CASE REPORT

Infraorbital Nerve Block for Conchotomy Pain: A Case Report

ABSTRACT

Background: Post-operative pain following nasal surgery commonly results from mucosal injury, periosteal irritation, and bony procedures such as osteotomy, and is often worsened by nasal packing. Moderate pain levels are frequently reported on the first post-operative day, emphasizing the importance of multimodal analgesia. Infraorbital nerve block has been shown to reduce pain scores, opioid consumption, and soft-tissue edema in various nasal procedures. Ultrasound guidance enhances accuracy and safety, while adjuvants such as dexamethasone may prolong analgesic duration.

Case: A 33-year-old woman presented with a one-year history of bilateral nasal obstruction, persistent post-nasal drip, and right-sided aural discharge. She had a history of left tympanoplasty and right superior conchotomy. Preoperative evaluation revealed normal physical findings, normal laboratory values, and ASA physical status I. The patient underwent elective bilateral inferior turbinate conchotomy under general anesthesia supplemented with bilateral ultrasound-guided infraorbital nerve blocks using 4 mL of 0.25% bupivacaine and 4 mg dexamethasone on each side. Intraoperatively, vital signs remained stable, and no additional opioids were required.

Discussion: Infraorbital nerve block provides sensory blockade to the nasal septum, lateral nasal wall, upper lip, and anterior cheek through branches of the maxillary nerve. Evidence from randomized trials and recent meta-analyses shows significant reductions in pain scores and analgesic requirements following nasal surgery. The addition of dexamethasone may further prolong block duration. In this case, the block resulted in minimal post-operative pain (NRS 1/10) and eliminated the need for opioids. Pain control was maintained with oral paracetamol and ibuprofen alone, with no complications observed.

Conclusion: Bilateral ultrasound-guided infraorbital nerve block is a safe and effective adjunct for perioperative analgesia in inferior turbinate conchotomy. This technique may reduce opioid requirements, improve patient comfort, and support enhanced recovery after nasal surgery.

Keywords: facial nerve block; infraorbital; nasal surgery; pain management; regional anesthesia

INTRODUCTION

Inferior turbinate hypertrophy is a common sinonasal disorder, occurring in approximately 72% of patients, with nearly 68% requiring conchotomy as definitive management.[1,2] Post-operative pain following nasal surgery is multifactorial, typically arising from mucosal trauma, periosteal irritation, and bony interventions such as osteotomy, while nasal packing may further aggravate discomfort.[2–4] Pain, edema, and periorbital ecchymosis are among the most frequent complications after nasal procedures and can affect patient satisfaction and recovery.[3]

Effective postoperative analgesia is therefore essential, and current recommendations from the American Society of Anesthesiologists emphasize multimodal analgesia, with strong consideration of regional techniques when feasible.[4,5] Although opioids remain effective agents for acute pain, their use is limited by adverse effects such as respiratory depression, sedation, nausea, vomiting, and prolonged hospitalization.[6,7] These limitations have driven increasing interest in peripheral nerve blocks as adjuncts for perioperative analgesia.

Infraorbital and infratrochlear nerve blocks provide targeted sensory blockade to the nasal cavity, nasal septum, upper lip, and mid-facial region through branches of the maxillary nerve.[6,7] Multiple studies have demonstrated that these blocks reduce pain scores, opioid requirements, and soft-tissue edema in nasal and septorhinoplasty surgeries.[8–12] Recent evidence, including a 2023 meta-analysis, confirms the efficacy of infraorbital and/or infratrochlear blocks in improving postoperative comfort and reducing analgesic consumption.[12]

Despite increasing evidence supporting their use, reports describing the application of bilateral ultrasound-guided infraorbital blocks specifically for inferior turbinate conchotomy in adults remain limited. The present case report highlights the perioperative benefits of bilateral infraorbital nerve blocks as an adjunct to general anesthesia in inferior turbinate surgery, emphasizing their potential to provide opioid-sparing, effective analgesia.

CASE

A 33-year-old woman was scheduled for elective bilateral inferior turbinate conchotomy. She reported a one-year history of bilateral nasal obstruction accompanied by persistent post-nasal drip and intermittent right-sided ear discharge. She had undergone left tympanoplasty in 2023 for similar complaints and a prior right superior conchotomy. She had no history of chronic illness, allergies, or regular medication use.

On physical examination, the patient appeared well with a body mass index of 23.8 kg/m². Her blood pressure was 120/70 mmHg, pulse rate 78 beats/min, and peripheral oxygen saturation 98% on room air. Cardiovascular and respiratory examinations were unremarkable. Nasal

endoscopic evaluation revealed bilateral inferior turbinate hypertrophy without additional sinonasal pathology. Laboratory investigations and chest radiography were within normal limits. The patient was classified as American Society of Anesthesiologists (ASA) Physical Status I.

Two hours before surgery, she received oral paracetamol 1000 mg as part of pre-emptive analgesia. After standard monitoring was applied in the operating theatre, induction of general anesthesia was performed with intravenous fentanyl 150 mcg, propofol 150 mg, and atracurium 30 mg, followed by endotracheal intubation.

Bilateral infraorbital nerve blocks were then performed. The infraorbital foramina were palpated, and a 25-gauge needle was advanced under ultrasound guidance in a cephalic and medial direction until bony contact was obtained. Each side received 4 mL of 0.25% bupivacaine combined with 4 mg dexamethasone as an adjuvant. The procedure was completed without complications (Figure 1).

Throughout surgery, the patient remained hemodynamically stable, with oxygen saturation between 93–99% on 3 L/min nasal cannula oxygen, blood pressure ranging from 95/64 to 125/77 mmHg, and pulse rate from 72 to 95 beats/min. No additional opioids were required intraoperatively. The bilateral inferior turbinate conchotomy proceeded uneventfully, and the patient was transferred to the ward in stable condition with blood pressure 112/71 mmHg, pulse rate 74 beats/min, respiratory rate 16 breaths/min, and oxygen saturation 100%.

Postoperative pain remained minimal, consistently rated as NRS 1/10, and was managed with oral paracetamol 1000 mg every 8 hours and ibuprofen 400 mg every 8 hours. No postoperative complications were observed during hospitalization.

DISCUSSION

The novelty of this case lies in the perioperative application of bilateral ultrasound-guided infraorbital nerve blocks as an adjunct to general anesthesia for inferior turbinate conchotomy, resulting in stable hemodynamics and minimal postoperative pain without the need for opioid administration. Reports specifically describing the use of bilateral infraorbital blocks in adult conchotomy procedures remain limited, despite strong evidence supporting their analgesic benefits in other nasal surgeries.

Postoperative pain after sinonasal surgery is primarily caused by inflammatory responses to mucosal trauma, periosteal irritation, and bony manipulation.[3,6] Nasal packing further contributes to patient discomfort and negatively impacts early recovery.[2] Pain scores in inferior turbinate procedures commonly reach moderate severity (NRS 3–4) within the first 24 hours.[1,2] In the present case, however, pain remained consistently at NRS 1, highlighting the

effectiveness of infraorbital blockade in controlling early postoperative discomfort.

Peripheral nerve blocks function by inhibiting sodium channel activity and interrupting nociceptive transmission.[6,7] Among the sensory nerves supplying the nasal structures, the infraorbital and infratrochlear nerves are particularly relevant due to their innervation of the nasal septum, lateral nasal wall, upper lip, and mid-facial region.[6] Evidence shows that infraorbital nerve blocks reduce postoperative pain scores, opioid consumption, and tissue edema in rhinoplasty and septal surgery.[8,10–13]

A comparative study demonstrated that adding an infraorbital nerve block to general anesthesia in ambulatory nasal surgery produced significantly lower NRS scores without affecting discharge time.[13] A retrospective study found significant reductions in pain up to 12 hours postoperatively in septo-rhinoplasty patients receiving infraorbital blocks.[11] A recent meta-analysis confirmed that infraorbital and/or infratrochlear blocks decrease pain intensity, analgesic requirements, and emergence agitation in septorhinoplasty procedures.[12] These findings align with the clinical outcome in this case, where the patient remained opioid-free intraoperatively and postoperatively.

Ultrasound guidance offers the advantages of real-time visualization, accurate needle placement, and avoidance of vascular structures—an important consideration given the proximity of the infraorbital artery.[7,14,15] In this case, ultrasound imaging facilitated precise needle advancement toward the infraorbital foramen, minimizing the risk of complications and improving block efficacy (Figure 1). Table 1 demonstrates that hemodynamic parameters—including systolic and diastolic blood pressure, heart rate, and oxygen saturation—remained stable throughout the perioperative period, further supporting the safety and applicability of this technique in sinonasal surgery.

Overall, the literature consistently demonstrates that the infraorbital nerve block is effective for perioperative analgesia in nasal surgery. The present case adds to existing evidence by illustrating its successful use in inferior turbinate conchotomy, achieving excellent analgesia, opioid avoidance, and stable physiological parameters without complications.

The findings of this case support the incorporation of bilateral infraorbital nerve blocks into multimodal analgesia strategies for turbinate surgery. This approach may enhance patient comfort, reduce opioid exposure, and promote smoother recovery, especially in settings where postoperative pain can significantly affect functional outcomes.

CONCLUSION

Bilateral ultrasound-guided infraorbital nerve block proved to be a safe and effective adjunct to general anesthesia in inferior turbinate conchotomy. This

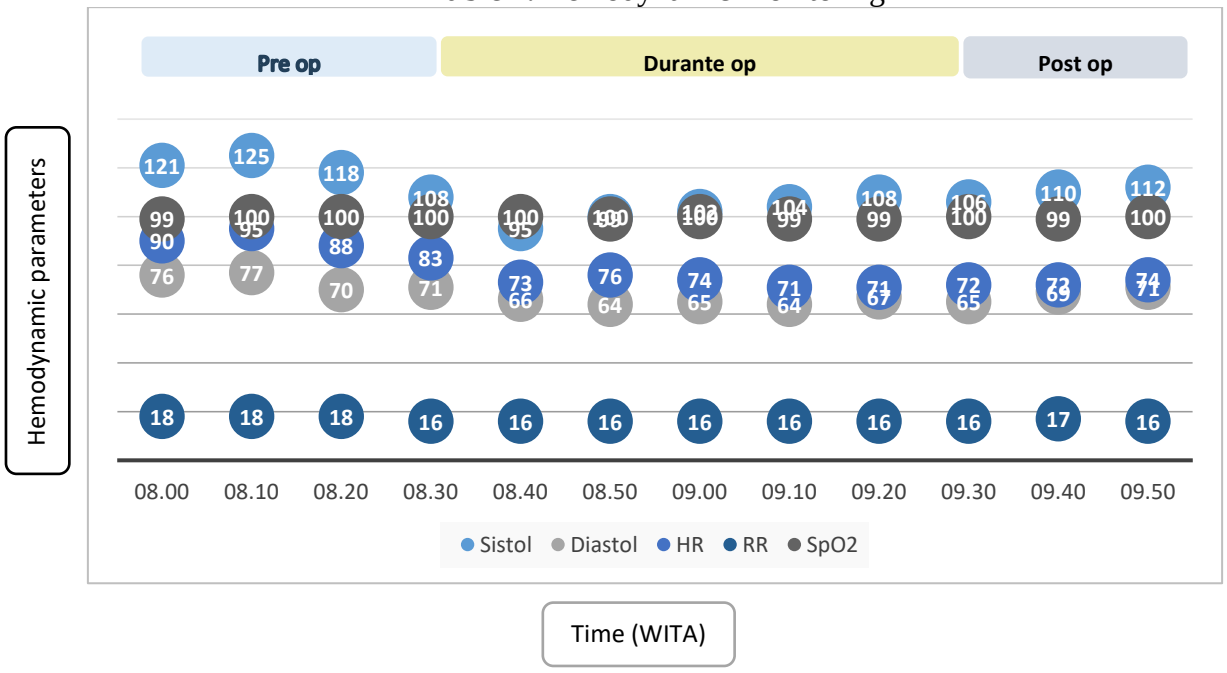
technique provided excellent postoperative analgesia, maintained stable perioperative hemodynamics, and eliminated the need for opioid administration. The outcome of this case supports the use of infraorbital nerve blocks as part of a multimodal analgesic strategy to improve patient comfort and enhance recovery following nasal surgery.

REFERENCES

1. Smith DH, Daines BS, Cazzaniga J, Bhandarkar ND. Surgical Management of Inferior Turbinate Hypertrophy in the Era of Widespread Communicable Disease. Cureus [Internet]. 2023 Jan 27 [cited 2025 Nov 22]; Available from: https://www.cureus.com/articles/132524-surgical-management-of-inferior-turbinate-hypertrophy-in-the-era-of-widespread-communicable-disease
2. Law RH, Ko AB, Jones LR, Peterson EL, Craig JR, Deeb RH. Postoperative pain with or without nasal splints after septoplasty and inferior turbinate reduction. Am J Otolaryngol. 2020 Nov;41(6):102667.
3. Ahilasamy N, Narendrakumar V, Kumar RD, Sarath NS. Local Anaesthetic Nerve Blocks in Endoscopic Nasal and Sinus Surgery. Indian J Otolaryngol Head Neck Surg. 2022 Dec;74(4):602–7.
4. Gerbershagen HJ, Aduckathil S, Van Wijck AJM, Peelen LM, Kalkman CJ, Meissner W. Pain Intensity on the First Day after Surgery: A Prospective Cohort Study Comparing 179 Surgical Procedures. Anesthesiology. 2013 Apr;118(4):934–44.
5. Practice Guidelines for Acute Pain Management in the Perioperative Setting: An Updated Report by the American Society of Anesthesiologists Task Force on Acute Pain Management. Anesthesiology. 2012 Feb 1;116(2):248–73.
6. Hadzic A, New York School of Regional Anesthesia, editors. Hadzic's textbook of regional anesthesia and acute pain management. Second edition. New York: McGraw-Hill Education; 2017. 1506 p.
7. Eaton JS, Grekin RC. Regional Anesthesia of the Face. Dermatol Surg. 2001 Dec;27(12):1006–9.
8. Boselli E, Bouvet L, Augris-Mathieu C, Bégou G, Diot-Junique N, Rahali N, et al. Infraorbital and infratrochlear nerve blocks combined with general anaesthesia for outpatient rhinoseptoplasty: A prospective randomised, double-blind, placebo-controlled study. Anaesth Crit Care Pain Med. 2016 Feb;35(1):31–6.
9. Higashizawa T, Koga Y. Effect of infraorbital nerve block under general anesthesia on consumption of isoflurane and postoperative pain in endoscopic endonasal maxillary sinus surgery. J Anesth. 2001 Aug 1;15(3):136–8.
10. Mcadam D, Muro K, Suresh S. The Use of Infraorbital Nerve Block for Postoperative Pain Control after Transsphenoidal Hypophysectomy. Reg Anesth Pain Med. 2005 Nov;30(6):572–3.
11. Efe AtiLa N, Ates I. Evaluation of Analgesic Effectivity of Infra Orbital Nerve Block in Open Septorhinoplasty Surgery: A Retrospective Study. New Trends Med Sci. 2022 Sept 16;3(2):128–31.

12. Kim DH, Park JB, Kim SW, Stybayeva G, Hwang SH. Effect of Infraorbital and/or Infratrochlear Nerve Blocks on Postoperative Care in Patients with Septorhinoplasty: A Meta-Analysis. Medicina (Mex). 2023 Sept 14;59(9):1659.
13. Mariano ER, Watson D, Loland VJ, Chu LF, Cheng GS, Mehta SH, et al. Bilateral infraorbital nerve blocks decrease postoperative pain but do not reduce time to discharge following outpatient nasal surgery. Can J Anesth Can Anesth. 2009 Aug;56(8):584–9.
14. Cok OY, Deniz S, Eker HE, Oguzkurt L, Aribogan A. Management of isolated infraorbital neuralgia by ultrasound-guided infraorbital nerve block with combination of steroid and local anesthetic. J Clin Anesth. 2017 Feb;37:146–8.
15. Yao PY, Sequeira Campos MB. Infraorbital Nerve Block. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 [cited 2025 Nov 22]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK499881/

Table 1. Hemodynamic Monitoring



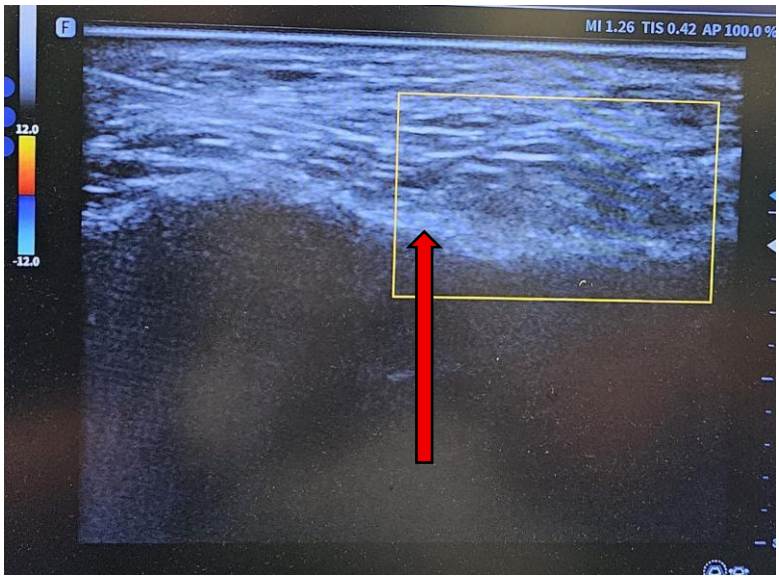


Figure 1. Needle Insertion Technique