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Case Report

A rare case of chronic idiopathic spinal epidural haematoma

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this condition where symptoms and signs have resolved without surgery.^{3,4} Here we present an unusual case of chronic idiopathic spinal epidural haematoma where the patient was only symptomatic with chronic low backache. This article aims to discuss the pathogenesis, clinical and radiological features, and differential diagnosis in this condition.

Case report

A 42-year-old male patient presented with chronic low backache of four months duration. The pain was insidious in onset, moderate in intensity and aggravated by prolonged standing. There was no history suggestive of radiculopathy or neurogenic claudication. There was no history of any comorbid condition, medication or spinal trauma (accidental or surgical). Examination of the patient revealed normal vital parameters. Lower paraspinal muscle spasm was noted. There was no point tenderness or swelling. There was no sensorimotor deficit or evidence to suggest sacroiliitis. Haematological and other relevant laboratory investigations were normal. MRI of the lumbosacral spine was requisitioned which revealed bilateral spondylolysis of L5 vertebra. There was no spondylolisthesis. An elongated, gently lobulated, multisegmental epidural lesion (lenticular in cross-section) was noted on the left posterolateral aspect, extending from the level of L1 to L5 vertebra and measuring approximately 9.1 mm × 5.8 mm × 130.0 mm (anteroposterior × transverse × craniocaudal). The lesion was heterogeneously hyperintense on T1, T2 (with a central rounded hypointense focus) and T1 weighted fat-sat images.

Introduction

Spinal epidural haematoma (SEH) though rare is the most frequent cause of spinal haemorrhage. It is an important cause of compressive myelopathy, frequently presents as an emergency and requires prompt diagnosis and management. SEH can be classified as secondary (e.g., secondary to coagulopathies or anticoagulant therapy), spontaneous (absence of any definite cause but associated with risk factors like minor trauma) and idiopathic (no attributable risk factors identified) or acute and chronic.¹ The spontaneous and idiopathic groups comprise about 50% of cases.² The chronic form is the rarest and its most frequent location is the lumbar spine. Magnetic resonance imaging (MRI) is the imaging modality of choice for diagnosis. Irrespective of the aetiology, the mainstay of treatment is urgent surgical decompression and evacuation of the haematoma. There are only a few reports of successful conservative treatment in

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Fig. 1 – A rare case of chronic idiopathic spinal epidural haematoma. Initial MRI images. (a) T1-weighted (TR/TE = 500/14) and (b) T2-weighted (TR/TE = 4260/107) axial images of the rostral lumbar spine reveal a biconvex left posterolateral epidural lesion which is hyperintense on both sequences (arrows). There is thecal indentation and compression.

There was displacement and compression of the thecal sac with obliteration of the subarachnoid space at multiple levels. Mild contrast-enhancement was also noted (Figs. 1–3). In the absence of any neurological deficit, the patient was advised conservative treatment. A review MRI after three months revealed mild reduction in the size of the lesion and without any significant change in the signal characteristics.

Discussion

Haemorrhage in the spinal epidural space is a rare entity that accounts for only 0.3%–0.9% of all lesions occupying the spinal canal.¹ This condition has been reported at all ages; however it is most frequent in the fourth and fifth decades with a slight male preponderance (male/female ratio of 1.4:1).⁵ The most common site of a spontaneous spinal epidural haematoma (SSEH) is the cervicothoracic region or thoracolumbar region⁵ that usually presents as an

Fig. 2 – A rare case of chronic idiopathic spinal epidural haematoma. Initial MRI images. (a) T1-weighted (TR/TE = 698/14) fat-saturated axial image revealing the same lesion as in Figure 2 without any loss of signal intensity. (b) Post-contrast T1-weighted (TR/TE = 698/14) fat-saturated axial image reveals contrast-enhancement.

emergency. The condition frequently presents as a sudden stabbing neck or back pain that progresses to paraparesis or quadriparesis, depending on the level of the lesion and the nerve root mimicking prolapsed disc, tumour or canal stenosis. In the high cervical region, SSEH could cause spinal shock. In almost all cases of spinal epidural haematoma surgical evacuation is necessary. However, a few cases are mentioned where conservative management has been successful; most of these patients had haemorrhage secondary to coagulopathies and were symptomatically improving on arrival at hospital.³

SEH can be classified as secondary (secondary to coagulopathies or anticoagulant therapy, vascular malformations, neoplasms, trauma including surgery and surgical procedures), spontaneous (absence of any definite cause but associated with risk factors like minor trauma, chiropractic manipulation, Paget's disease, ankylosing spondylitis, rheumatoid arthritis, and cervical spondylitis) and idiopathic (no attributable risk factors identified) or acute and chronic.¹ The spontaneous and idiopathic groups comprise about 50% of cases and their combined incidence is approximately 0.1 per 100,000 patients per year.²

The chronic form is the rarest and its most frequent location is the lumbar spine. Only about twenty cases of chronic epidural haematoma have been described in world literature.¹ These chronic cases are generally characterized by slow

Fig. 3 – A rare case of chronic idiopathic spinal epidural haematoma. Initial MRI images. (a) Pre-contrast and (b) post-contrast sagittal T1-weighted fat-saturated images reveal an elongated enhancing epidural lesion (arrows).

progressive neurological deterioration which is probably due to the larger canal dimensions and the higher tolerance of the lumbar neurological structures to the effects of a space occupying lesion.⁶ In comparison with the lumbar chronic SEHs, cervical chronic SEHs have a shorter duration of progression. In the majority of cases multisegmental involvement is noted.¹

The source of bleeding in chronic SEH is thought to be the valveless Batson's venous plexus that invests the dura in the epidural space. This epidural venous plexus is a pressure and volume regulating system highly sensitive to variations in the intra-thoracic, intra-abdominal, intracranial and intraspinal pressures.^{1,6} Any event that may transiently raise the venous pressure (e.g., coughing, sneezing) may cause rupture of the small veins and haemorrhage. Chronic SEH has also been attributed to bleeding from the vessels of the ligamentum flavum which would explain the dorsal or dorso-lateral location of an SEH.⁷ Bleeding from small cavernous angiomas has also been suggested. An arterial bleeding source has been implicated in the rarer acute forms of SEHs in the lumbar spinal tract. Chronic SEH located ventrally are better termed as perimembranous haematoma or haematoma of the posterior longitudinal ligament.⁶

Magnetic resonance imaging (MRI) is considered to be the modality of choice for diagnosis.⁸ On sagittal sections, SEH appears as a well-defined biconvex mass dorsal to the thecal

sac, with tapering superior and inferior margins and usually extending over multiple vertebral levels. Characteristics of the signal from the haematoma is used to classify it into acute, subacute-chronic. In most patients presenting acutely, the signal intensity on T2 weighted images is heterogeneously hyperintense with foci of hypointensity and iso-intense on T1 weighted images.⁸ When the haematoma becomes chronic, the haematoma appears hyperintense on both T1- and T2-weighted images. Focal enhancement in acute SEH represents active extravasation of contrast-enhanced blood. Peripheral or linear enhancement may be seen in subacute or chronic stages.⁹ However, no enhancement or central and peripheral enhancement may also be seen. T2-gradient echo images may also be helpful in spinal haemorrhages.¹⁰ MRI is also useful in identifying other lesions, which may be the cause for bleeding. Routinely digital subtraction angiography (DSA) is not warranted unless the presence of prominent vessels raises the suspicion of a vascular malformation.

The differential diagnosis of this condition would include epidural metastasis or lymphoma, disc extrusion or migration, epidural abscess, subdural haematoma and epidural lipomatosis. Most of these conditions are readily diagnosed; epidural lipomatosis though hyperintense on T1 and T2 weighted images shows signal loss with fat suppression and does not exhibit contrast-enhancement.

Conclusion

Chronic idiopathic spontaneous spinal epidural haematoma occurs mostly due to haemorrhage from the epidural Batson's venous plexus. Though rare it is an important cause of compressive myelopathy, frequently presents as an emergency and requires prompt diagnosis and management. MRI is the imaging modality of choice for the diagnosis of this condition.

Conflicts of interest

All authors have none to declare.

REFERENCES

1. Sarubbo S, Garofano F, Maida G, Fainardi E, Granieri E, Cavallo MA. Spontaneous and idiopathic chronic spinal epidural hematoma: two case reports and review of the literature. *Eur Spine J*. 2009;18:1555–1561.
2. Holtas S, Heiling M, Lonnroft M. Spontaneous spinal epidural hematoma: findings at MR imaging and clinical correlation. *Radiology*. 1996;199:409–413.
3. Duffill J, Sparrow OC, Millar J, Barker CS. Can spontaneous spinal epidural haematoma be managed safely without operation? A report of four cases. *J Neurol Neurosurg Psychiatry*. 2000;69:816–819.
4. Halim TA, Nigam V, Tandon V, Chhabra HS. Spontaneous cervical epidural hematoma: report of a case managed conservatively. *Indian J Orthop*. 2008;42(3):357–359.
5. Baek BS, Hur JW, Kwon KY, Lee HK. Spontaneous spinal epidural haematoma. *J Korean Neurosurg Soc*. 2008;44:40–42.
6. Riffaud L, Morandi X, Chabert E, Brassier G. Spontaneous chronic spinal epidural hematoma of the lumbar spine. *J Neuroradiol*. 1999;26(1):64–67.
7. Sweasy TA, Coester HC, Rawal H, Blaivas M, Mc Gillicuddy JE. Ligamentum flavum haematoma: report of two cases. *J Neurosurg*. 1992;76(3):534–537.
8. Fukui MB, Swarnkar AS, Williams RL. Acute spontaneous spinal epidural hematomas. *Am J Neuroradiol*. 1999;20:1365–1372.
9. Ross JS, Brant-Zawadski, Moore KR, Crim J, Chen MZ, Katzman GL, eds. *Diagnostic Imaging Spine*. 1st ed. Salt Lake City, Utah: Amirsys Inc; 2005. V (1) 34–37.
10. Diyora B, Sharma A, Mamidanna R, Kamat L. Chronic cervicothoracic spinal subdural hematoma. *Neurol Med Chir (Tokyo)*. 2009;49:310–312.