118 cases. *J Neurosurg Spine.* 2007;7(6):587–593.
2. Kumar S, Jain AK, Dhammi IK, Aggarwal AN. Treatment of intraspinal tuberculoma. *Clin Orthop Relat Res.* 2007;460(July):62–66.
3. Shim DM, Oh SK, Kim TK, Chae SU. Intradural extramedullary tuberculoma mimicking en plaque meningioma. *Clin Orthop Surg.* 2010;2(December (4)):260–263.
4. Luo L, Pino J. An intradural extramedullary tuberculoma of the spinal cord in a non-HIV-infected patient: case report and review of the literature. *Lung.* 2006;184(3):187–193.
5. Skendros P, Kamaria F, Kontopoulos V, Tsitouridis I, Sidiropoulos L. Intradural, extramedullary tuberculoma of the spinal cord as a complication of tuberculous meningitis. *Infection.* 2003;31(2):115–117.
6. Roca B. Intradural extramedullary tuberculoma of the spinal cord: a review of reported cases. *J Infect.* 2005;50(5):425–431.
7. Kumar R, Kasliwal MK, Srivastava R, Sharma BS. Tuberculoma presenting as an intradural extramedullary lesion. *Pediatr Neurosurg.* 2007;43(6):541–543.
8. Takahashi H, Ito S, Kojima S, Tanno T, Hattori T. Intradural extramedullary tuberculoma of the thoracic spine: paradoxical response to antituberculous therapy. *Intern Med.* 2008;47(8):797–798.
9. Compton JS, Dorsch NW. Intradural extramedullary tuberculoma of the cervical spine: case report. *J Neurosurg.* 1984;60(1):200–203.
10. Muthukumar N, Sureshkumar V. Concurrent syringomyelia and intradural extramedullary tuberculoma as late complications of tuberculous meningitis. *J Clin Neurosci.* 2007;14(12):1225–1230.