

## **PE-52. HORNER'S SYNDROME AND TRIGEMINAL NERVE PALSY AFTER LUMBAR EPIDURAL ANALGESIA FOR LABOR AND DELIVERY**

Narouze, S.N.; Basali, A.; Tetzlaff, J.E.

Anesthesia and Critical Care Medicine, Cleveland Clinic Foundation, Cleveland, Ohio

Epidural anesthesia can be associated with various neurologic complications. Horner's syndrome (ptosis, miosis, anhidrosis, enophthalmus, and conjunctival and facial congestion) is a rare complication of lumbar epidural anesthesia. Here we report a case of Horner's syndrome and trigeminal nerve palsy following lumbar epidural analgesia for labor and delivery with a relatively low sensory level.

A 29-year-old healthy primigravida, presented at 39 weeks gestation in labor. She requested epidural analgesia for labor. With the patient in the sitting position, a 19-gauge epidural catheter was easily inserted in L3-L4 interspace. After a negative aspiration test, a test dose of 3 ml of lidocaine 1.5% plus epinephrine 1: 200,000 was injected and was negative for intravascular or intrathecal injection. The patient was then placed in the supine position with left uterine displacement and five minutes later two doses of 5 ml of bupivacaine 0.25% plus 100 mcg fentanyl were injected. Ten minutes later the patient reported satisfactory pain relief with a sensory level at T8 and stable vital signs. The patient was then maintained on continuous epidural infusion of bupivacaine 0.0625% with fentanyl 1.5 mcg/ml at a rate of 12 ml/hour.

The patient underwent an uneventful vaginal delivery of a healthy baby about 60 minutes from the initial epidural bolus. After delivery she started to complain of discomfort and heaviness in her left eyelid. She also complained of tingling and numbness over the left side of the face. On physical examination, there were left-sided ptosis, miosis, and conjunctival congestion without any other visual symptoms or signs. She had paraesthesia over her left face in the distribution of the ophthalmic and maxillary divisions of the trigeminal nerve. However there were no other sensory or motor deficits and the remaining cranial nerve examination was unremarkable. The patient's symptoms and signs gradually and spontaneously resolved completely over the next 2 hours.

Horner's syndrome after epidural anesthesia is due to interruption of the ocular preganglionic sympathetic neurons where they exit the spinal cord from C8 through T1 ventral roots on their path to the cervical sympathetic chain to ascend through the stellate and middle cervical ganglion and terminate in the superior sympathetic ganglion.

Various mechanisms have been suggested to explain the occurrence of Horner's syndrome during epidural anesthesia. The most logical one is the extensive cephalad spread of the local anesthetic along the epidural space with a high sympathetic blockade. The other possible explanation is the enhanced sensitivity of the sympathetic preganglionic B fibers to the effects of local anesthetics, which accounts for sympathetic block several segments higher than the level of analgesia to pinprick. Obstetric patients are more vulnerable to develop Horner's syndrome after lumbar epidural block due to epidural venous congestion resulting in decreased epidural space and the increased epidural pressure secondary to uterine contractions and Valsalva maneuver during labor with resulting high cephalad spread of the local anesthetic.

Other associated neurologic manifestations are less common e.g. upper extremity involvement, trigeminal nerve palsy or hoarseness of voice. They are usually associated with high sensory level, hypotension, and fetal bradycardia. The spinal trigeminal tract of the trigeminal nerve extends caudally till the second cervical segment of the spinal cord and it conducts temperature and nociception sensation. The occurrence of trigeminal nerve palsy following lumbar epidural block could be explained by high cephalad spread of the local anesthetic in the epidural space with penetration of the dura to the subarachnoid space and further spread through the CSF. However in our case Horner's syndrome and trigeminal nerve palsy developed following lumbar epidural analgesia for labor with a relatively low sensory block level and without any accompanying drop in the blood pressure or upper extremity sensory or motor loss. We postulated that, the fibers of the spinal trigeminal tract and the sympathetic fibers supplying the eye are more sensitive to the effects of the local anesthetic drugs. Also this could be due to pressure effect from injecting the local anesthetic solution into a tight epidural space in obstetric patients with resultant abnormal spread of the local anesthetic solution.

In conclusion, Horner's syndrome is a rare and benign complication of lumbar epidural analgesia for labor and delivery as long as resolution is complete and spontaneous. However, trigeminal nerve palsy is extremely uncommon after lumbar epidural block and it may present the first sign of an extensive block and therefore should warrant close maternal and fetal monitoring.

1- *Neurology*. 51(5): 1473-5, 1998 Nov.

2- *Archives of Ophthalmology*. 113(5): 560, 1995 May.

3- *Anesthesia*. 38(6): 583-5, 1983 Jun.