

## Letters to Editor

### **Ultrasound-guided glossopharyngeal nerve block: Description of a new technique**

Dear Editor,

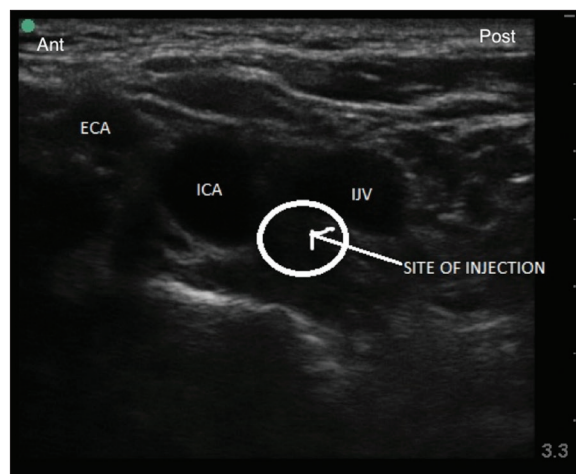
Eagle syndrome is frequently treated with a combination of drugs (nonsteroidal anti-inflammatory drugs, anticonvulsants, anti-depressants) and glossopharyngeal nerve block (GPNB) which is usually performed by landmark technique.<sup>[1]</sup>

Recently ultrasound-guided nerve blocks in comparison to landmark techniques have gained popularity due to various advantages like visualization of passage of block needle in real time, visualization of vessels, and requirement of lesser volume of local anesthetics. Glossopharyngeal nerve is a very small nerve and is not visible on ultrasound and thus ultrasound-guided GPNB (UGPNB) has not been explored. A previous cadaver study blocked the nerve distally in its course; however, this has not been validated in human patients.<sup>[2]</sup>

GPN lies posterior to internal carotid artery (ICA) at submandibular region.<sup>[3]</sup> As pulsations of ICA would be easily

identifiable on ultrasound, we are proposing a new technique of UGPNB wherein LA can be deposited posterior to ICA at submandibular region for eagle syndrome. Here we describe the technique in ten patients of eagle syndrome.

All non-obese patients with NRS  $\geq 5$  due to eagle's syndrome were placed in supine position. Neck was turned to opposite side and ultrasound neck scan (FUJIFILM SonoSite Edge, Linear probe 13–6 MHz) was done from base to identify common carotid artery and IJV which was confirmed with color Doppler. Common carotid artery was traced upwards till bifurcation to ICA and external carotid artery (ECA). ICA was then traced till submandibular region of neck (ICA lies posterior and deeper, ECA anterior and superficial). If delineation of vessels was difficult with linear probe, a curvilinear probe (2-5 MHz) was used. Area posterior to ICA and probable path of needle trajectory (in-plane or out of plane) was then scanned for vessels. Shortest avascular path was chosen as the final needle path for the block [Figure 1]. Block was performed without prior local anesthesia with a 26-gauge hypodermic needle of length 3.5 cm with 10 cm extension flushed with saline.



**Figure 1:** ICA, ECA and IJV at submandibular region

If posterior ICA or both needle trajectories were vascular, hydrodissection was used to push the vessels away. If not successful, needle tip was placed either anterior or above ICA, whichever was avascular. Block was performed after negative blood aspiration with 2 ml of 0.5% bupivacaine 7.5 mg with 20 mg depomedrol (methylprednisolone injectable suspension) and flushing with saline. Drug spread was confirmed.

In seven patients' drug was deposited at desired location. Drug was deposited anterior to ICA in one patient and above ICA in two patients. NRS decreased to below 2 in all patients from a baseline of 7 after 30 minutes of block and remained less than 3 in all patients for one week [Table 1].

In seven patients, a curvilinear probe was used and in six patients out of plane (OOP) needle trajectory. All blocks were performed by consultant JP who is well versed in ultrasound-guided blocks. For a novice pain physician, OOP needle trajectory would be challenging and should be undertaken with caution. Hoarseness and facial palsy were mild, non-distressing and self-remitting [Table 1].

Limitations were non-visualization of GPN posterior to ICA at submandibular region however pain relief points to effectiveness of this approach.

To conclude, UGPNB in patients of eagle's syndrome can be performed in majority patients by a curvilinear probe with out of plane technique by placing LA posterior to ICA at highest submandibular region on affected side.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

**Table 1: Characteristics of UGPNB**

Probe	Needle trajectory	Needle tip	Pre procedure VAS	VAS 30 mts after block	VAS after 1 week	Complications
C	IP	Lat ICA	7	2	1	H
C	IP	Med IC	5	0	1	H
C	OOP	Lat ICA	6	1	2	-
C	OOP	Above ICA	7	0	2	FP
C	OOP	Above ICA	6	0	1	H
C	OOP	Lat ICA	7	0	1	H
C	OOP	Lat ICA	6	1	1	-
L	IP	Lat ICA	7	1	2	-
L	OOP	Lat ICA	5	0	2	-
L	IP	Lat ICA	5	0	1	-

C: Curvilinear/L: Linear/IP: In Plane/OOP: Out of Plane/ICA: internal carotid artery/IJV: Internal Jugular Vein/H: Hoarseness/FP: Facial Palsy

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