

Background

- The Internal Classification of Headache Disorders (ICHD-3) classifies glossopharyngeal neuralgia (GN) by recurrent paroxysmal painful attacks in the glossopharyngeal nerve distribution that is severe in intensity and described as sharp, stabbing, shooting or electrical shock-like^{1,2}
- Duration of pain should be a few seconds to 2 minutes. Precipitating factors may be coughing, yawning, swallowing, or talking and diagnosis is by exclusion of other conditions^{1,2}
- Treatment includes analgesic therapy such as carbamazepine, baclofen and/or pregabalin.^{1,2} For the rare refractory cases, interventional nerve blocks may be required. Here we report the case of a patient with a rare-chronic and bilateral glossopharyngeal neuralgia that required nerve blocks for management.

Case

A 38 year old healthy female developed bilateral glossopharyngeal neuralgia with hemiplegic migraines after being treated with mefloquine for a severe *P. falciparum* infection (4/2016) while living in Africa working with gorillas and primates. Symptoms were described as severe “electric-sharp-stabbing pain” (rated pain 8-9/10) and included facial spasms, trouble speaking/raspy voice, dysphagia and facial weakness. Symptoms initially responded to a course of steroids, but eventually persisted to the point where she developed weight loss due to aversion to food and the inability to perform activities of daily living.

Initial management:

Botox injections, physical therapy, multimodal medications (duloxetine, gabapentin, acetaminophen, NSAIDS), bilateral cervical facet injections, occipital nerve blocks, which provided ~50% pain relief for up to 1-2 weeks. However, painful throat spasms persisted, and her symptoms became refractory to initial treatment.

Bilateral Glossopharyngeal Nerve Blocks and Stellate Ganglion Blocks

-Provided effective relief reported around 50 %, pain returning to baseline level by 3 months. Repeat injections reduced level of pain from 9-10 (2021) to 3-4 in (2023).

-Patient regained the ability to eat and drink, no longer had facial muscle spasms, significant improvement in overall quality of life

Glossopharyngeal nerve block (Figure 3)

- An ultrasound probe is used to visualize the mastoid process and the styloid process.
- Upon identification of styloid process, a needle is inserted in plane until the styloid process is contacted and then directed slightly posteriorly, after which local anesthetic and steroid are injected

Stellate ganglion block (Figure 4)

- An ultrasound probe is placed in a short axis view at the level of the cricoid cartilage
- Probe is directed inferiorly and laterally to identify the anterior aspect of the C6 transverse process (Chassaignac’s tubercle)
- Using an in-plane approach, a needle is inserted lateral to medial direction to reach the prevertebral fascia of the Longus colli muscle
- After confirming negative aspiration of blood or cerebrospinal fluid, local anesthetic is injected into the area of the sympathetic chain. The anesthetic then travels inferiorly by gravity toward the stellate ganglion to inhibit sympathetic nerve impulses
- Clinical signs of a successful block can include: ipsilateral miosis, increased arm temperature

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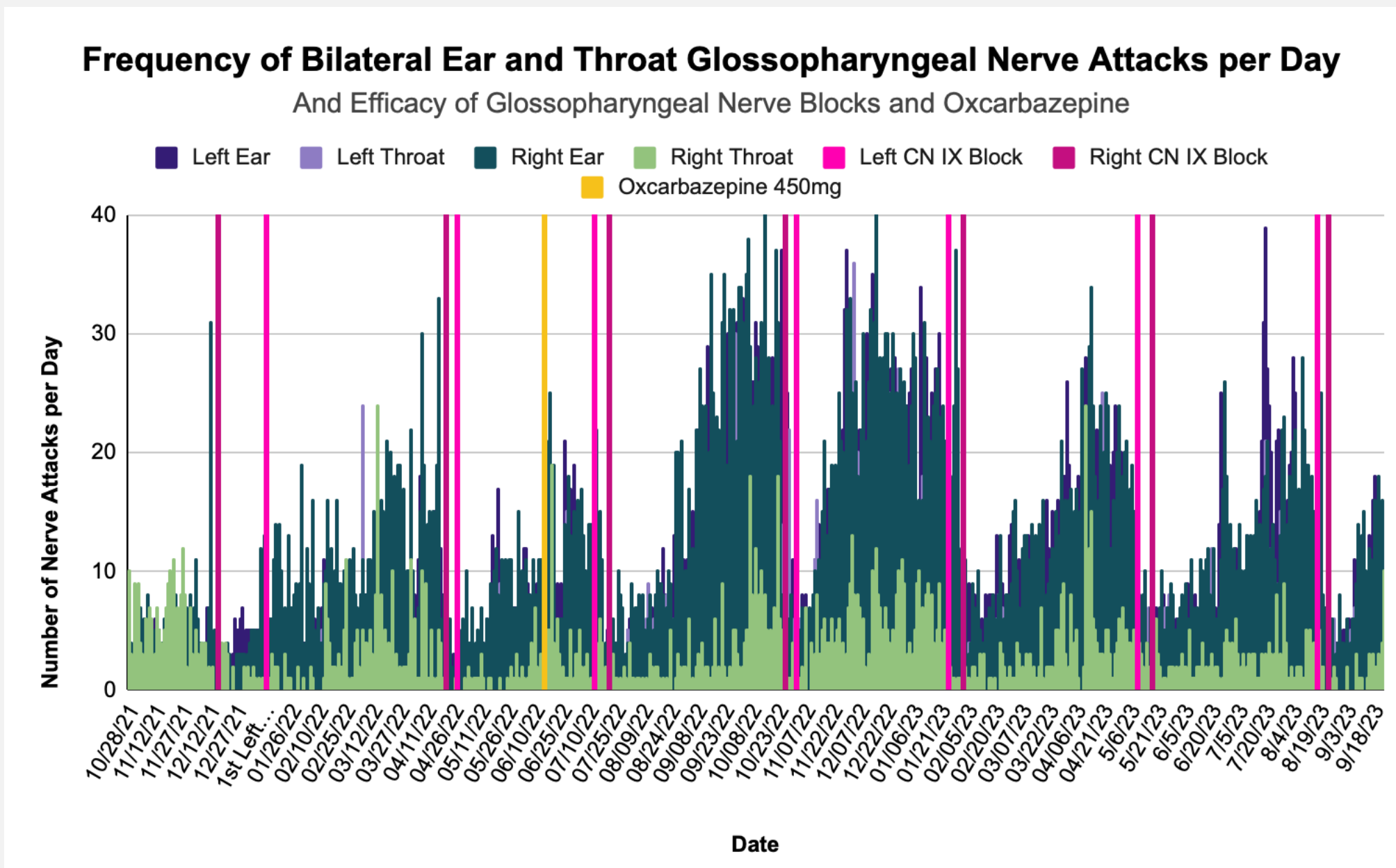


Figure 1. Frequency of glossopharyngeal neuralgia exacerbations along with oxcarbazepine use and bilateral glossopharyngeal nerve blocks

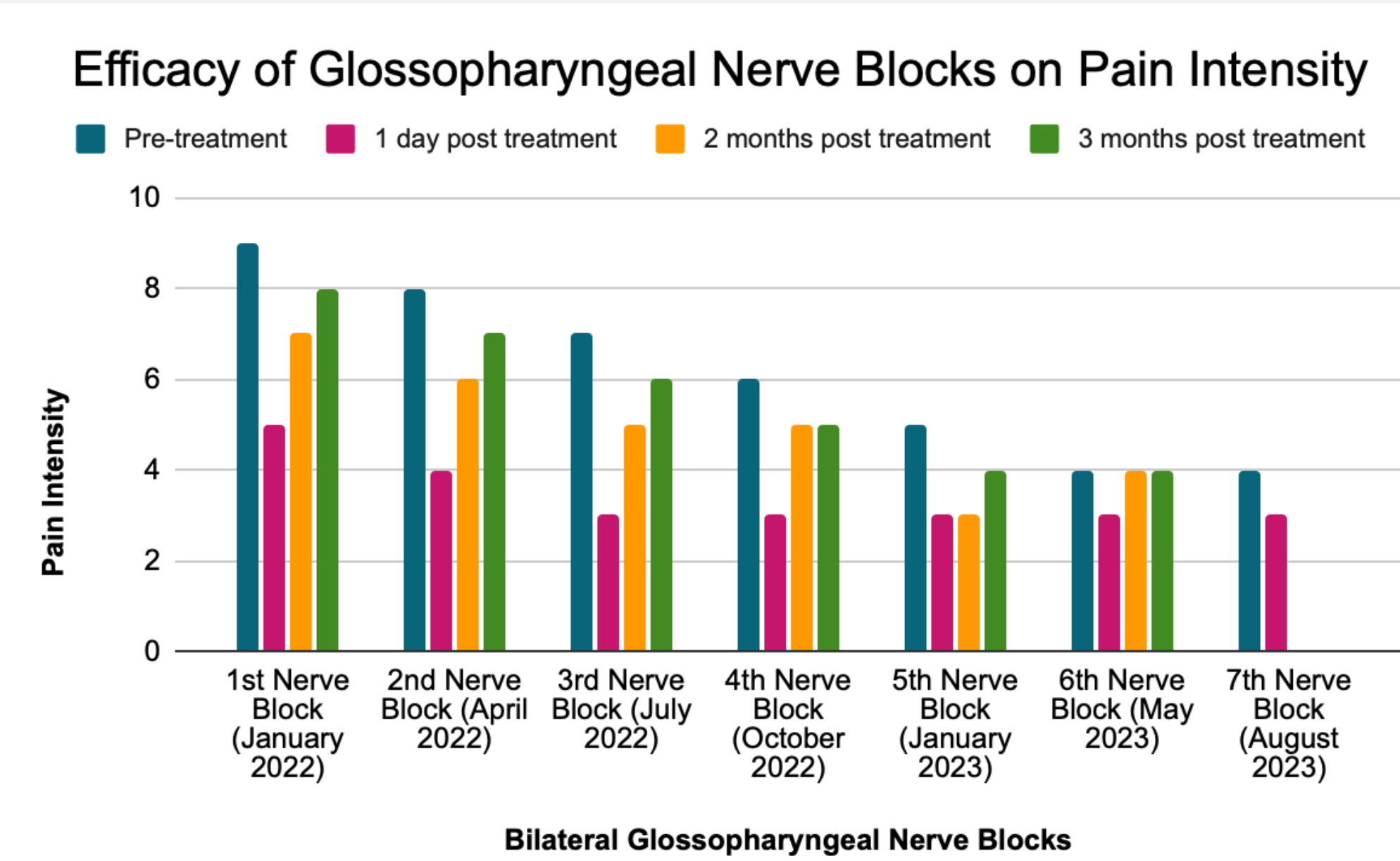


Figure 2. Pain diary: efficacy of bilateral glossopharyngeal nerve blocks

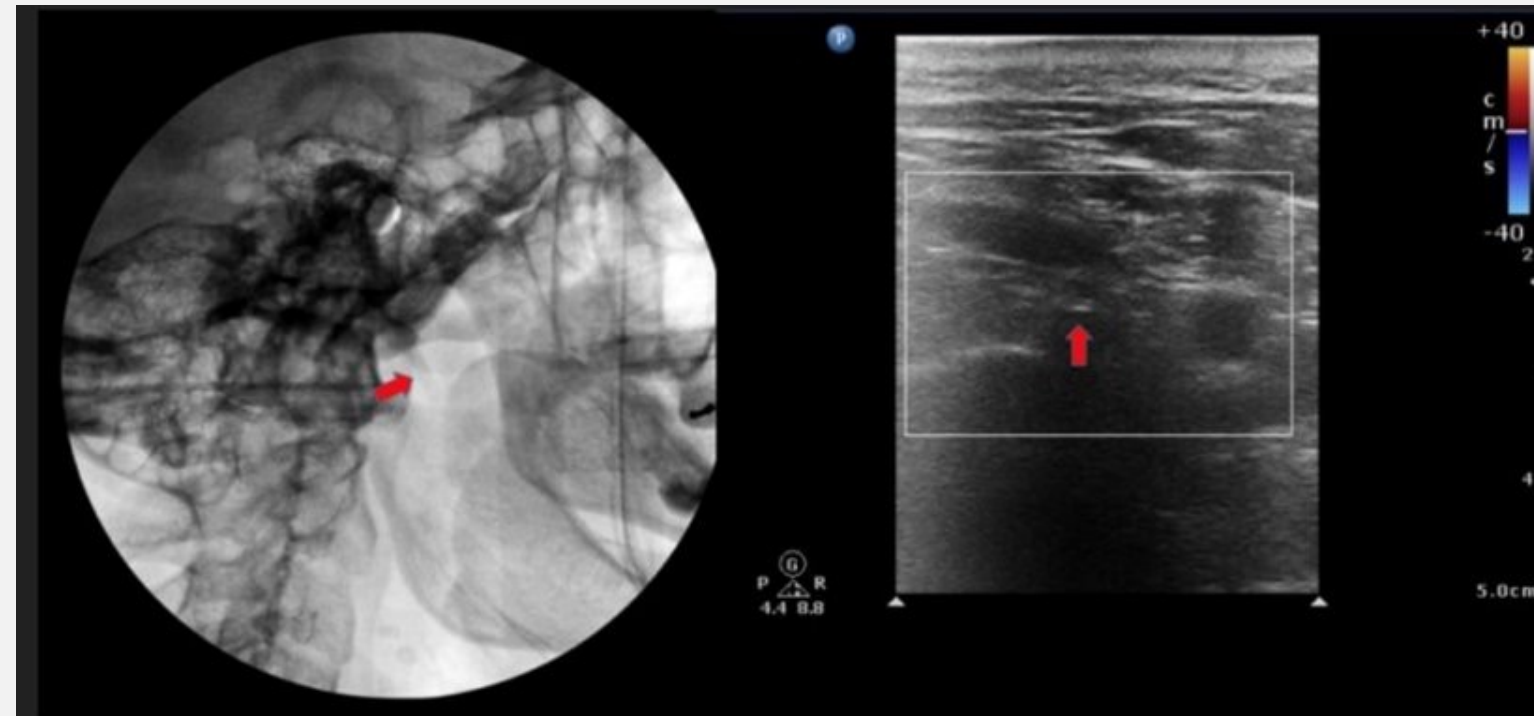


Figure 3. Image: fluoroscopy (left) and ultrasound (right) identification of the glossopharyngeal nerve location near the styloid process^{6,7}

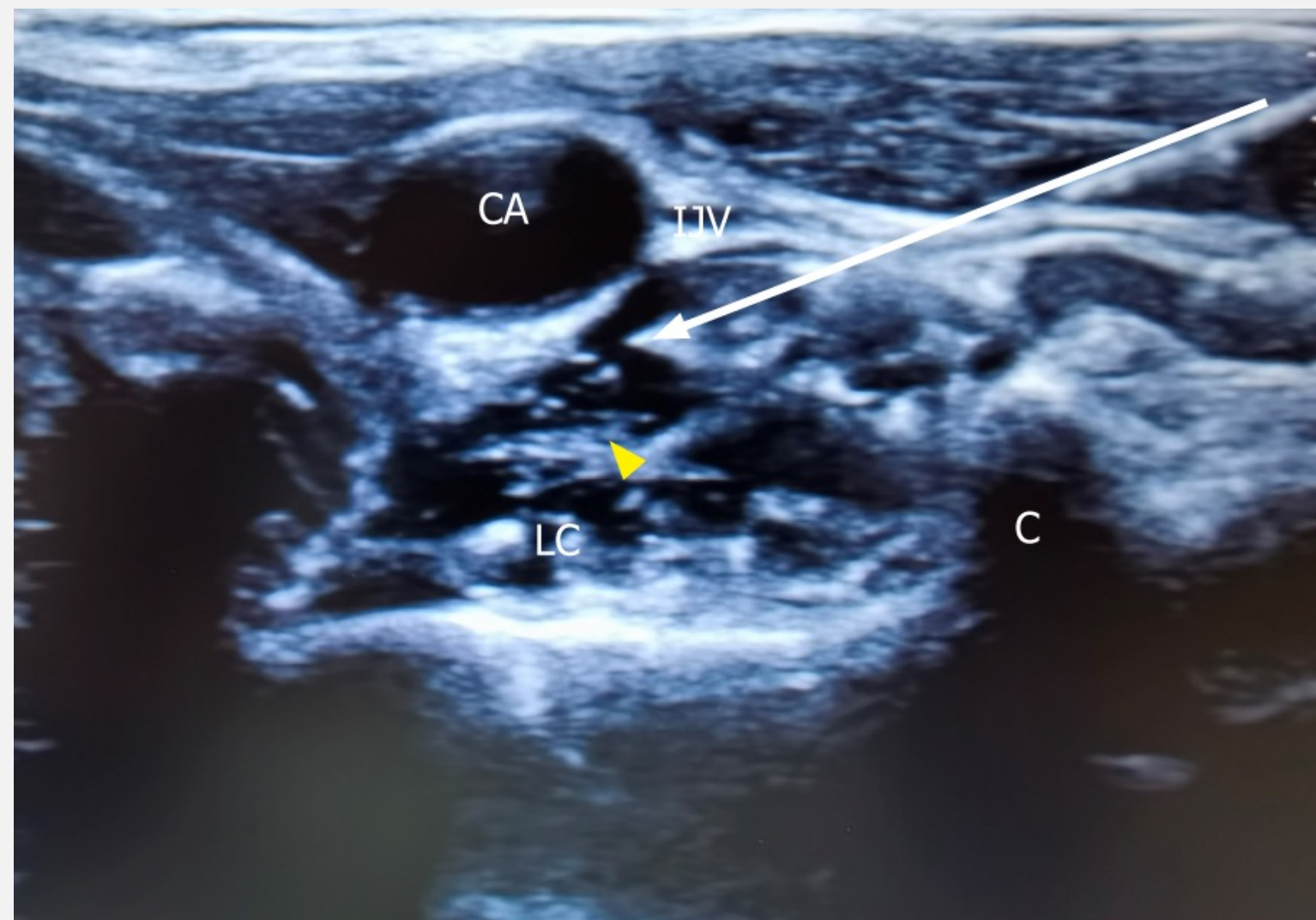


Figure 4. Ultrasound-guided Stellate ganglion block using in-plane technique⁴

Discussion

- Glossopharyngeal neuralgia is a painful neuropathic disorder that can significantly impair quality of life. It is commonly misdiagnosed as the more common trigeminal neuralgia. It can be treated with diagnostic and therapeutic nerve blocks, and refractory cases may require surgical intervention.^{1,2}

- Our patient suffers from the rarer bilateral GN, versus unilateral GN. According to previous studies, bilateral GN with multiple bouts of severe excruciating and constant pain are poor prognostic indicators,⁸ which likely explains why our patient required interventional treatment with nerve blocks in addition to medication management.

- Our patient’s case is unique in that her condition is suspected to be due to mefloquine neurotoxicity based on the temporal relationship to onset of her symptoms. Mefloquine can cause neuropsychiatric adverse effects such as: dizziness, vertigo, tinnitus, loss of balance, anxiety, depression, paranoia, hallucinations and psychosis.^{13,14} In rare cases, studies have shown adverse reactions may also occur after discontinuation of the drug and there are reports of mefloquine induced neuropathy associated with pain and paraesthesia.^{13,14}

Conclusion

- Glossopharyngeal Neuralgia should be treated early and aggressively with a multifaced approach
- Although often idiopathic in nature, GN has been shown to be secondary to inflammatory or autoimmune processes.³ We demonstrate a highly unique cause of GN secondary to mefloquine neurotoxicity
- This case report highlights that in refractory cases, glossopharyngeal and stellate ganglion nerve blocks may be pursued as minimally invasive alternatives to surgical decompression
- In the patient who presents with atypical facial pain, consider the diagnosis of GN, especially when they are not responding to conventional therapy
- Further research is needed to identify other causes of glossopharyngeal neuralgia and shorten time to diagnosis

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