

Possible allergic reaction after outpatient surgery

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CASE

A 54-year-old woman presented to the ED with complaints of a possible allergic reaction. She reported feeling well immediately after surgery but then experienced a sudden onset of difficulty swallowing, excessive sweating, hoarseness, right facial swelling, and right eye irritation.

History The patient had been released earlier that day from a local orthopedic surgical center after carpal tunnel release of the right wrist. She was accompanied by her daughter, who said that her mother had recovered from outpatient surgery without any complications and did not exhibit any eyelid drooping, hoarseness, or tearing at discharge. The daughter was driving her mother to the pharmacy to pick up her medications when the mother began to lose her voice, feel like her throat was closing, and her right eye began tearing excessively.

The patient reported that she was intubated for the procedure and received general anesthesia. For long-term pain control, the surgeon placed a right supraclavicular nerve block with a continuous infusion of ropivacaine (6 mg/hour) via a portable dosing pump. The daughter expressed concern that her mother was having an allergic reaction to the anesthesia administered during the surgery.

The patient's past medical history was remarkable for anxiety, hypothyroidism, hyperlipidemia, and chronic right shoulder and low back pain. She denied any history of known cardiac disease, diabetes, or chronic obstructive pulmonary disease. Her medications included lorazepam as needed, atorvastatin, and levothyroxine.

Physical examination Upon arrival, the patient's initial vital signs were BP, 130/72 mm Hg; heart rate, 71; respirations, 22; oral temperature, 96.9° F (36° C); and SpO₂, 99% on room air. She rated the pain on the right side of her face as a 7 on a 0-to-10 pain intensity rating scale. The



FIGURE 1. Ptosis of the left eye in a different patient.

patient exhibited some dyspnea on exertion, dysphonia, and was tearful and mildly anxious. She was able to answer all questions and speak in full sentences.

The patient was alert and oriented. Her right arm was in a sling with a bandage around the wrist. The site of the right supraclavicular perineural catheter appeared free of erythema, discharge, warmth, or signs of infiltration.

She exhibited right eye ptosis with conjunctival injection and a right miotic pupil measuring 2 mm (compared with 4 mm in the left eye). The oropharynx inspection showed no abnormalities or narrowing despite the dysphonia. No carotid bruits were auscultated. Cardiac rate and rhythm were normal without murmurs, rubs, or gallops. Arterial pulses were assessed in the upper and lower extremities and above and below the surgical site and were normal (3+). Lungs were clear to auscultation.

Other than the deficits already noted, her cranial nerve and neurologic examination was normal. She had full range of motion in all anatomical areas except the right upper extremity due to the supraclavicular brachial plexus block. Lower extremity muscular strength was 5/5 bilaterally. Deep tendon reflexes at the patella (L4) and the Achilles (S1) were graded at a 2+. The patient exhibited normal sensorimotor and proprioception.

Interventions The patient was placed on 2 L of supplemental oxygen via a nasal cannula and the room was readied for possible airway compromise. Samples were drawn for a complete blood cell count, comprehensive metabolic panel, troponin level, and venous blood gases. A portable chest radiograph was completed at the bedside.

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Due to initial concerns about an anaphylactic reaction, the patient was given methylprednisolone sodium succinate 125 mg IV, diphenhydramine 25 mg IV, and ranitidine 50 mg IV. She was risk stratified using the NIH Stroke Scale. Although advanced imaging was considered to rule out a stroke, it was not ordered due to the patient's overall low risk, presentation, and physical examination findings.

DIFFERENTIAL DIAGNOSIS

- spontaneous cerebral, cervical, or internal carotid artery dissection
- sympathetic uptake of the local anesthesia
- Pancoast tumor

DISCUSSION

After consulting the patient's surgeon and the institution's anesthesiology department about the supraclavicular nerve block and the patient's symptoms, clinicians determined that the most likely cause of the patient's Horner presentation and dysphonia was sympathetic uptake of the ropivacaine.

Ptosis, miosis, and anhidrosis are the classic signs of Horner syndrome, which can be caused by a lesion anywhere along the three-neuron sympathetic pathway that originates in the hypothalamus. These lesions can have many causes, including lateral medullary infarction (Wallenberg syndrome), strokes, tumors, internal carotid arterial dissection, or thrombosis. In this case, the patient demonstrated Horner syndrome due to the ipsilateral uptake of the ropivacaine from the ipsilateral sympathetic cervical chain (stellate ganglion).¹ Other self-limiting effects of the supraclavicular brachial plexus block include hoarseness due to temporary blockade of the ipsilateral recurrent laryngeal nerve and hemidiaphragmatic paresis from phrenic nerve block.^{1,2}

Horner syndrome is rarely permanent or of any lasting clinical consequence to the patient when it is an adverse reaction to a supraclavicular nerve block.^{3,4} Once the offending drug has been discontinued and metabolized, most symptoms resolve over time.³ Ultrasound-guided techniques have reduced the occurrence of Horner syndrome in supraclavicular blocks but it is still considered a common complication associated with the procedure.⁵

Other associated symptoms can be helpful in determining the origin or cause of a new-onset Horner syndrome. Head or neck pain can suggest an internal carotid or vertebral artery dissection. In either of these conditions, the enlarged vessel wall, due to a hematoma, compresses the surrounding anatomical structures.⁶ For example, as the internal carotid dissection expands, it will constrict the pericarotid sympathetic plexus, thus causing Horner syndrome.⁶ Published studies report as many as one-third of patients presenting with internal carotid artery dissection will also exhibit Horner syndrome.⁶ In this case, the patient did not exhibit any head or neck pain, stroke-like symptoms or focal weakness, neck swelling, carotid bruits, or retinal ischemia.

Patients presenting for care with ipsilateral weakness, vertigo, ataxia, and diplopia suggest a more central neurologic cause and a stroke must be ruled out quickly because time is the key factor in treatment.⁷

Pain in the shoulder, scapula, arm, or atrophy in the muscles of the hand in a patient with new-onset Horner syndrome may indicate a Pancoast tumor (apical lung tumor).^{7,8} Although Horner syndrome would be a late symptom in this condition, it has been reported as a finding in up to 50% of patients with Pancoast tumor.⁸ This patient did not have any atrophy of the hand muscles and had a normal chest radiograph.

OUTCOME

The patient consented to the removal of the perineural catheter and the ropivacaine was discontinued. The patient did not exhibit any clinical signs of anaphylactic reaction and her vital signs remained stable throughout her ED stay. Within the next hour, her symptoms improved dramatically. The patient was monitored in the ED for 2 hours before being discharged home. She was contacted 24 hours later to assess for any residual symptoms and reported that she was symptom-free.

CONCLUSION

This patient's Horner syndrome was due to iatrogenic causes; however, Horner syndrome is a classic neurologic syndrome with signs of ptosis, miosis, and anhidrosis. The syndrome is produced by a lesion of the sympathetic pathway that supplies the head, eyes, and neck. Potential causes include both benign and serious life-threatening causes. Maintaining a high index of suspicion, thorough history and physical examination, ancillary neuroimaging, and other diagnostic studies will help guide appropriate treatment and management of this condition. Although this patient was managed on an outpatient basis, patients may need hospital admission for observation depending on their clinical picture. **JAAPA**

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