

Original Article

Study of Effect of Resection of Cephalic Portion of Nasal Alar Cartilage on Nasal Tip Rotation

N. Berjis MD*, A. Pourseirafi MD**, M. Hashemi MD***

ABSTRACT

Background: One of the most common techniques of nasal tip surgery in rhinoplasty is conservative resection of cephalic portion of nasal alar cartilage; although, there is a controversy about its effectiveness on nasal tip rotation in textbooks and articles. Therefore, in this research, we have studied the effect of conservative resection of cephalic portion of alar cartilage on nasal tip rotation.

Methods: 35 patients were selected from the patients who were candidates for septoplasty, after getting their agreement. In surgery we performed conservative resection of cephalic portion of alar cartilage. Nasolabial angles were calculated, using the lateral photographs of the patients before and six months after surgery. The means of these angles were analyzed with t-paired test.

Results: The means and standard deviations of nasolabial angles before and six months after surgery were 91.49 ± 7.35 and 91.57 ± 7.04 , respectively. Calculated P-value was 0.52.

Conclusion: There was no meaningful difference between means of nasolabial angles before and six months after surgery (P-value was greater than 0.05). Therefore, in this research we concluded that conservative resection of cephalic portion of alar cartilage has no effect on nasal tip rotation.

Key words: nasal alar cartilage, nasolabial angle, nasal tip

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In rhinoplastic surgery, nasal Tip Surgery needs more various techniques, because with saving normal nose function, its natural beauty also should be improved and the face should have its normal balance^{1,7}.

Of course, one of the most important concerns in nasal tip surgery is taking a decision about cephalic rotation of the nasal tip whose amount is presented by measuring the nasolabial angle degree^{2,10}.

All of this is because nasal tip ptosis is not only ugly and ill-looking but also it does limit the nasal air flow^{3,9}.

A series of the techniques that is suggested for repairing the nasal tip and making cephalic

tip rotation is the one that will reform nasal alar cartilages and decrease the edge bulk of the cephalic portion of alar cartilage conservatively and is preferred because a complete strip of the alar cartilage will remain^{2,7,8}.

Although, this technique is mentioned as one of the methods of nasal tip cephalic rotation in the text books and articles^{2,4}, there is a controversy and contradiction about it. So, in Some cases it is mentioned that the conservative resection of the cartilage bulk with keeping a complete strip of alar cartilage will not cause obvious nasal tip cephalic rotation^{4,5,11}. So, according to what said above, we decided

*Chairman, Associated Professor, Department of Otorhinolaryngology and Head and Neck Surgery, Isfahan University of Medical Sciences, Isfahan, Iran.

** Resident, Department of Otorhinolaryngology and Head and Neck Surgery, Isfahan University of Medical Sciences, Isfahan, Iran.

***Associated Professor, Department of Otorhinolaryngology and Head and Neck Surgery, Isfahan University of Medical Sciences, Isfahan, Iran.

Correspondence to: Dr. Alireza Pourseirafi, Isfahan University of Medical Sciences, Isfahan, Iran. E-mail: Alirezapourseirafi@yahoo.com

to study the effect of conservatively resection of cephalic portion of nasal alar cartilage on nasal tip cephalic rotation in this research.

Subjects and Methods

For doing this prospective clinical trial study, the samples were chosen from the patients who had been admitted in AL-zahra and Kashani university hospitals for undergoing septoplasty surgery with simple random sampling method, meanwhile all of them did agree to enter this research.

The sample size was 35 that was measured by following formula:

$$n = \frac{(Z_1 + Z_2)^2 (S_1^2 + S_2^2)}{d^2}$$

In this method, lateral face photographs were taken from the subjects and then they underwent the septoplasty surgery with conservative resection of cephalic portion of alar cartilage with trans cartilage incision through the non delivery approach.

It shall be mentioned that for preventing any bias of the other techniques that could cause nasal tip rotation in rhinoplasty Surgery, this research was done on the patients that were candidates for septoplasty surgery whose caudal portion of septums were modified have been omitted.

Six months after the surgery some lateral face photographs was taken again from the patients, and the mean nasolabial angles was measured (before and 6 months after the surgery) using the pictures, and then the means were compared with together and data were analysed, using statistic t-paired test.

Results

The mean (\pm standard deviation) of nasolabial angles was 91.49 ± 7.35 before surgery and the mean (\pm standard deviation) of these angles was 91.57 ± 7.4 , 6 months after the surgery.

Using t-paired test ($t=0.649$), P-value was measured as 0.52 and since $P < 0.05$ is considered meaningful, so the means of nasolabial angles before and after surgery do not have meaningful differences.

Conclusion

One of the most important concerns for ENT or plastic surgeons is the effectiveness and results of several techniques for nasal tip surgery, which can improve the facial balance with saving the normal function of the nose, at the same time ¹. One of the important parts of nasal tip surgery is the cephalic rotation of nasal tip that is reckoned by measuring nasolabial angle ².

One of the techniques preferred for nasal tip rotation is modifying Alar cartilage ideally by maintaining a complete strip ^{2,7,9} even though, there is more definition about the effect of non conservatively and occasionally resection of cephalic portion of alar cartilage by maintaining an incomplete strip on nasal rotation ^{2,4,8}.

There is a controversy and contradiction about the effect of conservative resection of cephalic portion of alar cartilage on nasal rotation ⁴.

Since there are different techniques in rhinoplasty that can affect on nasal rotation and nasolabial angle, in this research we have resected the cephalic portion of alar cartilages conservatively with maintaining a complete strip (6-8mm, minimumly) in patients who have been admitted for septoplasty.

With comparing the nasolabial angles of the chosen cases before and six months after the surgery (that have been measured using lateral face photographs), the effect of the mentioned technique on nasal tip rotation has been evaluated.

There has been no meaningful statistical difference between the means of the nasolabial angle means before and six months after the surgery (t-paired test: $P=0.52 > 0.05$). So, resection of cephalic portion of alar cartilage with maintaining a complete strip dose not have any effect on the degree of nasal tip rotation, alone, and if the surgeons' purpose is to rotate nasal tip cephalically, it is better to use the techniques that have proved effect on nasal rotation degree; for example wedge resection of caudal portion of septum or more resection of cephalic portion of alar cartilage or maybe with maintaining an incomplete strip.

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