Original Article

A Prospective Cross-sectional Study to Analyze the Effect of Transnasal Sphenopalatine Ganglion Block in Carcinoma Buccal Mucosa Patients

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Abstract

Introduction: Cancer pain is known to be one of the Most severe pain anyone in life and is the primary reason for discontinuation of treatment. Sphenopalatine ganglion block (SPGB) can be useful in alleviating pain of carcinoma buccal mucosa. The study aims to analyze the effect of transnasal SPGB in pain management of patients suffering from carcinoma buccal mucosa. **Materials and Methods:** It was a hospital-based study done on 150 patients with carcinoma buccal mucosa using a prospective cross-sectional study design. To do statistical analysis, paired *t*-test was used having SPSS software. **Results:** On visual analogue scale, intensity of pain was found to be notably reduced from 7.42±2.02 to 3.45±1.21 ($P < 0.0001$), after first sitting. Preprocedure and postprocedure morphine requirement were 90.24 ± 30.24 and 60.42 ± 0.93 mg/day ($P > 0.05$) At the conclusion of study, the results were found to be statistically significant. **Conclusion:** Transnasal SPGB is beneficial in improving patient compliance and reducing pain scores and morphine requirement in patients suffering from carcinoma buccal mucosa.

Keywords: Carcinoma buccal mucosa, pain medicine, palliative care, sphenopalatine ganglion block

Introduction

Carcinoma buccal mucosa is a customary type of head-and-neck cancer in India due to tobacco chewing and smoking habits. It is one of the most painful conditions faced by a patient, and pain is the most common cause for desisting treatment.

It sometimes becomes difficult to control even by oral morphine and neuropathic medications.

Sphenopalatine ganglion (SPG) is also known as pterygopalatine ganglion. It is a located in the pterygopalatine fossa and is a parasympathetic ganglion. It is known to play an important role in atypical facial pain. There are various techniques for sphenopalatine ganglion block like radiofrequency ablation, chemical neurolysis via coronoid approach, but we have used transnasal approach using local anesthetic for its less invasiveness and ease of patient. The sphenopalatine ganglion is a parasympathetic ganglion and its blockage is useful in pains of facial origin.[1] They conduct the somatic sensations of the gums, hard and soft palate, oral cavity, tonsils, and uvula.[2]

Materials and Methods

It was a hospital-based study done on 150 patients of carcinoma buccal mucosa using a prospective cross-sectional study design. SRCC was the designated place for the execution of the study. We executed our study after consent from the institutional ethics committee. IEC No./MGMC&H/IEC/JPR/2021/1242. The patients were suffering from carcinoma buccal mucosa and undergoing radiation oncology treatment in our institute. Appropriate history of pain was obtained and pain assessment was done, routine investigations were performed before the procedure. Patients were explained

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Table 1: Demographics

Parameter	Value
Age (mean±SD)	45.24±8.84
Sex (male/female)	72/28
Total number of patients	100

SD: Standard deviation

Table 2: Visual Analog Scale score and morphine requirement

	Preprocedure	Immediately after procedure	After 3 sittings
VAS score	7.42±2.02	3.45±1.21	2.23±1.08
Morphine requirement	90.42±64.54	80.68±58.72	70.68±55.93

VAS: Visual Analog Scale

Table 3: Compliance of patients

	After 1st sitting	After 3 sittings
Compliance of patients (%)	100	100
Comfort of patients	82/100	95/100

Table 4: Complications

Event	Number of patient's
Runny nose	8
Giddiness	5
Bleeding/trauma	0

about the procedure, and after taking informed consent from the patients, transnasal SPGB was performed. Morphine, adjuvants, and other medications were continued. Dose requirement of morphine, any occurrence of side effects, and any unforeseen effects were noted. Statistical analysis was carried out by paired *t*-test, and we have used SPSS 20 (IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.) software for the same.

Inclusion criteria

1. Patients with carcinoma buccal mucosa suffering from intensified pain (visual analog score >5)
2. When oral morphine was desisting in relief
3. Upright relief by earlier SPGB.

Exclusion criteria

1. Patients with cardiac aberration
2. Patients with underlying infection
3. Patients with coagulation ailment
4. Patients having a nasal distortion.

The patients are asked to lie down in supine with pillow to be kept under the chest to keep the neck protracted. Appropriate monitoring was attached, and patients' pulse, blood pressure, and oxygen saturation were recorded using a monitor. One milliliter of lignocaine intravenous is inculcated in affected nostril, and the patient is asked to sniff it inside. Succeeding which a sterile cotton swab stick is taken and interposed into the affected nostril in upward and backward direction till there is a resistant is felt or maximum of 5 cm. One milliliter of 2% intravenous lignocaine is inoculated along the side of the applicator and wait for 2–3 min. The mean age of study participants was 45.24±8.84, ratio of males and females was 72/28 and total number of patients enrolled in study were 150 [Table 1]. Then, 1 ml of intravenous lignocaine is applied and it is repeated for maximum of 4–5 ml. The patient is made to lie supine for about 15 min after the procedure.

Pre- and post-procedure scores were recorded and the patient is asked for a follow-up 1 day later. Transnasal SPGB was repeated every alternate day for three sittings.

Results

There was a reduction in pain score on visual analogue scale as well as on clinical examination of patient immediately after the procedure from 7.42 ± 2.02 to 3.45 ± 1.21 ($P < 0.0001$). After 3 sitting of sphenopalatine ganglion block the mean morphine requirement in the patients was reduced to 2.23 ± 1.08 [Table 2].

After first sitting morphine requirement was reduced from 90.42±64.52 to 80.68±58.93(P value>0.05) mg/day and after 3 sittings of sphenopalatine ganglion block morphine requirement was found to be reduced to 70.68±55.93 [Table 3].

There were no serious complications in any patients. Eight patients conveyed runny nose 3 days after the procedure and four developed giddiness immediately after procedure which was relieved by rest for about 15 min [Table 4].

Discussion

SPGB is a utilitarian procedure for a variety of painful conditions. Its particular role in pain originating from head-and-neck cancer is of importance in palliative care. It also plays a proficient role in vasodilating and protecting the brain against various neurologic states.[3] Ruiz-López and Erdin[4] used radiofrequency procedures for the treatment of craniofacial pain. It was found that this procedure can be used as an alternative when pain is refractory to pharmacological therapy.[5]

In our study, we found that SPG was helpful in alleviating pain, thus compliance to radiation treatment was improved, there was better patient contentment, and analgesics requisite for patients who received SPGB.

Among various approaches to block SPG, the subzygomal approach ensures precise delivery of medicine and is proficient than others.[6,7] Transnasal block can be done in mobile patients. It is usually performed by physician and nurses but patients and their relatives are also able to self-administer it at home.[8,9] SPGB inhibits the parasympathetic activity, which inhibits vasodilation. By attenuating the

uncontrolled vasodilation, PDPH is relieved.[9] Lignocaine soaked applier is kept for 5–10 min. Swab without coming in direct contact with ganglion infiltrates local anesthetic around it in that position. The covering around connective tissue and mucous membranes facilitates the spread and penetration of the drug.[10,11] It is useful in managing headache and pain syndrome.[12] SPGB is also helpful in acute migraine.[13] In resistant pains, SPGB is an effective approach.[14-17] Bilateral (B/L) SPG block was more advantageous in analgesic effects as compared to others.[18]

Conclusion

SPGB through transnasal approach is a very less intruding and a very cost proficient technique for alleviating pain in patients suffering from carcinoma buccal mucosa undergoing radiation treatment.

Early referral to pain and palliative care department reduces morbidity, improves treatment compliance, and thus results in better holistic care of the patient.

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Conflicts of interest

There are no conflicts of interest.

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