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Aesthetic Effect of Auto-Spreader Flap in Comparison to the Standard Spreader Graft in Open Approach Rhinoplasty

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Abstract

Background: The auto-spreader flap is a new minimally invasive technique, for the treatment of nasal valve insufficiency or stenosis and can be used as an alternative technique for spreader grafts. Our study aimed to compare the aesthetic effect of the spreader graft and auto-spreader flap in open rhinoplasty approach.

Patient and Methods: Thirty-two Patients were randomly divided into two groups: the group A (subjected to open reduction rhinoplasty for hump removal with spreader grafts) and group B (subjected to Open reduction rhinoplasty for hump removal with auto-spreader flaps).

Results: The overall aesthetic satisfaction was about 60% (19 of 32). Only 18% (6 of 32) experienced unsatisfactory results and 22% (7 of 32) with mild or partial satisfaction. Regarding aesthetic outcome according to the line of treatment, it was found that 81.3% of patients treated by spreader graft (group A) were satisfied, and 12.5% reported mild improvement. Only one case (6.3%) was reported with unsatisfactory aesthetic outcomes. In group (B), treated by auto spreader flap, 37.5% of patients were satisfied, 31.3% mild improvement and 31.3% experienced unsatisfactory results. The difference between two groups was statistically significant.

Conclusion: Spreader graft is superior to the auto-spreader flap regarding the aesthetic outcomes in open approach rhinoplasty.

Keywords: Rhinoplasty; Spreader graft; Auto-spreader flap; Hump

Introduction

Functional rhinoplasty refers to the collective techniques used to reconstruct the lateral nasal wall, typically achieved with the use of spreader graft (in cases of correction of internal valve) and alar grafts (for correction of the external nasal valve), usually the patients undergoing functional rhinoplasty had aesthetic desires and goals for combined aesthetic with functional rhinoplasty [1]. Spreader grafts (frequently indicated in functional rhinoplasty and in revision rhinoplasty) provides support of the middle vault (when middle vault collapse is encountered) and widen the internal nasal valve (the narrowest portion of the nasal airway which contributes approximately half of the total airway resistance), may be employed during primary cosmetic rhinoplasty in selected situations, in which it is considered the standard technique which can be performed in traditional external rhinoplasty (open) or *via* endonasal (closed) approaches [2]. Auto-spreader flap can be used as an alternative technique for spreader grafts as it was introduced by Fomon [3] and further developed by Gruber [4] in which the upper lateral cartilage is rolled on itself to form a spreader flap and avoids harvesting and carving cartilage for grafting from other locations which limited in cases of deviated dorsal septum and asymmetric dorsal aesthetic lines [5-7]. Our study aimed to compare the aesthetic outcomes between the spreader graft and auto-spreader flap in open rhinoplasty approach.

Materials and Methods

A prospective Randomized Controlled Clinical Trial (RCCT) was conducted in Suez Canal University Hospital from March 1st 2017 to 31st March 2020. Patients (thirty-two) aged more than 18 years, either males or females who are unsatisfied of the shape of their nose due to nasal hump and unsatisfied patients with previous nasal surgery regarding the aesthetic outcomes while patients

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with deviated dorsal septum, asymmetric dorsal aesthetic lines (both are limitations for the auto-spreader flap) were excluded from our study.

Patients were randomly divided into two groups: Group A (16 patients subjected for open reduction rhinoplasty for hump removal with spreader grafts) and group B (16 patients subjected for Open reduction rhinoplasty for hump removal with auto-spreader flaps). Randomization based on a consecutive basis as odd numbers was grouped into group (A) while even numbers was grouped into group (B).

Statistical analysis

The data were analyzed by the SPSS software. Data were expressed as means, Standard Deviations (SD), minimum and maximum for the numerical analysis, Correlation between two variables was done using correlation coefficient test. Comparison between two groups was done using student's t-test. Comparison of multiple groups was done using analysis of variance (ANOVA test) to calculate significant difference.

Ethical considerations

The local ethics committee approved the study. All participants included in the study have been informed about the procedures to be done and the expected results with written informed consent obtained from them. Randomization was applied strictly as mentioned in subjects and methods to avoid any bias. All surgical interventions were conducted by one surgeon to avoid bias. Written consent was also being taken prior taking photos of the patients either pre-operative or post-operative. These photos will never be used for any other purposes unless the patient is completely aware and approved it.

Results

Thirty-two patients, 14 males (43.75%) and 18 females (56.25%), with mean age was 34.4±9.5 years, with our previous inclusion criteria (unsatisfied of the shape of their nose due to nasal hump and unsatisfied patients with previous nasal surgery regarding the aesthetic outcomes) were included into our study. The overall aesthetic satisfaction was about 60% (19 of 32). Only 18% (6 of 32) experienced unsatisfactory results and 22% (7 of 32) with mild or partial satisfaction (Table 1).

Regarding aesthetic outcome according to the line of treatment, it was found that 81.3% of patients treated by spreader graft (group A) were satisfied (Figure 1), and 12.5% reported mild improvement. Only one case (6.3%) was reported with unsatisfactory aesthetic outcomes. In group (B), treated by auto spreader flap, 37.5% of patients were satisfied (Figure 2), 31.3% mild improvement and 31.3% experienced unsatisfactory results. This difference between both groups concluded that spreader graft has better aesthetic outcomes in comparison with auto spreader flap as it was statistically significant (P=0.038) (Figure 3). However, both are very effective line of treatment regarding the

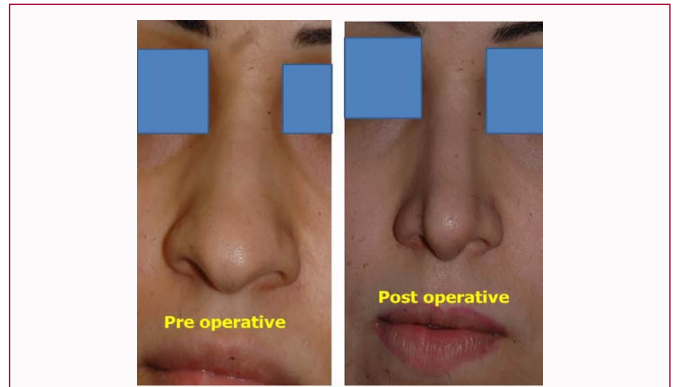


Figure 1: Aesthetic effect of spreader graft showing superior aesthetic effect compared to the effect of auto-spreader flap in figure 2. This is judged by clear demonstration of eye brow with the dorsal lateral nasal lines.



Figure 2: Aesthetic effect of auto-spreader flap. The eye brow with the lateral dorsal nasal line is less clear than figure 1.

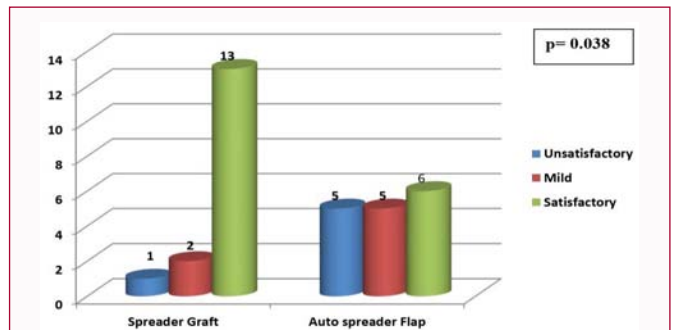


Figure 3: Patients satisfaction for aesthetic outcomes according to the line of treatment. The difference between two groups was statistically significant.

nasal obstruction at the area of nasal valve.

Discussion

The most common problem in using an auto-spreader flap is the technique's inability to provide adequate dorsal width compared with spreader grafts. In addition, the use of auto-spreader flap cannot be used in special cases such as crooked nose, minimal dorsal humps and secondary cases [8]. Another drawback of the auto-spreader flap is its inability to address the lower third of the dorsum when not extending down to the anterior septal angle [9]. Hussien et al., 2015 [10] stated that the auto-spreader flap has no effect on the width of the nasal dorsum esthetically to unsatisfactory results. In addition, it has a spring effect that increases the width of internal nasal valve and result in improving the symptoms of nasal obstruction. In 2014, Saedi et al., [11] used the auto-spreader flaps in 32 patients for primary

Table 1: Aesthetic satisfaction in both groups.

Type of surgery	Aesthetic Satisfaction			N
	Satisfactory	Mild	Unsatisfactory	
Spreader Graft	13	2	1	16
Auto-spreader Flap	6	5	5	16
Total	19	7	6	32

P=0.038

rhinoplasty; they found that it was an effective technique in middle vault preservation in nasal plastic surgery. Regarding the aesthetic outcomes in our study, 6 patients out of 32 (18%) experienced unsatisfactory results irrespective of line of treatment. There is one patient (6.3%) who reported unsatisfactory result in spreader graft group and 5 patients (31.3%) in auto-spreader flap group. Hassanpour et al., [8] almost agreed with our results when they compare the aesthetic and functional outcomes of spreader grafts and auto-spreader flaps. Their subjects experienced dissatisfaction on aesthetic outcomes in 14% of their patients. Another study analyzed 101 primary cosmetic rhinoplasty, they reported 16% were unhappy from their aesthetic outcome [12-13]. These variations between the above mentioned [3] studies may be due to different sample sizes. Another cause that may explain this variation is that the aesthetic outcomes depend on the subjects' desire and the surgeon should be alert whether to agree to such requests of the patients as the outcome may not be satisfiable for patients who have unrealistic expectations [14]. Our Study confirmed that spreader grafts are still the gold standard technique for most cases of open rhinoplasty in comparison to the new technique, auto-spreader flaps. However, both are very effective for treatment of nasal obstruction at the area of internal nasal valve. This is also supported by Hassanpour et al., (2016) [8] who concluded that both spreader grafts or auto-spreader flaps techniques can be used in the preservation of the normal internal nasal valve angle as well as restoration of the dorsal aesthetic lines of the nasal dorsum.

Conclusion

Spreader graft is superior to the auto-spreader flap regarding the aesthetic outcomes in open approach rhinoplasty.

References

1. Yeung A, Hassounah B, Kim DW. Outcome of Nasal Valve Obstruction After Functional and Aesthetic-Functional Rhinoplasty. *JAMA Facial Plast Surg*. 2016; 18: 128-134.
2. Daniel Y. Functional and aesthetic effects of spreader grafts technique in rhinoplasty. *Scripta Scientifica Medica*. 2014; 46: 68-73.
3. Fomon S, Gilbert JG, Caron AL, Segal S. Collapsed ala. *Acta Otolaryngol*. 1950; 51: 465-484.
4. Gruber RP, Park E, Newman J, Berkowitz L, Oneal R. The Spreader Flap in Primary Rhinoplasty. *Plast Reconstr Surg*. 2007; 119: 1903-1910.
5. Oneal RM, Berkowitz RL. Upper Lateral Cartilage Spreader Flaps in Rhinoplasty. *Aesthet Surg J*. 1998; 18: 370-371.
6. Yoo S, Most SP. Nasal Airway Preservation Using the Autospreader Technique: Analysis of Outcomes Using a Disease-Specific Quality-of-Life Instruments. *Arch Facial Plast Surg*. 2011; 13: 231-233.
7. Byrd HS, Meade RA, Gonyon DL. Using the Autospreader Flap in Primary Rhinoplasty. *Plast Reconstr Surg*. 2007; 119: 1897-1902.
8. Hassanpour SE, Heidari A, Moosavizadeh SM, Tarahomi MR, Goljanian A, Tavakoli S. Comparison of Aesthetic and Functional Outcomes of Spreader Graft and Autospreader Flap in Rhinoplasty. *World J Plast Surg*. 2016; 5: 133-138.
9. Manavbaş YI, Başaran I. The Role of Upper Lateral Cartilage in Dorsal Reconstruction after Hump Excision: Section I. Spreader Flap Modification with Asymmetric Mattress Suture and Extension of the Spreading Effect by Cartilage Graft. *Aesthetic Plast Surg*. 2011; 35: 487-493.
10. Hussein WK, Elwany S, Montaser M. Modified Autospreader Flap for Nasal Valve Support: Utilizing the Spring Effect of the Upper Lateral Cartilage. *Eur Arch Otorhinolaryngol*. 2015; 272: 497-504.
11. Saedi B, Amali A, Gharavis V, Yekta BG, Most SP. Spreader Flaps Do Not Change Early Functional Outcomes in Reduction Rhinoplasty: A Randomized Control Trial. *Am J Rhinol Allergy*. 2014; 28:70-74.
12. Jaykaran C, Tamoghna B. How to Calculate Sample Size for Different Study Designs in Medical Research? *Indian J Psychol Med*. 2013; 35: 121-126.
13. Salyer KE. Primary Correction of the Unilateral Cleft Lip Nose: A 15-Year Experience. *Plast Reconstr Surg*. 1986; 77: 558-568.
14. Varedi P, Bohluli B, Bayat M, Mohammadi F. Spreader Graft Placement: A Simplified Technique for Young Surgeons. *Int J Oral Maxillofac Surg*. 2014; 43: 1216-1217.