

CASE REPORTS

Anesthesiology
1999; 90:1217-8
© 1999 American Society of Anesthesiologists, Inc.
Lippincott Williams & Wilkins, Inc.

Epidural Blockade for Labor and Cesarean Section with Associated L4-5 Lipomyelocele

Matthew D. Thompson, M.D.,* Gary M. S. Vasdev, M.D.,† James Y. Findlay, M.B., Ch.B.‡

A LIPOMYELOCELE is an intraspinal lipoma that is associated with disruption of the meninges, displacement of neural elements, and spina bifida. Similar to other disorders of the lumbar spine, it may represent a relative contraindication to neuraxial anesthesia and analgesia.¹ We report a case of successful epidural blockade for labor analgesia and later cesarean section in a parturient with a lipomyelocele.

Case Report

A 23-yr-old primigravida woman, 92 kg and 168 cm, was admitted at term with spontaneous rupture of membranes. Her history was remarkable for a congenital lumbosacral lipomyelocele associated with distal lower extremity muscular wasting and neurogenic bladder. She underwent extensive prepregnancy evaluation by multiple specialists. Her neurology consultant suggested that extremes of Valsalva maneuvers associated with vaginal delivery, although not supported in the literature, posed a theoretical and remote risk of a burst of the distal spinal canal. Magnetic resonance imaging of the lumbar spine revealed a lumbosacral lipomyelocele that extended from L4 through the sacrum. The spinal cord was tethered at L4, where the neural canal opened to a large intraspinal lipoma that was continuous with subcutaneous fat (fig. 1).

A plan developed in the early prenatal period by obstetrics and anesthesia called for forceps-assisted vaginal delivery during regional anesthesia to minimize pushing, or cesarean section during general or regional anesthesia. During the anesthetic evaluation, it was thought that epidural placement above the level of the lesion (L3) should provide adequate analgesia, although the extent of distal spread, in light of her disrupted epidural space, was unknown.

* Resident in Anesthesiology.

† Assistant Professor of Anesthesiology.

‡ Senior Associate Consultant in Anesthesiology.

Received from the Department of Anesthesiology, Mayo Clinic, Rochester, Minnesota 55905. Submitted for publication March 2, 1998. Accepted for publication December 4, 1998. Support was provided solely from institutional and/or departmental sources.

Address reprint requests to Dr. Thompson: Department of Anesthesiology, Mayo Clinic, 200 First Street SW, Rochester, Minnesota 55905. Address electronic mail to: Thompson.Matthew@Mayo.edu

Key words: Neuraxial; obstetric; regional anesthesia; spina bifida.

Labor started with spontaneous rupture of membranes and, because fetal presentation appeared to be acceptable, vaginal delivery was attempted. After the risks and benefits of regional anesthesia were explained to the patient, including risks of subarachnoid puncture and headache and the possibility of cord injury, she agreed to placement of an epidural catheter. A volume preload was given, and hemodynamic monitoring was instituted.

With the patient in the right lateral position, and an 18-gauge Husch needle was inserted in the L2-3 interspace midline using a loss-of-resistance-to-saline technique. A 20-gauge epidural catheter was advanced, but resistance was encountered approximately 2 cm beyond the tip of the needle and was immediately followed by free flow of liquid consistent with cerebral spinal fluid. The catheter and needle were promptly removed. The epidural was reattempted at the L1-2 interspace and was threaded cephalad to 4 cm.

After a negative 3-ml lidocaine, 1.5%, with 1:200,000 epinephrine test dose, a 15-ml bolus of bupivacaine, 0.125%, with 2 μ /ml fentanyl was injected, and a continuous infusion of the same solution at 5 ml/h was begun. Diminished sensation to cold was reported at T7 through sacral dermatomes, and the patient reported excellent pain relief during contractions. No significant hemodynamic changes were observed.

Progression of labor was slow, despite oxytocin augmentation. After 18 h of active labor, transverse arrest at 9 cm caused by cephalopelvic disproportion was diagnosed, and the decision was made to proceed to cesarean section. The epidural catheter was injected with 10 ml lidocaine, 2%, with epinephrine, and in approximately 10 min, a surgical block to T5 was attained. A healthy 4,100-g boy was delivered 17 min after incision. Postoperatively, 2.5 mg preservative-free morphine sulfate with 7.5 ml normal saline was injected into the epidural catheter and the catheter was removed. The patient had an uneventful recovery and denied any symptoms of postdural puncture headache throughout her 4-day hospital stay.

Discussion

Spina bifida, in this instance caused by a lipomyelocele, results from the failure of the neural arch to close during embryogenesis, and is associated with herniation of meninges or neural elements. As surgical techniques have advanced, the number of surviving children with these lesions has improved from 40% in the 1970s, to 70-90% by the mid-1980s.² A once very rare condition in pregnant women will be seen by anesthesiologists with increasing frequency.³

CASE REPORTS

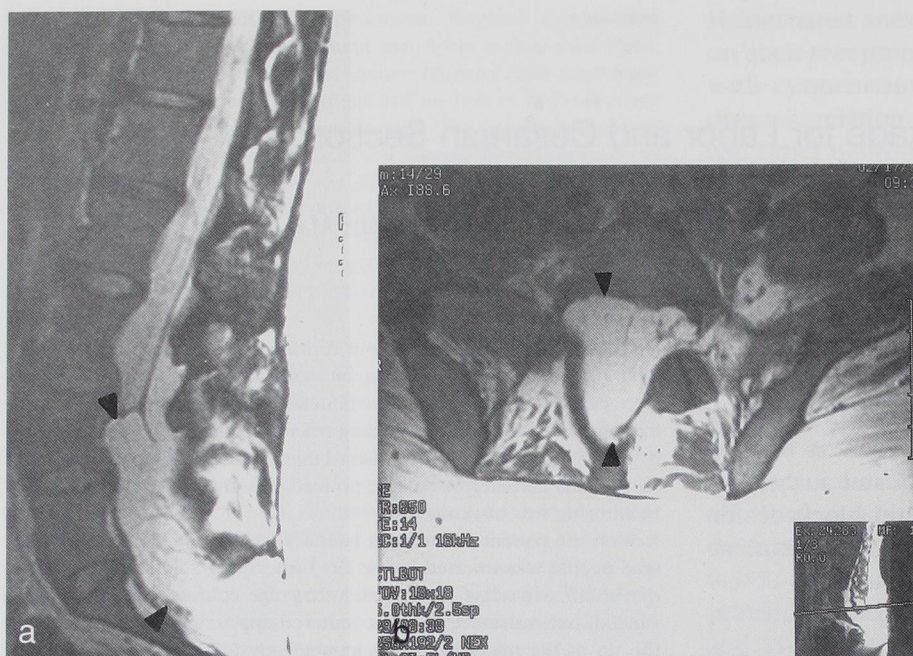


Fig. 1 (A) T1-weighted sagittal magnetic resonance image showing the lipoma (arrows) in the lumbar spinal canal and overlying disruption of bony elements. (B) T1-weighted axial image at the L5 level showing incursion of the lipoma in the spinal canal and fatty extension into the subcutaneous tissues (arrows).

To date, very few related cases are documented. Using MEDLINE, we found three reports of neuraxial blockade used in gravid patients with spina bifida cystica lesions. In one, a patient with a previously corrected lumbosacral cystic lesion received an epidural block that worked successfully for vaginal delivery.⁴ Two other cases report spinal anesthesia for cesarean sections. Unlike our patient, these were obese women with significant kyphosis and extensive scarring over the lumbosacral spine from previous surgeries.^{5,6} Epidural block in patients with occult lesions and in pediatric patients with lumbosacral spinal anomalies have also been documented.⁷⁻⁹

Epidural space anatomy associated with cystica lesions is unpredictable,¹⁰ and unusual septa or adhesions may exist adjacent to the lesion. This raises the question of irregular spread of local anesthetic and reliability of neural blockade.^{2,4} In this particular case, a standard dosing regimen produced excellent analgesia and anesthesia for labor and operative delivery.

This case shows that the carefully planned use of epidural anesthesia for labor analgesia and cesarean section can be successfully applied to a patient with spina bifida.

References

1. Vandam LD, Dripps RD: Exacerbation of pre-existing neurologic disease after spinal anesthesia. *N Engl J Med* 1956; 255:843-9
2. Crosby ET: Musculoskeletal disorders, *Obstetric Anesthesia: Principles and Practice*. Edited by Chestnut DH. St. Louis, Mosby-Year Book, Inc., 1994, pp 914-5
3. Richmond D, Zaharievski I, Bond A: Management of pregnancy in mothers with spina bifida. *Eur J Obstet Gynecol Reprod Biol* 1987; 25:341-5
4. Vaagenes P, Fjaerestad I: Epidural block during labour in a patient with spina bifida cystica. *Anaesthesia* 1981; 36:299-301
5. Broome IJ: Spinal anaesthesia for caesarean section in a patient with spina bifida cystica. *Anaesth Intensive Care* 1989; 17:377-9
6. Nuyten F, Gielen M: Spinal catheter anaesthesia for Caesarean section in a patient with spina bifida. *Anaesthesia* 1990; 45:846-7
7. McGrady EM, Davis AG: Spina bifida occulta and epidural anaesthesia. *Anaesthesia* 1988; 43:867-9
8. Morgenlander JC, Redick LF: Spinal dysraphism and epidural anesthesia. *ANESTHESIOLOGY* 1994; 81:783-5
9. Cooper MG, Sethna NF: Epidural analgesia in patients with congenital lumbosacral spinal anomalies. *ANESTHESIOLOGY* 1991; 75: 370-4
10. Bromage PR: *Epidural Analgesia*. Philadelphia, WB Saunders, 1978, pp 707-8