Spontaneous spinal haematoma: a case report and literature review

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Abstract

Spontaneous spinal epidural haematoma is a rare condition that may lead to spinal cord or cauda equina compression resulting in severe neurologic impairment. Predisposing factors include anticoagulation, vascular malformation, disc herniation. Both surgical and more recently conservative modes of treatment have been described in the literature. This is the first reported case of a successful conservative management and follow-up of a spontaneous spinal epidural haematoma in a 90-year-old patient. The patient presented with acute onset of back pain and weakness of the legs. The patient was treated conservatively and made a complete recovery. Haematoma resolution was confirmed with a repeat magnetic resonance imaging scan.

Keywords

Spinal haematoma; MRI; spontaneous; extradural haematoma; focal neurology.

Introduction

Spontaneous spinal haematoma (SSH) is a rare condition that may lead to spinal cord or cauda equina compression resulting in severe neurologic impairment in a patient, thus making early diagnosis and appropriate management highly desirable. SSH occurs in the absence of a demonstrable relationship with other pre-existing diseases, iatrogenic episodes or traumatic events. The location may be intramedullary, subarachnoid, subdural or epidural\textsuperscript{[1]}. Predisposing factors include coagulopathy, anticoagulation, vascular anomaly and disc herniation, Valsalva manoeuvre, and Paget disease of bone\textsuperscript{[2]}. The incidence of spontaneous spinal epidural haematoma (SSEH) is uncertain but has been estimated to be about 0.1 patients per 100,000 patients with cord compression, although the study included patients with minor trauma, anticoagulant therapy and increased bleeding tendency\textsuperscript{[3]}. Magnetic resonance imaging (MRI) has been described as the imaging modality of choice for investigation of spinal haematoma. Heterogeneous hyperintensity of the cord with focal hypointensity on T2-weighted images suggests the diagnosis of acute spinal epidural haematoma\textsuperscript{[4]}. Surgical management of SSH has been well documented\textsuperscript{[5]} however more recently conservative management has also been reported\textsuperscript{[6]}.
We report a 90-year-old patient with SSEH who had a complete neurologic recovery following conservative treatment. Epidural haematoma resolution was confirmed with a repeat MRI scan. The patient had full neurologic function in both lower limbs at 1-year follow-up. A literature search was carried out on the topic using Medline, PubMed, and Cochrane databases.

**Case report**

A 90-year-old patient, mobile with one stick and living alone, presented with an 8-h history of sudden onset of back pain, which started suddenly when the patient got up from a chair. She then developed weakness in both her legs with difficulty in mobilising over the next 5 h. This later progressed to urinary incontinence. The patient presented to casualty within 12 h of onset of her symptoms. The patient was taking antihypertensives to control hypertension. On examination she was afebrile, the pulse was 60 regular, BP 110/80. Neurologic examination of the lower limbs revealed normal sensation, a flaccid paralysis with power of 1/5 in both lower limbs, myotomal distribution and areflexia. There was loss of anal sphincteric tone on digital rectal examination. The patient had an MRI scan of her thoraco-lumbar spine the following day which showed a 9-cm abnormal elliptical epidural lesion extending from the upper border of T11 to the level of L2. The lesion was of intermediate signal on T1-weighted scans and very low signal intensity on T2. There was displacement of the conus and lumbar nerve roots anteriorly (Figs. 1, 2 and 3).

A neurosurgical opinion was sought and a decision was made to treat the patient conservatively. Clinical improvement was first noted within 72 h of admission. There was continued improvement in back pain, leg weakness and sphincteric tone. The patient had a repeat MRI scan after 4 weeks which showed considerable resolution of the haematoma, now extending between T11 and T12 and with moderately high signal appearance on T2 and intermediate signal on T1 (Figs. 4 and 5). She was discharged after receiving further rehabilitation and support. She had made an excellent recovery at 1-year follow-up, now mobilising with one stick and normal sphincter control.
Discussion

Spinal haematomas are rare but SSEHs are even rarer events. The patient often presents with the acute onset of back pain, sensory impairment, progressive leg muscle weakness and sphincteric disturbance. These symptoms may mimic other conditions, such as a prolapsed intervertebral disc, hence clinician awareness is vital for correct diagnosis and early treatment. The likely source of SSEH has been suggested as bleeding from epidural venous plexus, small arteries or even haemangiomas and vascular malformation[2].
The MRI scan has been shown to be the most useful imaging modality in diagnosing, localising and establishing the extent of spinal haematoma[7]. In fact due to increasing use of MRI, the prevalence of SSEH seems to have increased from 2.2 to 6.4 patients per year[8]. The role of MRI is particularly vital in monitoring patients managed conservatively. The appearance on the MRI scan varies according to the age of the haematoma. Acute spinal haematoma (less than 1 week) tends to be isodense on T1-weighted sequences and mixed on T2-weighted images but with a low signal component. Subacute SSEH (1 week to 1 month) show high signal intensity on T1-weighted images and low or high signal intensity on T2-weighted images[9]. There is extensive literature recommending surgical management in the form of decompression laminectomy and haematoma evacuation for SSEHs. Early surgical intervention (<12 h) has been reported to have a better neurologic outcome than delayed intervention[10].
Conservative management coupled with frequent MRI scans has only been reported to be successful in cases with minimal neurologic deficits\[5\]. Another report describes successful conservative management in younger patients, with age being probably one of the most important factors for successful outcome\[4\]. To our knowledge, this is the first report of successful conservative management and follow-up of a 91-year-old patient with SSEH. There were no identifiable predisposing factors and MRI failed to demonstrate any vascular abnormalities. Early improvement in clinical signs was noted which correlated well with the repeat MRI scan showing resolution of the haematoma. The patient had made an excellent neurologic recovery at 1-year follow-up, now mobilising with a stick.

Teaching point

Conservative management of SSH with careful, regular, neurologic examination and repeat MRI scans may be considered in the elderly with severe neurologic impairment. This approach may save unnecessary surgery in frail patients with other comorbidities.

References