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Isolated intramedullary tuberculoma of the dorsal cord: a rare clinico-radiological entity

Sumeet Bhargava[1], Rajul Rastogi[1*], Gaurav Jindal[1], Amrit Kumar Singh[2], Vaibhav Rastogi[1]

[1]*Yash Diagnostic Center, Yash Hospital and Research Center, Civil Lines, Kanth Road, Moradabad (UP) -244001, India*
[2]*Neuron, Advanced Neurosurgery Center, Moradabod, UP, India*

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ABSTRACT

Tuberculous infection manifesting as an isolated intramedullary tuberculoma of the spinal cord is distinctly unusual. We report a case of a 35 year old woman presenting with an insidious onset of myelopathy, where MRI showed characteristic imaging findings suggestive of intramedullary tuberculosis.

1. Introduction

Isolated intramedullary spinal cord tuberculoma with no other evidence of tuberculosis is extremely rare[1]. We present a case of a 20 year old immunocompetent female with no present or past history of pulmonary/extra-pulmonary tuberculosis showing characteristic MRI findings suggestive of intramedullary tuberculoma.

2. Case report

A 20 year old female presented with a two-month history of progressive bilateral lower limb weakness, and urinary incontinence for past ten days. Physical examination revealed decreased muscle tone and strength of bilateral lower limbs, and exaggerated tendon reflexes. Rest of the systemic examination was unremarkable. Laboratory tests revealed raised erythrocyte sedimentation rate (ESR) and reduced hemoglobin.

An MRI of the dorsolumbar spine revealed fusiform cord enlargement from D_3-D_5 level and associated conglomerate ring-lesions with hypointense centers on T1W images (Figure 1). T2W images revealed ring-lesions with hyperintense center and perilesional edema (Figure 2). Postcontrast scans revealed irregular, enhancing mass formed by apparent conglomeration of multiple ring enhancing lesions within the cord (Figures 3). No other focal lesion was seen elsewhere. Associated leptomeningeal thickening & enhancement was also noted. Radiological examination of thorax and abdomen was unremarkable.

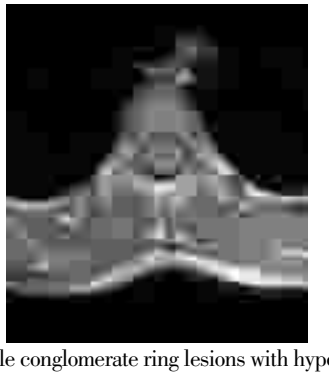

Figure 1. Multiple conglomerate ring lesions with hypointense center.

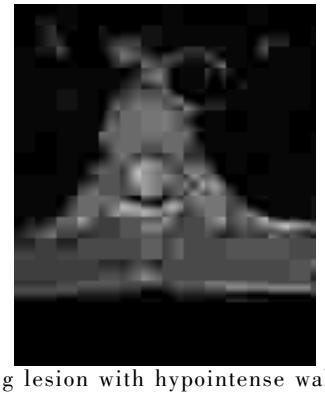

Figure 2. Ring lesion with hypointense walls and central hyperintensity surrounded by edema.

*Corresponding author: Dr. Rajul Rastogi, Yash Hospital and Research Center, Civil Lines, Kanth Road, Moradabad (UP) - 244001, India.
E-mail: eesharastogi@gmail.com

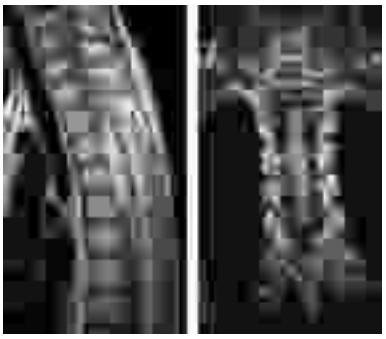

Figure 3. Sagittal and coronal postcontrast T1W images.
They showed irregular, enhancing intramedullary mass lesion that appears to be conglomeration of multiple ring lesions with internal necrosis associated with leptomeningeal thickening & enhancement.

Patient was taken up for surgery. A laminectomy and posterior myelotomy was done and the mass was excised. Histopathology was suggestive of tubercular etiology. She was subsequently started on anti-tubercular chemotherapy. At three months follow-up, she had regained sphincter control, and showed significantly improved strength in bilateral lower limbs.

3. Discussion

Tuberculous (TB) involvement of the spine is common. It usually takes the form of diskitis / osteomyelitis. In a study of 74 cases of tuberculous paraplegia without vertebral body involvement, Dastur found extradural granuloma in 64%, arachnoid lesions in 20%, intramedullary lesions in 8% and intradural extramedullary lesions in 1%[2].

Intramedullary spinal cord tuberculoma were first described in 1840 by Serra. Majority of tuberculoma in central nervous system (CNS) tuberculosis are intracranial, intramedullary lesions being seen in 2 per 4 000 cases of tuberculous CNS disease and in 2 per 100 000 cases of TB elsewhere in the body[3].

Cases of intramedullary tuberculoma have been reported in association with HIV, autoimmune diseases especially systemic lupus erythematosus(SLE), and in patients on immunosuppressive drugs[4,5]. None of these risk factors were however present in our case.

Clinically, patients present with an insidious onset of myelopathy depending on the level of cord involvement. Majority of the cases are reported in relatively young adults, with a female preponderance. Hematogenous spread of bacilli from a tubercular focus elsewhere in the body is believed to be the most common mode of spread of infection to the spinal cord, thoracic cord being most commonly involved[6,7].

MRI is the imaging modality of choice, not just for diagnosis, but also for further management and evaluating treatment response.

Intramedullary tuberculosis on MRI, is characterized by cord swelling, conglomerate, iso to hypointense lesions with central hyperintense foci (representing caseation) on T2WI with adjacent cord edema, iso to hypointense foci on T1WI, which show ring and/or discoid postcontract enhancement, may be single, multiple or conglomerate lesions. Presence of all these characteristic imaging features, even in the absence of past history of tuberculosis along with age and epidemiology, helped us in arriving at the correct diagnosis[7,8]. MR spectroscopy shows presence of prominent lipid peak (not done in our case).

Differential diagnosis includes multiple other causes of spinal cord masses, neoplastic lesions including astrocytoma, ependymoma, hemangioblastoma, lymphoma and metastases, granulomatous lesions (syphilis, pyogenic, mycotic, parasitic), demyelinating diseases like multiple sclerosis, vascular malformations and infarction[7,9]. Majority of the spinal tumors are predominantly solid and show specific characteristic peak on MR spectroscopy while vascular tumors are usually cystic with vascular mural nodules. Metastatic and lymphomatous lesions are usually multifocal and are often secondary to thoracoabdominal involvement. Other granulomatous infectious lesions are more difficult to differentiate but careful history, clinical examination, epidemiology, biochemical tests and radiological appearances help in differential diagnosis.

Treatment with antitubercular chemotherapy alone is associated with residual neurological deficit, hence a combination of microsurgical resection and anti-tubercular therapy is considered to be the optimal treatment for intramedullary tuberculoma[1,10].

Conflict of interest statement

We declare that we have no conflict of interest.

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