

INTRODUCTION

Glossopharyngeal neuralgia (GPN) is a rare condition with unilateral pain in the distribution of the glossopharyngeal nerve. **Bilateral GPN** is extremely rare. To date, there has been no surgical report describing the safe surgical management of bilateral GPN which is potentially high risk. We describe a 24-year old female patient with bilateral GPN who underwent staged surgery for bilateral GPN without major complications.

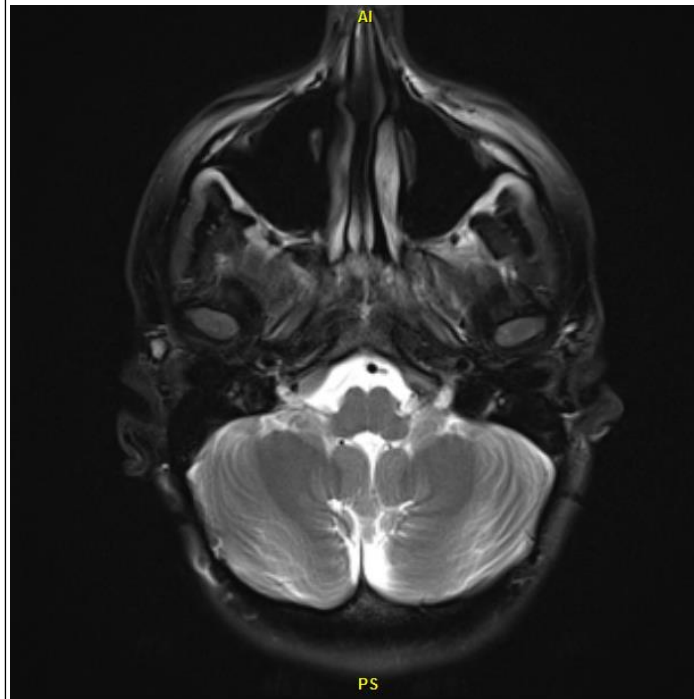
CASE PRESENTATION

History of present illness

A female in her 20's with a history of a chronic complex facial pain syndrome presented to the clinic with intractable left-sided facial pain. She described a shooting quality of pain behind the mandibular angle and just below the ear without radiation to the face, ear, oral cavity, or oropharynx. Pain episodes were brief, occurred twenty to thirty times per day, and were triggered by cold winds, cigarette smoke, and air inhalation. Touching the face or mouth, eating, swallowing, speaking, chewing, opening the mouth, or Valsalva maneuvers did not elicit the pain.

The patient had already been maximally treated medically for her recent left-sided intractable facial pain. Procedures such as transcutaneous electrical nerve stimulation and stellate/sphenopalatine ganglion blocks did not provide complete relief. The patient had a long history of a complex facial pain syndrome, and had undergone staged surgery for bilateral trigeminal neuralgia, and surgery for right-sided GPN two years prior. The latter consisted of a retrosigmoid craniectomy with sectioning of cranial nerve (CN) IX and the upper rootlets of CN X.

Figure 1.



MRI of the head shows the 9/10 complex with no obvious vascular compression or tumor.

Imaging

MRI was negative for abnormal mass, vascular compression, white matter changes, or pathologic contrast enhancement in the regions of the glossopharyngeal nerves bilaterally (**Fig1**). Head CT was normal.

Pre-op oropharyngeal/cardiac function tests

The patient's preoperative oropharyngeal functions were evaluated with vocal cord function tests and fluoroscopy for swallowing. A full cardiac examination was also conducted to detect serious arrhythmia. Tests showed no evidence of an increased risk for developing postoperative cardiac or oropharyngeal complications.

Surgery for left GPN

Given that: 1) this patient did not previously experience complete relief from transcutaneous electrical nerve stimulation nor stellate/sphenopalatine ganglion blocks, and 2) sectioning of CN IX and the upper rootlets of CN X was effective on the right side, we ultimately deemed that sectioning of the left CN IX and upper rootlets of CN X would be effective.

Left suboccipital craniotomy was performed for sectioning the left CN IX and upper rootlets of CN X. Electrodes were used for intraoperative monitoring of CN VII, VIII, X, and XI. The left suboccipital region was incised guided by the scar line from the previous microvascular decompression performed for trigeminal neuralgia. Adhesions between the arachnoid and the dura were carefully lysed, and CN XI was exposed and followed carefully to the jugular foramen. CN IX and the upper rootlets of CN X were electrically stimulated, and this elicited no reaction in the vocal cords. CN IX was sectioned along with two upper rootlets of CN X. No significant bradycardia or cardiac arrest occurred during the surgery.

Post-operative Course

The patient awoke with no complications postoperatively, and had complete resolution of the pain within the first few days after surgery. At one-year follow-up, the patient maintained continued relief from pain with no associated dysphagia or cardiac arrhythmias.

CONCLUSIONS

Staged surgery for bilateral GPN may be a viable option in carefully selected patients who have undergone thorough pre-operative assessment of oropharyngeal and cardiac functions.