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Nasopalatine and Greater Palatine Block for Pain-Free Septoplasty: A Case Report

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INTRODUCTION

Septoplasty is a commonly performed surgical procedure aimed at correcting deviated nasal septa, often conducted as a day-case surgery. While patients typically resume daily activities shortly after the procedure, postoperative pain can significantly impact recovery and overall patient satisfaction [1]. Effective pain management is thus essential to optimize outcomes.

The nasal septum receives innervation from several nerves, including the nasopalatine nerve (a branch of the maxillary nerve), the nasociliary nerve (from the ophthalmic division of the trigeminal nerve), and external nasal skin innervated by the trigeminal nerve [2]. Additionally, the greater palatine nerve, a branch of the pterygopalatine ganglion, contributes to nasal innervation [3].

Nerve blocks targeting the nasopalatine and greater palatine nerves have traditionally been utilized in dental and cleft palate surgeries [4]. This case report highlights the use of these blocks during septoplasty under general anesthesia, resulting in effective, opioid-sparing postoperative analgesia for 24 hours, as assessed by the Visual Analog Scale (VAS).

CASE REPORT

A 22-year-old female presented with chronic nasal obstruction and difficulty breathing. Clinical evaluation and computed tomography (CT) confirmed a deviated nasal septum with a bony spur impinging on the left inferior turbinate, along with compensatory hypertrophy of the right inferior turbinate.

She was scheduled for septoplasty with inferior turbinate out-fracture and cautery under general anaesthesia.

During induction, bilateral nasopalatine and greater palatine nerve blocks were administered using 4% ropivacaine.

Procedure Details

Nasopalatine Nerve Block: The nasopalatine foramen, located in the anterior hard palate posterior to the maxillary incisors beneath the incisive papilla, was palpated. Under aseptic precautions, a 25-gauge needle was inserted into the foramen, and 5 ml of 4% ropivacaine was injected bilaterally after negative aspiration [**Figure 1**]

Figure 1: Nasopalatine Block

Greater Palatine Nerve Block: The greater palatine foramen, situated posterior to the second molar at the junction of the hard palate and alveolar ridge, was identified. Using a similar technique, 5 ml of 4% ropivacaine was administered bilaterally [**Figure 2**].

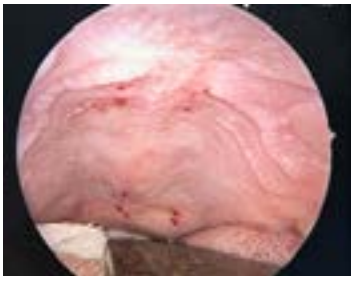

Figure 2: Nasoplatine (Yellow arrow) and Greater Palatine (Blue arrow) Nerve Blocks

The procedure was uneventful. Postoperative pain was assessed using the Visual Analog Scale (VAS) at two-hour intervals [**Figure 3**]. The patient reported no significant pain during the first 24 hours post- operatively.

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Figure 3: Visual Pain Analouge Score (VAS) monitored every two hours after patient was moved from Recovery to ward.

DISCUSSION

The nasopalatine nerve, the longest of the nasal branches, traverses the nasal roof and anterior septum before exiting via the incisive canal. It innervates the septal mucosa, anterior hard palate, and adjacent gingiva, and communicates with the greater palatine nerve [5].

The greater palatine nerve, a branch of the pterygopalatine ganglion, supplies the posterior hard palate and associated mucosa [6].

Anatomical Landmarks for Nerve Blocks

- **Nasopalatine Block:** The nasopalatine foramen is palpated posterior to the central incisors, beneath the incisive papilla [7].
- **Greater Palatine Block:** The greater palatine foramen is located posterior to the maxillary second or third molar on the hard palate [8].

Mechanism and Pharmacology of Ropivacaine

Ropivacaine is a long-acting amide local anesthetic that provides nerve blockade by reversibly inhibiting sodium influx in nerve fibers. Compared to bupivacaine, it has a similar analgesic profile but with less motor blockade and lower cardiotoxicity (9,10).

Available concentrations: 0.2% and 0.75% solutions

Peripheral nerve block dosage: 10-40 ml of 0.75% solution (75-300 mg)

Minor block/infiltration dosage: 1-30 ml of 0.75% solution (7.5-225 mg)

In this case, ropivacaine effectively anesthetized both nerves, ensuring intraoperative and postoperative analgesia.

Advantages of Nasopalatine and Greater Palatine Nerve Blocks in Septoplasty

- **Superior Pain Control:** Effective blockade of nasal sensory nerves significantly reduces postoperative pain.
- **Reduced Need for Systemic Analgesics:** Minimizes use of opioids and NSAIDs, decreasing associated side effects such as nausea and sedation.
- **Enhanced Patient Satisfaction:** Pain-free recovery promotes early ambulation and faster return to routine activities.

LITERATURE REVIEW

Regional nerve blocks have been extensively studied in dental and oral surgeries, though their application in nasal procedures such as septoplasty is less well-documented. Several studies support the efficacy of nasopalatine and greater palatine nerve blocks in reducing perioperative pain and improving patient outcomes.

Malhotra et al. demonstrated that bilateral greater palatine nerve blocks significantly decreased postoperative pain in cleft palate repair, with a corresponding reduction in systemic analgesic use [11]. Similarly, Gupta et al. reported that palatal nerve blocks administered during endoscopic nasal surgeries led to lower intraoperative anesthetic requirements and reduced postoperative VAS scores [12].

In a randomized controlled trial, Abdel Aziz et al. examined the effects of transnasal sphenopalatine and palatine nerve blocks in functional endoscopic sinus surgery (FESS), observing substantial improvements in postoperative pain control lasting up to 12 hours [13].

Turker et al. studied nasopalatine nerve blocks in oral and maxillofacial procedures, highlighting not only enhanced analgesia but also a significant decrease in opioid consumption postoperatively [14].

Although data directly supporting these blocks in septoplasty are limited, the existing literature suggests their potential as effective adjuncts to improve postoperative outcomes. The current case contributes novel insight into their application for septoplasty, suggesting a need for further prospective studies.

CONCLUSION

This case demonstrates the successful use of nasopalatine and greater palatine nerve blocks with ropivacaine in achieving pain-free recovery following septoplasty. Given its simplicity, safety, and efficacy, this technique can be considered a valuable adjunct to routine septoplasty to enhance postoperative comfort and patient satisfaction.

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CONFLICT OF INTEREST

None.

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None.

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