Spinal subdural haematoma after epidural anaesthesia: a diagnosis not to be missed

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INTRODUCTION

Neurological complications following spinal and epidural anaesthesia are rare (Vandam and Dripps, 1960). Spinal epidural and subdural haematomas are rare but serious complications of epidural anaesthesia. A meta-analysis estimated the risk of a spinal haematoma to be 0.0007% after epidural anaesthesia and 0.0005% after spinal anaesthesia (Renck, 1995). In a series of 18 000 spinal and epidural blocks, only three cases of paraparesis resulting from haematomas were presented (Dahlgren and Tornebrandt, 1995).

This report discusses this clinical entity and the importance of early recognition in preventing this problem.

DISCUSSION

Some cases of successful conservative treatment of spinal epidural and subdural haematomas have been published (Kulkarni et al, 1998; O'Higgins and Tuckey, 2000). In cases of severe or progressive neurological deficits, early surgical decompression is considered mandatory (Kuker et al, 2000).

The level of preoperative neurological deficit and the delayed surgical therapy seemed to be critical for the functional recovery of this patient. The magnetic resonance imaging (MRI) was very useful for the diagnosis of spinal haematoma. The typical appearance of spinal haematomas is of an intradural-extramedullary mass which is isointense or slightly hyperintense compared with the spinal cord on the T1-weighted images and with mixed signal intensity on the T2-weighted images.

An atraumatic puncture technique is of great importance for the avoidance of neurological complications. If the patient has a 'difficult spine', coagulation disorders or is receiving non-steroidal anti-inflammatory drugs and

CASE REPORT

A 63-year-old man was admitted to the authors' department because of lower back pain and paraparesis. The patient had undergone an operation 5 weeks earlier to excise a wart on the little toe of his left leg, under epidural anaesthesia. During induction of anaesthesia, immediately after the puncture the patient developed severe back pain radiating to legs with reflex movement of both legs. After the procedure, the patient experienced difficulty in walking and bladder emptying. The pain was relieved with oral medication and the patient was discharged on the second day after surgery although he complained of difficulty with walking. His doctors reassured him that the problems would be transient. The symptoms persisted and he had to use a urinary catheter.

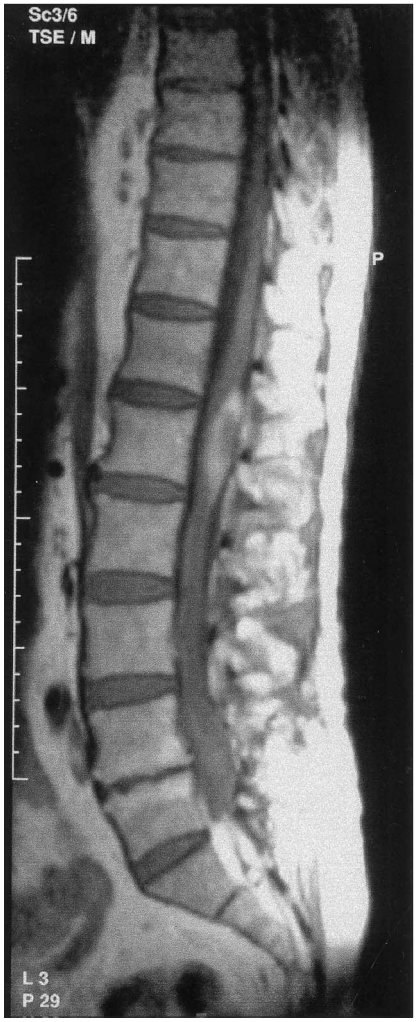
On physical examination he was normal. Neurological examination revealed a proximal weakness of both legs (3/5), with increased tendon reflexes. There was sensory loss of L2–S1 distribution.

Magnetic resonance imaging (MRI) showed a subdural mass extending dorsally to the spinal cord. On T1-weighted images, the subdural mass was mixed iso-hyperintense and showed a craniocaudal extension from T12 to L1 (*Figures 1* and *2*). The MRI findings were consistent with an intradural haemorrhage and clot formation. No coagulation abnormality was detected.

The patient underwent a T12–L1 laminectomy. After opening the dura, a grayish membrane filled with adhesions and xanthochromic blood clot was found dorsally to the cord. The spinal cord was compressed and displaced by the haematoma towards the ventral part of the spinal cord. The degradated blood clot was removed and part of the membrane was also removed. The underlying cord seemed to be traumatized by the needle in the midline of the dorsal surface.

On follow-up examination 1 and 3 months after surgery, the patient was free of pain, but only a partial motor recovery (4/5 muscle strength on the left leg) had taken place. The sensory impairment was restricted to mild paraesthesia. The bladder function did not improve.

Figure 1. Sagittal T1-weighted magnetic resonance imaging scan show a subdural haematoma dorsally to the spinal cord at the level of T12–L1.



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there is not a particularly strong indication for epidural anaesthesia, an alternative technique might be considered.

The potential risks of epidural anaesthesia in individual patients must always be weighed against its benefits. The patient and the surgeon in charge should be informed about the risks and symptoms of the neurological complications. According to a survey of UK anaesthesiologists, 11% of the respondents always mentioned the risk of neurological damage, with only 9% specifically citing paralysis as a possible complication of spinal epidural anaesthesia (O'Higgins and Tuckey, 2000).

Different preventable aetiological factors could be involved in the case of this patient. The problematic induction of anaesthesia with subsequent injury of the spinal cord by the needle could be avoided since the patient had a degenerative spine. Accidental puncture of the cord elicits severe pain radiating in both legs, which is a reason to stop the procedure in order to avoid permanent neurological injury.

CONCLUSION

A low index of suspicion makes the diagnosis of spinal haematomas difficult and often delayed. The use of MRI and the neurological consultation is critical, and mandatory in cases of unexpected neurological symptoms after spinal or epidural anaesthesia. HM

Dahlgren N, Tornebrandt K (1995) Neurological complications after anaesthesia. A follow-up of 18000 spinal and epidural anaesthetics performed over three years. *Acta Anaesthesiol Scand* **39:** 872–80

Kuker W, Thiex R, Friese S et al (2000) Spinal subdural and epidural hematomas: diagnostic and therapeutics aspects in acute and subacute cases. *Acta Neurochir (Wien)* **142:** 777–85

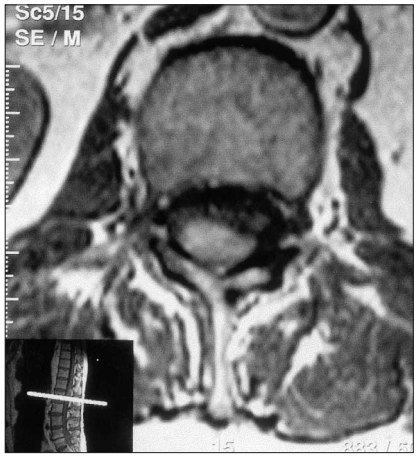
Kulkarni A, Willinsky R, Gray T, Cusimano M (1998) Serial magnetic resonance imaging findings for a spontaneously resolving spinal subdural hematoma: case report. *Neurosurgery* **42:** 398–400

O'Higgins F, Tuckey JP (2000) Thoracic epidural anaesthesia and analgesia: United Kingdom practice. *Acta Anaesthesiol Scand* **44:** 1087–92

Renck H (1995) Neurological complications of central nerve blocks. *Acta Anaesthesiol Scand* **39:** 859–68

Vandam LD, Dripps RD (1960) Long-term follow-up of patients who received 10098 spinal anesthetics. Neurological disease incident to traumatic lumbar puncture during spinal anesthesia. *JAMA* **172:** 1483–7

Figure 2. Axial T1-weighted magnetic resonance imaging scan at the same level shows compression of the underlying cord by the haematoma.



IN THE PUBLIC'S VIEW...

The grass is not greener

Eighty-two per cent of people agree or strongly agree that future health care will be one medicine for the rich and another for the poor. This, and a number of other interesting opinions about how health care should be funded, came from a July poll of just over 1000 individuals. People are worried because they don't see that they are able or willing to make less use of their doctors or of the medicines that they take, but see the danger that funding of the health service may not supply their future needs.

While not exactly an outright lie, one of the biggest deceptions perpetrated by politicians and the media is that healthcare in the UK needs radical change while in other countries patients can get what they want when they want it. We are constantly compared unfavourably with hospitals and doctors abroad. There has been a ruling that patients who have to wait 'too long' for treatment have the right under European law to have the NHS pay for them to go to the Continent. Secretary of State John Reid has been given leave to appeal, and I sincerely hope he wins. If the NHS does not have the capacity to replace someone's hip 'soon enough', justice is scarcely served by the NHS having to pay over the odds, thus reducing the funds available for other patients. One of the countries to which it is suggested patients will go is France. A number of politicians have compared the UK with France – unfavourably of course – particularly those who want to change the NHS from entirely central funding to the system of central funding plus compulsory top-up insurance that pertains in France.

Which is where – I cheated a bit – the poll was carried out (*Figaro* magazine, 27 September). The French health service has problems: a cumulative deficit of €25 billion is predicted for 2002–2004 (*Figaro* économie, 24 September). Suggested remedies include heavy taxes on cigarettes and restricting reimbursements for homoeopathy, both unlikely to go down well with the French public. Meanwhile, in Holland, health costs have increased from €28 billion in 1999 to €38 billion in 2002 (*Lancet*, 27 September), and heavy cuts (no more free adult dentistry) are on the way. In the USA, another 2 million people have joined the ranks of those who have no medical insurance.

In a story that at first seems unconnected, Dr Evan Harris has just resigned as the LibDems' health spokesperson to look after his partner who, sadly, has an aggressive brain tumour. Even more sadly (even though it would not have affected the outcome), the diagnosis was missed by her GP. On the back of Dr Harris's understandable fury there were the stock media complaints about doctors ignoring their patients. Whatever the facts in this case, I guess that far more young patients with persistent headaches do not have brain tumours than do. One article suggested that if you are dissatisfied with your doctor's diagnosis you should demand a second, third and even a fourth opinion, which is unlikely to decrease waiting lists. HM

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