Pulsed radiofrequency ablation of stellate ganglion for chronic facial pain

Sir,

Stellate ganglion block (SGB) can be a good option for chronic and refractory facial pain. SGB might help patients who have orofacial neuropathic pain with a sympathetic component by reducing the activation of nociceptive fibres.[1]

We report a case of carcinoma buccal mucosa with chronic facial pain managed with pulsed radiofrequency of stellate ganglion.

A 52-year-old male patient with carcinoma of buccal mucosa was referred with severe facial pain with numerical rating scores (NRS) of 9/10. The character of pain was mixed. He had dull aching pain which continued throughout the day with occasional sharp pain. Patient did not have adequate pain relief with oral medications. Oral medicines such as paracetamol, pregabalin, amitriptyline, and tramadol were prescribed. We decided to perform sphenopalatine block. We chose sphenopalatine block as it has inputs from sensory and autonomic projections from maxillary nerve and facial nerve via vidian nerve, respectively. The block provided pain relief for 4–5 days only. Later we decided to perform diagnostic SGB using local anaesthetic. SGB was performed under fluoroscopic guidance using 22G 10 cm Quincke needle and 2 ml of 0.125% levobupivacaine. Patient had pain relief with NRS reducing to 3/10, patient could sleep well after many months. We decided to perform pulsed radiofrequency of stellate ganglion.

After written consent, patient was placed in the supine position with head extended. With strict asepsis 20-gauge, 10 cm, 5 mm curved tip (SURETECH medical inc) was inserted and advanced under fluoroscopic guidance. The tip was directed at the junction of the transverse process and the vertebral body of C7. A sensory stimulation was done at 50 Hz frequency with current up to 0.9 V and motor stimulation

at 2 Hz frequency with current up to 2 V for the correct placement of the needle. This was also confirmed with 1 ml of iohexol dye (Omnipaque, GE healthcare). Then 1 ml of 1% lignocaine was injected, lesioning was done with temperature settings of 42°C for 60 s. Three lesions were done with the same settings but with needle tip directed most medial aspect of transverse process and uppermost portion of junction of transverse process and body of vertebra. Post procedure, there was no complication.

This procedure resulted in up to 75% pain relief at 2nd week and 6th week follow-up.

Chronic facial pain is difficult to treat as multiple pain mechanisms are involved like somatic, neuropathic, and sympathetic mediated pain. SGB has potential benefits for patients with refractory facial pain.[2] Apart from SGB, other anti-neuropathic medicines should be added for better pain relief in such patients.[3]

However, SGB using local anaesthetic with or without steroid does not give long-term pain relief.[4] Therefore, there is growing interest in the use of radiofrequency ablation (RFA) for management of various painful conditions. Pulsed RFA (PRFA) is a newer alternative to conventional RFA with the proposed advantage of avoiding the complications like deafferentation pain, neuritis, and motor nerve damage. The exact mechanism of action of pulsed RF is unknown. It acts by neuromodulation and also affects gene expression in the dorsal horn. Another postulated mechanism is reduction in the release of substance *P* in response to noxious stimuli, thereby leading to both decreased nociceptive behavior and reduced hyperalgesia.[3] PRF lesioning has proved a successful treatment for chronic refractory pain involving the peripheral nerves. Moreover, it can be used safely where motor functions have to be preserved.[5]

Pulsed RF is done with brief pulses of high voltage electric current of temperature at 42°C for around 60–120 s. PRFA was preferred in our patient to avoid the potential complications of conventional RFA. The anatomical location of stellate ganglion varies, and therefore three lesions were done with two cycles of current at each location.[6]

PRFA provided pain relief in our patient at the end of 2nd and 6th week, however a long-term follow-up mandates to conclude this method to be used routinely in similar patients.

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Conflicts of interest

There are no conflicts of interest.

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