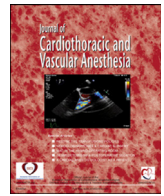




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## Letter to the Editor

### Role of Glossopharyngeal Nerve Block to Prevent Bradycardia During Surgical Manipulation of the Carotid Sinus: A Novel Use

To the Editor:

Manipulation and excision of tumors of and around the carotid body may stimulate the carotid sinus baroreceptors. The afferent impulse carried by the glossopharyngeal nerve to the brainstem leads to the activation of vagal efferent nerve fibers, which may cause bradycardia, atrioventricular block, or cardiac arrest.<sup>1</sup> The treatment for sustained bradycardia includes cessation of surgical manipulation, administration of atropine, or infiltration of a local anesthetic.<sup>2</sup> However, infiltration of the carotid sinus can also cause bradycardia. We describe the use of a glossopharyngeal nerve block to prevent intraoperative bradycardia due to the surgical manipulation of the carotid sinus in a patient undergoing neurogenic tumor excision. A 13-year-old girl was taken to the operating room for the resection of a right neck posterior triangle mass. Computed tomography showed a neurogenic tumor (3.0 × 1.9 × 4.1 cm) extending into the carotid space and displacing the vessels anterolaterally. After anesthetic induction, a curvilinear probe was placed transversely between the mastoid and the posterior edge of the mandibular ramus. The probe was manipulated to obtain the clearest image of the styloid process (Fig 1). A color-flow Doppler was used to identify the internal carotid artery and the internal jugular vein around the styloid process. An ultrasound-guided right glossopharyngeal nerve block was performed using a 22G 3.5-in needle. An out-of-plane approach was used to reach the styloid process. The needle tip was inserted behind the styloid process, and 2% lidocaine (2.5 mL) was injected. No episodes of bradycardia were subsequently observed during tumor manipulation and resection.

A glossopharyngeal nerve block is commonly used to provide transient cessation of nerve impulse conduction for the relief of glossopharyngeal neuralgia and is not associated with serious adverse effects.<sup>3</sup> Glossopharyngeal nerve block should be considered as an alternative approach to mitigate the

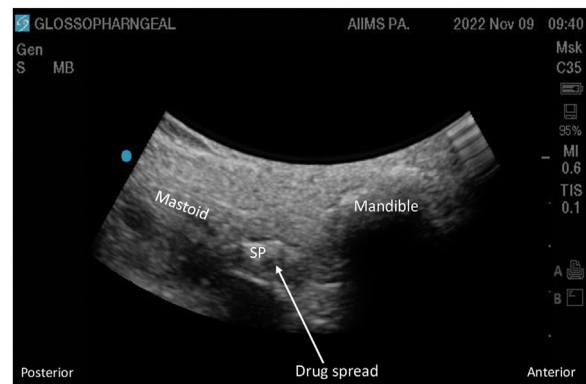


Fig 1. Ultrasound image of glossopharyngeal nerve block by peristyloid injection. SP, styloid process.

adverse vagally-mediated consequences of carotid sinus manipulation in patients undergoing tumor resection or carotid endarterectomy.

#### Conflict of Interest

None.

#### References

- 1 Muntz HR, Smith PG. Carotid sinus hypersensitivity: A cause of syncope in patients with tumors of the head and neck. *Laryngoscope* 1983;93:1290–3.
- 2 Cao Q, Zhang J, Xu G. Hemodynamic changes and baroreflex sensitivity associated with carotid endarterectomy and carotid artery stenting. *Interv Neurol* 2015;3:13–21.
- 3 Maher T, Shankar H. Ultrasound-guided peristyloid steroid injection for eagle syndrome. *Pain Pract* 2017;17:554–7.

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