

Efficacy of Glossopharyngeal Nerve Block in Managing Pain in Oropharyngeal Carcinoma: A Retrospective Analysis of 82 Patients



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Background

Pain Management Challenges in Oropharyngeal Carcinoma

- Severe pain due to tumor invasion & treatment-related complications
- High opioid doses often required, with suboptimal relief in some cases
- Significant opioid-related side effects: sedation, nausea, dependency

Targeted Approach: Glossopharyngeal Nerve Block (GPNB)

- Provides localized pain relief by blocking GPN pathways
- Reduces opioid dependence and associated side effects
- Potentially improves quality of life in patients with intractable pain

Current Limitation: Limited evidence supporting its effectiveness in cancer pain management—further research needed!

Objectives

Primary Objective

- To evaluate the effectiveness of **GPNB** in reducing pain (NRS scores) in oropharyngeal carcinoma patients.

Secondary Objectives

- Assess the **duration** of pain relief post-GPNB.
- Evaluate **opioid consumption** before and after GPNB.
- Analyze the **safety profile** and complications associated with GPNB.

Methodology

Study Design: Retrospective Cohort Study (Total patients: 82)

Duration: September 2021 – January 2024

Setting: National Cancer Institute (NCI), AIIMS

Inclusion Criteria

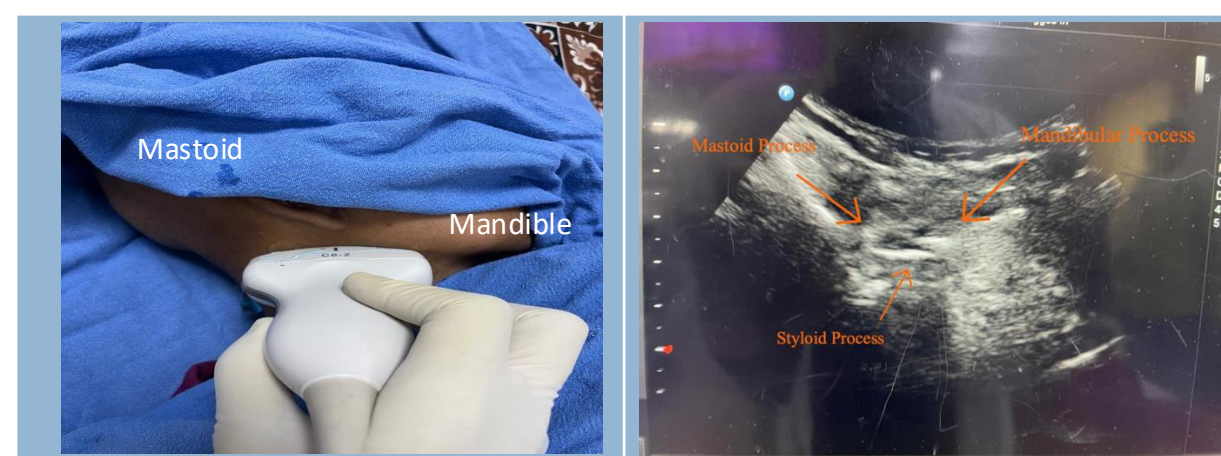
- Patients with oropharyngeal carcinoma who received GNB for pain management

Exclusion Criteria

- Patients receiving other nerve blocks & patients with incomplete medical records

Intervention

- Procedure: Ultrasound-guided Glossopharyngeal Nerve Block (GNB)
- Anesthetic Used:**
 - 2.2 mL solution containing 40 mg triamcinolone & 5 mg bupivacaine
 - Administered via styloid or pharyngeal wall approaches after negative blood aspiration



STYLOID APPROACH – Patient Position

STYLOID APPROACH – Sono Image



PHARYNGEAL WALL APPROACH – Patient Position

PHARYNGEAL WALL APPROACH – Sono Image

Assessment & Analysis

Pain Scores (NRS) Assessed At:

Pre-procedure → 15 min → 1 day → 1 week → 1 month → 3 months

Other Parameters Evaluated:

- Duration of pain relief
- Opioid consumption (before vs. after GNB)
- Complications & safety profile

Statistical Analysis:

Descriptive statistics | Frequency analysis | Paired comparisons

RESULTS

Pain Reduction (NRS Scores)

Pre-GNB: 8.76 ± 0.88 → 15 min: 0.98 ± 1.05 → 1 day: 1.82 ± 0.99 → 1 month: 3.39 ± 1.79 → 3 months: 3.17 ± 1.89 ($p < 0.001$)

Pain Relief Sustainability

- ✓ $\geq 98\%$ achieved $\geq 50\%$ pain reduction at 15 min
- ✓ 81.7% maintained sustained relief at 3 months



Opioid Reduction

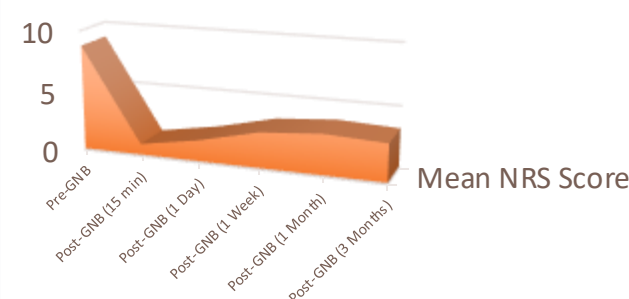
Morphine use: 86.95 mg/day → 31.87 mg/day (55% reduction, $p < 0.001$)

14 patients required repeat GNB

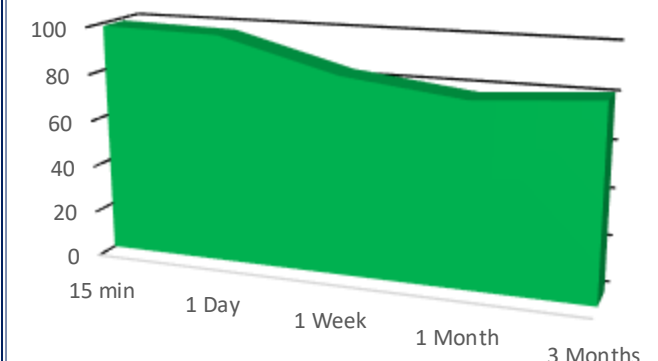
Safety Profile

✓ No major complications reported
 → Comparable results with both pharyngeal wall & styloid approach.

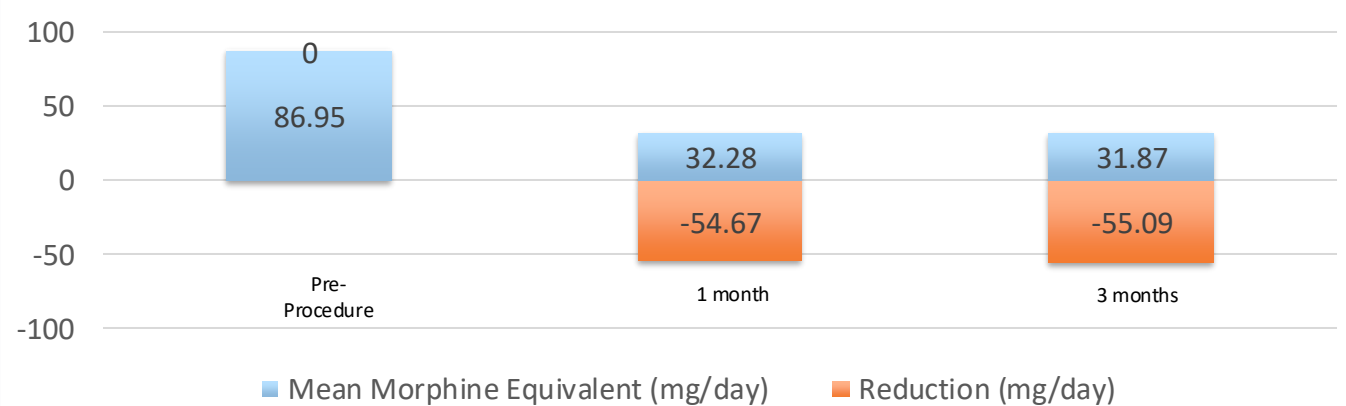
Mean NRS Score



PERCENTAGE OF PATIENTS ACHIEVING $\geq 50\%$ REDUCTION



OPIOID CONSUMPTION



DISCUSSION

Comparison with Existing Literature

- Bharti et al. (2018):** Pain relief sustained for 5-9 months with pulsed radiofrequency ablation of the glossopharyngeal nerve.
- Yadav et al. (2022):** Pain reduction observed over a 4-week follow-up, but long-term outcomes were not studied.
- Kojima et al. (2023), Sirohiya et al. (2020):** Ultrasound guidance improves precision and reduces complication rates, aligning with our findings.

Clinical Relevance

- Provides a **minimally invasive, opioid-sparing alternative** for refractory cancer pain.
- Helps address the **global opioid crisis** by reducing dependence on long-term opioid therapy.

CONCLUSION

- ✓ GNB effectively reduces pain in oropharyngeal carcinoma patients.
- ✓ Significantly decreases opioid use, reducing associated side effects.
- ✓ Minimal complications, making it a safe interventional approach.
- Findings support the role of GNB in cancer pain management.
- Prospective studies are warranted to further validate its efficacy.

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