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En-Plaque Meningioma Completely Encircling the Cervical Cord: Case Report

Meningioma particularly the intradural subtype is one of the common spinal tumors, which usually occurs as a round to oval broad based lesion. We report an unusual case of en-plaque meningioma in which the lesion completely encircled the cervical spinal cord. En-plaque meningiomas remain a surgical challenge. Although early recognition and combined strategy of surgery and radiosurgery have shown promising results, these lesions can still be associated with poorer prognosis particularly when the lesions are complex in nature and the resources are limited.

Keywords: Meningioma, En-Plaque, Radiosurgery, Spinal Tumor

Introduction

Meningioma, particularly the intradural subtype, is a common spinal tumor and usually occurs as a round to oval broad based lesion.¹ The invasion of the extradural compartment is uncommon in spinal meningiomas accounting for 2.7%–10% of all cases of spinal meningiomas.¹⁻⁷ The en-plaque meningioma with sheet-like growth in the dura-mater is further rarer with only few case reports in the literature.¹⁻⁷ We report an unusual case of en-plaque meningioma in which the lesion completely encircled the cervical spinal cord.

Case Presentation

A 40-year-old man was operated at a peripheral hospital and was diagnosed to have cervical en-plaque meningioma. At that time, he presented with progressive spastic quadriparesis of 6-month duration resulting in inability to walk and to perform his daily activities, loss of bowel control and urinary incontinence of 2-week duration. Surgery was performed and because of complexity of the location and nature, the lesion could not be excised completely. Following partial resection, the patient was admitted for radiotherapy. His neurological status was further deteriorated, including deterioration in hearing and vision. The available post-operative MRI revealed a well enhancing sheet like lesion extending from the C1 to C4 vertebral level, which was isointense to hypointense on T1 weighted and isointense on T2 weighted images, completely encasing and probably strangulating the cervical spinal cord with evidence of hemilaminectomy on the left side (Figs. 1-4).

Discussion

En-plaque (collar or sheet like) meningioma is a flat spreading carpet of tumor seen in the spinal region that tends to grow along the dura mater over

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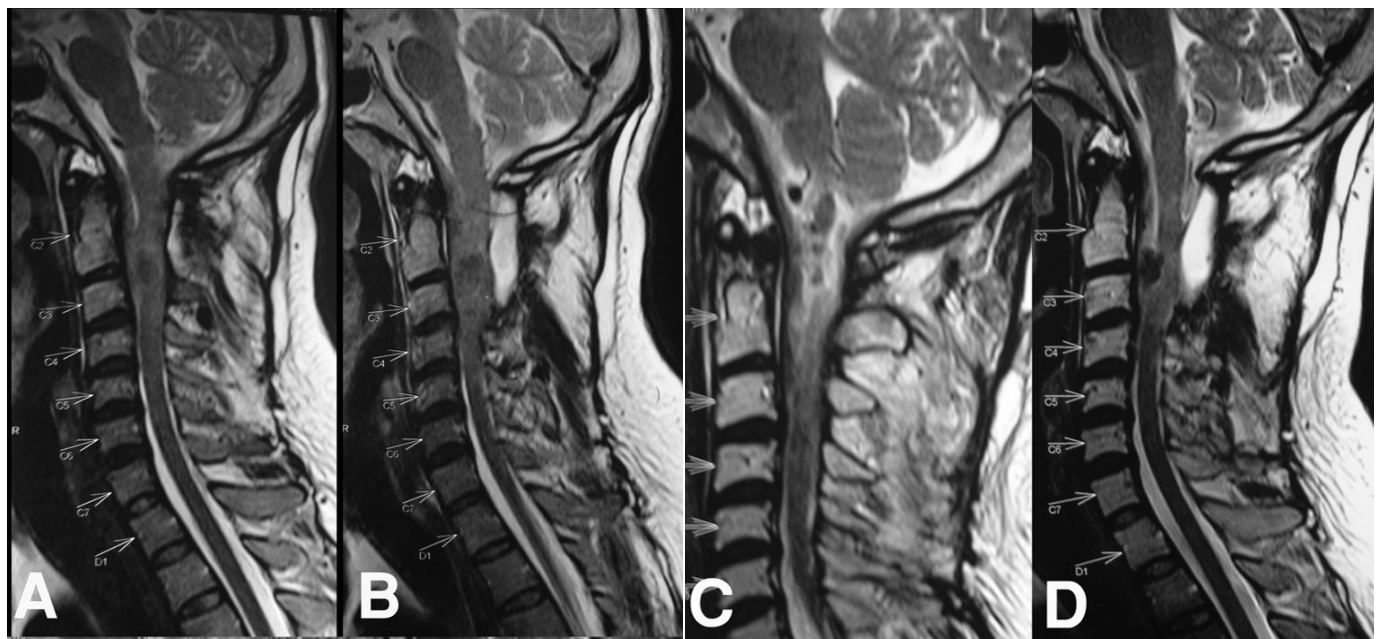
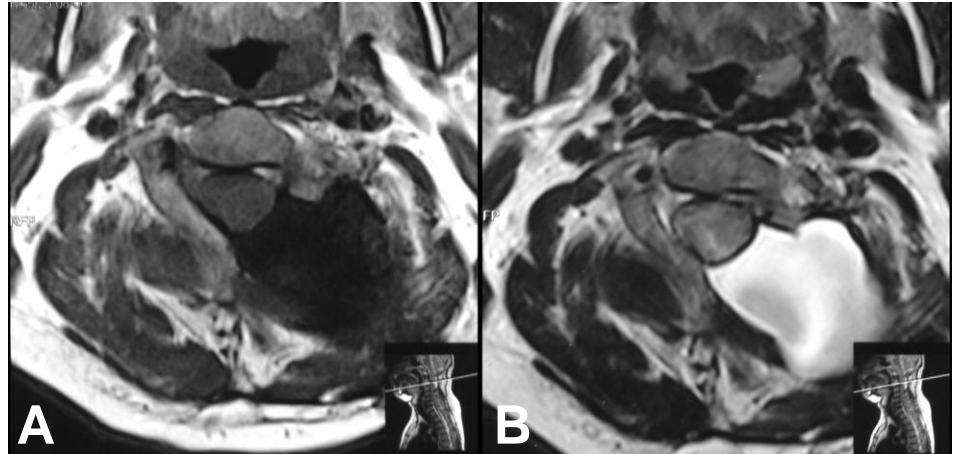
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Fig. 1. Post-operative axial MRI. Evidence of previous laminectomy is seen on the left side with pseudomeningocele.

- A.** An iso-intense lesion on T1W image.
- B.** A mildly hyperintense lesion on T2W image.

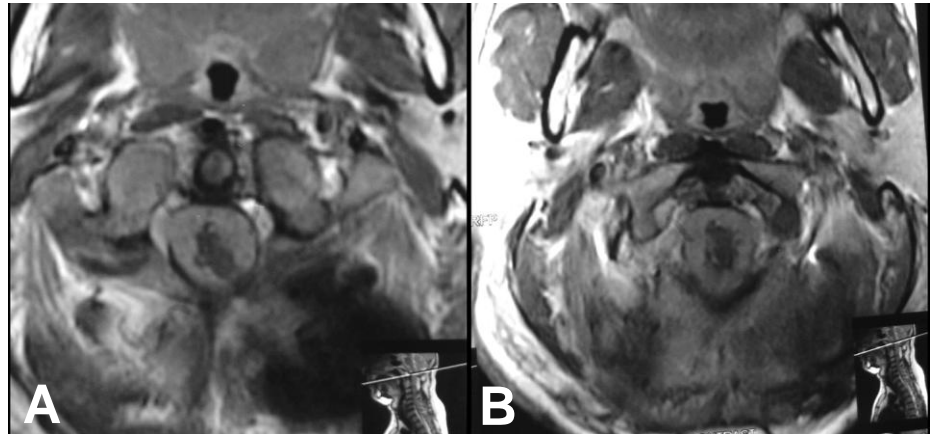


Figs. 2A-D. Post-operative sagittal MRI images showing swollen upper cervical cord with diffuse signal intensity changes.

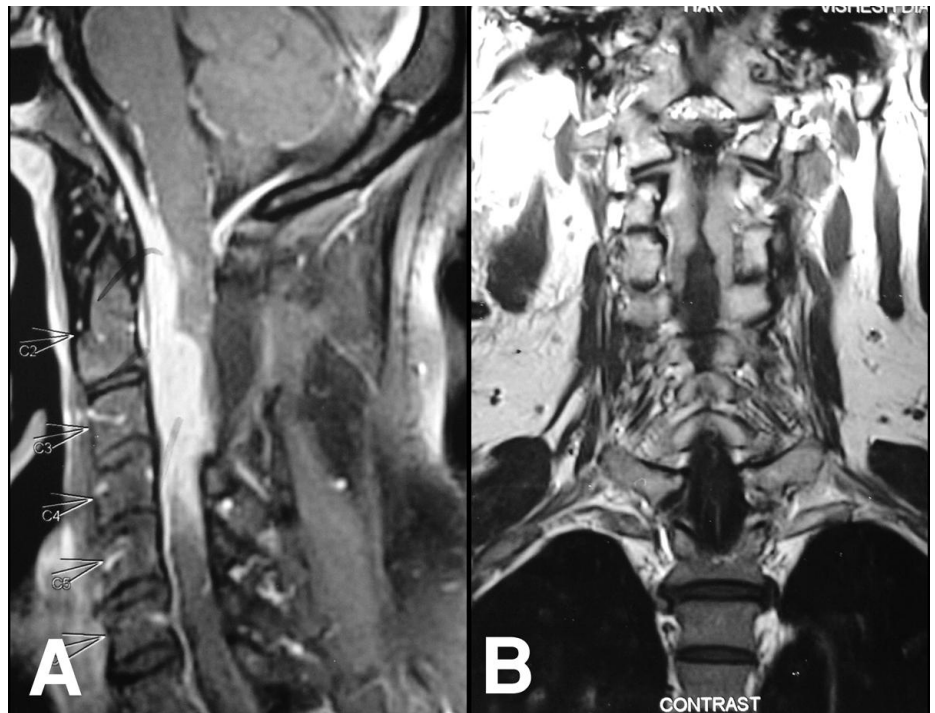
many vertebrae and poses a difficult challenge in terms of management. On imaging, spinal en-plaque meningioma is seen as a homogeneously enhancing mass. The differential diagnosis of en-plaque meningioma includes metastasis, tuberculosis, lymphoma, calcified arachnoiditis and hypertrophic spinal pachymeningitis.^{1,3,8-11} Although ossification of the posterior longitudinal ligament and ossification of the ligamentum flavum are more common etiologies of partially circumferential spinal calcification,⁴ with modern imaging techniques it is possible to suspect a diagnosis of en-plaque meningioma.¹⁰ However, it may be difficult to differentiate these lesions from each other and the definite diagnosis can be made only after histopathological examination.¹⁻¹¹ Surgical

excision is the preferred option for these lesions and additional therapy for residual tumors may not be required.^{1,3} In this case, complete encirclement of the dura made the surgical excision highly impossible and probably would have resulted in unacceptable complications.² Recently gamma knife or cyber knife therapy is recommended with variable success.⁵⁻⁷ Because of lack of facilities and financial constraints, the patient was offered conventional radiotherapy with untoward complications i.e. radiation induced neuritis leading to loss of vision and hearing. En-plaque meningiomas remain a surgical challenge.² Although early recognition¹ and combined strategy of surgery and radiosurgery has shown promising results,^{1,4} these lesions can still be associated with poorer prognosis⁴ particularly when the lesions are complex in nature

Figs. 3A and B. Contrast (Gadolinium) enhanced MRI showing a complete encircling lesion involving the cervical cord with thinning of the cord.



Figs. 4A and B. Contrast (Gadolinium) enhanced MRI sagittal and coronal images showing the vertical extent of the encircling lesion.



and the resources are limited.

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