

Nasal Hump Resection by Guiding a Simple Needle: How We Do It?

Ali Asghar Peyvandi¹, Mahbobeh Oroei^{1§}, Niloofar Majdinasab¹, Shahrokh Khoshsirat^{1§*}

1. Hearing Disorders Research Center, Loghman Hakim Hospital, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Article Info

Article Note:

Received: August, 2019
Accepted: September, 2019
Publish Online: September, 2019

*Corresponding Author:

Dr. Shahrokh Khoshsirat

Email:

dr.sh.khoshsirat@gmail.com

§Co-corresponding

Author:

Both authors contributed equally to this work.

Keywords:

Nasal Hump;
Needle;
Rhinoplasty;

Abstract

Background: The nasal hump is an aesthetic problem for which hump resection can be done through various techniques. In order to prevent improper resection and post-operative deformity, we applied a new measurement instrument during rhinoplasty.

Aim: In this study, we aimed to evaluate the outcome of hump resection under a guiding needle.

Methods: This report was conducted on 80 candidate patients for nasal hump removal in Loghman Hakim hospital (Tehran, Iran). In the intervention group, hump modification was done by a guided needle while for the control group, eye inspection was used. Patients' and surgeon' satisfaction was evaluated after rhinoplasty and 3 months after the procedure. The significant level was considered less than 0.05.

Results: All patients completed the course of study. According to nasal inspection and palpation, the surgical results were better in the hump resection with needle guided localization. The patient satisfaction rate was 90% and 70% in the needle guided group and control group respectively ($p=0.048$). The observed deformities at 3 months after rhinoplasty had no significant differences between the two groups.

Conclusion: According to the findings, the needle guided localization method can be better than eye inspection during rhinoplasty for reducing the cartilage portion of nasal hump.

Conflicts of Interest: The Authors declare no conflicts of interest.

Please cite this article as: Peyvandi AA, Oroei M, Majdinasab N, Khoshsirat S. Nasal Hump Resection by Guiding a Simple Needle: How We Do It? J Otorhinolaryngol Facial Plast Surg. 2019;5(1):1-5.

DOI: <https://doi.org/10.22037/ORLFPS.v5i1.24279>

Introduction

Rhinoplasty is a surgical procedure where the surgeon can repair or reconstruct patients' nose using surgical techniques. The hump of nose is a particular challenge which induces functional and aesthetic problems. Resection of hump is usually considered for patients with nose bridge or patients who have misalignment due to trauma [1, 2]. The hump reduction can be done through various methods. When the extent of tissue resection (cartilage or bone) is improper, it induces deformities that affect the functional and cosmetic aspects of the nose [3, 4]. Today, most rhinoplasty surgeons rely on visual analysis during operation to achieve the desired results of hump removal, yet it has a potential risk for revision. The purpose of this report is to investigate the

result of cartilage portion hump resection using needle guided localization.

Methods

We applied our new method in 40 patients who were candidates for rhinoplasty to remove the cartilage segment of the hump. The patients were over 18 years without any history of psychological problems, hump caused by disease as hemangioma or systemic diseases. Pre-operative careful examination was considered for determining the characteristics of the nasal hump. Before operation, we explained the method of surgery for patients, and obtained a written informed consent from them. Those operations were conducted by a group of rhinoplasty surgeons in Loghman Hakim hospital of Shahid Beheshti University

of medical sciences (Tehran, Iran). In order to compare the results of this method, we used a control group of the patients similar to needle-guided (NG) group. This study was approved by the medical ethics committee of Shahid Beheshti University of Medical Sciences.

Both groups were followed up three months after their operation, when the swelling of tissue was resolved [5]. Primary clinical outcome was success rate based on late complications in the follow-up period. Also, the surgeon and patient satisfaction was evaluated by one of the authors. According to the condition of the study, there was masking only in data analysis.

The data were collected and fed into SPSS software version 18 (SPSS Inc., Chicago, IL). Dichotomous variables were analyzed using the Chi-Square test and continuous variables were compared by Student t-test due to normal distribution. The significant level was considered less than 0.05.

The procedure of resection using a simple needle

After general anesthesia, Tip plasty and osteotomy were done. Then, an aesthetic approach was used for rhinoplasty. In the early phase of resection of the cartilage portion, the surgeon inserted a simple needle from identified points of skin as an indicator and then completely resected the cartilage in the upper part of needle with knife, which was followed by resection of the osseous portion of the hump. Then, other surgical procedures were performed. Figure 1 displays the hump

resection in a man patient performed under needle guidance.

Results

Totally, 80 subjects were enrolled in the study from April 2017 to 2018 including 29 (36.3%) males and 51 (63.7%) females. The mean age of patients was 26.8 ± 5.7 and 25.6 ± 4.0 years in NG and control groups respectively. There were no significant differences between the study groups in terms of age and sex ($p=0.279$, $p=0.352$ respectively). Only ten (12.5%) patients had a previous history of rhinoplasty which was similar in both groups ($p=0.737$). Thirty-seven of 40 (92.5%) patients who underwent nasal hump removal using NGL had acceptable results based on the surgeon's opinion (Table 1).

Overall, the patients' postoperative satisfaction was remarkable in needle-guided group ($n=36$, 90%) and was significantly higher than in the control group ($p=0.045$). At the time of investigation, we did not detect any early complications as hemorrhage or septal hematoma. Figure 2 displays four patients from the NG group and five patients from the control group who had late complications by the 3-month visit. Success rates were 90% and 87.5% in the NGL and control group respectively. There were no significant differences in the late complications between the groups ($p=1.00$). The dorsal nasal irregularity was 2.5% (1:40) in the NG group as compared to 50% (2:40) in the control group.

Table 1. Comparison of outcomes in rhinoplasty groups

Variable	Needle Guided Group	Control Group	p-Value*
Age	26.8 ± 5.7	25.6 ± 4.0	0.279
Gender (Male:Female)	12(30%):28(70%)	17 (42.5%):23 (57.5%)	0.352
Pervious History of Rhinoplasty	6 (15%)	4 (10%)	0.737
Surgeon Satisfaction	37 (92.5%)	29 (72.5%)	0.037
Patient Satisfaction	36 (90%)	28 (70%)	0.048

* <0.05 significant

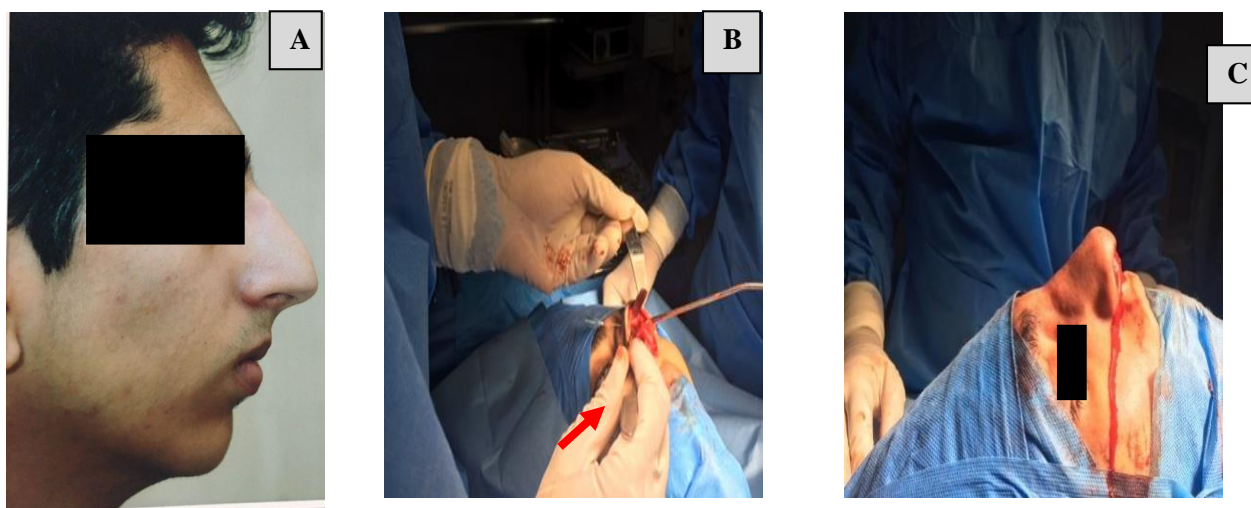


Figure 1. A patient underwent hump resection in the cartilage portion.

A) Pre- operation, B) During operation using needle-guided (Red Arrow), C) Immediately after hump resection.

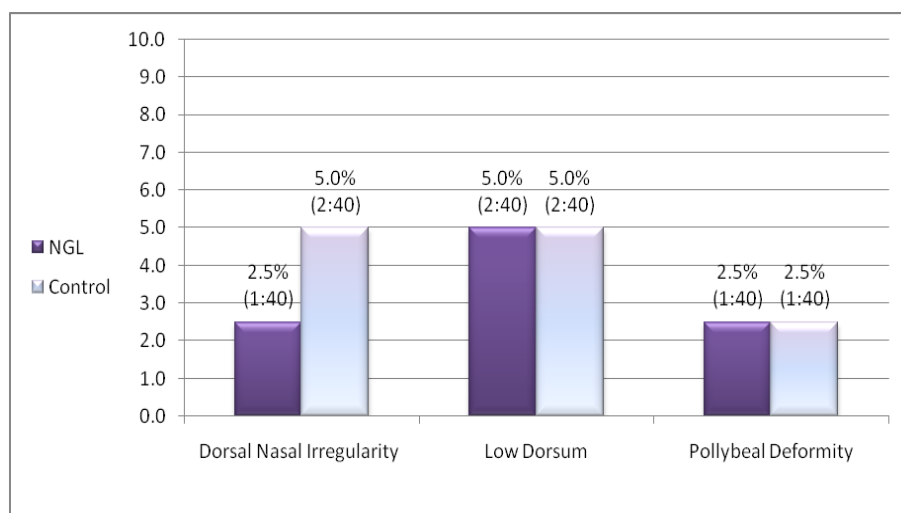


Figure 2. Late complication after 3 months of rhinoplasty in needle guided localization group and control group.

Discussion

The aesthetic criteria for the nose have four aspects including length, width, hump, and tip of nose. Nasal hump is a common nasal problem whose correction is a function of different factors such as surgeon's experience, the type of utilized technique, and nasal shape [6, 7]. There are various techniques for hump modification whose results depend on careful evaluation of the nasal structure before and during the operation [8-10].

Nasal hump is commonly composed of bone and cartilage. In individuals with excess cartilage, the resection of cartilage portion was improper to cause deformities as inverted-v shape [6].

Excess dorsal reduction may leave the tip projected significantly beyond the lowered dorsum. Supratip fullness, also known as pollybeak deformity, may result in one of three possible outcomes. One possibility is the failure to reduce an excessively projected nasal dorsum; alternatively, the excessive resection of dorsal septal cartilage may

paradoxically lead to pollybeak deformity. Finally, compromised tip support may lead to deprojection. Dorsal irregularities may occur along the bony and/or cartilaginous dorsum [11].

One of the most important outcomes of rhinoplasty is achieving success rate and meeting patients' needs. Based on our knowledge, we used a new method in aesthetic rhinoplasty. We marked and draw on the nose of the patient based on aesthetic indexes and determined the amount hump of resection via a guided needle.

In clinical analysis of needle-guided procedure and the findings of usual method (visual evaluation), we found better cosmetic outcomes in our presented method. On the other hand, the rate of satisfaction in patients apart from gender, previous history of rhinoplasty, and age were remarkable in the intervention group. Since visual evaluation can be associated with human error, needle guidance is a suggested method to prevent inappropriate resection. It seems that this method can be good option thanks to being simple, safe, and low cost. Nevertheless, we suggest further studies in this field to investigate the related variables and the surgical complications.

Conclusion

The extent of the hump resection should be examined carefully. Improper removal can induce postoperative deformities and breathing disturbance. The resection of cartilage portion of the hump under needle guidance is an appropriate method which can prevent visual errors during operation and reduce the revision rate.

Acknowledgements

The authors would like to appreciate collaboration of the medical and nursing staff of Loghman Hakim Hospital (Tehran, Iran).

Conflicts of Interest

The authors declare no conflicts of interest with this article.

Ethics

This study was approved by the "Ethics Committee of Shahid Beheshti University of Medical Sciences (Tehran, Iran)"; Registration Code: IR.SBMU.RETECH.REC.1397.560

Financial Support

This work was supported by "Hearing Disorders Research Center of Shahid Beheshti University of Medical Sciences (Tehran, Iran)"; Grant No.: 11982.

Authors' ORCIDS

Shahrokh Khoshsirat:

<https://orcid.org/0000-0002-8568-627X>

Mahbobeh Oroei:

<https://orcid.org/0000-0002-9008-9015>

Ali Asghar Peyvandi:

<http://orcid.org/0000-0001-8229-6594>

References

1. Jin HR, Won TB, Nasal hump removal in Asians. *Acta Otolaryngol Suppl.* 2007 Oct;(558):95-101.
2. Goldman IB. Removal of the nasal hump. *Arch Otolaryngol.* 1961 Dec;74:639-45.
3. Neaman KC, Boettcher AK, Do VH, Mulder C, Baca M, Renucci JD, VanderWoude D. Cosmetic rhinoplasty: revision rates revisited. *Aesthet Surg J.* 2013 Jan;33(1):31-7.
4. Rettinger, G. Risks and complications in rhinoplasty. *GMS Curr Top Otorhinolaryngol Head Neck Surg.* 2007;6:Doc08.
5. NaghibZadeh B, Farshbaf F, Oroei M, Shafagh O, Ahmady Roozbahany N. The Effects of Lateral Crural Strut Flap Technique on Improvement of Nasal Valve Collapse. *J Otorhinolaryngol Facial Plast Surg.* 2016;2(2):43-6.
6. Ishida J, Ishida LC, Ishida LH, Vieira JC, Ferreira MC. Treatment of the nasal hump with preservation of the cartilaginous framework. *Plast Reconstr Surg.* [01 May 1999, 103(6):1729-33; discussion 1734-5].
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. Azizzadeh B, Reilly M. Dorsal Hump Reduction and Osteotomies. *Clin plast surg.* 2016. 43(1):47-58.

DOI: <https://doi.org/10.22037/ORLFPS.v5i1.24279>

9. Sevin A, Sevin K, Erdogan B, Adanali G, Deren O. A useful method for planning hump resection of deviated nose. *Aesthetic Plast Surg.* 2006 Jul-Aug;30(4):433-6.

10. Arslan E, Aksoy A. Upper Lateral Cartilage-Sparing Component Dorsal Hump Reduction in

Primary Rhinoplasty. *The Laryngoscope.* 2007; 117(6):990-6.

11. Shams KMG, Kalantar Motamedi MH, M Farhadi, Mohebbi A, Daneshi A, et al. *A Textbook of Advanced Oral and Maxillofacial Surgery: Rhinoplasty Complications.* Volume 2; 2015.