LUPINE PUBLISHERS

Scholarly Journal of Otolaryngology

DOI: 10.32474/SJO.2020.04.000176

ISSN: 2641-1709

Mini Review

How to Prevent Nasal Obstruction After Rhino Septoplasty. Could A Routine Turbinate Reduction Improve the Outcomes in Quality of Life of Patients?

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Received: February 08, 2020 **Published:** February 19, 2020

Abstract

The Objective of this article is to Review current literature about performing a turbinectomy associated with Rhinoseptoplasty. Three clinical trials with level one of evidence about the issue have been published recently. All of them selected patients with nasal obstruction who were submitted to Rhinoseptoplasty. The NOSE scale to measure quality of life in these patients was used. Other tools of objective measurement as Acoustic rhinometry and rhinomanometry or subjective scales, Snot-20 WHOQOl and ROE were also explored. Each study used a different technique for turbinate reduction. All of the three found the same results discussed below. To review the scientific evidences of these articles can bring new outlook about this controversial topic.

Abbreviations: QOL: Quality of Life; NOSE: Nasal Obstruction Symptom Evaluation; ROE: Rhinoplasty Outcome Evaluation

Mini- Review

Rhinoplasty is often performed to restore nasal function and form. The development or maintenance of nasal obstruction after rhinoplasty is a complication that negatively affects quality of life (QOL), and priority should be given to prevention strategies [1]. However, the available surgical techniques to prevent this obstruction have been empirically developed and are often used based on the surgeon's preference rather than on objective criteria. Currently, strategies like spreaders grafts, support grafts, reconstruction or repositioning cartilages and even a good septoplasty are used to enlarge the nasal valve [2-6]. Another technique widely used is the Reduction of the inferior turbinate [3,7-9]. Otherwise, an established technique to reduce turbinate with hypertrophy is still debatable [10-13]. Reviews pointed that research in this field appears to be driven by technological advancement rather than by establishment of patients' benefit. Partly, because of the lack of properly conducted randomized controlled trial with long term results. Some articles even question the efficacy of this procedure in cases of nasal obstruction explained for other reasons rather than turbinate hypertrophy isolated [14]. A Recent clinical trial reveal that the association of turbinectomy with septoplasty, though widespread, does not improve the nasal obstruction clinical outcomes and can add risks to patients [15].

Therewithal an objective standardized tool that links anatomy measures with clinical results is not available yet [16]. To address this issue, Stewart et al. have developed and validated the Nasal Obstruction Symptom Evaluation (NOSE) scale, a disease specific QOL instrument designed to determine the presence of nasal obstruction [17]. Since then, several studies have compared preoperative versus postoperative NOSE scores to assess QOL associated with nasal obstruction. A recent survey by the American Society of Plastic Surgeons shows that 90% of surgeons address the inferior turbinate in at least a portion of their cases, with 8% routinely reducing the turbinate in all cases. However, 10% of the respondents in this survey did not address the inferior turbinate in any of their cases [18]. Such variability in addressing this potential cause of/risk factor for nasal obstruction deserves closer attention. Guyuron [19] has pointed out that the position of the inferior turbinates contributes to airway narrowing after nasal bone osteotomy. On account of that, surgical treatment of inferior turbinates seems to be a good option to avoid postoperative nasal obstruction, which would be great because of the accessibility, simple technique and relative low risks. Unfortunately, all three latest trials could not prove any improvement in QOL when the turbinate reduction is associated even by using different techniques.

Furthermore, to access the turbinate does not seem to improve the rates of nasal obstruction and satisfaction with respiratory scales outcomes [20-22].

In 2013, Lavinsky-Wolff et al. [20] compared QOL in patients undergoing primary Rhinoseptoplasty, with or without turbinate reduction by submucosal electrocautery. There was no difference between subjects submitted or not to inferior turbinate reduction in NOSE score (-75% vs. -73%; P = 0.893); all WHOQOL-bref score domains (P > 0.05), NO-VAS (-88% vs. -81%; P = 0.89) and acoustic rhinometry recordings (P > 0.05). Besides the literature does not show difference between the techniques, this study receives some critique about the conservative reduction by submucosal electrocautery chosen. In order to answer this question de Moura et al. [21], in 2017, randomized other 50 patients undergoing primary Rhinoseptoplasty associated with inferior turbinate reduction through endoscopic partial inferior turbinectomy (EPIT) reduction or not. There was no difference between the groups in absolute score changes for NOSE (-50.5 vs. -47.6; P = 0.723), Rhinoplasty Outcome Evaluation (ROE) (47 vs. 44.8; P=0.742), and all (WHOQOL-bref) score domains (P >0.05) (Table 1). There were no differences between the groups regarding presence of the complications. Surgical duration was higher in the EPIT group (212 minutes ±7.8 vs. 159.1±5.6; P > 0.001). Both articles do not present any improvement at short-term outcomes (three months). Nevertheless, a long-term result was needed to reinforce these findings. Wherefore this year Sommer et al. [22] published a clinical Trial with nine months follow up. They randomized patients to perform anterior turbinoplasty or not during septo- or Rhinoseptoplasty.

Table 1: Source de Moura et al. [21].

Quality of Life Outcomes in Individuals Undergoing Rhinoseptoplasty With and Without EPIT							
	Rhinoseptoplasty with EPIT			Rhinoseptoplasty without EPIT			
	Preoperative Mean (±SD)	3 Month Postoperative Mean (±SD)	Δ Mean (CI)	Preoperative Mean (±SD)	3 Month Postoperative Mean (±SD)	Δ Mean (CI)	P value
Nose -p	69.2 (25.6)	21.3 (20.1)	-50.5 (-62.9; -.8.0)	80.2 (13.6)	23.4 (25.8)	-47.6 (-62.3; -32.9)	0.723*
ROE WHOQOL-bref domains	28.2 (15.2)	68.8 (20.8)	47 (36.8; 57.3)	22.5 (17)	69.7 (20)	44.8 (32.7; 57)	0.742†
Physical	63.1 (18.7)	67.5 (20.04)	6.2 (-1.6; 14)	65.6 (12.9)	76.6 (14.6)	11 (2; 20.2)	0.342‡
Psychological	66.4 (15)	71 (13.6)	6.9 (1.3; 12.6)	66.3 (13.2)	74.9 (12.4)	8.8 (2; 15.6)	0.617‡
Social	69.7 (17.3)	74.5 (15)	6.7 (-1.3; 14.7)	72.6 (18.7)	78.8 (19.2)	9 (-0.6; 18.6)	0.666‡
Environment	57.6 (11.3)	65.6 (13.7)	8.4 (1.7; 15.1)	61.2 (15)	63.7 (17.1)	2.6 (-5.4; 10.5)	0.184‡

Dependent variable Δ scores = (postoperative score-preoperative score)

*P Value: ANCOVA of Δ adjusted for baseline NOSE -p value, nasal itching, rhinorrhea and use of spreader graft.

†P Value: ANCOVA of Δ adjusted for baseline ROE score, nasal itching, rhinorrhea and use of spreader graft.

*P Value: ANCOVA of Δ adjusted for baseline WHOQOL -bref score, nasal itching, rhinorrhea and use of spreader graft.

ANCOVA: analysis of covariance; CI: Confidence Interval; EPIT: Endoscopic Partial Inferior Turbinectomy; NOSE-p: Nasal Obstruction Symptom Evaluation Portuguese; ROE: Rhinoplasty Outcome Evaluation; SD: Standard Deviation; WHOQOL-bref: World Health Organization Quality of Life Scale

The results enhanced previous trials. Patient satisfaction after functional septo- and septorhinoplasty is high and does not seem to be affected by turbinate surgery. There was no statistically significant difference in the postoperative results regarding objective rhinological measurements with or without turbinoplasty (Table 2). They concluded that extensive resections of the turbinates can have a negative impact on nasal physiology, so the indication for turbinoplasty must be carefully considered. Considering these results, clearly has no reason to proceed a turbinate reduction, at least as routine, to patients submitted at rhinoplasty. As medical science is not so hard, presumably some phenotypes of noses probably could benefit of it. Although these patients are not identified, at least it can be justifying by other reasons, this turbinate access should be avoided. This finding changes the focus of discussion to which method should be used to reduce the turbinate to there are another surgical strategy that could be used to improve our functional results and which technique is it. Be like these finds fortify positively the discussion about structured Rhinoplasty and the importance of the reconstruction and reinforce of the nasal valve.

Table 2: Changes in MCA2.

Acoustic Rhinometry: Changes in Mca2 (Deviated Side of The Septum)		
Average		
No TPL	Preoperative	0.30cm^2
	Postoperative	083cm^2
TPL	Preoperative	0.25cm^2
	Postoperative	0.91cm^2

Conclusion

The indications for the reduction of the turbinate were well established in context of a turbinate inferior hypertrophy [23,24]. The studies have not shown, until now, a superior technique for the inferior reduction. Although techniques which preserve mucosa and have partial resection instead of total resection are indicated [10-12]. Trends in Rhinoplasty research do not show relevant benefits at patients' quality of life outcomes associated with nasal obstruction when Rhinoplasty is performed combined with reduction turbinate. More clinical trial must be develop comparing other methods of enlargement and preservation of nasal valve and objective measurement instruments need to be developed to clarify these findings [25] (Table 3).

Table 3: Pre-and Postoperative values of the SNOT 20 GAV questionnaire within the groups (TPL vs. No TPL).

SNOT 20 GAV Questionnaire		
Total Score (Average)		
No TPL	Preoperative	26/100
	Postoperative	16/100
TPL	Preoperative	30/100
	Postoperative	16/100

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DOI: 10.32474/SJO.2020.04.000176