Article published online: 2022-09-14

Case Report

Intradural Extramedullary Tuberculoma Masquerading En Plaque Meningioma

Abstract

Extensive en plaque intradural extramedullary tuberculomas can occur as a paradoxical response to chemotherapy for intracranial tuberculomas. We report a case of 31-year-old male who presented with backache and progressive weakness and urgency of micturition. Magnetic resonance imaging dorsolumbar spine which showed an ill-defined T1 hypointense and T2 heterointense lesion noted posterior to the thoracic spinal cord, extending from C7 to D5 vertebral levels suggestive of en plaque meningioma. The patient underwent D1-D5 laminectomy, with subtotal debulking of the tumor. The histopathological examination of lesion was suggestive of granulomatous inflammation with multinucleated and Langhan type giant cells confirming the diagnosis of tuberculoma.

Keywords: *En plaque meningioma, en plaque tuberculoma, paradoxical response introduction tuberculosis*

Manchikanti Venkatesh, Pentyala Suneetha, Veldurti Ananta Kiran Kumar[1], Vissa Santhi[2], Luis Rafael Moscote-Salazar[3], Amit Agrawal[1]

Department of Radiology, Narayana Medical College, Departments of [1]Neurosurgery and [2]Pathology, Narayana Medical College Hospital, Nellore, Andhra Pradesh, India, [3]Neurosurgery-Critical Care, Red Latino, Organización Latinoamericana De Trauma Y Cuidado Neurointensivo, Bogota, Colombia

Address for correspondence:
Dr. Amit Agrawal, Department of Neurosurgery, Narayana Medical College Hospital, Chintharedypalem, Nellore - 524 003, Andhra Pradesh, India. E-mail: dramitagrawal@gmail.com

Introduction

Spinal intradural extramedullary tuberculoma is a rare entity. Nonosseous spinal cord tuberculomas can be in the form of extradural, intradural extramedullary or intramedullary lesions. Intramedullary tuberculomas of the spinal cord are rarely reported and intradural extramedullary tuberculomas are extremely rare.[1,2] Extensive en plaque intradural extramedullary tuberculomas can occur as a paradoxical response to chemotherapy for Intracranial tuberculomas.[3] This article describes an unusual case of an intradural extramedullary tuberculoma of the cervicothoracic spine mimicking an en plaque meningioma in a previously healthy HIV-negative man, without manifestation of pulmonary symptoms.

Case Report

A 31-year-old nondiabetic, nonhypertensive male presented with mid backache from 2 months with progressive weakness of both lower limbs and inability to walk from 1½ month with urgency of micturition and history of fall from steps 2 months ago. Patients' wife had a history of pulmonary tuberculosis and took antitubercular treatment for 6 months. On clinical examination, higher mental functions and cranial nerves were normal with spastic paraplegia of both lower limbs and exaggerated reflexes with bilaterally extensor plantars. Sensory examination revealed a decrease in pain and touch from T2 dermatome. Patient's hemoglobin was 15.4 gms/dl with total leukocyte count of 9600/mm^3 and differential count with a slight predominance of polymorphs 81%. Random blood sugar was 109 mg/dl. Serum creatine and blood urea were 29 and 0.7, respectively. The patient was negative for HIV, hepatitis B surface antigen, and hepatitis C virus. The patient was further evaluated by magnetic resonance imaging (MRI) dorsolumbar spine which showed an ill-defined T1 hypointense and T2 heterointense lesion noted posterior to the thoracic spinal cord, extending from C7 to D5 vertebral levels, with significant enhancement on postcontrast T1 study [Figures 1 and 2]. The lesion appears to be centered in the extramedullary compartment causing compression and anterior displacement of spinal cord with consequent syrinx formation in the cord, extending from C2 to D1 levels superiorly and D6 to D12 levels inferiorly. The enhancement of the lesion was extending inferiorly beyond D5 level, extending up to D9 vertebral level might probably represent dural tail. Although myelogram suggests

How to cite this article: Venkatesh M, Suneetha P, Kumar VA, Santhi V, Moscote-Salazar LR, Agrawal A. Intradural extramedullary tuberculoma masquerading en plaque meningioma. Asian J Neurosurg 2018;13:928-30.

Access this article online

Website: www.asianjns.org

DOI: 10.4103/ajns.AJNS_116_18

Quick Response Code:

intradural location of the lesion, the posterior dura was not well visualized at few levels adjacent to the lesion, associated with obliteration of epidural space. Intensely enhancing lesion posterior to the dorsal spinal cord with suspicion for dural tail suggests the possibility of en plaque meningioma. The patient underwent D1-D5 laminectomy, with subtotal debulking of the tumor. The mass was confirmed to be intradural extramedullary in location, but adherent to and compressing the medulla of the cord. Postoperatively, the patient had improved power in both lower limbs (Grade-4/5), and normal bladder function. Histopathological examination of lesion was suggestive of granulomatous inflammation with multinucleated and Langhan type giant cells confirming the diagnosis of tuberculoma [Figure 3]. The patient is then discharged with antituberculous treatment advised for 18 months.

Discussion

Various presentations of tuberculosis include tuberculous arachnoiditis, nonosseous spinal tuberculoma, and spinal meningitis. Among these, spinal tuberculoma can be intradural, extradural, intramedullary, or extramedullary. Intradural extramedullary tuberculosis is the most rare type and is observed only in 1 out of 50,000 cases of tuberculosis.[4,5] Less than 5% of central nervous system tuberculomas are Intradural spinal tuberculoma and intradural extramedullary tuberculoma of the spinal cord (IETSC) is extremely rare.[3,6] Dastur reviewed 74 cases of spinal tuberculomas and the most common location of lesion location was extradural followed by arachnoidal, intramedullary, and intradural extramedullary[7] and the most common site of IETSC is thoracic spine.[1,8-13]

Pathology

The pathogenesis is unclear and most of the reported cases of IETSC showed a paradoxical response during chemotherapy, ranged from 3 weeks to 1 year[3,8,13,14] The exact mechanism for the paradoxical response is uncertain, however, it is being proposed that this paradoxical response is due to an interaction between the host immune reaction to the mycobacterial products and as the chemotherapy alters the host immunosuppression a paradoxical immune response occurs due to hypersensitivity to the protein derivatives of mycobacteria[3,13,14] This paradoxical response leads to an inflammation in the arachnoid membrane, resulting in the development of tuberculoma. Some cases of en plaque intradural extramedullary tuberculomas were reported.[3,15,16]

A patient with en plaque meningioma can present with thoracic spinal cord and nerve root compression which usually follows an episode of meningitis, while the patient was receiving antitubercular chemotherapy.[3,15] MRI of spine is the investigation of choice and it will demonstrate the lesion as intradural extramedullary long segmental mass mimicking en plaque meningioma.[3,15,17] However,

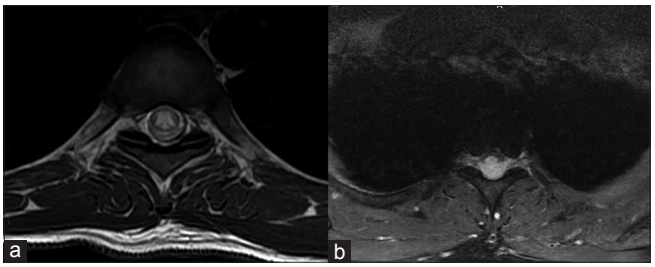

Figure 1: Axial T2 (a) image showing heterogeneous hypointense signal lesion in the posterior extradural space showing intense enhancement on postcontrast T1 image (b)

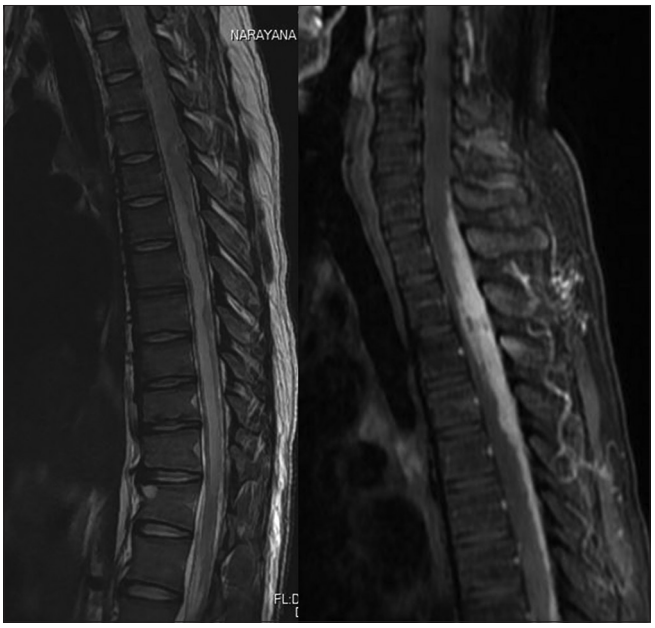

Figure 2: Sagittal T2 (a) image of thoracic spine showing heterogeneous hypointense signal lesion in the posterior epidural space demonstrating intense enhancement spanning from D5 to D9 vertebral levels with syrinx from D6 to D12 vertebral levels

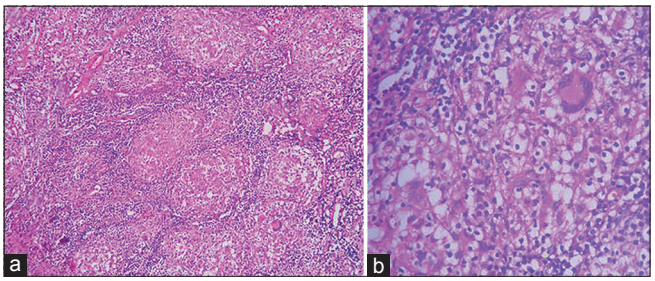

Figure 3: (a) Multiple granulomas with epithelioid cells and occasional Langhan giant cell (H and E, ×100) and (b) granuloma with epithelioid cells and Langhan giant cell surrounded by lymphocytes (H and E, ×400)

the differentiation between tuberculous pachymeningitis and meningioma in the form of plaques as seen in MRI is very difficult without obtaining a histopathological diagnosis.[11,18,19] In patients with IETSC with neurological deficit, surgical treatment and antitubercular chemotherapy give good results with excellent prognosis.[10,12,19,20] Prompt surgical decompression will result in motor power and bladder function improvement.[3,15,21]

Conclusion

Like in our case, en plaque intradural extramedullary tuberculomas are rare lesions, and only few cases are reported in the literature. Intradural extramedullary tuberculomas should be considered in the differential diagnosis of en plaque meningioma as a rare entity.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. Compton JS, Dorsch NW. Intradural extramedullary tuberculoma of the cervical spine. Case report. J Neurosurg 1984;60:200-3.
2. Turgut M. Spinal tuberculosis (Pott's disease): Its clinical presentation, surgical management, and outcome. A survey study on 694 patients. Neurosurg Rev 2001;24:8-13.
3. Muthukumar N, Sureshkumar V. Concurrent syringomyelia and intradural extramedullary tuberculoma as late complications of tuberculous meningitis. J Clin Neurosci 2007;14:1225-30.
4. Muthukumar N, Venkatesh G, Senthilbabu S, Rajbaskar R. Surgery for intramedullary tuberculoma of the spinal cord: Report of 2 cases. Surg Neurol 2006;66:69-74.
5. Newton RW. Tuberculous meningitis. Arch Dis Child 1994;70:364-6.
6. Muthukumar N, Sureshkumar V, Ramesh VG. En plaque intradural extramedullary spinal tuberculoma and concurrent intracranial tuberculomas: Paradoxical response to antituberculous therapy. Case report. J Neurosurg Spine 2007;6:169-73.
7. Dastur HM. Diagnosis and neurosurgical treatment of tuberculous disease of the CNS. Neurosurg Rev 1983;6:111-7.
8. Ozek E, Iplkcioglu AC, Erdal M. Intradural extramedullary tuberculoma mimicking en plaque meningioma. Neurol India 2009;57:211-2.
9. Roca B. Intradural extramedullary tuberculoma of the spinal cord: A review of reported cases. J Infect 2005;50:425-31.
10. 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;184:187-93.
11. Mirzai H. Tuberculoma of the cervical spinal canal mimicking en plaque meningioma. J Spinal Disord Tech 2005;18:197-9.
12. Kumar R, Kasliwal MK, Srivastava R, Sharma BS. Tuberculoma presenting as an intradural extramedullary lesion. Pediatr Neurosurg 2007;43:541-3.
13. 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;47:797-8.
14. Duan J, Mao B. Unusual intradural extramedullary tuberculoma of the spinal cord in childhood. Neurol India 2010;58:738-9.
15. Shim DM, Oh SK, Kim TK, Chae SU. Intradural extramedullary tuberculoma mimicking en plaque meningioma. Clin Orthop Surg 2010;2:260-3.
16. Sohn S, Jin YJ, Kim KJ, Kim HJ. Long-term sequela of intradural extramedullary tuberculoma in the thoracic dorsal spinal cord: Case report and review of the literature. Korean J Spine 2011;8:295-9.
17. Bauer J, Johnson RF, Levy JM, Pojman DV, Ruge JR. Tuberculoma presenting as an en plaque meningioma. Case report. J Neurosurg 1996;85:685-8.
18. Casadevall-Codina T, Pascual-Millán LF, Santos-Lasaosa S, Tejero C, Escalza I, Navas I, *et al.* Tuberculous meningioma en plaque without extracerebral tuberculosis. A case report. Rev Neurol 2001;33:325-8.
19. Skendros P, Kamaria F, Kontopoulos V, Tsitouridis I, Sidiropoulos L. Intradural, eextramedullary tuberculoma of the spinal cord as a complication of tuberculous meningitis. Infection 2003;31:115-7.
20. Jeong DK, Kwon YM. Intradural extramedullary tuberculoma of the spinal cord following tuberculous meningitis. Korean J Spine 2015;12:107-10.
21. Narita M, Ashkin D, Hollender ES, Pitchenik AE. Paradoxical worsening of tuberculosis following antiretroviral therapy in patients with AIDS. Am J Respir Crit Care Med 1998;158:157-61.