Case Report

Sphenopalatine ganglion radiofrequency ablation for management of atypical trigeminal neuralgia

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Abstract

A 47 year old female patient came with left sided orofacial pain resistant to routine medications with aggravating factors which was treated initially with gasserian ganglion RFA. The procedure outcome did not relieved pain intensity significantly and was not even for a months. Measures directing towards sphenopalatine RFA showed promising pain relief i.e. VAS score reduction as 10/10 to 2/10. Patient tolerated the procedure well without any complications. **Background:** Sphenopalatine ganglion is the largest collection of neurons in the calvarium outside the brain. Over the past century, it has been a target for interventional treatment of head and facial pain due to its ease of access. The sensory input to the SPG is via branches from the maxillary nerve carrying sensations from the palate, buccal cavity, gingiva, and tonsils. Sphenopalatine ganglion (SPG) block has gained interest as an effective treatment modality for migraine and other headaches and facial pain syndromes. The diagnosis of trigeminal neuralgia (TN) critically depends on a patient's description of pathognomonic pain attacks. Characterizations include notions of brief, sudden, stabbing, electric shock–like and severe pain attacks[4]. Etiologically established TN. This level of diagnostic certainty, based on identification of a cause for the TN, corresponds to 2 categories: classical and secondary TN is defined by an underlying cause. Both diagnostic entities qualify as definite neuropathic pain. Classical TN. Classical TN is defined as a specific category of TN in which MRI demonstrates vascular compression with morphologic changes of the trigeminal nerve root. Because of its sensitivity to detect pathologic processes involving brainstem and cranial nerves running through the base of the skull, MRI is widely seen as the method of choice to examine the trigeminal nerve and root. SPG blocks have been achieved with various techniques, including the use of lidocaine-soaked cotton tip applicator through the nose, trans orally, trans nasal endoscopic, infratemporal approach, and more recently using various non-invasive trans nasal devices to inject anesthetics into the SPG. Block, radiofrequency ablation, and neurostimulation have all been applied to treat a myriad of painful syndromes. In this case report, we demonstrate the effectiveness of the radiofrequency ablation technique for sphenopalatine ganglion block for the management of pain and we propose an increased consideration of the radiofrequency ablation for sphenopalatine ganglion block in treating atypical trigeminal neuralgia. **Conclusion:** Sphenopalatine ganglion RFA showed long term pain relief compared to other modalities.

Key Word: RFA, sphenopalatine ganglion, pain, trigeminal neuralgia.

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47 years Female patient came to clinic with severe stabbing, shooting, electric shock like left side orofacial pain, pain lasts for 1-2 minutes and recur again after few minutes. Pain is aggravated by talking, chewing or touching the left side of the face. Patient was suffering from the pain from last 1 year Patient consulted neurophysician 1 year back and was on medical management in the form of Tab carbamazepine 200mg bid. Initially patient responded to the medical management but after that the dose of Tab.

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Carbamazepine titrated up to 400mg tid. Patient came to pain clinic for unbearable pain even after Tab. Carbamazepine 400 mg tid Tab. Pregablin 75 mg Hs. MRI with CISS study of patient showed impressions as – **1**.Vascular loop of right superior cerebellar artery causing moderate indention over superior surface of cisternal segment of right trigeminal nerve near its root entry zone. **2**. Vascular loop of left cerebellar artery abutting the superior surface of cisternal segment of left trigeminal nerve. **3.** A focal bony excrescences arising from the posterior aspect of the left petrous apex , projecting medially and causing moderate indentation over the infero-lateral surface of cisternal segment of left trigeminal with mild displacement of nerve. **4**. Mild dilatation of C.S. F. sleeves surrounding both optic nerves. Patient was advised neurosurgery for tiny bony excrescence causing deviation of left trigeminal nerve. But patient was not willing for neurosurgery. So came for Radio frequency Ablation. RF Ablation of left trigeminal (Gasserian) ganglion was done under C Arm guidance with standard protocol of sensory and motor stimulation guidelines. Unfortunately patient not responded well to trigeminal RF, observed for one month. In view of the severe, unbearable, neuralgic, facial- maxillary left side pain, patient posted for diagnostic left Sphenopalatine ganglion block. After procedural block, patient reported 90 percent pain relief with VAS reduced from 10/10 to 2/10. Next week patient underwent therapeutic RF Ablation of Sphenopalatine ganglion block by left infrazygomatic approach. Sensory /motor stimulation done with standard protocol.A 22G,100.5 mm RF needle with 5 mm exposed tip used. With sensory Stimulation at 0.5V at 50 Hz elicited paraesthesia in the nose. Twice lesions of RF Ablation carried out after injection of 2percent lignocaine 2ml at 80 degrees Celsius for 90 seconds. Patient tolerated the procedure well without any early or late complications to date i.e. 7 months of post procedure.

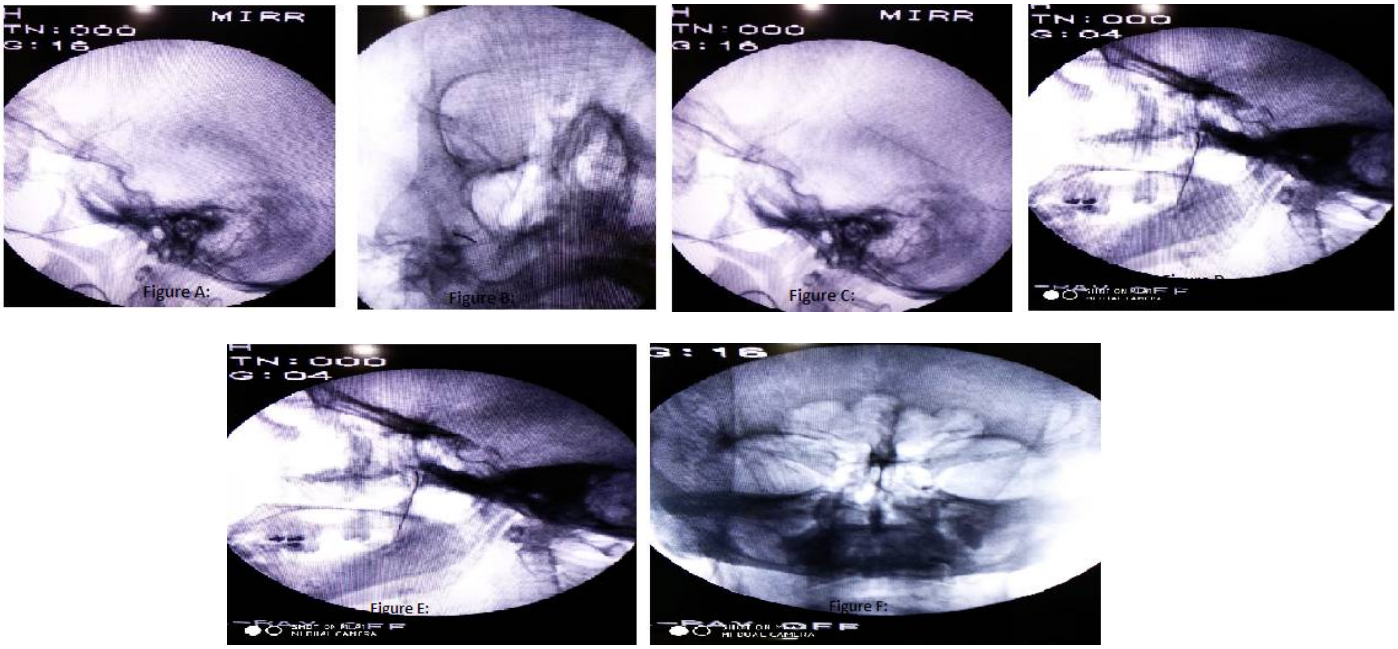

Figure A,B,C: Gasserian RFA. **Figure D,E,F:** sphenopalatine RFA

DISCUSSION

The use of radiofrequency on sphenopalatine ganglion was first reported by Salar *et al*. for treating Sluder's neuralgia[8]. In Nguyen *et al*.[9]case report describes the successful treatment of atypical V2 TN refractive to medical management requiring PRF treatment, a sphenopalatine block series, and low dose methadone (Coronoid approach Fluoroscopy,42 Pulsed 50 Hz with 1 ms pulse duration at 0.6 V). Narouze *et al*.[10] reported statistically improved attack intensity, frequency and pain disability index up to 18 months in patients who underwent SPG radiofrequency ablation. Compared to the short-lived effect of SPG block, SPG radiofrequency ablation tend to be long lasting. Side effects Based on the study by Narouze *et al*., about 50% (7/ 15) reported temporary paraesthesia in the upper gums and cheek that lasted for 3-6 weeks with complete resolution. Rare permanent small zone of hypoesthesia over the cheek could also happen. In the large case series by Sanders *et al*.[11], of the 66 treated patients, eight patients experienced

temporary postoperative epistaxis and 11 patients exhibited cheek hematomas. A partial radiofrequency lesion of the maxillary nerve was inadvertently made in four patients. Nine patients complained of hypoesthesia of the palate, which disappeared in all patients within 3 months.

CONCLUSION

The present case report revealed failure of RF directed towards gasserian ganglion but showed promising improvement in pain relief according to VAS scale for sphenopalatine block RF. It seems to be more safe and useful for umbrella of various HNF pains but skilful expertise required.

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