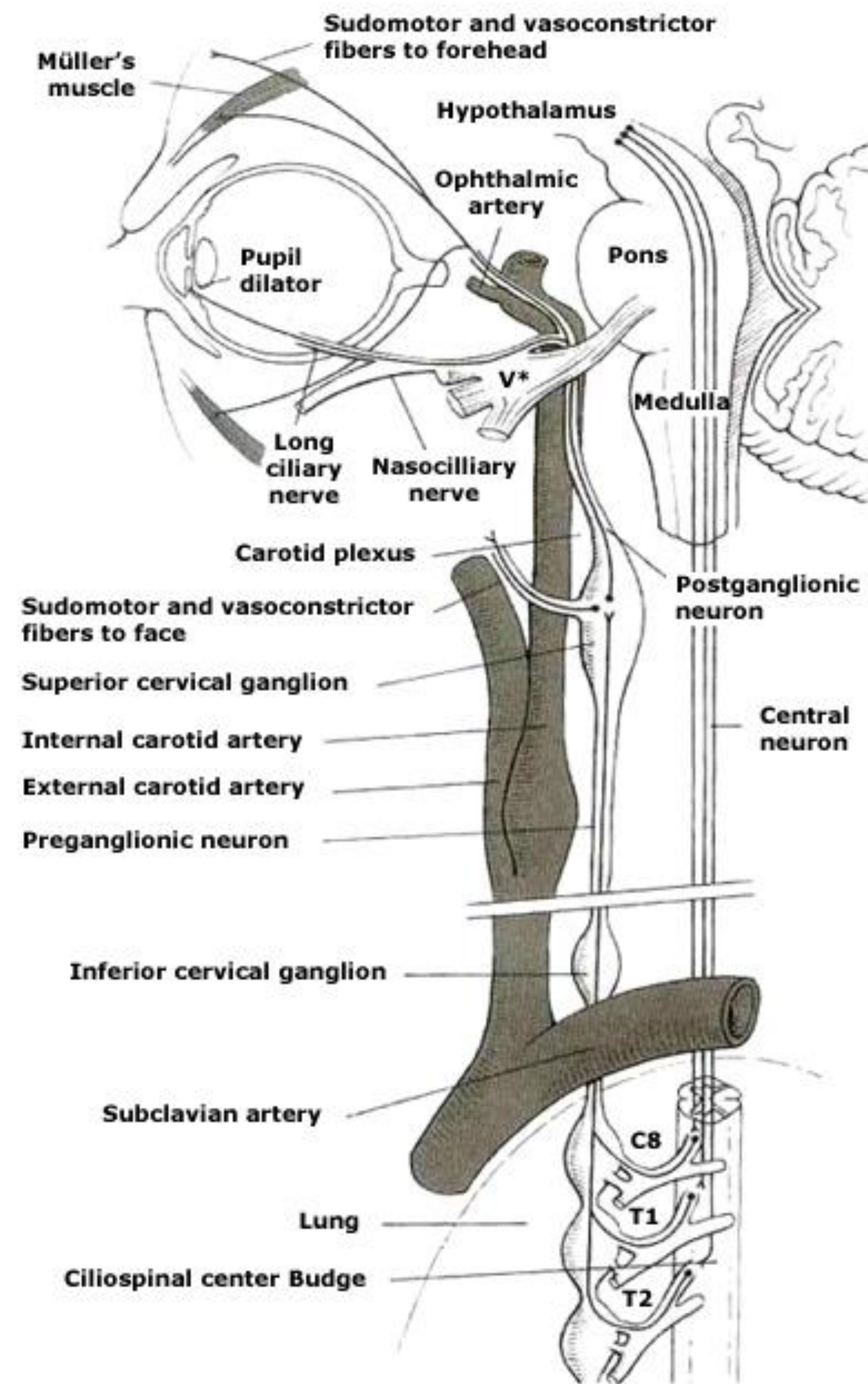


Recurrent Horner's Syndrome in a Patient Presenting for Delivery

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Sympathetic pathway for pupillary innervation



* Trigeminal ganglion.

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Introduction

- Oculosympathetic palsy from a lesion anywhere along the three-neuron sympathetic pathway (hypothalamus → cervicothoracic spinal cord C8-T2 and brachial plexus → ipsilateral orbit)¹⁻²
- There are reports of Horner's syndrome as a rare side effect of lumbar epidural anesthesia used for vaginal and cesarean delivery in pregnant woman; aggregate literature reports incidence as approximately 1 in 10,000 (0.01%) and as high as 4% in pregnancy^{2-4, 6}
- Iatrogenic occurrence likely occurs due to disruption of 2nd order neurons from local anesthetic, classically resulting in ipsilateral ptosis, miosis, and anhidrosis but epidural anesthesia is not intended to provide sensory blockade above T4

Learning Objectives

1. Increase awareness of Horner's syndrome as a consequence of lumbar epidural anesthesia
2. Review potential etiologies for the development of Horner's after epidural placement
3. Discuss management of lumbar epidural when adverse effects arise

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Case Summary

- 31yo G1P0 with GDMA1 and gestational HTN (gHTN) presented at 38w4d for induction of labor due to gHTN. Past surgical history significant for repair of right ACL 14 years prior
- She received 2 doses of vaginal misoprostol, after which SROM occurred, and she requested an epidural for labor analgesia



Figure 1: Our patient immediately after initial epidural placement demonstrating right sided ptosis and miosis.

Time 0

Dural puncture epidural performed at L3/L4 interspace using a 17G, 9cm Tuohy needle and a 25G, 11cm Whitacre needle with the patient sitting up. Loss of resistance at 5cm. Single-orifice catheter threaded without resistance. Test dose of 3mL of 1.5% lidocaine with 5ug/mL epinephrine given and negative for intrathecal or intravascular catheter. 10mL of 0.125% bupivacaine with 50mcg fentanyl administered via epidural in divided doses. Epidural pump started with program intermittent epidural bolus (PIEB) q40min and patient controlled epidural analgesia (PCEA) q30min

0:30

R-sided ptosis, palpebral fullness, miosis, and conjunctival injection (**Figure 1**). Exam revealed weakness with right upper extremity grip strength and abduction. Epidural discontinued

2:30

Observed to have resolution of symptoms. Catheter withdrawn by 0.5cm. PIEB and PCEA restarted. Exam showed adequate bilateral level of analgesia

10:30

Patient reported R-sided ptosis but no other symptoms observed. During this time, patient was having nonreassuring fetal heart tracing unrelated to neuraxial analgesia and was taken to the OR for C-section. Due to concern for Horner’s syndrome, the existing epidural was replaced at L2/L3 with loss of resistance at 5cm. New epidural slowly converted to surgical anesthesia with a total of 10 mL of 2% lidocaine with 1:200,000 epinephrine. Patient demonstrated analgesia to **T6 on the left** and **T4 on the right**

10:40

Patient noted to have R-sided ptosis and right upper extremity weakness with normal vital signs. Decision made not to convert to general anesthesia.

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Discussion

- Horner’s as a result of neuraxial blockade is likely underreported due to its subtlety of symptoms and transient nature. This also makes it difficult identify risk factors contributing to the increased risk of Horner’s in pregnant patients. Several theories exist to explain this:
 - Pregnancy-related narrowing of epidural space due to: 1) engorged epidural veins, 2) increased intrabdominal pressure from gravid uterus, and 3) Valsalva with uterine contractions can cause higher than expected cephalad spread of local anesthetic^{2, 7-8}
 - Inadvertent subdural/intrathecal administration of local anesthetic. There is some speculation that this can occur with dural puncture¹⁰
 - Unequal distribution of local anesthetic in the epidural space due to the *plica mediana dorsalis*, a connective tissue band that separates the posterior epidural space into lateral components
- We felt it was safe to continue the local anesthetic infusion as the symptoms are temporary and a prior case of Horner’s with an axillary catheter reported the safety in doing so
- We observed a block height no higher than T4 but we know the local anesthetic must have reached at least as high as T2 (if not higher) to cause Horner’s. This discrepancy has been previously reported and explained by increased sensitivity to blockade of preganglionic sympathetic B-fibers compared to somatosensory A-δ fibers. Local anesthetic properties may also affect the incidence and/or rate of onset of symptoms²
- Without carefully tracking the specific circumstances surrounding each case of Horner’s syndrome related to neuraxial blockade, it is difficult to determine clear risk factors. This may be the impetus needed for the creation of a database to track such cases and bring awareness to providers of its risks and management.

References

