Spontaneous spinal epidural haematoma in a 15-month-old boy presenting with a wry neck: a case report

WM Fok, LK Sun, NM Wong, PY Lau, HM Cheung
Department of Orthopaedics and Traumatology, United Christian Hospital, Hong Kong

ABSTRACT

A 15-month-old boy presented with a 2-day history of a wry neck (bent to the left side) with no definite trauma. He had bilateral upper limb weakness and was afebrile, conscious, and stable. There was no spontaneous movement in both upper limbs. Magnetic resonance imaging of the cervical and thoracic spine demonstrated an extensive spontaneous spinal epidural haematoma from C3 to T8. 23 hours after admission, the patient underwent an emergency right-sided C3 to T8 hemi-laminectomy and haematoma evacuation. The patient's strength gradually recovered and he attained full power 3 weeks after operation. Spontaneous spinal epidural haematoma is a rare disease in children. A high index of suspicion is essential for its effective management as the interval to operation is the most important prognostic factor.

Key words: hematoma, epidural, spinal; rupture, spontaneous

INTRODUCTION

Spontaneous spinal epidural haematomas (SSEHs) are rare in children. We describe a case of a 15-month-old boy presenting with a wry neck and upper limb weakness as the clinical manifestation of a SSEH.

CASE REPORT

In April 2006, a 15-month-old boy presented with a 2-day history of a wry neck (bent to the left side) with no definite trauma. He had bilateral upper limb weakness and cried on attempts to move his head. There was no bleeding diathesis or clues suggestive of child abuse. The immunisation record was up-to-date. The patient was afebrile, conscious, and stable. There were no spontaneous movements in both upper limbs from the shoulder girdle to the digits. The power in the lower limbs, from the hips to the ankles, was grade 4/5. Plantar reflexes were equivocal on both sides, without ankle clonus. Anal tone was preserved. Physical examination of other systems was unremarkable. Full blood, bleeding, and clotting profiles and renal function tests were normal. Computed tomography (CT) of the brain and cervical spine revealed no bony or intracranial abnormality. Magnetic resonance imaging (MRI) of the cervical and thoracic spine demonstrated an SSEH extending from C3 to T8 (Fig. 1).

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an emergency right-sided C3 to T8 hemi-laminectomy and haematoma evacuation (Fig. 2). There were no signs of infection, malignancy, or vascular malformation. A histological examination revealed fibrinous material suggestive of clots. A bacterial culture of the clot was negative. The postoperative course was uneventful with the patient gradually regaining strength until attaining full power 3 weeks after surgery. He had recovered fully by the 13-month follow-up.

DISCUSSION

SSEH is rare, affecting all age-groups from children to the elderly, with a male-to-female ratio of 1.4:1, or no male preponderance. ‘Spontaneous’ haematoma refers to cases with no known predisposing factors, e.g. bleeding diatheses and medical procedures such as epidural and spinal injections. Those who have had minor traumas not sufficient to cause bleeding are also often categorised as spontaneous.

The pathogenesis of SSEH remains unknown. It is considered that the bleeding is venous in origin. The epidural space is made up of loose areolar tissue with an extensive venous system without valves. A sudden increase in intra-abdominal and intrathoracic pressure (e.g. coughing, sneezing, and heavy object lifting) may cause a reversal of the blood flow resulting in rupture of these delicate veins. Some consider that traction on nerve roots causes disruption of a tortuous arterial plexus and gives rise to a haematoma. Occult arteriovenous malformation has also been postulated as a cause of SSEH.

Most SSEHs are dorsal haematomas, as in our patient. Ventrally, the dural sac is attached anteriorly to the spinal bony canal by connective tissue strands, whereas dorsally the space is filled by fatty tissue. SSEHs are usually localised to 2 to 3 vertebral levels. Our patient was atypical because of his young age and the extensive involvement. In children, the C5 to T1 levels are the commonest site, whereas C7, the lower thoracic spine, and L1 are more common sites in adults.

The clinical presentation of SSEH varies. Patients may complain of the acute onset of localised pain without preceding trauma, radicular paraesthesia, spinal cord compression with motor and/or sensory function loss. The deficits may appear within hours, or more slowly, within days.

CT myelography shows the extradural lesion and the degree of cord compression and canal compromise, but is non-specific. MRI is the best diagnostic tool for SSEH because of its non-invasiveness, multiplanar capability, and better visualisation of soft tissues including the disc, spinal cord, and the extent of

Figure 1 (a) Sagittal T1-weighted magnetic resonance images showing an extensive dorsal spinal epidural haematoma extending from C3 to T8. (b) Axial T1-weighted post-gadolinium magnetic resonance image at C6 to C7 level showing a haematoma compressing the spinal cord.

Figure 2 Emergency right-sided C3 to T8 hemi-laminectomy and haematoma evacuation.
the haematoma. Unless infection is suspected, gadolinium-enhanced imaging is usually not required. A spindle-shaped space-occupying soft-tissue mass inside the spinal canal with an intense signal on T1-weighted images and an increased signal on T2-weighted images is characteristic of an acute haemorrhage. A subacute haematoma may show increased signals on both T1- and T2-weighted images.

Conservative management is indicated for those without major neurological involvement and with evidence of haematoma resolution. Otherwise, surgical decompression should be performed as early as possible.

Incomplete preoperative sensory motor loss and early surgery are the most important factors leading to a favourable prognosis. Recovery is significantly better if decompression is performed within 36 hours. In previous studies, sex, age, size and vertebral level of the haematoma did not correlate with the postoperative outcome, suggesting that local compression, not vascular obstruction, is the main pathological factor. Surgery delayed beyond 12 hours produces poorer postoperative recovery.

SSEH is a rare disease among children. A high index of suspicion is essential for its effective management as the interval to operation is the most important prognostic factor.

REFERENCES