Epidural empyema following thoracic extradural block

Case report

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An unusual case of epidural sepsis with subsequent paraparesis following the placement of a thoracic epidural catheter for the maintenance of a postoperative analgesic block is reported. The hazards of this technique are reviewed.

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isks posed by the use of an extradural injection of analgesic agents have been extensively reviewed. These techniques include drug injection into the lumbothoracic extradural space, caudal block, and catheterization of the spinal epidural space at the midthoracic spine with subsequent drug instillation. Dawkins, using the latter technique extensively for pain control, has had a low incidence of complications in a series of over 8000 thoracic epidural blocks; he reports permanent damage to the cord in only two cases and transient paralysis in one.

In view of the low incidence of complications, an argument has been made in the anesthesia literature for preferentially needling the thoracic rather than the lumbar epidural space for the purposes of producing extradural analgesia after upper abdominal surgery. The case we are reporting points out a hitherto undescribed hazard of this method of pain relief and inserts a note of caution.

Case Report

A 51-year-old man was admitted to the Denver Veterans Administration Hospital for an elective vagotomy and pyloroplasty because of chronic peptic ulcer disease. Immediately after laparotomy, an indwelling midthoracic epidural Silastic catheter was placed for the purpose of instilling a local anesthetic. The catheter remained in place for 48 hours, and a total of 10 mg of Duranest and 24 mg of Xylocaine was instilled. On the fourth postoperative day the patient developed headache, fever, and the clinical signs of meningeal irritation. Lumbar puncture revealed xanthochromic fluid (protein 500 mg%, sugar 35 mg%, 104 lymphocytes and 6 polymorphonuclear leukocytes per cubic millimeter). The cerebrospinal fluid pressure was reported as being within normal limits, and manometric studies were not performed. No organisms were found either by gram stain or cultures of the cerebrospinal fluid.
Fever, headache, and meningismus persisted, and a repeat lumbar puncture on the eighth postoperative day yielded spinal fluid virtually identical to that obtained in the initial tap. On the tenth postoperative day the patient developed urinary retention and required catheterization, and 4 days later, when progressive leg weakness developed, neurosurgical consultation was sought.

**Examination.** The patient complained of moderate midthoracic back pain with localized tenderness to percussion over the thoracic and lower cervical spine. His neck was stiff, and he had an obvious severe paraparesis in the legs with a progressively impaired perception of pain below the midthoracic region. Perception of vibratory and position sense was symmetrically reduced in the legs. Deep tendon reflexes were equal and symmetrical throughout with no abnormality in tone. The plantar responses were flexor. Spine films were normal. Myelography was performed on an emergency basis. A small amount of Pantopaque introduced by the lumbar route demonstrated a complete extradural block at the level of T-10. Oil was placed cisternally and showed the rostral extent of the block at C-7.

**Operation.** Upon completion of the myelogram, a decompressive laminectomy was performed from T-10 through C-7. Epidural pus was encountered from which *Staphylococcus epidermidis* was cultured. Epidural catheters were placed for the purpose of antibiotic irrigation and brought out through separate skin puncture wounds; the wound was closed with wire.

The patient was treated with intravenous Keflin because of an allergy to penicillin. When he became hypersensitive to Keflin, antibiotic therapy was switched to Cleocin. Epidural catheters were irrigated every 6 hours with Keflin and subsequently Cleocin antibiotic solutions, and the wound healed without difficulty after the catheters were removed. Neurological recovery has been steady but incomplete. By the 18th postoperative day bowel and bladder control were regained and he was able to walk. Repeat myelography with retained Pantopaque 6 weeks after surgery demonstrated free communication through the subarachnoid space. The patient’s paraparesis evolved into a spastic weakness with residual impairment in position and vibratory sensibility. He is now able to walk using Canadian crutches. Position and vibratory perception remain impaired but are improving in comparison to the preoperative state.

**Discussion**

Although sporadic case reports describing spinal epidural abscess as a result of lumbar puncture are recognized, there have been no previous reports of this complication following epidural catheterization for the relief of pain by analgesic block. This technique for pain control, described extensively by Bromage, remains regional in its popularity. Most commonly, a Touhy needle is placed in the thoracic epidural space, and a Silastic catheter is threaded into position. Local anesthetics are then administered for operative, postoperative, or posttraumatic analgesia in the appropriate doses. The chief benefit attributable to the method is improved pulmonary function in the presence of severe thoracoabdominal pain.

Complications reported include malposition of the catheter (23%), failure of the anesthetic (2%), dural puncture (2%), blood vessel injection with drug (1.7%), toxic drug reactions, and very rare instances of catheter breakage within the epidural space. Now, epidural infection and paraparesis must be included in the list of complications.

The clinical features of acute and chronic spinal epidural abscesses have been thoroughly detailed. The case reported follows all too tragically the course of many other patients; the problem was recognized only at the stage of impaired cord function when sphincter disturbance and motor and sensory loss were already serious. Although the risks of epidural catheterization are relatively small, the possibility of paralysis secondary to epidural abscess must now be included.

**References**


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