Abstract: We present a case of patient with orofacial cancer having pain on one side of face affecting her ability to speak, chew, swallow and sleep leading to emotional and behavioral deterioration. A diagnostic stellate ganglion block was performed followed by chemical neurolysis using phenol under ultrasound guidance, to prevent complications due to inadvertent spread of drug. Her pain scores decreased drastically, she was able to chew and swallow. Weighing the risk of permanent Horner’s syndrome or motor paralysis with benefit of improvement in basic functioning of debilitated patients chemical neurolysis of stellate ganglion can be performed with advanced imaging modalities.

Key words: Chemical neurolysis; stellate ganglion.

Introduction

Head and neck cancer has a devastating impact on the patient’s life as both disease and treatment affect the ability to speak, swallow, breathe and cause chronic pain leading to emotional and behavioral deterioration as seen in our patient (1). Pain is multifactorial, due to direct tumour invasion of submucosal and mucosal nerve endings, bones, distention of soft tissue and various treatment modalities like surgery, radiotherapy or chemotherapy (2).

Management requires multimodal approaches like pharmacological with NSAIDS, opioids, interventional pain management techniques, behavioural therapy and physical therapy (3).

Stellate Ganglion block (SGB) has been used for chronic pain conditions of head and neck like cancer pain, atypical orofacial pain, vascular headache, herpetic neuralgia and others (4).

Chemical and radioablative neurolysis has been used for carcinomas involving trigeminal nerves and its branches (3).

Case Description

A 42 year old female patient, weight 50 kg, known case of buccal mucosa carcinoma on left side presented to our pain clinic with orofacial pain. The patient had undergone excision of the carcinoma with modified radical neck dissection and temporalis muscle flap reconstruction 1 year back. She had also received 22 cycles of radiotherapy and one chemotherapy with cisplatin and methotrexate, last being 1 month back after which she had diarrhea, vomiting, swelling over left side of face and facial blebs, severe pain, decreased mouth opening and difficulty in chewing (Fig. 1). Her visual analog score (VAS) was 10, and pain was continuous burning, shooting or electric current like extending from left temporal area to the jaw. The patient obtained no pain relief from morphine 30 mg five times a day and carbamazepine. A diagnostic left SGB under ultrasound guidance using lateral in-plane approach was performed with 0.25% Bupivacaine 5 ml (Fig. 2). Her VAS score decreased from 10 to 2, half an hour post block which lasted for 8 hours after which her pain progressively increased. Hence, we decided to perform chemical neurolysis of stellate ganglion. Two days after the diagnostic block therapeutic SGB was performed with same technique with 2.5 ml of 6% phenol, 2.5 ml of 0.5% bupivacaine and 80 mg of triamcinilone. Vitals were stable, Horner’s syndrome could not be appreciated due to swelling and blebs over face, there was no hoarseness in voice, no difficulty in swallowing, no convulsions post block. Her pain scores decreased from 10 to 2 thirty minutes post block and persisting. The patient has been withdrawn from morphine, she is now able to open her mouth 3 and chew, also the swelling over the face has subsided.
Chemical ablation of stellate ganglion

They have not observed any long term Horner’s syndrome. Alternatively, radiofrequency denervation has been performed at stellate ganglion to diminish the chance of a permanent Horner’s syndrome (9). However, post-lesioning, neuritis/neuralgia are observed in 10% of cases and permanent Horner’s or motor paralysis is also reported (10, 11).

Phenol is a chemical composite containing carbolic acid, phenic acid, phenyllic acid, phenyl hydroxide, hydroxybenzene, and oxybenzene. It causes nerve destruction by inducing protein precipitation. At a concentration of 2-3 percent in saline, phenol seems to spare motor function. The degree of damage correlates directly with the concentration and the total amount used. Concentrations of 3.3% and less are ineffective. Pain transmission is blocked at a concentration of 5%. Touch, proprioception and nociceptive fibres are blocked at concentrations above 5%. The effect reaches maximum in 2 weeks followed by maximum recovery in 14 weeks because eventually there is regrowth of most of the axons (10).

It has an immediate local anesthetic effect due to its immediate selective effect on smaller nerve fibres. This differential blocking ability is due to small vessel destruction that initially spares large motor fibres. However, the effects of the block cannot be evaluated until after 24-48 hours, to allow time for the local anaesthetic effect to dissipate. The neurolytic effect may be clinical evident only after 3 to 7 days (12, 13).

Corticosteroids are the most common medication used in palliative care. Glucocorticoids reduce pain by inhibiting prostaglandin synthesis, which leads to inflammation, and reducing vascular permeability that results in tissue edema. In particular,
corticosteroids have been shown to reduce spontaneous discharge in an injured nerve, which reduces neuropathic pain (14).

Our patient suffered from head and neck cancer pain after receiving chemotherapy and radiotherapy. Pain was severe, continuous, had affected her eating, speaking and was not relieved by pharmacotherapy. Trigeminal nerve blocks were not feasible due to facial blebs and swelling that had distorted the anatomy. Hence we planned for a diagnostic ultrasound guided SGB, for real time imaging of drug deposition and to avoid complications. The patient had pain relief after the block but it lasted for a few hours only. For prolong pain relief and non availability of radiofrequency ablation we planned for a chemical neurolysis of stellate ganglion using phenol. Local anaesthetic was added to provide immediate pain relief and steroid for its action on neuropathic pain. No immediate or delayed complications were observed.

There is no data on leakage of phenol using X-ray control and ultrasound but data exists on the efficacy of superiority of ultrasound guidance over fluoroscopic guidance in stellate ganglion block regarding lesser amount of drug required due to placement of drug close to the vicinity of the ganglion. Though we could not find much literature on the role of steroids and phenol in this block, we advocate the chemical neurolysis of stellate ganglion using 6% phenol and 80 mg of triamcinolone in such patients for pain relief who do not respond to the maximum doses of opioids especially in set-ups where radiofrequency ablation is not available.

References