SPINAL EXTRADURAL HAEMATOMA: Report of Two Cases

by

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Case 1

A 66 year old woman was sitting quietly at home when she experienced a sharp pain in the epigastrium and in the region of the lower thoracic spine. She was admitted to hospital and over the next 24 hours the epigastric pain settled but the thoracic pain became worse. After 36 hours she was found to have developed a paraparesis with urinary retention.

On admission to the neurosurgical unit clinical examination did not disclose any abnormalities outside the nervous system. She had grade 2-3 power in the right leg and grade 3-4 power in the left. Muscle tone was diminished, her deep tendon reflexes were normal and both plantar responses were extensor. All modalities of sensation were intact in the legs but light touch and pinprick were diminished between the 9th and 12th dermatomes bilaterally. Above T9 sensation and power were normal.

A lumbar myelogram carried out shortly after admission revealed an incomplete obstruction at the T11 level. This was thought to be an extradural type of compression (Figure 1). The cerebrospinal fluid (CSF) was straw coloured with a protein of 0.98 gm/l with 36 leucocytes and 29 erythrocytes.

At operation the laminae of T10 and T11 were removed. As soon as the ligamentum flavum was opened, solid extradural clot extruded under pressure. Further exposure showed that the clot covered the dorsal surface of the dura over the 10th and 11th vertebral levels. The haematoma was removed and the dura was opened. The spinal cord was noted to be compressed and was not pulsating initially although CSF flowed freely from the subarachnoid space. No specific source for the extradural haematoma was identified and control of bleeding during operation was not difficult. Following surgery routine coagulation tests were carried out but no abnormality was disclosed.

The patient gradually regained normal power in both legs and sensation over T9-T12 dermatomes returned. Her back pain was relieved and her gait much improved. Two weeks later she was returned to the referring hospital for continuing rehabilitation, where she went on to make a good recovery.

Case 2

In May 1982 a 43 year old male civil servant experienced cervical pain which radiated into his right shoulder. The onset of pain was not associated with any particular activity and initially he was treated for what was considered to be a ligamentous injury or perhaps a prolapsed disc. Twenty-four hours later he developed paraesthesiae along the medial aspect of both forearms. This persisted for a further three days after which he was admitted to an orthopaedic unit for bed rest
and cervical traction. On the day after admission he developed a quadriparesis with urinary retention and he was transferred to the neurosurgical unit.

The patient gave a medical history of familial hyperlipidaemia and a triple coronary artery bypass procedure had been carried out in 1980. He was receiving treatment for two transient cerebral ischaemic episodes which had occurred within the previous two years. His medication included warfarin, persantin and aspirin.

Examination showed a complete paralysis of the legs and partial weakness of both arms. The right arm had grade 3 power at the elbow and wrist and grade 2 power in the intrinsic hand muscles. The left arm was slightly stronger but had a severe weakness of the hand muscles. There was complete loss of sensation below T8 and partial loss below C7 on the right and C8 on the left. The muscles were flaccid and reflexes were normal in the upper limbs but absent in the lower limbs.

Before myelography his prothrombin time was 11 per cent and thrombotest 6 per cent. Fresh frozen plasma was infused and a lumbar myelogram was performed. This demonstrated a complete block of the extradural type at the level of T2 (Figure 2). The CSF was yellow with 2.7mg/l protein and with 38 white cells and 19 erythrocytes. Immediately following the myelogram a laminectomy was carried out and the dura exposed between C6 and T2, displaying a dark blue extradural haematoma. This was gently removed from the dorsal surface of the dura. No specific bleeding point was identified.

(left)
Fig. 1
Case 1.
Incomplete obstruction at T11 in the lumbar myelogram.

(right)
Fig. 2
Case 2.
Myelogram showing complete extradural block at T2.
Post-operatively further fresh frozen plasma was infused and anticoagulation therapy was recommended 48 hours later. Within a few days of operation the patient’s sensory deficit had virtually disappeared and he regained power in his upper limbs especially in the hand muscles on each side. There was, however, virtually no early return of motor function to the lower limbs and he still required a urinary catheter. Further management was continued at a spinal rehabilitation unit but he remained paraplegic at six months.

**DISCUSSION**

The infrequent occurrence of spontaneous spinal extradural haematoma makes its clinical diagnosis unlikely before surgical exploration has been undertaken. Back pain and the subsequent development of neurological signs will suggest a differential diagnosis that includes disc prolapse, extradural abscess, dissecting aortic aneurysm and extradural tumour. Acute vascular lesions of the spinal cord such as haematomyelia and spinal artery thrombosis are not usually associated with pain while the neurological sequelae immediately follow the occlusion. The main differential diagnosis is a prolapsed intervertebral disc and this is important because the direction of surgical approach would then be anterior in the cervical and thoracic regions.¹

The clinical features of spinal extradural haematoma and disc prolapse are similar whether they occur at the cervical, thoracic or lumbar levels.² Pain is the usual presenting symptom and may well have a radicular distribution. The onset of neurological signs may be delayed by hours, days or in a small percentage of cases by weeks. The pain often subsides with the onset of neurological symptoms which usually take the form of a flaccid motor weakness, urinary retention and disturbance of sensation. Variations in the neurological deficit have been reported including the Brown-Sequard syndrome³ and rarely no sensory deficit.⁴

The cause of the free interval is not easy to explain, especially considering that it may be hours or weeks in duration. In our two cases the free interval was 36 hours in Case 1 and 5 days in Case 2. Paraesthesiae did develop after 24 hours in the latter but the onset of quadriparesis was delayed for five days.

Most cases of spinal extradural haematoma are apparently idiopathic and about one quarter are associated with anticoagulant therapy.⁵ Everyday trauma caused by heavy lifting and minor falls has been implicated without evidence to show that these are anything more than coincidental factors. The combination of anticoagulation therapy and minor trauma may be significant. Major trauma involving the spine does not seem to be associated with compressive extradural haematoma.

Once the diagnosis is suspected a myelogram should be carried out without delay. With extradural haematoma a complete or partial obstruction is almost always demonstrated.

The only effective treatment is prompt and adequate decompression of the spinal cord by laminectomy and evacuation of the haematoma. Results show that this will cure or greatly improve the majority of patients, especially in the younger age group.⁶ Delayed decompression usually means a poor neurological result and conservative management is not recommended. In both of our cases the spinal cord was compressed by the haematoma but cord pulsation returned when it was evacuated. One patient has made a very satisfactory recovery while the second to
date remains paraplegic although his dependence has been reduced by the return of function in his hands.

SUMMARY

Extradural haematoma is a rare cause of spinal compression. Its aetiology is unknown but about one quarter of cases are associated with anticoagulant therapy. The main diagnostic difficulty is in distinguishing spinal extradural haematoma from a prolapsed intervertebral disc. This is important in order that the correct surgical approach be made. The condition often responds favourably to early decompression and our recent experience of two cases is reported.

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