

DIFFERENT TECHNIQUES IN TIP RHINOPLASTY

Amir ALSHEHARI^{1,2✉}, Serban Arghir POPESCU¹, Ioan LASCĂR¹

¹ „Carol Davila“ University of Medicine and Pharmacy, Plastic Surgery and Reconstructive Microsurgery Department, Clinical Emergency Hospital of Bucharest, Bucharest, Romania

² Bombay Hospital, Plastic Surgery Department, Mumbai, India

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ABSTRACT

Background. Rhinoplasty is considered as one of the most challenging objectives in plastic surgery and tip rhinoplasty is arguably the greatest challenge for the surgeon performing rhinoplasty. No routine tip procedure is ever used and there are many ways to reconstruct and make nasal tips more attractive.

Objective. The aim of this study was to evaluate the different correction techniques, in order to improve the outcomes in tip rhinoplasty.

Methods. A prospective study was performed, including all patients with nasal tip deformities who underwent closed or open rhinoplasty between December 2015-August 2016 in Bombay Hospital, India. The patients were divided into two groups: group A – treated with various types of tip sutures (12 cases), and group B – treated with combined tip sutures and grafts (18 cases).

Results. The study included 30 patients, 24 (80%) females and 6 (20%) males. 12 (40%) were patients with bulbous tips, 7 (23%) were patients with droopy tips, 5 (17%) were patients with boxy (broad) tips, 3 (10%) were patients with wide tips, and 3 (10%) were patients with bifid tips. A total of 27 (90%) cases involved primary rhinoplasties, and 3 (10%) cases involved revision. Patient's and doctor's satisfactions were recorded

RÉSUMÉ

Techniques différentes de la rhinoplastie de la pointe nasale

Introduction: La rhinoplastie est considérée comme l'un des objectifs les plus provocateurs dans la chirurgie plastique et la rhinoplastie de la pointe nasale le plus controversé défi face au chirurgien qui la pratique. Il n'y a aucun procédé de routine utilisé et il existe beaucoup de méthodes de reconstruction qui rendent la pointe nasale plus attrayante.

But: Le but de cette étude est l'évaluation des différentes techniques de correction afin d'améliorer les résultats dans la rhinoplastie de la pointe nasale.

Méthodes: On a réalisé une étude prospective sur tous les patients avec des anomalies de la pointe nasale, soumis à une rhinoplastie fermée ou ouverte entre décembre 2015-aout 2016, à l'Hôpital de Bombay, de l'Inde. Les patients ont été divisés en deux groupes : le groupe A – ou les patients ont été traités par de divers types de sutures (12 cas) et le groupe B dont les patients ont été traités par des sutures et des greffes de la pointe nasale (18 cas).

Résultats: L'étude a compris 30 patients, 24 (80%) femelles et 6 (20%) mâles. Douze patients (40%) aux pointes nasales bulbeuses, 7(23%) patients aux pointes

✉ Address for correspondence:

Amir ALSHEHARI
Plastic Surgery & Reconstructive Microsurgery Department, Clinical
Emergency Hospital of Bucharest, Bucharest, Romania
Address: Calea Floreasca no.8, 014461, Bucharest, Romania
Email: Dr_Amir17@hotmail.com, phone 0754018744

by a score from 0 to 3, with 0 being the less satisfied by the result of surgery and 3 being the highest satisfied.

Conclusion. Aesthetic outcome following the management of nasal tips deformities with combined suture techniques and grafts is more satisfactory than the outcome that can be achieved following suture alone, especially in certain cases.

Keywords: rhinoplasty, nasal tip, suture techniques, grafts.

INTRODUCTION

The nasal tip is the most challenging part of rhinoplasty, because it plays a very significant role in the achievement of a functional, aesthetically pleasing, and natural result¹. Rhinoplasty is challenging, due to the complex relationship of nasal anatomic structures and the variety of techniques available to alter them².

The length, width, strength, shape, and position of the lower lateral cartilages and the ligamentous attachments between these paired structures are critical in supporting the nasal tip. The upper lateral cartilages, nasal septum, nasal base, and pyriform aperture provide additional stability and support to the nasal tip through their soft-tissue attachments³. Due to anatomical variations and complexity of the nasal tip deformities, no single technique is adequate to correct the anatomical presentations of the nasal tip. Therefore, preoperative planning is the basis of rhinoplasty. The surgeon must have the technical skills required and the experience to take advantage of them to achieve the best aesthetic and functional result^{1,4-8}.

A successful outcome is predicted by appropriate patient selection. Time spent developing a good relation with the patient and listening to his concerns during this visit is time well spent. Although an operation may be perceived as a technical success by the surgeon, it may not satisfy the patient who is the ultimate judge. Full disclosure of the physical and psychological motivations of the patient and the limitations perceived by the surgeon are essential to avoid confusion, misgivings, and dissatisfaction^{4,9-12}.

nasales retombées, 5 (17%) avec des pointes nasales grosses, 3 (10%) patients avec des pointes nasales élargies et 3 (10%) patients avec des pointes nasales bifides. Un total de 27 (90%) cas a impliqué des rhinoplasties primaires et 3 (10%) cas une révision. Les satisfactions du patient et du docteur ont été enregistrées par un score de 0 à 3, 0 signifiant le résultat de l'opération le moins satisfaisant et 3 une satisfaction au plus haut degré.

Conclusions: Le résultat esthétique après l'approche chirurgicale des anomalies de la pointe nasale par des techniques combinées de suture et de greffe est plus satisfaisant que celui obtenu par seule la suture, surtout dans certains cas.

Mots-clefs: rhinoplastie, pointe nasale, techniques de suture, greffes.

MATERIAL AND METHODS

We performed a prospective study on 30 patients admitted for rhinoplasty to Bombay Hospital, India, between December 2015 and August 2016. We included all patients who underwent aesthetic rhinoplasty with nasal tip deformity. All the patients without nasal tip surgery or less than 18 years old were excluded from this study. Written informed consent was obtained from all patients. The study has been approved from ethics committee of the hospital.

In this study, patients were divided according to tip intervention into two groups. Patients in Group A were treated with various types of tip sutures, and patients in Group B were treated with combined tip sutures and grafts.

All patients underwent the preoperative evaluation in the form of history taking, physical examination, complete laboratory investigations, psychiatric evaluation, and photographic evaluation and documentation. Standard medical photography of patients was performed preoperatively and postoperatively.

The surgical outcome was assessed in this study by a subjective method that evaluated the patient's and the doctor's satisfaction through a questionnaire. A four points score was used for both the patient and the surgeon to document their satisfaction with the final results of surgery as follows:

0, Bad: results are not accepted and revision surgery is needed.

1, Fair: results are acceptable (mild improvement).

2, Good: results are satisfactory with reservations

3, Excellent: results are satisfactory without reservations.

Statistical analysis: data were analyzed using SPSS version 24. Categorical variables are expressed as

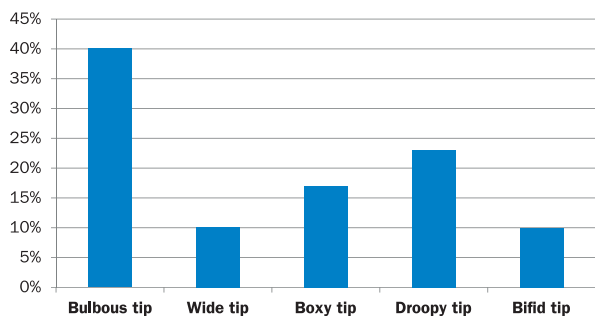


Fig. 1. The percentage of different types of nasal tip deformity in patients included in the study.

Table 1. Postoperative outcomes in all patients – degree of satisfaction.

Satisfaction of the patients	Variable	Mean ± SD / No. (%)
	Bad	2 (6.7%)
Fair	3 (10%)	
Good	9 (30%)	
Excellent	16 (53.3%)	
Satisfaction of the doctor	Bad	2 (6.7%)
	Fair	1 (3.3%)
	Good	16 (53.3%)
	Excellent	11 (36.7%)

Table 2. Comparison of post-operative satisfaction between operation groups.

Variable	Operation Group		P. value	
	Group 1	Group 2		
	Suture (No. = 12)	Suture and Graft (No. =18)		
Satisfaction of the patient	Bad	1(8.3%)	1(5.6%)	0.671 NS
	Fair	2 (16.7%)	1 (5.6%)	
	Good	4 (33.3%)	5 (27.8%)	
	Excellent	5 (41.7%)	11 (61.1%)	
Satisfaction of the doctor	Bad	2 (16.7%)	0 (0.0%)	0.135 NS
	Fair	0 (0.0%)	1 (5.6%)	
	Good	7 (58.3%)	9 (50%)	
	Excellent	3 (25%)	8 (44.4%)	
No	12 (100%)	16 (88.9%)		

NS = non-significant statistically

number and percentage and continuous variables expressed as mean and standard deviation. Comparison of categorical variables between groups was done using Chi Square (X²) test and between continuous variables using independent sample T- test. P. value less than 0.05 was considered statistically significant.

RESULTS

The study included a total of 30 patients, 24 (80%) females and 6 (20%) males, with mean age of 29.07 ± 5.04 years. In the current study, for the purpose of analysis of the deformities, the patients were classified into two groups: Group A included 12 (40%) patients who undergone tip suture only, Group B included 18 (60%) patients who had undergone tip sutures and graft. Regarding the nasal tip deformity, the most common deformity in this study was bulbous tip in 40% cases, followed by droopy tip in 23% cases, then boxy tip in 17% cases, wide tip in 10% cases, and bifid tip in 10% (Fig. 1). All patients were operated in this study by the same plastic surgeon.

Minor complications were rarely observed (two cases of minor infection around stitches in the

columellar area and only one case of hemorrhage), quickly resolved without consequences in the early postoperative period.

In this study, we assessed the degree of satisfaction of the surgical outcome, by the patient’s and the surgeon’s impression. The level of patient satisfaction in all patients, regardless of operation group, was excellent in 16 patients (53.3%), good in 9 patients (30%), fair in 3 patients (10%) and bad in 2 patients (6.7%) (Table 1). The level of doctor’s satisfaction in all patients, regardless of operation group, was excellent in 11 patients (36.7%), good in 16 patients (53.3%), fair in 1 patient (3.3%) and bad in 2 patients (6.7%) (Table 1). There was no significant difference in patient’s satisfaction or in doctor’s satisfaction between both groups, as shown in Table 2.

DISCUSSION

Successful rhinoplasty begins with the careful preoperative preparation to understand the patient’s expectation; planning and communication with the patients are extremely important to identify any unrealistic expectations^{5, 13-16}.

Kuran et al and others evaluated the long-term effects of tip sutures and tip cartilage grafts, and suggested that cartilage grafts should be considered as cases in which dimensional changes are a priority. If minor dimensional changes with more rotational alterations are planned, tip-suture techniques that provide sculpting the nasal tip with a long-lasting satisfactory aesthetic outcome should be preferred^{6, 17-19}.

A columellar strut graft can affect tip rotation and projection. In a study of its effect on nasal tip position, Rohrich et al concluded that the columellar strut cartilage graft does not necessarily imply an increase in tip projection, but rather serves to unify the nasal tip and helps to control the final position of the tip^{5, 20-23}.

In this study, we tried to protect all anatomical structures and the relationships between them. If we couldn't protect them, we should reconstruct them again. The nasal tip is anatomically supported over the anterior septum and suspended by ligamentous attachments such as Pitanguy's ligament, scroll ligaments, and cephalic attachments to the pyriform aperture^{10, 24, 25}. Çakır et al advocate delicate dissection, preservation, and repair of Pitanguy's midline ligament, which enables the surgeon to control tip rotation, enhance projection, and emphasize a supratip break by ligamentous manipulation of the nose. Rhinoplasty dissection by the open approach frequently distorts these ligaments. Ideally, to obtain a stable nasal tip, the divided ligaments should be either repaired or reconstructed. Although primary repair seems to be the most straightforward approach,⁷ when primary repair is not feasible, reconstruction of a midline suspension that resembles Pitanguy's ligament is a viable option for securing nasal tip rotation in rhinoplasty^{7, 11, 12, 26, 27}. Also, as in all cases of surgical interventions, the physician should take into account the patient's condition, the presence of possible pathologies (cardiac, metabolic diseases, etc.), dysfunctions, as well as the medications that eventually the patient had before the intervention²⁸⁻³³.

Approximately 10-20% of patients undergoing primary aesthetic rhinoplasty are dissatisfied with the result of surgery and request revisions⁸. The study of patients' satisfaction after rhinoplasty remains a rather neglected area of research, with few validated measurement tools⁹.

CONCLUSIONS

Understanding the role of different structures which contribute to tip characteristics is necessary for the optimal diagnosis and treatment planning. Similar deformities of the nasal tip may require different interventions, depending on the aesthetic

relationship of the tip with the rest of the nose, as well as face. During rhinoplasty, all anatomic structures and the relationships between them should be protected. If we cannot protect them, we should reconstruct again. Also, repair of nasal ligaments allows surgeons to control tip rotation, enhance projection, and emphasize a supratip break. The management of nasal tip deformities with various suturing techniques helps to control nasal tip dynamics. However, the aesthetic outcome following a combination of both techniques was more satisfactory than the outcome achieved using either one of them, and also certain cases, including thick skin, posttraumatic, and a weak lower lateral cartilage usually require combined techniques to provide the optimum cosmetic results.

Compliance with Ethics Requirements:

„The authors declare no conflict of interest regarding this article“

„The authors declare that all the procedures and experiments of this study respect the ethical standards in the Helsinki Declaration of 1975, as revised in 2008(5), as well as the national law. Informed consent was obtained from all the patients included in the study“

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