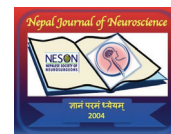


Thoracic spinal cord compression by an atypical aggressive vertebral hemangioma- A Case Report



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Abstract

Vertebral hemangiomas are benign vascular lesions of bone, composed of multiple thin-walled vessels surrounded by fat infiltrating the medullary cavity between bony trabeculae. (1) Hemangiomas account for around 2-3% of all spinal tumors and only 0.9-1.2% of these are symptomatic. Surgery is recommended for lesions if they progress rapidly and cause neurological deficits. 47 years old female patient presented with bilateral lower limb weakness due to an aggressive atypical vertebral body hemangioma at D7 level. Patient underwent pre-op embolisation with surgical decompression and stabilization. Neurological recovery was almost complete over a period of 2 months.

Key words: Spinal cord compression, aggressive hemangioma, pre-op embolisation, stabilization

Introduction

Vertebral hemangiomas are benign vascular lesions of bone, composed of multiple thin-walled vessels surrounded by fat infiltrating the medullary cavity between bony trabeculae.¹ Hemangiomas account for around 2-3% of all spinal tumors and only 0.9-1.2% of these are symptomatic.² Clinically, spinal hemangiomas are divided into three categories: asymptomatic, painful and compressive spinal hemangiomas. These lesions typically remain asymptomatic throughout life, only rarely can develop local or radicular pain, neurological deficits or combination of both.³ Due to rarity of symptomatic lesions, optimal surgical management and predictors of post-operative outcome are not well defined.⁴ We report a rare case of rapidly progressive aggressive spinal hemangioma with epidural extension at D7 level.

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Case Report

47 year old patient presented with insidious onset of difficulty in walking with back pain localized to mid back region associated with heaviness in bilateral lower limbs which was increasing gradually day by day since last 2-3 months. It was associated with numbness in lower half of the body. Back pain was dull aching, non-radiating and now at presentation was increasing with activity since 2-3 months.

On thorough neurological examination, higher mental functions and bilateral upper limbs were normal. Bilateral lower limbs were spastic and power was 4/5 in both lower limbs. Touch and pain sensation was mildly impaired below costal margin. Bowel and bladder control was well preserved. Bilateral deep tendon reflexes in lower limbs were exaggerated. Babinski signs was positive on both sides. At this stage, patients Nurick grading was 5.

MRI Dorso-lumbar spine was suggestive of right prevertebral soft tissue component appearing hypointense on T1 and hyperintense on T2 with post-contrast enhancement and extending upto right D7 costovertebral joint measuring 3.0x2.5x2.3cm. Epidural component at D7 level measuring 2.5x1x1.8cm, T2 hyperintense with post-contrast enhancement is causing severe cord compression.

Patient was planned for surgery with due consent taken for surgery and anesthesia. Patient underwent pre-operative embolisation of the tumor at D7 vertebra followed by surgical decompression and stabilization.

Standard midline approach was taken in prone position and spinous process along with bilateral lamina and facet joint exposed from D5 to D9 level. D6-7 laminectomy performed. Bony tumor was noted arising from D7 body and extending bilaterally D7 pedicle and laminae, encroaching the spinal cord from both sides. Cord decompressed from both sides at D6-7 level and

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tumor removed in pieces. Pedicle screw fixation done on D5-D8 level.

The patient was walking post-operatively with support of walker from post-op day 5 with mild heaviness

and numbness in both lower limbs. Histology report was suggestive of benign intra-osseous hemangioma.

Neurological recovery was almost complete over a period of 2 months.

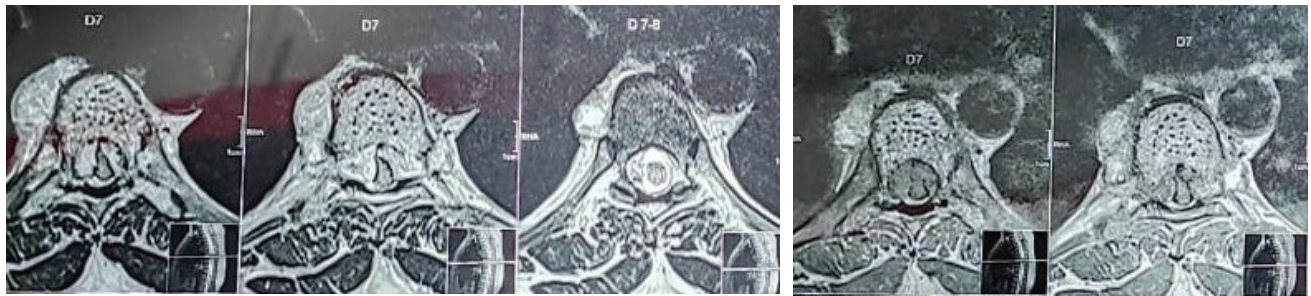
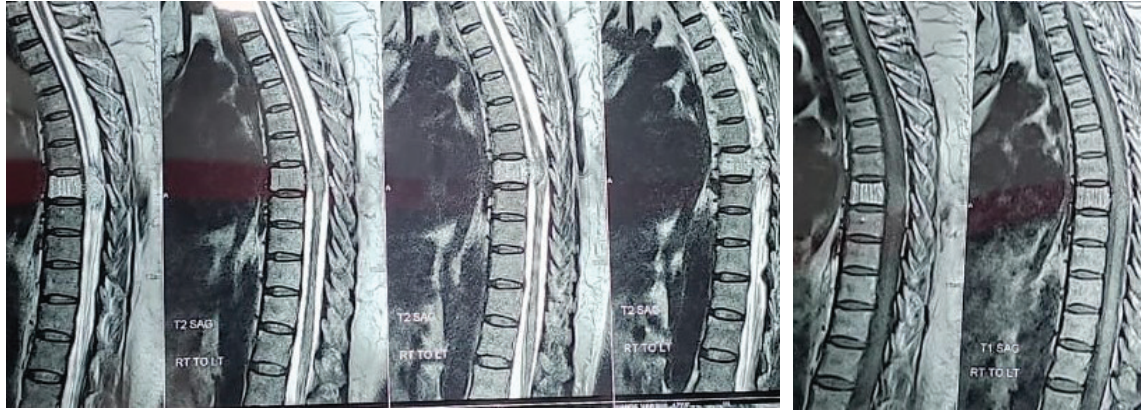


Figure 1: Pre-op MRI images



Figure 2: DSA - Right D7 (pre-embolisation)

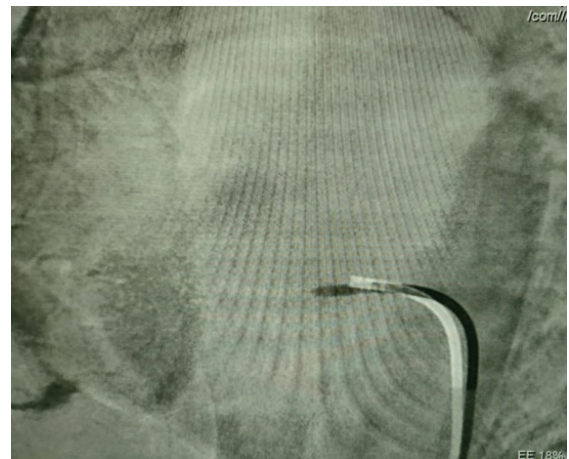


Figure 3: DSA - Right D7 (post-embolisation)

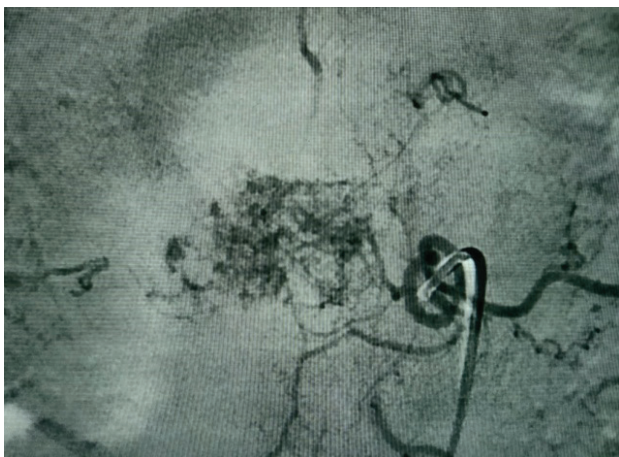


Figure 4: DSA - Left D7 (pre-embolisation)

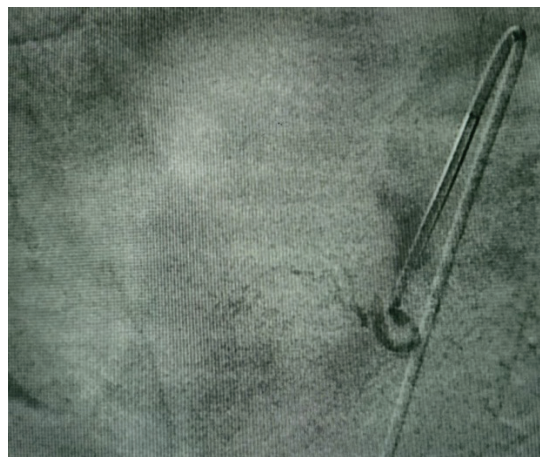


Figure 5: DSA - Left D7 (post-embolisation)

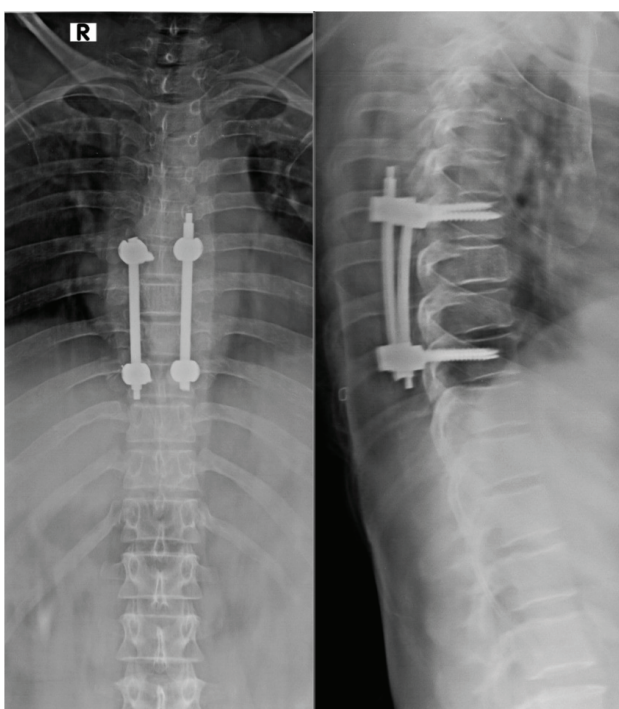


Figure 6: Post-operative Xray

Discussion

Vertebral hemangiomas are benign vasoformative neoplasms of endothelial cells and hence are considered neoplasms. They grow within marrow spaces in bone and encase trabeculae.² Although most of these lesions lack malignant or metastatic potential, possibility of unappreciable growth pattern causing neurological deficits should not be overlooked. Thoracic hemangiomas have the highest propensity for extra-osseous protrusion.⁵ It affects vertebral body more often than posterior elements. Cord or nerve root compression could be due to either epidural tumor extension, expanded bone, compression fracture, hematoma or anomalous vessels. Cord compression is

often progressive but at times maybe sudden.⁶ Symptoms are dependent on location of tumor, degree of neural compression and involvement of bone.²

Radiographic identification is to ensure that vascular tumors are not mistaken for metastasis, however the hemangiomas still warrant adequate investigation on imaging modalities. On plain spine films, the affected vertebra characteristically show vertical striations or ‘honeycomb appearance’. CT of the affected vertebra shows ‘polka-dot’ pattern on axial cuts.⁵ Hemangiomas are likely to be more aggressive when its stroma contains less fat and is more vascular. The radiological features of low signal on T1 weighted images and high signal on T2 weighted images demonstrate the aggressiveness of the lesion. In addition to these, strong contrast enhancement may reveal cortical erosion, soft tissue stroma between osseous trabeculae on CT, presence of extradural soft tissue, expansion to posterior elements, invasion of spinal canal and encroachment of spinal cord.²

Management of spinal hemangiomas is quite variable. Most lesions are asymptomatic and are managed conservatively. Multiple options are present for management of symptomatic lesions. These include radiotherapy, resection and spinal stabilization, vertebroplasty, kyphoplasty, transarterial embolisation or intralesional alcohol injection. Each of these options present with their own advantages and disadvantages. The objective of this multi-disciplinary approach is to – reduce bleeding during surgery, decompress the spinal cord, stabilize the affected vertebra and reduce the complications during the surgical procedure.³ Workup for aggressive hemangiomas include angiography which helps in identifying feeding and draining vessels and blood supply to the cord. CT guided biopsy is rarely done to differentiate hemangioma, lymphoma, myeloma or metastasis. Vertebroplasty / Kyphoplasty can be done for localized pain. Post-op radiation is known to reduce risk of recurrence in subtotal removal of tumor.⁶ Open surgical

Thoracic spinal cord compression by an atypical aggressive vertebral hemangioma- A Case Report

approach is however considered the procedure of choice for compressive lesions as the hypervascularity of the lesion can trigger serious complications during surgery like profuse bleeding or consumptive coagulopathy.³ Embolization of feeding vessels maybe pre-operative measure or maybe curative , although it may not always be possible if the feeding vessel supplies the anterior spinal artery.⁶

In our case report, we present a rare cause of thoracic cord compression. A high index of suspicion should be kept in mind for such atypical hemangiomas which may cause cord compression. Pre-op angiography with embolisation was a valueable adjunct and helped us in reducing intra-operative blood loss and achieving adequate cord decompression and stabilization.

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