Lumbovertebral syndrome after repeat extradural blood patch

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Summary
We describe an obstetric patient who developed incapacitating headache after inadvertent dural tap and was treated with repeated blood patching. She subsequently developed severe lumbar back pain which, after exclusion of suspected extradural abscess, was treated successfully with simple analgesics and physiotherapy. Two possible explanations are offered to account for her symptoms. We compare this case with others in the literature. (Br. J. Anaesth. 1997; 78: 334–336)

Key words

Case report
A 39-yr-old woman was admitted for elective lower segment Caesarean section (LSCS) at 36 weeks' gestation. She was seen by an anaesthetist before operation and decided to have the procedure under regional anaesthesia. During the performance of lumbar extradural block an inadvertent dural tap occurred. On the advice of the consultant anaesthetist present, the extradural catheter was introduced into the subarachnoid space, an intrathecal block performed using 0.5% “heavy” bupivacaine 2 ml, and continuous spinal infusion of 0.125% bupivacaine 2 ml h\(^{-1}\) containing fentanyl 1 \(\mu\)g ml\(^{-1}\) started. This resulted in a good block to cold sensation extending from T3/4 to S1 bilaterally. This procedure and subsequent Caesarean section were uneventful and the patient was allowed to return to the postnatal ward with advice to remain supine for several hours, and she received laxative therapy and a generous i.v. fluid therapy regimen (3800 ml over the next 24 h). The spinal infusion was continued for 12 h at which time, because of the change in level of anaesthetic cover at that time (23:00), i.v. PCA morphine was started and the spinal catheter removed. She was reassessed at this time and had neither symptoms of post-dural puncture headache (PDPH) nor pain. However, later the following day she developed both frontal and occipital headache with neck pain and 48 h after LSCS the decision was taken to perform extradural blood patching. This was performed by a consultant using 12 ml of autologous blood at the same lumbar interspace (L3/L4) as the dural tap, with immediate improvement in her symptoms. Blood was taken for cultures at the same time. After this the patient remained recumbent for 1 h.

Follow-up of the patient by anaesthetic staff showed an encouraging improvement of her headache with only very mild symptoms, allowing her to function normally, but 2 days later, just before discharge, the same headache abruptly recurred. Physical examination at this time was unremarkable with no local back problems, pyrexia or cranial nerve signs.

She was treated conservatively for a further 48 h with no improvement in symptoms and after further discussion repeat blood patching was performed. This was also performed by a consultant anaesthetist, on this occasion using the interspace above and an increased volume of 17.5 ml of autologous blood. Blood for cultures was again obtained at this time.

She did not obtain complete relief of her headache immediately, but she did report considerable improvement which allowed her to nurse her baby and return to full mobility. Anaesthetic follow-up at the time of discharge the following day showed continued improvement in her PDPH symptoms. She was instructed to return to the anaesthetic clinic 3 days later and encouraged to report daily by telephone to the on-call anaesthetic team.

At her clinic appointment she reported that her headache had disappeared, but that she had developed intermittent bilateral buttock pain, which made it difficult to walk. She also said she became “very sweaty” when walking. The consultant examining her found no positive physical signs and advised her to use simple analgesics and contact us if the problem did not resolve. She telephoned the consultant on-call 48 h later, obviously in severe distress, and complaining of severe back pain which she described as being low down “in her bottom” with radiation to the front of her thighs. This pain came on with walking, lasted only a few seconds, but was so excruciating that she would collapse without assistance. She was asked to come in immediately for review.

She was questioned and described little or no pain while seated or recumbent, but that the pain would come on suddenly if she rose from a chair, and...
would increase in severity after she took a few steps. She described the pain as being of a throbbing nature, similar to a very strong cramp but without any shooting character. The pain extended across the upper buttocks and radiated into the anterior thighs. She stated it was the pain in her back rather than weakness of the legs that caused her to collapse. She had no fever or rigors but reported diaphoresis with minimal exertion. She denied symptoms of urinary or faecal retention/incontinence and reported no paraesthesia. She was very distressed by the pain and frequently tearful.

On examination she had an awkward and hesitant gait limited by pain to a few steps and needed assistance to climb onto the examination couch. She was afebrile (37.1°C) and the extradural puncture site was not tender, with no warmth, swelling or bruising present. Palpation of her back revealed tenderness over the L3, 4, 5 facet joints, particularly on the left, and marked left paravertebral muscle spasm. Both sacroiliac joints were non-tender on springing the pelvis. Straight leg raising was diminished on both sides and restricted to 45°, with pain in the back preventing further hip flexion. The pain was not exacerbated by ankle dorsiflexion, which suggested it was not caused by nerve root compression or disc prolapse. Reflexes, tone and sensation were normal in both lower limbs. She had reduced back flexion to approximately 80°, but extension lateral flexion and rotation were normal.

Both x-rays and CT scan of her lumbar spine were normal, as was her full blood count. Blood cultures performed at the time of patching were negative.

A provisional diagnosis of back pain caused by lumbar facet joint irritation was made and she was prescribed simple analgesics and referred for physiotherapy aimed at reducing the paravertebral muscle spasm and mobilizing her facet joints. She was given a full explanation of her problem and reassured about worries she had of a more serious cause for her symptoms. She showed marked improvement with physiotherapy, to the extent that she was discharged from the physiotherapy outpatient clinic after three visits. At follow-up by telephone 1 month later she was cheerful and reported no headache, good mobility and minimal back symptoms brought on by awkward posture which were similar to the non-specific back pain she had suffered as a typist a few years previously.

**Discussion**

Inadvertent dural puncture occurs in approximately 1.3% of obstetric extradurals, the rate being affected by the experience of the operator and factors relating to the technique and patient. In our case the patient significantly exceeded her ideal weight (113 kg for a height of only 166 cm) which made extradural puncture difficult and the extradural was sited by an SHO who had performed 150 extradurals. The rate of PDPH with a 16-swg Tuohy needle has been reported as 81%. Extradural blood patching is most successful if used after conservative methods have failed rather than as a prophylactic measure, when success rates are lower, although this has not been found by all investigators. The optimum volume of blood to use remains a choice for the individual anaesthetist, with volumes of 5–15 ml being common and one study found no benefit in exceeding 10 ml. Overall the success rate of a first blood patch is high, with up to 96% of patients reporting complete initial disappearance of symptoms and 86–89% of patients satisfied 4 weeks after their first patch even if the headache had not completely gone. After failure of a first blood patch the choices are less obvious, with some authors recommending repeat patches, others normal saline infused extradurally but even the use of extradural dextran infusions. We chose the repeat patch as the first had been initially successful. There are reported cases of back pain after initial blood patching but we could find only one which closely resembled ours. In their article Seeberger and Urwyler described the case of a 40-year-old woman with remarkably similar symptoms. She also had a previous history of low back pain, had been in a clerical occupation and her pain after blood patching matched the extent and distribution in this case, particularly radiation to the anterior thigh. The two women both complained of sweating, although in their case this was nocturnal.

The major differences were that their patient was non-obstetric and had a unilateral plaster cast which, together with the abnormal gait caused by the use of crutches, was thought to be a possible cause of the back pain. They also believed that the relatively large volume of blood injected (25 ml) might have been a contributory factor. In our case the second blood patch volume was 17.5 ml and the initial blood patch was 12 ml, both well below the volume used by Seeberger and Urwyler and would tend not to support their view. One other possible cause for back pain has been suggested by Beards and colleagues who demonstrated by magnetic resonance imaging extensive subcutaneous spread of blood after blood patching. They felt this might contribute to back pain.

The immobilization of our patient for the purpose of initial conservative treatment, prolonged after failure of the first blood patch, may have also encouraged abnormal back posture, which ultimately caused the facet joint irritation symptoms. In addition, daily visits by an anaesthetist and our obvious concern about her recovery may have reinforced any emotional factors thus exacerbating her symptoms. Back pain after childbirth is a well recognized and frequent complaint. One study of more than 1000 women who were questioned about back pain with onset before or during pregnancy or with onset post-partum, revealed that the overall incidence of back pain 1–2 months post-partum in this population was 44%. Predisposing factors were a previous history of back pain, younger age and greater weight. For those with new onset post-partum back pain, predisposing factors were greater weight and shorter stature. Our patient fitted into this category.

In conclusion, we suggest that for those women likely to develop back pain post-partum who require extradural blood patching, prophylactic physiotherapy...
and information on posture and lifting should be offered. Also, in this group of women, it would seem sensible to avoid immobilization as part of the conservative treatment of PDPH.

References