

# **Horner's Syndrome with Unilateral Brachial Plexus Blockade Following Lumbar Combined Spinal Epidural Anesthesia for Labor – A Case Report**

## **Abstract**

We present a case of Horner's Syndrome and complete brachial plexus blockade following epidural bolus of lidocaine for labor analgesia that was initially misdiagnosed as a cerebrovascular accident. Use of the catheter was discontinued and the episode resolved with expectant management. Horner's Syndrome with brachial plexus involvement following lumbar anesthesia may be a startling event for the patient and provider but is otherwise benign and resolves without sequelae[1].

## **Introduction**

Horner's Syndrome is a complication of neuraxial anesthesia with 78 cases reported in a recent systematic review, 18 of which had additional involvement of the brachial plexus[1]. We present a case of a parturient who developed Horner's Syndrome with complete unilateral upper extremity motor and sensory blockade following combined spinal-epidural for labor analgesia.

## **Case Description**

A 30-year-old female (59in, 67kg) active-duty Army gravida 2 para 0 presented to our institution in active labor at 38 weeks, 1 day gestation following an uncomplicated pregnancy with standard prenatal care. Her past medical history was notable for chronic low back pain following multiple hard landings while parachuting, the most recent of which was 8 months prior to being aware of her pregnancy and in which she briefly lost consciousness. She had been diagnosed with possible mild lumbar disc herniation and sacroiliac fracture by a neurologist after being referred for

persistent sacral pain and two episodes of lower extremity “heaviness.” Full neurologic exam was normal with the exception of a positive FABER test indicating possible lumbar herniation. Three failed attempts were made at epidural catheter placement in the sitting position at L2/L3, L3/L4, and L4/L5 before successful placement of combined spinal-epidural(CSE) with a Perifix 17-gauge Tuohy and 27-gauge Pencan at L3/L4 using the midline approach. Loss of resistance was obtained at 5.5 centimeters after which durotomy was performed with the Pencan needle with easy withdrawal of cerebrospinal fluid(CSF). An intrathecal dose of fentanyl 20 micrograms was administered followed by withdrawal of the spinal needle and placement of the epidural catheter. A brief paresthesia was noted upon threading the epidural catheter which resolved within seconds. Aspiration of the epidural catheter was negative for CSF and blood. A test dose of 3 ml lidocaine 1.5% with epinephrine 1:200,000 was negative. The catheter was secured at 11 centimeters at the skin and a bolus of 7 ml of ropivacaine 0.2% was administered through the catheter. A patient controlled epidural(PCEA) infusion of ropivacaine 0.2% with fentanyl 2mcg/ml was started at a basal rate of 6 ml per hour with bolus dose of 3 ml with a 20 minute lockout. Several hours after starting the infusion, the anesthetist was called to the bedside for the patient complaining of left-sided abdominal pain, which developed while the patient was lying on her right side. After negative aspiration of the catheter, a bolus of 5 ml lidocaine 1% was administered through the catheter. Within minutes of injection, the patient developed a dense right upper extremity sensory and motor blockade with right-sided facial droop. Due to initial concern for potential cerebrovascular accident, additional providers were called to assist in evaluation and management. Her mental status exam was unchanged from baseline and upon closer examination it was noted that in addition to the signs and symptoms noted above, the patient also had right eye miosis, eyelid ptosis, scleral injection, and dilation of the veins on her

right hand compared to her left. She was diagnosed with Horner's Syndrome and no intervention was made other than discontinuation of the PCEA. Evaluation of truncal sensation to ice revealed a level of T8 on the left and T2 on the right. There were no significant hemodynamic changes, respiratory distress or changes to fetal monitoring. Aspiration of the epidural catheter was negative for CSF or blood. Due to concern for jeopardizing the safety of the mother and child due to possible continued cephalad spread of local anesthetic in the epidural space, we abandoned further attempts at neuraxial analgesia. 45 minutes following the epidural bolus of lidocaine, her symptoms began to resolve, with full resolution within two hours. Fortunately, neither she nor the child has had residual effects attributable to the episode. Lumbar MRI performed several months post-partum for ongoing management of chronic back pain was notable only for bulging of the L5/S1 intervertebral disc.

## **Discussion**

Horner's Syndrome associated with lumbar epidural analgesia for labor is an uncommon though possibly underreported phenomenon due to the subtlety of the signs and symptoms[1]. In our case, involvement of the brachial plexus prompted further evaluation. While our case is the first published report of Horner's Syndrome with brachial plexus anesthesia associated with combined spinal-epidural, it is unlikely that the spinal dose played a role as fentanyl was the only intrathecal medication administered. Additionally, there was a strong temporal relationship between symptom onset and resolution to epidural lidocaine administration. There are multiple possible factors that may have contributed to the excessive cephalad spread of local anesthetic in the epidural space required to produce her symptoms. Such factors include: decreased volume of the epidural space secondary to uterine contractions as well as venous enlargement,

progesterone-mediated increase in sensitivity of local anesthetics, possible septations in the epidural space that could be anatomic variation or acquired due to repeated spinal trauma, lateral positioning, and short stature of 59 inches[2, 4, 5]. Associated symptoms of hypotension, blurred vision, neck pain, and cranial nerve palsies (Trigeminal, Hypoglossal) have also been described[3] but were not present in our patient. The etiology for our patient could have been clarified had she been evaluated with an epidurogram postpartum[2]. Recommendations on continued use of the epidural catheter are difficult to make due to the infrequent nature of the complication, though the review performed by Chambers Et Al noted that none of the 78 cases they reviewed required any airway intervention[1]. The decision to continue use of the epidural should be made on a case-to-case basis.

## References

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