

**EFFICACY OF MANDIBULAR NERVE CHEMICAL ABLATION FOR OROFACIAL PAIN DUE TO CANCER BUCCAL MUCOSA- A RETROSPECTIVE ANALYSIS**

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ABSTRACT About 59% of cancer patients presents with pain with anticancer treatment and one third after treatment. Cancer pain is devastating for the patient, with orofacial region rarely accounting as the only symptom of cancer. Causes of pain in these patients may be due to direct effects of the tumour, paraneoplastic syndromes, treatment related toxicities, mucositis, other sources of oral pain occur in cancer patients. Treatment options for pain management includes pharmacotherapy and interventions. Morphine forms the mainstay in pharmacotherapy. Interventional procedures like chemical neurolysis and radio frequency ablation are used to manage these patients with persisting pain in spite of adequate pharmacotherapy. We did a retrospective analysis of cancer tongue and buccal mucosa patients who presented to the pain clinic with facial pain between March 2024 to September 2024 and who underwent mandibular nerve chemical neurolysis under fluoroscopic guidance. A total of 24 patients underwent mandibular nerve neurolysis during the period. Immediate post neurolysis the median NRS had reduced from a preprocedural median NRS of 8 to NRS of 3. Only 3 patients had no relief after the procedure and the rest had significant improvement after the procedure. At 1 month follow up, the median NRS was 3. Our retrospective analysis demonstrates the efficacy of mandibular nerve chemical neurolysis in providing significant pain relief for patients with orofacial cancer pain.

KEYWORDS : Mandibular Nerve, Chemical Ablation, Orofacial Pain, Buccal Mucosa Cancer

INTRODUCTION

Oral cancer is very common and presents a major challenge in India, accounting for 30 % of all cancers [1]. About 59% of cancer patients presents with pain with anticancer treatment and one third after treatment. More than one third reported moderate to severe pain [2]. Cancer pain is devastating for the patient, with orofacial region rarely accounting as the only symptom of cancer. Patients may describe their pain as dull aching, sharp shooting, stabbing, burning, pulling, and throbbing in nature, and may also have referred pain to craniofacial structure (3).

Causes of pain in these patients may be due to direct effects of the tumour, paraneoplastic syndromes, treatment related toxicities, mucositis, other sources of oral pain occur in cancer patients. Cytotoxic agents, such as vinca alkaloids, vinblastine, and platinum derivatives, may cause jaw pain and neuropathy. Surgical procedures can also lead to painful postsurgical neuropathy and postsurgical fibrosis (4).

Treatment options for pain management includes pharmacotherapy and interventions. Morphine forms the mainstay in pharmacotherapy. Gabapentinoids, tricyclic antidepressants and antiepileptics are frequently used as co analgesics. Interventional procedures like chemical neurolysis and radio frequency ablation are used to manage these patients with persisting pain inspite of adequate pharmacotherapy. Chemical neurolysis is a reasonably safe procedure when done by expert physician. Alcohol or phenol-based solutions are used according to institutional choices. We aim to present a retrospective analysis of cancer tongue and buccal mucosa patients

who presented to the pain clinic with facial pain between March 2024 to September 2024 and who underwent mandibular nerve chemical neurolysis under fluoroscopic guidance.

MATERIALS AND METHODS

This retrospective study was done in the department of Pain Medicine in Omandurar Government Multi Super Specialty Hospital. A retrospective chart review of patients from August 2023 to September 2024, who underwent chemical neurolysis procedure for facial pain due to cancer tongue and buccal mucosa was performed. During their clinic visit, all patients had undergone a detailed clinical assessment, relevant investigations including blood and imaging modalities of the head. Demographic data, age, gender, primary site of cancer, presence of metastasis, anti-cancer therapies including surgery, radiotherapy, or chemotherapy was obtained. Concurrent use of opioid and non-opioid analgesic and co analgesics were noted. Pain score at the time of injections on an 11-point Numerical rating scale; in which 0 showed no pain and 10 showed worst pain experienced ever.

Furthermore, information regarding the characteristics of pain with respect to location, laterality, chronicity, frequency and quality were documented. Data regarding type and volume of chemical used for neurolysis were noted.

Patients underwent a diagnostic block first with 0.25% ropivacaine followed by neurolysis of mandibular nerve at the level of pterygoid plate under fluoroscopic guidance.

Chemical neurolysis was performed using 2 ml of 60% alcohol. All

procedure were done by the same specialist. The response of participants after 1 month of undergoing neurolysis procedure was recorded. Pain scores on a similar Numerical Rating Scale was recorded at the time of follow-up. In addition, the requirement of analgesic medications was quantified. Greater than 75% of pain relief was considered as significant.

RESULTS

A total of 24 patients underwent mandibular nerve neurolysis during March to September 2024. The mean age of the sampled population was 55.96 ± 4.85 . Out of the 24 patients 18 (75 %) were males and the rest females (Figure 1). All patients (100 %) were diagnosed with stage 4 Ca Buccal mucosa with metastasis and unilateral facial pain. The mean duration of pain during pre-procedure was 6.46 ± 1.89 months. All patients were receiving oral morphine, Gabapentin and amitriptyline. 5 (21%) patients received paracetamol and none received NSAIDs. Before undergoing the procedure, the pain was quantified to have a median Numerical Rating Scale of 8 with minimum NRS of 7 and maximum of 10. Immediate post neurolysis the median NRS was 3 with minimum of 2 and maximum of 8. Only 3 patients had no relief after the procedure and the rest had significant improvement after the procedure. At 1 month follow up, the median NRS was 3 with a minimum NRS of 2 and maximum of 8 (Figure 2). Same three patients had no relief and the rest had significant relief. 3 patients had self-limiting burning pain immediately after the procedure and 1 patient developed cheek bite and bleeding (Figure 3).

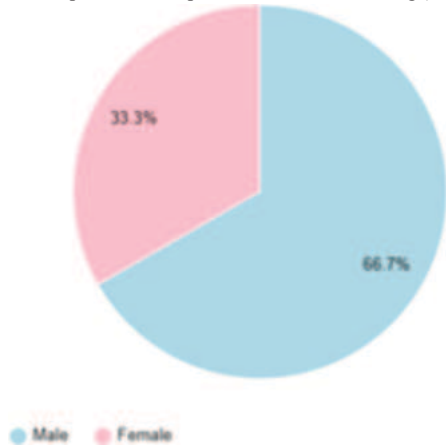


Figure 1: Demographic distribution



Figure 2: Median Numerical Rating Scale (NRS)

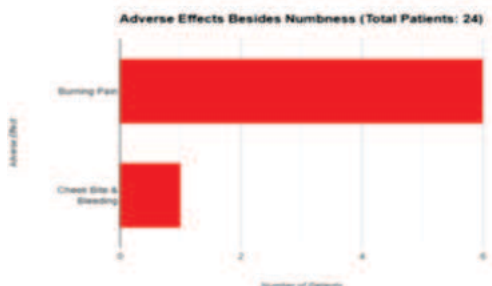


Figure 3: Adverse effects

DISCUSSION

Cancer is one of the leading causes of morbidity and mortality and pain is experienced by 55% of patients undergoing treatment and by 66% of patients who have metastatic and terminal disease. Cancer pain is a complex and multifaceted issue, particularly prevalent among patients with advanced orofacial malignancies. This can be relieved in most cases through pharmacotherapy and interventional procedures (5).

Chemical neurolysis works by destroying nerve tissue, which interrupts the transmission of pain signals to the brain (6). This mechanism is particularly beneficial for patients suffering from nociceptive pain due to tumor infiltration or treatment-related neuropathies. This study aimed to assess the efficacy of mandibular nerve chemical neurolysis as a therapeutic intervention for managing orofacial cancer pain, specifically in patients with buccal mucosa cancer. Our findings indicate that a significant majority of patients (87.5%) experienced substantial pain relief following the procedure, with median pain scores decreasing from 8 to 3 on the Numerical Rating Scale (NRS). This reduction in pain intensity is clinically relevant, as it can greatly enhance the quality of life for patients who often endure debilitating discomfort. The high rate of significant pain relief observed in our study aligns with existing literature that supports the use of neurolytic techniques in palliative care. The substantial reduction in pain intensity not only alleviates suffering but also has implications for reducing opioid consumption, thereby minimizing the risk of opioid-related side effects and dependency (7).

This retrospective analysis was done to look at the efficacy of mandibular nerve chemical neurolysis in relieving pain related to oro facial cancer. Out of the 24 patients enrolled, 21 (87.5%) had significant pain relief for a minimum of 1 month follow-up. Four patients developed adverse effects, namely burning pain in 3 patients and buccal mucosa bite and bleeding in one patient. The burning pain can be explained to be due to alcohol being used for neurolysis (8), and the cheek bite and bleeding due to numbness in the buccal mucosa following diagnostic block and neurolysis of mandibular nerve. While the benefits of mandibular nerve chemical neurolysis are evident, it is crucial to address the adverse effects associated with this intervention. The occurrence of burning pain is a known side effect of chemical neurolysis and raises important considerations regarding patient comfort and procedural technique. It emphasizes the necessity for skilled practitioners who can minimize discomfort and manage complications effectively.

Ethical considerations are paramount when using invasive procedures like chemical neurolysis. Informed consent, careful patient selection, and a thorough risk-benefit analysis are crucial. A multimodal approach to pain management, combining pharmacological and interventional therapies, is often necessary to optimize pain control and improve quality of life for cancer patients (9). In clinical practice, integrating chemical neurolysis into treatment plans requires careful consideration of individual patient profiles. Factors such as cancer stage, prior treatments, comorbidities, and personal preferences should guide decision-making processes.

Furthermore, understanding patient-specific factors—such as individual pain thresholds and psychological states—can help tailor interventions to optimize outcomes. This study's retrospective design presents inherent limitations that must be acknowledged. The small sample size restricts generalizability, making it difficult to extrapolate findings to a broader population. Additionally, the subjective nature of pain assessment introduces variability; different patients may report pain differently based on their individual experiences and expectations.

Future research should aim for larger, prospective studies that can provide more robust data on the efficacy and safety of mandibular nerve chemical neurolysis. Moreover, while we documented significant improvements in pain scores, we did not assess other important factors such as functional status, quality of life metrics, or psychological well-being post-intervention. Incorporating these elements into future studies could provide a more comprehensive understanding of how this intervention impacts overall patient health.

CONCLUSION

Our retrospective analysis demonstrates the efficacy of mandibular nerve chemical neurolysis in providing significant pain relief for patients with orofacial cancer pain.

However, it's important to acknowledge the limitations of this study. The retrospective design and small sample size limit the generalizability of our findings. Additionally, the subjective nature of pain assessment may influence the results.

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