



DIAGNOSTIC CHALLENGE: TRIGEMINAL NEURALGIA EVOLVING INTO ATYPICAL FACIAL PAIN

Anaesthesiology

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ABSTRACT

Sphenopalatine ganglion (SPG) is suggested as a neurological target in treating many forms of headache and head pain. SPG is in the inverted pyramidal shaped pterygopalatine fossa consisting of 3 neuronal pathways. The clinical features of the pathway activation are lacrimation, rhinorrhea and nasal congestion, conjunctival injection, periorbital oedema and craniofacial perspiration. Radiofrequency ablation is based on the concept that pain impulses can be interrupted by passing on radiofrequency currents near nociceptive pathways, using heat energy to destroy tissue, that is, the nerves transmit and / or process the pain perception. A 51-year-old female came to the hospital presenting with complaints of severe left side orofacial pain. This case report depicts an effective SPG RFA approach in treating our patient with severe left orofacial pain by using three 90-second cycles of traditional RF ablation at 80 degrees. SPG RFA significantly reduced the patient's pain and improved their quality of life. This case highlights the value of individualized treatment plans and multidisciplinary approach in the management of atypical facial pain.

KEYWORDS

Sphenopalatine ganglion, Radiofrequency Ablation, Orofacial pain

INTRODUCTION

Sphenopalatine ganglion (SPG) is suggested as a neurological target in treating many forms of headache and pain like migraine headache, cluster headache (CHs), atypical facial pain, and trigeminal neuralgia. In the inverted pyramidal shaped pterygopalatine fossa is the Sphenopalatine Ganglion (SPG) or the pterygopalatine parasympathetic ganglion which is an extracranial parasympathetic ganglion (1). There are three neuronal paths in the SPG. The sensory pathways are attributed with a great deal of sensory innervation of the face and the neck. The convergence of the head and the neck sensory nerves form the SPG pterygopalatine branches that unite with the maxillary nerve at the trigeminal ganglion (2). The clinical features of the pathway activation are lacrimation, rhinorrhea and nasal congestion, conjunctival injection, periorbital oedema and craniofacial perspiration. These autonomic symptoms belong to a category of headache diseases referred to as trigeminal autonomic cephalalgias (TACs). CH, paroxysmal hemicrania and hemicrania continua are all TACs. Physicians working with patients with TAC disorders use the SPG as a key scheme due to its close involvement in the neurological pathways associated with the diseases (3). Radiofrequency ablation is based on the concept that pain impulses can be interrupted by passing on radiofrequency currents near nociceptive pathways. Radiofrequency ablation requires the heat energy to destroy tissue, that is, the nerves transmit and / or process the pain perception (4).

CASE REPORT

A 51-year-old female came to the hospital presenting with complaints of severe left side orofacial pain. The pain was continuous and burning with sharp shooting/electric-shock like sensation. Pain was exacerbated across the lower jaw and gums of the left lower molar area when she chews, talks, opens the mouth, or brushes.

The patient had a history of undergoing a left lower molar extraction 2 years ago which led to pain a month after the procedure. Due to the recurrent pain, a left inferior alveolar neurectomy was performed a year ago, however it did not provide any significant relief. She was then started on Tab. Carbamazepine 100mg for three times daily which helped to alleviate her symptoms. The patient benefitted a little more when the dose was gradually increased to 600mg.

Given the ongoing discomfort the patient was posted for left trigeminal ganglion radiofrequency ablation (RFA) immediately 40% relief was seen. Regardless of the course of the treatment, the patient returned with the same symptoms because of its shorter duration of action that is one and a half month. After evaluating the patient, Atypical facial pain was diagnosed upon review with intermittent burning sensation over

left cheek. The SPG was confirmed as the target location after a diagnostic sphenopalatine ganglion block was performed at the patient's bedside 2% xylocaine 1.5ml in left nostril in supine position with head extended with the help of swab stick, which produced about 70% pain reduction in 15 minutes.

The patient was then posted for left sphenopalatine ganglion radiofrequency ablation (SPG RFA). Inside the operation theater, a 20 G intracath was used to ensure intravenous access, and prophylactic intravenous antibiotics were given. Strict aseptic measures were taken to prepare and drape the left face area while the patient was in the right lateral decubitus posture.

The pterygopalatine fossa was recognized in both AP and lateral views with the use of fluoroscopic imaging. Local infiltration was given with Inj. Lignocaine 2%. The trans nasal technique was then used to advance a 22G RFA needle (10 cm), and radiography was used to establish that the needle tip had reached the nasal cavity's lateral wall. By using sensory stimulation at 50HZ to induce paresthesia near the root of the nose, the position was verified.

Three cycles of conventional RF ablation were carried out at 80 degrees for 90-seconds each. The procedure proceeded without incident, and the patient remained hemodynamically stable. The patient was moved to the recovery room after the intervention in a stable state. 70% relief was on the first and seventh day follow up; 75% relief was seen on 30 and 60 day follow up. Dose of Carbamazepine was reduced to 100mg BD and then tempered down to 100mg OD on 30th day. Tab. Carbamazepine was stopped after 60 days.

DISCUSSION

Atypical Facial pain presents as a great diagnosis and treatment challenge because of complex pathogenesis and similarity to other craniofacial pain conditions, notably trigeminal neuralgia. Subsequently, this patient started experiencing shearing and shooting pain continuously after extracting the tooth and this is a symptom that is mostly identified with post-traumatic trigeminal neuropathy. After undergoing inferior alveolar neurectomy and augmented dose of carbamazepine, the patients continued to complain of discomfort, which indicated the presence of a non-classical form or component of central sensitization instead of a direct peripheral nerve disease.

This has made the sphenopalatine ganglion (SPG) a major focus in the treatment of chronic face and head pain syndromes because of its broad sympathetic, sensory, parasympathetic and connections with the trigeminal system. The highest salivatory nucleus has fibers of efferent and afferent, which adjust the transmission of nociceptive and

craniofacial vasodilation, the maxillary part of the trigeminal nerve carries the afferent fibers to the SPG. Ganglion modulation thus disrupts this aberrant pain signaling mechanisms which relate to several headache and facial pain conditions.

In this case, the initial diagnosis of the patient showed that SPG diagnostic block led to a rapid decrease in pain. This prompted the use of radiofrequency ablation (RFA) that induces a focal thermal ablation that inhibits the transmission of nociceptive but spares autonomic activity leading to prolonged analgesia. The pain-free duration in the patients after undergoing SPG RFA indicates its possible effectiveness in the occurrence of circumstances where medical and surgical management is ineffective.

It has been demonstrated by **Shah R et. al.** (7) that posttraumatic headaches relief was long term when SPG-pulsed radiofrequency lesioning was used due to which headache frequency was decreased for 3 months and because of its shorted duration the effects of SPG-pulsed radiofrequency lesioning returned when the baseline neural functioning returned. **Akbas M et. al.** (8) has proved the PRF of SPG in the management of chronic pain in the head and face by achieving complete pain relief in 35% of patient and a mild to moderate pain relief in 42% of the patients. **Eckely M et. al.** (5) regardless of repeat administration of SPG block demonstrated a significant and long-term relief, which lasted as long as 6 weeks at a time. RF did not provide any effect on the gasserian ganglion gland; however, **Shinde M et.al.** (6) reported a positive response of RF to the pain which was reduced from a VAS score of 10 to a 2 in the application of sphenopalatine block RF, according to him it was a safer and effective for HNF pain but also requiring skillful expertise.

CONCLUSIONS

Overall, this case highlights the value of individualized treatment plans and multidisciplinary approach in the management of atypical facial pain and in order to improve the quality and life of patients with atypical facial pain, further research and long-term follow up studies are necessary to clarify the best time, frequency and mix of therapies.

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