Conservative management of extradural abscess complicating spinal–extradural anaesthesia for Caesarean section

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Summary
We report a case of lumbar extradural abscess that presented 9 days after an elective Caesarean section performed under combined spinal–extradural anaesthesia. This was successfully treated conservatively with full recovery. The clinical course included development, and then resolution, of mild paraparesis. Conservative treatment of an extradural abscess in the obstetric population has not been described previously. (Br. J. Anaesth. 1997; 78: 591–593).

Key words

Case report
A 26-yr-old, 55-kg, para 0, gravida 2 woman presented at 39 weeks' gestation for elective Caesarean section. Indications for surgery were cephalopelvic disproportion and mild pre-eclampsia. A full coagulation screen was not requested as the preoperative platelet count was normal (178 \times 10^9 \text{ litre}^{-1}). The obstetric anaesthetic registrar on duty used a combined 16-gauge extradural–spinal pack and 0.5% heavy bupivacaine 3 ml was injected at L3–4 using a 26-gauge pencil point needle; an extradural catheter was then inserted for postoperative pain relief. A routine aseptic technique was used, including gloves, gown, mask, chlorhexidine skin preparation and drapes. Surgery was uneventful and a healthy baby was born with Apgar scores of 9 and 9. No antibiotic prophylaxis was used. At the end of surgery it was noted that blood could be aspirated from the extradural catheter, and therefore the registrar removed it and uneventfully reinserted a new one in a higher space at L2–3. This catheter was used after operation for intermittent top-up doses of extradural pethidine 50 mg in 10 ml saline, administered by the midwife, which was our routine at that time. There was an uneventful postoperative course, and the patient received diclofenac 75 mg once or twice daily while in hospital, and occasional paracetamol.

Late in the evening, 9 days after operation, the woman was readmitted with increasing backache, pyrexia (39.3°C), white cell count 15.5 \times 10^9 \text{ litre}^{-1}, erythrocyte sedimentation rate 133 mm h^{-1} and tenderness over the extradural site. There were no signs of endometritis and neurological examination was normal, except for restricted straight leg raising to 70°. She was given opioid analgesia overnight which was effective.

On the following morning she was still pyrexial (39.3°C) and feeling unwell, with headache and shivering. Her sensation, power and reflexes were still normal, and ceftriaxone, gentamicin and metronidazole were prescribed. After consultation with anaesthetic staff a neurosurgical opinion was obtained. An extradural infection was suspected and conservative treatment was recommended as the patient had no focal neurological signs.

During this 10th day there was worsening of back pain, with pain radiation down both lower limbs, neck pain and headache. PCA morphine was commenced. In the evening she started to develop a vague numb feeling in her right leg, and mild weakness of the left leg. Because of severe back pain when mounting a bedpan, an indwelling catheter was inserted for comfort. Late that evening she felt slightly better with easing of her headache. She had MRC grade 4/5 weakness of ankle flexion on both sides, but there was no impairment of sensation or reflex changes.

The next morning (11 days after operation) she was still pyrexial (39.6°C) and unwell, with a tachycardia occasionally approaching 150 beat min^{-1}. Sensation in her legs was now variable, with patchy numbness to pinprick. Blood cultures obtained on the evening of readmission now revealed gram-positive Staphylococcus. At midday she felt reasonably well with a supple neck but with reduced power in all leg muscle groups (4/5) but especially reduced knee extension (1/5). She was photophobic and felt “heavy” in her legs.

The neurosurgeon now considered an MRI scan was indicated because of the neurological signs and
difficulty in determining how much power and sensation changes were caused by high consumption of PCA morphine. Spinal MRI scan demonstrated a lesion posteriorly at L2–3 which was 2.4×1.2 cm. T1- and T2-weighted images suggested space occupying fluid collection and not old bleeding or fibrosis. The extent and loculation of the lesion, together with the clinical findings, supported a diagnosis of extradural abscess.

Although spinal surgery was considered, it was not performed as there was subjective improvement and reasonably mild neurological signs. At this stage she had foot drop and weakness of ankle inversion/eversion, with no detectable ankle reflexes. There was reduced sensation to pinprick from the L5 dermatome to the perianal region.

From this point on she maintained gradual improvement in her clinical state. On day 12 after operation she again felt slightly improved, with no headache and lessening backache. Her blood cultures confirmed *Staphylococcus aureus*, and the antibiotic regimen was changed to flucloxacillin and rifampicin.

Over the next 2 weeks she continued to improve steadily, mobilizing slowly from day 15 after operation and was afebrile on day 17. Morphine PCA was discontinued on day 18 and on day 20 neurological signs had almost returned to normal apart from altered sensation on the soles of her feet. She still had occasional shooting pains in her thighs and calves, and absent ankle reflexes. She was discharged home on day 25 with a 6-week course of oral flucloxacillin, and ongoing physiotherapy.

One month later she had made a full neurological recovery apart from slight L5 numbness on the right, with normal power and reflexes in her lower limbs. She had no further backache and straight leg raising improved to 90°.

**Discussion**

In the recent literature there has been an increase in reported extradural infections associated with extradural anaesthesia. However, it is not clear if this represents a real increase in incidence (to accompany the more widespread use of extradural anaesthesia) or merely an increase in reporting. This report represents the second case of extradural abscess after extradural anaesthesia in obstetrics at our institution (see NganKee and colleagues) and has led to cessation of our previous policy of intermittent bolus pethidine top-ups by midwives for analgesia after Caesarean section. We were concerned with frequent accessing of the extradural filter for top-ups (up to 14 doses of extradural pethidine often being used), and thus catheters are now removed at the end of surgery after extradural administration of morphine.

The justification for resiting an extradural after completion of Caesarean section for postoperative pain relief may be debated. However, this was occasionally performed at our institution at that time because of postnatal ward staff request as they were so impressed with the analgesia and earlier mobilization it allowed. We are presently looking at reintroducing extradural pethidine for postoperative Caesarean analgesia in a closed sterile patient-controlled extradural analgesic system.

Most reported extradural abscesses have been unrelated to anaesthesia and are associated with older age, immunocompromise, infection, i.v. drug abuse and trauma. Magnetic resonance imaging with contrast enhancement is now the diagnostic tool of choice. There is no agreed management of choice. Most authors describe surgical drainage and antibiotic treatment. Percutaneous drainage under x-ray control with irrigation has also been described, although this involves the risk of spread of infection. Others have advocated medical treatment in selected patients (e.g. Leys and colleagues; poor surgical risk; extensive abscess along the vertebral canal; minimal or no neurological deficit; complete paralysis >3 days). Del Curling, Gower and McWhorter found that lumbar abscesses did surprisingly well, usually with full neurological recovery (managed with both operative debridement and antibiotics).

There are no studies to recommend one management in comparison with another. The nature of the condition and the small numbers affected does not readily permit a controlled study of therapies. The variable rate of progression of neurological symptoms after presentation of an extradural abscess makes many neurosurgeons uneasy about conservative treatment. Some cases have had precipitous onset of neurological deficit, suggesting mechanical compression alone is not an adequate explanation. Thrombosis or phlebitis and oedema are probably implicated. It is not clear from the literature however if precipitous irreversible deterioration is a feature of lumbar abscess as it may be with thoracic or cervical abscess. Possibly the young, healthy, obstetric population is different and more amenable to conservative management, especially if the abscess is lumbar and neurological examination is normal or only mildly affected. The extradural space enlarges below L1 and an abscess here usually results in cauda equina syndrome rather than spinal cord compression. However, it is considered important to have the following factors present if pursuing medical management: bacteriological diagnosis, ready access to appropriate imaging, neurosurgical back-up and close clinical follow-up.

In summary, this case report described successful conservative management of extradural abscess in an obstetric patient. Such management has been reported previously in other groups of patients, but not in the obstetric population.

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**References**


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