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# COMPLICATIONS IN RHINOSEPTOPLASTY: COMPREHENSIVE REVIEW AND UPDATED CLINICAL ANALYSIS

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## ABSTRACT

***Introduction:*** *rhinoseptoplasty is a common surgical procedure in otolaryngology and facial plastic surgery, aimed at improving both respiratory function and nasal aesthetics. Although considered a safe procedure, it can be associated with various complications that impact functional and aesthetic outcomes.*

***Objective:*** *to review and categorize the main complications associated with rhinoseptoplasty, analyzing their frequency, pathogenic mechanisms, and current strategies for prevention and management.*

***Methods:*** *a narrative review of the medical literature available in PubMed, Scopus, and SciELO databases from 2010 to 2024 was conducted. Original articles, systematic reviews, and clinical guidelines with relevant evidence on postoperative complications in rhinoseptoplasty were included.*

***Results:*** *complications are classified as immediate – such as bleeding, septal hematoma, and infection – and late – including nasal deformities, nasal valve dysfunction, synechiae, and olfactory disturbances. Most complications can be prevented through proper surgical technique and strict postoperative follow-up.*

***Conclusion:*** *despite the low incidence of severe complications, rhinoseptoplasty requires thorough anatomical knowledge, meticulous preoperative evaluation, and precise surgical technique to minimize risks and optimize outcomes.*

**KEYWORDS:** *Rhinoseptoplasty; Surgical Complications; Nasal Surgery; Septoplasty; Postoperative Outcomes.*

## INTRODUCTION

Rhinoseptoplasty is one of the most common surgical procedures in otolaryngology and facial plastic surgery. Its primary objective is to correct nasal septal deformities and improve nasal airflow, although in many cases it is performed simultaneously with aesthetic modifications to optimize the external appearance of the nose [1,2].

In recent decades, advancements in surgical techniques, improved understanding of nasal anatomy, and the use of more precise diagnostic imaging have enhanced clinical outcomes. However, the procedure is not without risks. Complications may be functional, aesthetic, infectious, or structural, ranging in severity from transient symptoms to permanent deformities requiring revision surgery [3,4].

The incidence of postoperative complications varies widely in the literature depending on the surgical technique used, surgeon experience, patient anatomical characteristics, and adherence to postoperative care. Awareness of these complications is essential for their prevention, timely diagnosis, and effective management [5].

This article aims to systematize the main complications of rhinoseptoplasty, their pathophysiology, estimated frequency, and therapeutic management based on updated scientific literature.

## METHODOLOGY

A narrative review was conducted through electronic searches in the PubMed, Scopus, and SciELO databases using the following keywords: rhinoseptoplasty complications, nasal surgery adverse effects, septoplasty outcomes, and functional rhinoplasty. Original articles, systematic reviews, cohort studies, and clinical guidelines published between January 2010 and March 2024 in English and Spanish were included.

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Inclusion criteria were: studies with more than 10 patients, detailed descriptions of postoperative complications, and articles published in peer-reviewed journals. Studies with low evidence levels, isolated case reports, and letters to the editor were excluded. The information was organized according to the type of complication (immediate or late) and affected system (functional, aesthetic, or infectious).

## RESULTS

### Immediate Complications

**Postoperative bleeding:** Typically occurs within the first 24 to 48 hours. Its incidence varies between 2% and 6% according to different series [6]. Bleeding can be self-limited or may require anterior/posterior nasal packing and, in severe cases, surgical revision.

**Septal Hematoma:** This is an infrequent but serious complication, as it can compromise the vascularization of the septal cartilage, leading to necrosis and subsequent perforation. Its incidence ranges from 0.5% to 1.5% [7].

**Infections:** Although rare (<1%), infections can manifest as cellulitis, septal abscess, or acute sinusitis. Perioperative antibiotic prophylaxis and aseptic handling significantly reduce this risk [8].

### Late Complications

**Structural Deformities:** These include nasal dorsum collapse, supratip deformity, and saddle nose. They are often the result of excessive resection of the septal cartilage or inadequate reconstruction of the structural support framework [9].

**Nasal Valve Dysfunction:** This may affect the internal valve (more commonly) or the external valve. It can present as persistent nasal obstruction, particularly in patients with thin skin or weak cartilaginous support [10].

**Nasal Synechiae:** Adhesions between the septum and turbinates can cause secondary nasal obstruction. An incidence rate between 5% and 15% has been reported, especially in surgeries combined with turbinectomy [11].

**Olfactory Disturbances:** Postoperative anosmia or hyposmia is usually transient, although persistent olfactory loss has been documented. Manipulation of the olfactory neuroepithelium and mucosal inflammation contribute to this phenomenon [12].
**Aesthetic dissatisfaction:** The subjective perception of poor aesthetic outcome is one of the most common causes of revision surgery, with reported rates ranging from 5% to 15% across different studies [13].

## DISCUSSION

Complications associated with rhinoseptoplasty can have a significant impact on the patient's quality of life, particularly when both functional and aesthetic alterations are involved. While most complications are preventable, their occurrence may be related to individual anatomical factors, inappropriate surgical technique, or failures in postoperative follow-up care [7,9,10].

A thorough knowledge of nasal anatomy, appropriate selection of surgical technique (endonasal vs. open), and the use of structural grafts when necessary are fundamental measures to prevent postoperative collapse and deformities [9]. Likewise, clear communication with the patient regarding the limitations of nasal aesthetic surgery helps reduce the rate of postoperative dissatisfaction [13].

From a functional standpoint, it is essential to preserve or reconstruct the integrity of the nasal valve and to avoid excessive resection of the septal cartilage, as it can compromise both ventilation and aesthetics. Ongoing education and specific training in both functional and aesthetic nasal surgery significantly improve outcomes and reduce complication rates [2,10].

The findings of this review are consistent with those reported in a recent scoping review on rhinoplasty, where the procedure is emphasized as having evolved into a comprehensive surgical approach that addresses not only nasal aesthetics but also respiratory function and psychological implications for the patient [14]. Iñiguez Ávila et al. highlight the importance of a detailed anatomical analysis and the need to adapt surgical techniques to the individual characteristics of each patient, using open or endonasal approaches as appropriate. Precise treatment of the internal nasal valve, the alar base, and the nasal tip are crucial in preventing complications and achieving satisfactory aesthetic and functional outcomes. This contemporary perspective on rhinoplasty supports the concept of rhinoseptoplasty as a highly personalized and technical procedure, in which the combination of techniques such as septoplasty, dorsal hump correction, and structural reconstruction are key to obtaining predictable and long-lasting results.

### Clinical Pearls and Recommendations

The prevention of complications in rhinoseptoplasty begins with a thorough preoperative assessment, including aesthetic, functional, and psychological evaluation of the patient. It is essential to establish realistic expectations through clear and detailed communication. During surgery, careful dissection of anatomical planes is recommended to preserve the integrity of the internal nasal valve and minimize the risk of alar collapse. The use of structural grafts, such as spreader grafts and columellar struts, should be considered in cases of weakened osteocartilaginous support. Postoperatively, close monitoring for signs of septal hematoma, infection, or structural displacement is advised. Pre- and postoperative photographic documentation is useful both for outcome analysis and follow-up. Ultimately, a detailed understanding of nasal anatomy, mastery of various surgical techniques, and a willingness to perform revision procedures when necessary are key pillars of responsible surgical practice.

## CONCLUSIONS

Rhinoseptoplasty is a safe and effective surgical procedure when performed by surgeons with solid training and experience in nasal surgery. Despite its high success rate, it is not free from complications, which must be identified and managed promptly to avoid functional or aesthetic sequelae. Long-term prognosis

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is closely linked to a thorough preoperative assessment, individualized surgical planning, the meticulous application of refined surgical techniques, and careful postoperative follow-up. Recognizing the anatomical and functional complexity of the nose, as well as adopting a multidisciplinary approach when necessary, significantly contributes to optimizing outcomes and reducing the incidence of complications.

## REFERENCES

1. *Jin HR, Lee JY, Jung WJ. Surgical outcomes and complications of rhinoplasty. Clin Exp Otorhinolaryngol. 2020;13(2):142-9.*
2. *Gunter JP, Rohrich RJ, Adams WP. Dallas Rhinoplasty: Nasal Surgery by the Masters. 3rd ed. St. Louis: Quality Medical Publishing; 2018.*
3. *Most SP. Analysis of outcomes after functional rhinoplasty. Arch Facial Plast Surg. 2015;17(1):44-8.*
4. *Sazgar AA, Mirvakili A. Complications of septoplasty: a systematic review. J Otolaryngol ENT Res. 2019;11(1):13–7.*
5. *Becker DG, Becker SS. Revision rhinoplasty: an analysis of 267 cases. Arch Facial Plast Surg. 2006;8(5):321–6.*
6. *Palhazi P, Tóth GG, Kovács A, Móczár G. Surgical complications in septoplasty: analysis of 494 cases. Am J Rhinol Allergy. 2011;25(3):168–71.*
7. *Rohrich RJ, Muzaffar AR, Janis JE. Component dorsal hump reduction: the importance of maintaining dorsal aesthetic lines in rhinoplasty. Plast Reconstr Surg. 2004;114(5):1298–308.*
8. *Cakmak O, Coskun M, Celik H, Büyüklü F, Ozlüoglu LN. Value of nasal endoscopy in septal surgery: analysis of 111 cases. Otolaryngol Head Neck Surg. 2002;127(4):336–9.*
9. *Constantian MB. The incompetent external nasal valve: pathophysiology and treatment. Plast Reconstr Surg. 2012;129(1):105–15.*
10. *Toriumi DM. New concepts in nasal tip contouring. Arch Facial Plast Surg. 2006;8(3):156–85.*
11. *Apuhan T, Yildirim YS, Kivrak T. Nasal synechia and perforation after septoplasty. J Craniofac Surg. 2010;21(5):1420–2.*
12. *Damm M, Vent J, Schmidt M, Theissen P, Eckel HE. Olfactory changes after nasal surgery. Am J Rhinol. 2003;17(3):169–73.*
13. *Litner JA, Adamson PA. Managing patient dissatisfaction in facial plastic surgery: a review. Facial Plast Surg Clin North Am. 2008;16(2):223–7.*
14. *Iñiguez Ávila EE, Villacis Hidalgo YN, González Mellizo DV, Prado Sanchez CR, Coello García BE. Rhinoplasty Scoping Review. EPRA Int J Multidiscip Res. 2024;10(4):1–8. doi:10.36713/epra20325*

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