

Sphenopalatine Ganglion Block in Refractory Familial Hemiplegic Migraine



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Highlights

- We successfully utilized sphenopalatine ganglion blocks in a patient with refractory familial hemiplegic migraines with improvement in her headache and motor symptoms
- The blocks we performed were simple, safe, and complication-free
- Sphenopalatine ganglion blocks were the only technique that ultimately reduced headache to a manageable level, allowing for safe discharge after 16 headache days

Background

The sphenopalatine ganglion (SPG) is the largest parasympathetic ganglion of the four associated with the trigeminal nerve. It lies within the pterygopalatine fossa, close to the sphenopalatine foramen, deep and superior to the posterior attachment of the middle turbinate. The traditional trans-nasal topical approach of the SPG block involves soaking a cotton applicator with local anesthetic, then placing the applicator within the nostril until the applicator reaches the mucosa that is superior to the posterior insertion of the middle turbinate. The applicator is left in place for 5 minutes, then removed. This process is repeated for up to three applications of local anesthetic on each side. Other techniques have been offered as alternatives to the trans-nasal topical approach, including trans-nasal injection, transoral injection, and infrazygomatic (though this typically involves advanced imaging for guidance).

Our Patient

Our patient was a 55 year-old, 60 kg female with a history of familial hemiplegic migraine. This condition involves debilitating episodes of migraine, which are often accompanied by neurologic deficits. Our patient had been hospitalized multiple times for pain control associated with these migraines. Her home medications at the time of admission included valproic acid 1000 mg PO BID and eptinezumab, an anti-CGRP monoclonal antibody treatment. She notably also had an existing left occipital nerve stimulator, which was placed as an outpatient as a treatment for chronic pain. She initially presented to our facility for management of status migrainosus, with a complaint of 5 days of migraine symptoms.

She endorsed a left-sided headache, 8/10 in severity, characterized by tightness and sharp, shooting pain, with associated blurry vision, photophobia, phonophobia, nausea, as well as right-sided numbness and left-sided hemiparesis, tremors, and dystonia. She noted that her usual symptoms lasted for 2-3 days, however this episode had persisted despite treatment at an outside facility. Physical exam was notable for 4/5 motor strength in the left upper and lower extremity, as well as left-sided tremors and dystonia.

Treatment Course prior to blocks:

- Outside Hospital: 3 day admission with IV corticosteroids, IV magnesium, IV diphenhydramine, IV antiemetics
- Emergency department: ketorolac 15mg IV, metoclopramide 5mg IV, diphenhydramine 12.5mg IV, and 1LR crystalloid bolus
- First 24 hours on neurology service: ketorolac 30mg IV every 6 hours, diphenhydramine 25mg IV every 6 hours, metoclopramide 10mg IV every six hours, maintenance IV fluids and IV magnesium
- Received dihydroergotamine, IV methylprednisolone treatment
- Bilateral greater and lesser occipital nerve blocks performed by neurology service with transient slight improvement

Despite receiving all of the above, the patient’s headache persisted. Acute pain service was consulted on day 10 of headache symptoms.

APS Treatment Course:

- Started on lidocaine IV 0.5mg/kg/hr, ketorolac 30mg IV every 6 hours, gabapentin 600mg PO nightly, acetaminophen 1gm PO every 6 hours, diphenhydramine 25mg IV every 6 hours.
- Block 1: L SGB 4% lidocaine, headache improved from 10/10 to 8/10 (still required IV opioids including morphine, hydromorphone)
- Block 2: L SGB 4% lidocaine, headache improved to 7/10 (opioid requirements decreased and patient only needed 2 doses of IV morphine over the 24 hours following the block.
- Block 3: L SGB with 0.5% bupivacaine, single application left for 5 minutes. Headache improved to 5/10.

After third sphenopalatine ganglion block, headache and left sided weakness improved, and our patient did not require any further opioid administration for the duration of her hospitalization. She was able to be safely discharged with improvement in her clinical condition.

Summary

The SPG block served as a minimally invasive, opioid-sparing technique for use in a debilitating episode of familial hemiplegic migraine presenting in status migrainosus that lasted for sixteen days and allowed for the patient to be safely discharged after a fourteen-day hospitalization. She received numerous treatments for migraine, many of which fell into the category of commonly used techniques for controlling migraine headache in the hospitalized patient. Despite these treatments, she was escalated in therapy to second and even third line treatments with little success. Ultimately, a three-stage regional anesthetic technique provided a tolerable level of pain control, in addition to providing partial relief of her left-sided deficits associated with familial hemiplegic migraine.