THE STRANGE CASE OF THE (INADVERTENT) CONTINUOUS SPINAL

Sir,—The patient was a 37-year-old multigravida whose labour was to be induced at term. An anaesthetist in training could not reach the epidural space, and appealed for help. I found great difficulty in advancing the needle beyond the subcutaneous layer—the whole lumbar region seemed to be a mass of bone—and, had the patient been less stoical, I would have abandoned the attempt. Eventually I reached the epidural space via the first lumbar interspace and threaded an epidural catheter so that the second interlark was at skin level. The time from the preparation to catheter insertion was about 40 min. There was no evidence that the dura had been punctured.

A test dose of lignocaine 2 ml (0.5% plain) evoked no observable sensory or motor block, and no change in arterial pressure. From then on, the sequence of events was rather bizarre.

15.25. Uterine contractions had become uncomfortable, and 7 ml of 0.25% bupivacaine without adrenaline (the solution used throughout the course of labour) was injected while the patient was reclining. There was loss of skin sensation from T1 to the perineum, motor loss affecting the legs, arterial hypotension (systolic pressure 80 mm Hg) and excruciating pain across the back of the shoulders and down each arm. The arterial pressure was restored by elevating the legs and the rapid intravenous infusion of 1 l. of Hartmann's solution. The shoulder pain diminished in intensity but during the first hour it was still sufficient to cause the patient to sweat. The pain of labour was abolished but, after 4 hours, the contractions became uncomfortable again.

19.25. It was presumed that the first dose had been injected intrathecally. However, in view of the difficulty experienced in getting the needle, it was decided to continue to inject through the catheter and 2 ml of bupivacaine was injected while the patient was sitting. The spread of skin analgesia was from T11 to L1 on the left and from T11 to the perineum on the right. There was no decrease in arterial pressure; motor loss was apparent; there was a recrudescence of the severe pain across the shoulders, but no pain in the arms. The pain of uterine contractions was abolished, but began to return after 70 min.

21.45. A further 2 ml of bupivacaine was injected while the patient was sitting; this caused skin analgesia from T12 to the perineum on the right, but no loss of response to pinprick on the left. There was abolition of uterine pain on the right, but only diminution on the left. The pain across the shoulders persisted but was less severe. The effects of this injection wore off after 70 min.

23.00. 2 ml of bupivacaine injected with the patient in the sitting position. The response was the same as that seen following the previous injection. The pain was relieved for 75 min.

00.30. 2 ml of bupivacaine injected. Skin analgesia obtained as before and also bilateral abolition of the pain of contractions. However, persisting backache had become a feature and a further injection (2 ml) was given to relieve this.

01.00. 2 ml of bupivacaine injected while the patient was sitting. The backache relieved considerably. The extent of analgesia was as before. Uterine pain began to return after 105 min.

03.10. 4 ml of bupivacaine injected. The skin analgesia extended from T11 to the perineum bilaterally.

Backache and uterine pain were abolished for just over an hour.

04.35. 4 ml of bupivacaine was injected with a similar response. A forceps delivery was performed at 05.21 since the patient had no urge to bear-down. The delivery was comfortable for the patient. Sensory and motor loss persisted for 3 hours after delivery.

The infant's Apgar-minus-colour score was 8 at 1 min and at 5 min.

It should be noted that although each injection was made while the patient was sitting, she was turned from side to side during the subsequent 10 min.

The epidural catheter was left in place. It was my opinion that it had not passed through the dura, and an attempt was made to locate the tip by means of an X-ray. In the X-ray department, preparatory to injecting contrast medium, I was able to aspirate fluid which contained glucose. The planned procedure was abandoned and the catheter was withdrawn approximately 1 cm. A second aspiration test proved negative. In the hope that the tip was now in the epidural space, an infusion of Hartmann's solution, through the catheter, was started although it was now some 6 hours after delivery. The solution was infused at a satisfactory rate, but unfortunately the catheter became dislodged after 9 hours (by which time 0.6 l. had been infused), and no attempt was made to replace it.

The patient had a severe postural headache on the second, third and fourth postnatal days, but was much improved on the fifth day. Pain across her shoulders and in the midsline of the upper part of her back persisted for 4 days after delivery, although it was not as severe as it had been during labour. It was much improved on the sixth day after treatment by the physiotherapist. When seen at the postnatal clinic 6 weeks after delivery, she had only slight residual backache.

The report (Dr E. H. Mucklow) of the X-ray of her spine, taken during her stay in hospital, was: "There is calcification in the anterior longitudinal ligament at the L2/C5 level and also in the lower thoracic and upper lumbar region. I think that this is a degenerative change and there may have been previous osteochondritis in both these segments. Schmorl's nodes are present in the bodies of L1, L2 and L3. The disc spaces are of normal dimensions. The air in the soft tissues posterior to the lumbar spine is noted."

Undoubtedly this was a continuous spinal block, but it raises several questions.

1. The analgesia provided by the first injection lasted for 4 hours, but the patient was not in strong labour during that period. Why did the response to the subsequent intrathecal doses of bupivacaine last for only a little more than 1 hour? And why did the post-delivery sensory and motor loss persist for only 3 hours?

2. Why was the block unilateral for so much of the time? The specific gravity of 0.25% bupivacaine is 1.003 at 20°C and 0.998 at 37°C; the patient was turned from side to side after each top-up dose (although she favoured lying on her left).

3. What was the mechanism of production of the very severe pain across the shoulders (and, initially, down the arms)? Has this anything in common with the intercostal pain which occurs not uncommonly while an epidural drip is in progress?

In presenting these questions I would certainly welcome a reasoned answer from any of your readers.

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