infections of the aortic wall and subsequent aortic aneurysm development in pulmonary tuberculosis, we suggest that the same mechanism applies to the pathogenesis of intracranial aneurysms associated with tuberculosis.[7] The possible pathogeneses of tuberculous infection in the aortic wall are septic intimal contact, septic invasion of the vasa vasorum, contiguous arterial infection from an adjacent tuberculous lesion, traumatic inoculation and secondary infection of a pre-existing aneurysm.[10] Direct extension from a contiguous lesion might be applicable in our case, in view of the proximity of the tuberculoma and aneurysms. Nevertheless, simultaneous development of these two pathologies by hematogenous spread from the pulmonary lesion is another possibility.

Regarding the pathophysiology of intracerebral tuberculoma development, despite appropriate therapy for the primary pulmonary lesion, as Nicolls et al.[7] suggested, poor drug penetration into the central nervous system or, alternatively, enhanced cell-mediated immunity are possible mechanisms.

In the present case, we chose direct resection rather than stereotactic biopsy. The rationales for this were: the operation was believed to be safe with the aid of neuronavigation, owing to the lesion's superficial location and small size; seizures were expected to respond to lesionectomy; and there was a possibility of encountering other pathologies that might be cured by resection only, in view of the relatively low incidence of intracerebral tuberculoma even in pulmonary tuberculosis patients.

It was difficult to evaluate the fate of these inflammatory aneurysms using post-operative and follow-up cerebral angiography, probably because of their small size and distal location. However, we were able to establish that no new aneurysms had formed and that there was no enlargement of the secured aneurysm during follow-up angiography.

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Exophytic intramedullary meningioma of the cervical spinal cord

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Abstract

Intramedullary spinal cord neoplasms are relatively uncommon. The most common intramedullary tumors are astrocytomas and ependymomas. Meningiomas can occur as an intradural tumor; however, they are typically in the extramedullary compartment. A 42-year-old male presented with progressive sensory loss in the upper extremities and lower extremity weakness. Pre-operative imaging suggested an intramedullary cervical lesion. To treat the progressive neurological abnormality, surgical resection was planned. At surgery, it was noted that the tumor originated in the cervical spinal cord and extended into the extramedullary region. Histology confirmed the lesion to be a meningioma. This meningioma variant has not previously been described. Spinal meningiomas may occur in locations other than intradural, extramedullary locations, and should be included in the differential diagnosis of intramedullary lesions. Intramedullary meningiomas can be successfully treated with surgery.

Keywords: Cervical; Intramedullary; Meningioma; Spinal cord; Tumor

1. Introduction

Spinal meningiomas have a prevalence of 10% to 38%, with 80% occurring in women.[1–7] Seventy-three percent of spinal meningiomas occur in the thoracic region, whereas only 17% present in the cervical region.[8] Spinal meningiomas can present as intramedullary lesions. This rare variant has only been reported in six patients.[4,9–12] This report reviews the presentation, imaging characteristics, surgical findings and outcome of a patient with an intramedullary meningioma and an extramedullary component. We found no previous report of this variant.

2. Case report

A 42-year-old male presented with a 4-month history of sensory loss in the upper extremities, as well as lower extremity weakness. MRI of the cervical spine demonstrated an enhancing, expansile, intramedullary mass extending from C3 to T2 (Fig. 1). To treat the progressive neurological abnormality, surgical resection was planned.

2.1. Surgical intervention

Laminectomy was performed from C3 to T2. The dura was opened in the midline and an extramedullary mass dorsal to the spinal cord was noted at C5. The mass measured approximately 1.5 × 3.0 cm and was encapsulated (Fig. 2). Frozen section examination of the tumor indicated a preliminary diagnosis of ependymoma. Gross total resection of the lesion was achieved. The patient had undergone an extensive laminectomy, from C2 to T2, with concomitant loss of the posterior tension band. This was combined with compromised muscle support, neurological deficits and neutral spine alignment with loss of the cervical lordosis on plain X-rays, thus, posterior fixation and fusion was performed from C2 to T2 to maintain overall alignment and prevent kyphotic deformity.

2.2. Post-operative course

The post-operative period was uneventful, and the patient's neurological status was unchanged. Final tumor histology was consistent with atypical meningioma (WHO grade 2), with aggressive features (Fig. 3). At 1-year follow-up, the patient had improved and was able to ambulate with only minimal difficulty. Arm and hand function were mildly impaired but also improved.

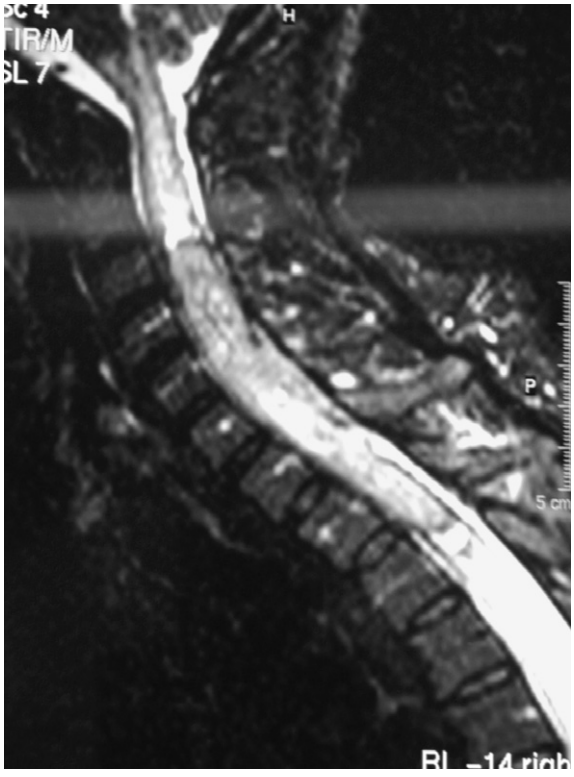

Fig. 1. Sagittal T2-weighted MRI of the cervical spinal cord. Note the marked expansion of the spinal cord from C3 to T2 with a defined intramedullary lesion and cystic caps at the proximal and distal poles of the lesion.