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Case Report

Awake & aware: Evaluating local anesthesia in rhinoplasty

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Abstract

Traditionally, rhinoplasty—a treatment that modifies the anatomy or function of the nose—is carried out under general anesthesia. Nonetheless, local anesthesia is becoming more and more well-liked as a substitute because to its advantages, which include lower risks, fewer systemic side effects, and faster recovery periods. By keeping the patient awake and effectively reducing pain, local anesthesia enables real-time communication between the patient and the surgeon, facilitating accurate results and patient preferences. Additionally, this method can cut the length of the procedure and decrease postoperative problems. This case study focuses on the technical aspects, the patient's experience, and the results of a rhinoplasty carried out under local anesthesia.
In this case series, we hope to encourage the expanding use of local anesthesia in rhinoplasty, enhancing patient happiness and safety while providing useful.

Keywords: Rhinoplasty, Local anesthesia, Reconstructive procedure, Aesthetic procedure.

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1. Introduction

Rhinoplasty, often known as a "nose reshaping surgery," is a procedure designed to improve both the appearance and functionality of the nose. It is among the most commonly performed cosmetic surgeries, appreciated for its ability to address aesthetic concerns as well as medical issues, such as breathing difficulties caused by structural defects. With advancements in surgical techniques and anaesthesia, rhinoplasty has evolved to offer better precision, safety, and patient satisfaction.[1-3]

1.1. Rationale for local anesthesia

The intricacy of the treatment and the surgeon's discretion will determine whether rhinoplasty is performed under general anesthesia (GA) or local anesthesia (LA). LA is frequently chosen since it offers a number of benefits. It reduces the hazards of GA, including the possibility of negative reactions or prolonged recovery periods, by numbing the surgical site while keeping the patient alert and at ease.[4] Additionally, LA speeds up recovery by lowering typical adverse effects such post-operative nausea. Because it does not require an anesthesiologist or specific monitoring equipment, LA is also more affordable and appropriate for modest or cosmetic reshaping procedures.[5] Because LA is less intrusive, it provides a more efficient surgical experience, which is appreciated by many patients.

Yet, GA continues to be the recommended choice for more intricate or reconstructive rhinoplasty situations in order to guarantee patient comfort and safety. The surgeon's evaluation and the patient's particular requirements will determine whether to use LA or GA.[6]

In this article, ten patients who underwent local anesthesia for rhinoplasty are summarized. It draws attention to the many advantages of LA, which include quicker recovery times overall and better functional results, aesthetics, and patient comfort.

2. Case Series

Each case had unique motivations, ranging from cosmetic improvements to functional corrections, such as alleviating breathing difficulties caused by structural deformities, nasal humps reduction, refining the nasal tip, and correcting asymmetry. Patients were carefully evaluated before the

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procedure to tailor surgical techniques to their specific needs (Figure 1-**6)**.

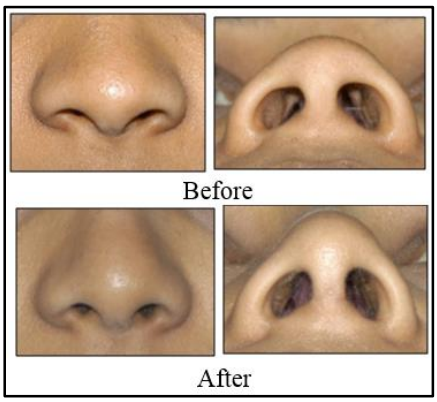

Figure 1: Augmentation rhinoplasty.

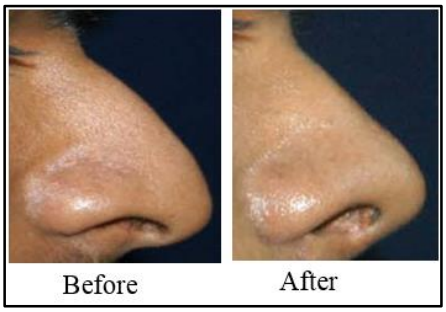

Figure 2: Hump reduction

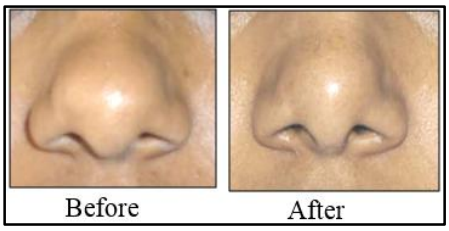

Figure 3: Tipoplasty

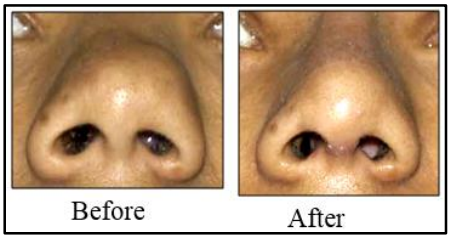

Figure 4: Tipoplasty with augmentation

Figure 5: Tipoplasty with augmentation

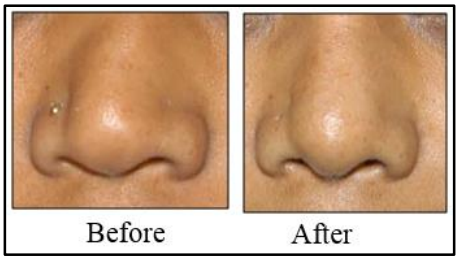

Figure 6: Traumatic rhinoplasty

2.1. Step 1 – Anesthesia

Lidocaine remains a top selection for various cosmetic surgery procedures. Here, Lidocaine solution with 1:100,000 adrenaline solutions was used. For longer-lasting pain relief post-procedure, bupivacaine is a preferred choice. Its effects can extend well after the surgery, which is particularly useful in complex rhinoplasty cases. By blending various agents, including lidocaine and bupivacaine, the medical team can provide a customized anesthesia plan. This approach allows for rapid onset from lidocaine and prolonged pain control from bupivacaine, suiting the specific needs of each rhinoplasty case.

2.1.1. Septal infiltration

The anesthetic is injected into the submucoperichondrial plane, which is situated between the mucosal lining and the cartilage of the nasal septum. This technique facilitates hydraulic dissection**,** making it easier to separate the septal cartilage for reconstructive procedures or when harvesting grafts.

2.1.2. Dorsal infiltration

Anesthesia is delivered along the lateral aspects of the upper lateral cartilages and the nasal bones, within the supraperichondral and supraperiosteal planes. The injection is performed both anterograde (from front to back) and retrograde (from back to front). It is essential to limit the volume of anesthetic injected—typically no more than 2 mL—to avoid excessive fluid accumulation, which can distort the nasal anatomy.

2.1.3. Lateral wall infiltration

Infiltration begins at the pyriform aperture**,** where the frontal process of the maxilla meets the nasal bones**.** From this point, the anesthetic is injected in the supraperiosteal plane, progressing anterogradely and retrogradely. This technique is used to anesthetize the areas in preparation for intermediate and medial osteotomies during the rhinoplasty.

2.1.4. Columellar infiltration

The anesthetic is injected into the subcutaneous plane, starting at the anterior nasal spine of the maxilla and extending up the medial crura of the **l**ower lateral cartilages**,** all the way to the domes and the area in front of the crura. The infiltration is carried out both during the advancement

and withdrawal of the needle to ensure an even distribution of the anesthetic solution.

2.1.5. Tip infiltration

For external approaches, the marginal incision is made around the nasal tip, and the anesthetic solution is deposited in multiple small amounts along the caudal edge of the lateral crus**,** extending toward the anterior portions of the nose. This ensures adequate anesthesia of the tip area, which is critical for fine dissection.

2.1.6. Alar base infiltration

In this step, the anesthetic is injected into the alar lobule while carefully preserving the natural contours of the nostril. A small deposit is placed without altering the original shape of the nasal aperture. The injection is then extended to the lateral portion of the frontal process of the maxilla**, p**reparing the area for lateral osteotomies**.**

2.2. Step 2 – The incision

Rhinoplasty is performed either using a closed procedure, where incisions are hidden inside the nose, or an open procedure, where an incision is made across the columella, the narrow strip of tissue that separates the nostrils. Through these incisions, the skin that covers the nasal bones and cartilages is gently raised, allowing access to reshape the structure of the nose.

2.3. Step 3 – Reshaping the nose structure

An overly large nose may be reduced by removing bone or cartilage. Sometimes surgery of the nose may require the addition of cartilage grafts. Most commonly, cartilage from the septum, the partition in the middle of the nose, is used for this purpose. Occasionally cartilage from the ear or rarely a section of rib cartilage can be used.

2.4. Step 4 – Correcting a deviated septum

If the septum is deviated, it can be straightened and the projections inside the nose reduced to improve breathing.

2.5. Step 5 – Closing the incision

Once the underlying structure of the nose is sculpted to the desired shape, nasal skin and tissue is re-draped and incisions are closed.

2.6. Step 6 – See the results

For a few days, splints and gauze packing may support the nose as it begins to heal. The aim of splints and dressings is an immobilisation and protection of mobilised nasal tissues. A splint may therefore also be indicated in case of cartilaginous corrections without osteotomies. In addition, bruising and oedema can be reduced by external splints.

3. Outcome

No major complications apart from mild bruising, swelling and transient numbness were observed. Follow up showed satisfactory healing with good aesthetic outcomes. An important aspect of outcome studies in aesthetic surgery is the fact that patient satisfaction rather than objective measures or complications are key criteria for surgical success.

4. Conclusion

When considering rhinoplasties under local anesthesia, both the advantages and considering risks are vital. The use of local anesthesia in these procedures, typically for closed rhinoplasty, offers distinct benefits.[7] Patients can avoid the risks associated with general anesthesia, like the need for a breathing machine or breathing tube. The impact of anesthesia is localized, sparing the entire body from exposure. This approach often translates to swifter recovery periods.[8]

In sum, while local anesthesia delivers several advantages for both patients and surgeons during nose jobs—minimizing risk and fewer side effects compared to general anesthesia, avoiding visible scars, and allowing for easier breathing, Quicker recovery time post-procedure, enabling a same-day return home and Increased alertness shortly after the surgery, with no grogginess effect —every individual case requires a personalized assessment to determine the appropriateness of this anesthesia method for their unique noses.[9,10]

5. Author Contribution

All authors have contributed equally in designing the review article, writing and revising. All authors contributed to the article and approved the submitted version.

6. Ethical Approval

Institutional Review Board approval has been taken.

7. Conflict of Interest

The authors declared that the research was conducted in the absence of any commericial or financial relationships that could be constructed as a potential conflict of interest.

8. Source of Funding

None.

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