*International Journal of Obstetric Anesthesia* (2005) **14**, 242–245

doi:10.1016/j.ijoa.2004.11.003

*CASE REPORT*

# Epidural abscess in an obstetric patient with patient-controlled epidural analgesia – a case report

H. L. Chiang, Y. Y. Chia, Y. S. Chen,* C. C. Hung, K. Liu, Y. Lo

*Department of Anesthesiology and *Infection, Kaohsiung Veterans General Hospital and School of Medicine, National Yang-Ming University, Taiwan*

*SUMMARY*. We present the case of a 37-year-old pregnant woman who underwent a cesarean section due to previous cesarean delivery. Spinal anesthesia was performed at the L2-3 intervertebral space with an epidural catheter inserted at L1-2 for postoperative patient-controlled epidural analgesia. When the epidural catheter was removed on day three, an area of redness round the entry point was noted and the patient complained of low back pain, but was discharged from hospital. Later the same day, she felt backache so severe that she was unable to stand up or bend her body. She called for help and was sent to our emergency room. Physicians noted a small amount of discharge from the insertion site, and the body temperature was elevated to 38 °C. An anesthesiologist and an infectious disease specialist were consulted, and an epidural abscess was suspected. Urgent magnetic resonance imaging revealed an epidural abscess at L1-2. After five days of unsuccessful treatment with oxacillin, a 28-day course of vancomycin, followed by two months of oral fusidic acid, resulted in complete remission of the epidural abscess. The patient has remained free of neurologic deficit.


*Keywords*: Epidural abscess; Magnetic resonance imaging; Vancomycin; Regional anesthesia

## INTRODUCTION

Epidural abscess is a rare complication of epidural blockade, occurring usually in patients who have had prolonged epidural catheterization for postoperative pain management. We describe the case of an obstetric patient in whom an epidural abscess was noted following three days of patient-controlled epidural analgesia. The patient was treated with antibiotics and the infection resolved completely without permanent sequelae.

## CASE REPORT

A 37-year-old pregnant patient, 148.5 cm in height and 69.4 kg in weight, without a history of any systemic disease, was admitted for planned cesarean section due to previous cesarean delivery. At the time of epidural catheterization in the delivery room, the physician wore a clean cap and mask and washed his hands with chlorhexidine (Hibiscrub) before dressing in sterile surgical gown and gloves. The skin area for about 20 cm surrounding the intended insertion site was disinfected twice topically with 10% povidone-iodine alcoholic solution and twice with 75% alcohol. A sterile surgical drape with a round aperture (10-cm diameter) was used to cover the disinfected area on the patient's back. An 18-gauge Tuohy needle was inserted at the L1-2 intervertebral space and a 100-cm epidural catheter with a diameter of 0.85 mm was passed through it, leaving up to 6 cm in the epidural space, in order to provide postoperative analgesia. The catheter had a side hole and an end hole; the outer end was not attached to a bacterial filter. The insertion site was covered with a waterproof and bacteria-proof wound dressing. Spinal anesthesia was then induced at the L2-3 intervertebral space via a 25-gauge Quincke-Babcock spinal needle, using 0.5% bupivacaine 11 mg. The cerebrospinal fluid was clear and free-running. The whole course of epidural catheter placement and induction of anesthesia was smooth and uncomplicated. An adequate anesthetic level sensory block to pinprick to T4 was achieved, and no

*Accepted November 2004*

Correspondence to: Y. Lo, Department of Anesthesiology, Kaohsiung Veterans General Hospital, 386, Ta-Chung 1st Rd, Kaohsiung 813, Taiwan. Tel.: +886 7 3468183; fax: +886 7 3461553;
E-mail: hanlian.g0331@msa.hinet.net

significant hypotension was noted. The total volume of i.v. fluid given was 1150 mL; the total blood loss during the operation was 400 mL. The infant was delivered uneventfully and had an Apgar score of 10 at 1 min and 10 at 5 min (20 min after induction of spinal anesthesia).

Following a 3-mL test dose of 2% lidocaine mixed with 1:200 000 epinephrine and an 8-mL loading dose of 0.25% bupivacaine, an epidural infusion was started with a mixture of bupivacaine 0.8 mg/mL and morphine 0.04 mg/mL, that had been pre-mixed in the pharmacy. The patient-controlled epidural analgesia (PCEA) device was programmed to deliver 3 mL of the mixture per hour continuously and a 3-mL demand bolus, with a 4-hour limit of 50 mL. The lockout time was 5 min. Adequate pain relief was achieved (score $<3$ on a verbal numeric scale of 0–10) in the recovery room. PCEA was used continuously until the anesthesiologist removed the epidural catheter on hospital day three. Mild redness and swelling were noted at the insertion site without obvious discharge; the patient complained of low back pain. She was discharged with a probable diagnosis of backache induced by poor posture.

Five hours later, the patient felt back pain so severe that she was unable to stand up or bend her body. At that time, her body temperature was elevated to 38 °C. She called for help and was sent to our emergency room. On physical examination, there was a small amount of purulent discharge from the former epidural site; neurological examination was normal. There appeared to be a small, superficial area of infection about 1 cm in diameter. Laboratory examination showed an elevated white blood cell count of $11.9 \times 10^9$/L and an elevated C-reactive protein (CRP) of 8.2 units. An anesthesiologist and an infectious disease specialist were consulted, and an epidural abscess was suspected. Urgent magnetic resonance imaging (MRI, Fig. 1) revealed epidural abscess formation at the L1-2 level. The patient was admitted to the infectious disease section and oxacillin 2 g i.v. 6-hourly was prescribed. Fever persisted during the five-day treatment with oxacillin. The covering physicians believed that the infection was due to methicillin-resistant *Staphylococcus aureus* (MRSA), and vancomycin 1 g i.v. was given every 12 h. The fever subsided shortly after starting the vancomycin. Although no bacterial infection was identified in wound or blood culture, a three-phase bone scan (Fig. 2) performed two weeks after catheterization revealed uptake at the L2 region and osteomyelitis was diagnosed. Fortunately, after another two weeks of antibiotic treatment, the CRP returned to normal (2.4 units). The patient received a 28-day full course of vancomycin and was discharged without neurologic deficit. After two months of fusidic acid on an outpatient basis, a repeat three-phase bone scan (Fig. 3) revealed complete remission of the osteomyelitis.

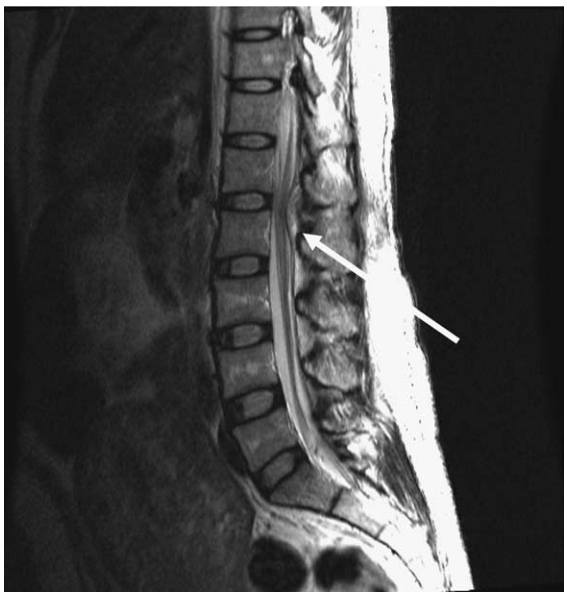

**Fig. 1** MRI-longitudinal view, five days after epidural catheter insertion, showing L1-2 epidural abscess (arrow).

## DISCUSSION

This is the first case of epidural abscess after PCEA in our department since the establishment of the acute pain service in 1993. We perform roughly 600 epidural catheterizations every year and never use bacterial filters. The incidence of epidural abscess in our department is thus around 0.017%, which is similar to previously reported rates (0.002% to 0.02%).[1]

The etiology is obscure, but Phillips et al. assumed there were several possible routes of contamination.[2] Skin colonization by bacteria at the site of epidural catheter puncture, a contaminated infusate and spreading of bacteria from the epidural catheter are possible mechanisms. The procedure of epidural injection and catheterization inherently carries a risk for bacterial colonization even when standard disinfection maneuvers are conducted.[3] The causative organism is nearly always *Staphylococcus aureus*, which frequently comes from the skin. A recent report by Masanovu et al. suggested that hyperhidrosis should be considered as a potential risk for epidural abscess,[4] since organisms reside in sweat glands. Our patient had no history or sign of local or systemic infection, but she perspired easily, even in an air-conditioned room. A further risk factor is that her epidural catheter remained in situ for three days, to allow her to use PCEA. Wang et al. demonstrated that an epidural catheter in situ for more than three days increased the risk of epidural abscess.[5]