



The importance of otorhinolaryngology in correcting rhinoplasties with adverse events

Importância da otorrinolaringologia na correção de rinoplastias com eventos adversos

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ABSTRACT

Introduction: Rhinoplasty is a complex intervention aimed at improving both aesthetics and nasal functionality. The literature highlights the occurrence of adverse events in this procedure, motivating the search for effective correction strategies. In this context, otorhinolaryngology plays a crucial role, and it is essential to understand the incidence and types of complications to improve clinical practices. **Methods:** A systematic review of the literature was conducted to identify studies that addressed adverse events in rhinoplasty and the role of otorhinolaryngology in their correction. The databases searched were: PubMed, Scopus, SciELO, Cochrane Library, LILACS and Embase, combining the keywords: "Rhinoplasty," "Otorhinolaryngology," "Adverse events," "Aesthetic outcomes," "Functional outcomes," "Nasal surgery," and "Complications in rhinoplasty," with the Boolean operators "OR" and "AND". **Results:** The compiled results reveal a variety of adverse events in rhinoplasty, from cosmetic complications to functional challenges. The analysis underscores the importance of a specialized otorhinolaryngological approach to minimize these adverse events, highlighting the need for treatment personalization to optimize results. **Conclusion:** It is concluded that otorhinolaryngology plays an essential role in the correction of adverse events in rhinoplasty. The systematic review highlights the complexity of these interventions, emphasizing the need for a multidisciplinary and specialized approach to achieve satisfactory aesthetic and functional results. These findings support the importance of the role of the otolaryngologist in optimizing the quality of care provided to patients undergoing rhinoplasty.

Keywords: Rhinoplasty, Otorhinolaryngology, Adverse events.

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INTRODUCTION

Rhinoplasty, a surgical procedure aimed at the aesthetic and functional correction of the nose, has been the subject of considerable attention in the scientific literature, evidenced by the numerous studies published over the years. Otorhinolaryngology, as a medical specialty, plays a crucial role in the approach and correction of rhinoplasties, especially when adverse events present themselves postoperatively. The aim of this study is to explore the importance of otorhinolaryngology in this context.

The evaluation of rhinoplasty results, as highlighted by Arima et al. (2011), is essential to understand the efficacy of the procedure, especially when it comes to aesthetic correction. The prospective aesthetic and functional analysis proposed by Esteves et al. (2017) provides valuable conclusions about long-term outcomes, highlighting the need to consider both aspects in the postoperative evaluation. A priori, studies such as the one by Faidiga et al. (2010), when addressing the late evaluation in aesthetic rhinoplasties, offer a temporal perspective on the results of the procedure.

The surgical approach is also a recurring theme in the literature, Filho et al. (2009) describe ellipse excision of the upper lateral cartilage as a technique for correction of the wide nasal middle third. Specific surgical maneuvers performed during rhinoplasty, as evidenced by Patrocínio et al. (2006), highlight the importance of adequate surgical technique in obtaining satisfactory results.

That said, rhinoplasty in specific contexts, such as in children (Maniglia et al., 2022) and in patients with Van der Hoeve-de Klein syndrome (Gonçalves et al., 2014), highlights the diversity of patients and challenges that otorhinolaryngology faces in the search for optimal results.

In the long term, it is vital to consider changes in the nasal tip and other anatomical changes, as mentioned by Morera et al. (2008). The classification of rhinoplasties performed in referral centers, as proposed by Nunes et al. (2014), contributes to a more comprehensive understanding of the different approaches and results.

Therefore, it is undeniable that otorhinolaryngology plays a central role in the management of adverse events in rhinoplasty. In-depth understanding of aesthetic and functional outcomes, coupled with improved surgical techniques, are crucial aspects in the long-term success of these procedures. This review aims to highlight the relevance of otorhinolaryngology in the search for satisfactory results in rhinoplasty.



MATERIALS AND METHODS

Initially, a systematic review of the literature was carried out, using the following databases: PubMed, Scopus, SciELO, Cochrane Library, LILACS and Embase, in order to locate a larger number of studies addressing adverse events in rhinoplasty and the role of otorhinolaryngology in the correction of these events. To locate the manuscripts in the aforementioned databases, the following keywords were combined: "Rhinoplasty"; "Otorhinolaryngology"; "Adverse events"; "Aesthetic outcomes"; "Functional outcomes"; "Nasal surgery"; "Complications in rhinoplasty", these were combined with the Boolean operators "OR" and "AND"

The sample consisted of studies published in indexed scientific journals, considering different perspectives, such as aesthetic and functional results and surgical techniques.

Studies that reported rhinoplasty with adverse events, with a focus on otorhinolaryngological interventions, were included. Studies that are not available in complete format, are not related to the topic of rhinoplasty, or do not provide relevant information on adverse events and otorhinolaryngological approaches were excluded.

Studies that addressed specific cases, such as rhinoplasty in children (Maniglia et al., 2022) and in patients with Van der Hoeve-de Klein syndrome (Gonçalves et al., 2014), were analyzed separately to identify specific challenges and solutions related to these groups.

When appropriate, statistical analyses were performed in order to quantify the efficacy of otorhinolaryngological approaches in rhinoplasty with adverse events, using relevant statistical tools.

This methodology aims to provide a comprehensive approach to assess the importance of otorhinolaryngology in the correction of rhinoplasties with adverse events, integrating different aesthetic, functional, and surgical perspectives.

RESULTS AND DISCUSSION

The analysis of articles published in the last 10 years provided a comprehensive view of rhinoplasty, the studies investigated various aspects, from aesthetic and functional results to specific complications of nasal surgery. The following table presents a summary of the main findings of these studies, highlighting considerations deemed relevant to the understanding and improvement of clinical practice in rhinoplasty.

Subsequently, the other results will be presented, in order to support the discussion not only in recent articles, but in all that were relevant to the understanding of the theme and that

answered the guiding question: "What is the importance of otorhinolaryngology in the correction of rhinoplasty with adverse events? What role did she play in dealing with this surgical procedure?"

Table 1 – Results of articles published in the last 10 years.

TITLE	AUTHOR, YEAR	OBJECTIVES	RESULTS	CONCLUSIONS
Rhinoseptoplasty in children	MANIGLIA, et al. 2022	To present the experience of treating children with deviated septum of the nose and/or nasal pyramid and to demystify the concept that the surgical procedures recommended for corrections should only be indicated after the age of 15 years in girls and at 18 years of age in boys.	Recurrences of deviated septum occurred in 4 cases, deviation of the nasal pyramid in 4, synechia in 3, perforation of the septum and infection in 1.	Deviated septum of the nose and/or nasal pyramid should be corrected early and associated surgeries can be performed in the same surgical procedure.
Aesthetic evaluation in rhinoplasty: factors to consider	SANTOS, et al. 2018	Identify factors that may need to be considered during nasal aesthetic evaluation. This is a pioneering study, in which factors related to the patient, surgeon and general population will be evaluated and their potential influence on the aesthetic evaluation of the nose will be tested.	The study included 100 Mediterranean Caucasian patients (64 females; 36 males) who presented with nose-related morphofunctional complaints. The mean age was 32.6 years, 34.0% had thin skin, 53.0% had intermediate skin, and 13.0% had thick skin. The dominant nasal defect was rhinoomegaly, followed by nasal hump, laterorrhynia, bulbous tip, and miscellaneous. It was found that factors such as gender, age, dominant nasal deformity or skin type of the patient do not influence the nasal aesthetic evaluation performed by patients, rhinoplasty surgeons or individuals in the general population.	In a multidimensional way, the possible influence of several factors on nasal aesthetic evaluation was tested. In the future, this research will continue in order to increase the size of the sample and the panels of evaluators, as well as to test a greater number of potential factors influencing the nasal aesthetic evaluation and thus increase the power of the results obtained.



<p>Evaluation of aesthetic and functional outcomes in rhinoplasty surgery: a prospective study</p>	<p>ESTEVEES, et al. 2017</p>	<p>The aim of this study was to determine patient satisfaction regarding the appearance and function of the nose with the use of a validated questionnaire, before and after rhinoplasty surgery.</p>	<p>Among 113 patients, 107 completed the questionnaires and the follow-up period. The analysis of the evaluation of the rhinoplasty outcome (ADR) in the preoperative and postoperative period showed a significant improvement after 3 and 6 months in functional and aesthetic issues ($p < 0.01$). In the preoperative period, anxious and insecure patients had a worse score ($p < 0.05$).</p>	<p>It was found that patients with a lower degree of literacy were more satisfied with the procedure. Rhinoplasty surgery significantly improved the patient's quality of life in terms of the function and appearance of the nose.</p>
<p>Classification of rhinoplasties performed in a referral center for otorhinolaryngology in Brazil</p>	<p>NUNES, et al. 2014</p>	<p>To evaluate rhinoplasty cases and their subtypes in a referral center and to understand the relevance of teaching rhinoplasty techniques in an ENT residency service.</p>	<p>Of the rhinoplasties performed, 184 (56.21%) were functional, 59 (18.15%) were post-traumatic, 27 were (8.30%) cosmetic, 15 were (4.61%) reconstructive, and 40 (12.30%) were revision procedures.</p>	<p>Functional rhinoseptoplasties were the most prevalent type, which highlights the relevance of teaching surgical techniques, not only for septoplasty, but also for the inclusion of rhinoplasty techniques in teaching centers.</p>
<p>Closed rhinoseptoplasty in patients with Van der Hoeve-de Klein syndrome</p>	<p>GONÇALVES, et al. 2014</p>	<p>To report a case in which the patient came to the otorhinolaryngology service with aesthetic complaints regarding the nasal dorsum, nocturnal snoring and mouth breathing. The patient had a history of multiple bone fractures and reported a personal and family history of osteogenesis imperfecta.</p>	<p>Closed rhinoseptoplasty was performed with excision of 4 mm of the osteocartilaginous dorsum. A bilateral nasal splint was placed, as well as lateral and paramedian osteotomies. The nasal bones and the frontal process of the maxilla did not break as easily as expected during osteotomies and did not heal either. The surgery was uneventful. Careful fixation of the nasal cartilages and limited mobilization of the bones were maintained for ten days. The postoperative period progressed with good fracture consolidation and the degree of patient</p>	<p>He presented a successful experience of closed rhinoseptoplasty in a patient with VHK syndrome, in which osteotomies were performed and, despite the demineralized and thin bone structure typical of the disease, bone consolidation occurred within the expected time frame and good functional and aesthetic results were achieved.</p>



			satisfaction was assessed using the <i>Rhinoplasty Outcomes Evaluation (ROE)</i> questionnaire.	
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The authors.

The evaluation of results in rhinoplasty for the correction of crooked noses, as performed by Arima et al. (2011), highlights the effectiveness of otorhinolaryngological intervention in obtaining satisfactory results. The otorhinolaryngological approach not only aims to correct nasal asymmetry, but also considers functional aspects, ensuring a comprehensive approach for patients undergoing this procedure.

In the prospective study conducted by Esteves et al. (2017), which investigated aesthetic and functional outcomes in rhinoplasty surgeries, the relevance of otorhinolaryngology in predicting and managing long-term outcomes is evidenced. The comprehensive evaluation performed by professionals in this specialty contributes significantly to patient satisfaction and to the early identification of complications.

The late evaluation in aesthetic rhinoplasty, as examined by Faidiga et al. (2010) in an academic referral center, highlights the continuous need for otorhinolaryngological intervention even after the immediate postoperative period. This approach aims to ensure that aesthetic results are maintained over time, as well as allowing the correction of possible late complications.

The ellipse excision technique of the upper lateral cartilage, proposed by Filho et al. (2009), highlights the specific contribution of otorhinolaryngology in the correction of the wide nasal middle third. This surgical approach presents a valuable alternative, emphasizing the importance of specialized knowledge in choosing the most appropriate technique for each case.

The descriptive study by García et al. (2009) on septoplasty and rhinoplasty highlights the importance of otorhinolaryngology in the combined approach to these procedures. The integration of techniques provides benefits both in terms of aesthetics and nasal function, underscoring the expertise required for a successful intervention.

For patients with Van der Hoeve-de Klein syndrome, closed rhinoseptoplasty, as investigated by Gonçalves et al. (2014), highlights the importance of the otorhinolaryngological approach in patients with specific needs. This research shows the necessary adaptation to ensure favorable results in populations with distinct anatomical characteristics.

The context of the research by Maniglia et al. (2022) focuses on rhinoseptoplasty in children, emphasizing the need to adapt surgical techniques to meet the specific anatomical



characteristics of this group. ENT intervention in pediatric patients highlights the importance of careful consideration of particular factors in this context.

The study by Morera et al. (2008) addresses the long-term changes in the nasal tip after primary rhinoplasty by analyzing the techniques of the new domes and the pattern. Long-term changes are essential in assessing the success of rhinoplasty, and ENT intervention plays a crucial role in the choice and execution of these techniques.

The classification proposed by Nunes et al. (2014) for rhinoplasties performed in otorhinolaryngology referral centers in Brazil contributes to a structured and comprehensive understanding of the various surgical approaches. Otorhinolaryngology, by leading this classification, provides a more refined understanding of the interventions performed in a specialized setting.

The study by Patrocínio et al. (2006) on the surgical maneuvers performed in rhinoplasty in a medical residency service highlights the importance of specific training in otorhinolaryngology. The practical application of these maneuvers is an example of the expertise required to deal with surgical challenges, underlining the relevance of specialization in this context.

Open rhinoplasty, as investigated by Pizarro et al. (2002), also reveals the importance of otorhinolaryngology. This particular technique requires an in-depth understanding of nasal anatomy and surgical implications, demonstrating the need for specialized interventions to optimize outcomes.

The study by Santos et al. (2018) highlights the aesthetic evaluation in rhinoplasty and the factors to be considered in this process. The otorhinolaryngological approach is essential for a holistic evaluation, considering both functional and aesthetic aspects to ensure fully satisfactory results.

Next, the selected specific cases will be discussed, in order to present in detail considerations about personalized management, aiming at better results in different clinical situations.

I. Closed rhinoseptoplasty in patients with Van der Hoeve-De Klein syndrome by GONÇALVES, Raíssa Ferreira, *et.al.* 2014.

Van der Hoeve-de Klein Syndrome, also known as Van der Hoeve Syndrome or Klein-Waardenburg Syndrome, is a rare genetic condition that affects craniofacial development. This syndrome is considered a variant of Waardenburg Syndrome, a group of genetic disorders



characterized by changes in the pigmentation patterns of the skin, hair, eyes and ears, as well as possible congenital anomalies in the nervous system.

The main signs and symptoms of Van der Hoeve-de Klein Syndrome may include: Facial Anomalies: Changes in the shape of the face, such as an enlarged or flattened nose, short upper lip, and/or cleft palate; Eye Anomalies: There may be changes in eye coloration, strabismus (misalignment of the eyes) or, in some cases, congenital deafness; Hearing Anomalies: Hearing loss may be present and may vary in severity; Cranial Anomalies: Some people with this syndrome may have abnormalities in cranial development; Cardiovascular abnormalities:** In some cases, abnormalities in the heart may occur.

The study presents extremely relevant contributions to the clinical practice in otorhinolaryngology. The authors highlight the approach of closed rhinoseptoplasty, a technique that seeks to correct both the aesthetic and functional part of the nose, without the need for visible external incisions. The choice of this technique can be crucial, especially in patients with complex genetic conditions, such as Van der Hoeve-de Klein syndrome, where the nasal anatomy may present particularities that require a personalized approach.

Analysis of the results of this research may provide significant considerations about the efficacy of closed rhinoseptoplasty in this specific group of patients. The evaluation of aesthetic and functional outcomes after the intervention was essential to understand the ability of this technique to provide significant improvements in the quality of life of these patients, who often face challenges related to respiratory function and facial aesthetics.

That said, the study may contribute to the knowledge about the clinical management of Van der Hoeve-de Klein syndrome, offering practical guidelines for otorhinolaryngology professionals dealing with similar cases. The sharing of experiences and successful outcomes in this specific context is crucial for the continued development of medical practice and for improving the care offered to patients with complex genetic conditions.

In short, the importance of closed rhinoseptoplasty as a relevant surgical option for patients with this syndrome is highlighted, offering a personalized approach that takes into account the particularities of this genetic condition.

II. Rhinoseptoplasty in Children. By MANIGLIA, José Victor, et.al

Maniglia et al. (2022) highlight specific considerations regarding surgical intervention in children with the purpose of correcting issues related to the nose and nasal septum.



Rhinoseptoplasty, in this pediatric context, represents a unique challenge that requires a careful approach adapted to the developing anatomy.

The study addresses crucial issues related to rhinoseptoplasty in children, including preoperative evaluation, age-specific surgical techniques, and postoperative considerations. The detailed analysis of these aspects aims to provide valuable insights for ENT professionals involved in the care of children with nasal and respiratory problems.

Among the main topics addressed by the study, the importance of proper evaluation of the developing nasal anatomy is highlighted. Surgical intervention in children requires a thorough understanding of the anatomical and physiological particularities of this specific population. Ethical and safety considerations related to surgery in children are also highlighted, as well as strategies to present better aesthetic and functional results.

The article also discusses specific surgical techniques for rhinoseptoplasty in children, aiming at correcting septal deviations, nasal obstructions and other related problems. The appropriate choice of techniques is essential to ensure satisfactory results and minimize potential postoperative complications.

FINAL THOUGHTS

Based on all of the above, it is evident that the ENT approach plays a crucial role in performing rhinoplasties as well as correcting rhinoplasties with adverse events. It still emerges as a choice that potentially reduces the incidence of complications associated with the procedure.

The personalization of treatment, evidenced in studies addressing rhinoseptoplasty in children, suggests that the expertise of the otorhinolaryngologist goes beyond mere surgical execution, incorporating a holistic approach that considers the unique characteristics of each patient. The proposed classification of rhinoplasty and the late evaluation of aesthetic procedures also highlight the need for a structured and careful practice, which are intrinsic characteristics of otorhinolaryngology.

Although other specialties, such as plastic surgery, also play a role in the important performance of rhinoplasties, the studies considered here indicate that the otorhinolaryngological approach stands out in minimizing complications. The detailed understanding of the nasal anatomy, combined with the ability to manipulate internal structures, positions the otorhinolaryngologist as a crucial professional in obtaining safer and more satisfactory surgical results for patients.





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