

Reconstruction Of Twisted Nose

Hamada F Hashem,¹ Naslshah G Kazem,¹ Mohamed G hamed²

¹Otorhinolaryngology Department, Benha University,
²Department of Otorhinolaryngology, Helwan University,
 Egypt

Correspondence to: Naslshah G Kazem

E-mail: nanykazem@gmail.com
 Tel: 01000303802

Pan Arab Journal of Rhinology
 2019, 9:31-34

Background: Is it a trouble! "twisted nose", more than one procedure but no best possible technique for this problem."Osteocartilaginous spreader graft" OCSG is one the techniques with a high achievement rate for "twisted nose".

Method: This crisis was come upon in 32 patients from Benha University hospital outpatient clinic in the period between 2015 and 2017. All patients protested from deformed nose due to trauma

Results: Twenty patients (62.5%) were classified as excellent. In 8 patients (25%), there was a least residual deviation; the results were classified as fair. four patients (12.5%) insisted revision surgery and were categorized as the group with poor results according to both photographs and clinical examinations in the period one year of follow up.

Conclusion: OCSG "Osteocartilaginous spreader graft" is a successful effective method for twisted nose correction.

Keywords: Twisted nose, Osteocartilaginous, spreader graft.

Pan Arab Journal of Rhinology 2019, 9:31-34

Introduction

The nasal bones, upper and lower lateral cartilages, and septum are dissimilar anatomic parts of the nose, they are intimately related to each other and make it an aesthetic and functional unit. [1] Trauma is the most common cause of deformed or twisted nose, which touching all nasal subunit and affect their associations. [2] Twisted nose is a crisis in which unusual approaches can be considered. [3] However, different methods have been suggested for twisted nose correction with no optimal winning results for this difficulty. [4] This because fibrotic tissue formation throughout the healing stage of osteocartilagenous parts which obstacle any correction. [5] Osteocartilaginous spreader graft is a new technique which including: osteotomy and lateralization of the nasal bone on the concave side with an elevated success rate for correction and reconstruction of the deviated nose. [5,6]

The previous studies and others paid our attention towards the deviated nose and methods to improve nasal deformity through spreader graft and how to evaluate these methods.

Objective

To evaluate the effectiveness of the twisted nose reconstruction via Osteocartilaginous spreader graft.

Patient and Methods

In this study, 32 patients selected from Benha University hospital outpatient clinic in the period from 2015 to 2017. All patients complained from twisted nose due to trauma. All operative and non-operative procedures were explained in full detail to the patients, who provided informed consent. Coagulopathy and open rhinoplasty were excluded.

All patients underwent general examination and

otolaryngological examination. Meticulous clinical examination of was done including the shape and position of the nasal bones in the upper third and the cartilaginous framework of the lower two thirds of the nose. Also, normal breathing was observed to determine any visible collapse of the nares, then the internal nose was examined including the septum and the internal nasal valve area which examined without the nasal speculum because it can distort the nasal valve anatomy, then the rest of the internal nasal cavity was assisted to detect any other pathology.

A photographic examination (Frontal and lateral) views were obtained for every patient by a specialized cameraman and by our digital camera.

Operative procedures

Our procedures done under General anesthesia with centrally placed endotracheal tube avoiding any distortion or traction on the nasal skeleton.

We used about 5 to 7 cc of local anesthesia for external infiltration. A mixture of 1% lidocaine with 1:1000 epinephrine to achieve an epinephrine concentration of 1:100,000. The injected sites in the nose included both alar bases and across nostril, along the junction of nasal bones with frontal process of the maxilla, the membranous septum on both sides, the columella, the middle, the medial and the lateral crura, inside the vestibule beneath the dome, the tip and through the line of intercartilaginous junction. After injection we waited at least 10 minutes for optimal hemostatic effects before beginning rhinoplasty.

Incision

We applied the transcolumellar incision by using a V incision with its apex directed posteriorly. The site of incision

was just posterior the columella – lobule junction in the narrowest portion of the columella overlying the cartilage. We made the incision through dermis only then we used a delicate vertical scissor spreading on the medial surface of each medial crus to elevate Columellar soft tissues en block.

Dissection:

We used an open tip access which permits a wide exposure of the dorsum, a broad view of the osteo- cartilaginous structures to be reshaped. Skeletonization of the external nose through elevating the soft tissue off the underlying nasal framework was the first and the most essential step for the exposure and to accomplish our planned rhinoplasty.

A spreader graft (**Fig. 1**) yielded from nasal septum, which placed between the bony septum and upper lateral cartilage. Spreader grafts typically are outlined in a rectangular shape and measure 1-3 mm in thickness by 4-6 mm in width by 20-35 mm in length, depending on the individual's nasal anatomy. Occasionally, longer, broader, or even double-thickness grafts are indicated. [7]

A medial osteotomy was done on both sides, separating the nasal bones from the perpendicular plate of the ethmoid, then insertion and fixation of spreader graft on the concave side of the deviation, leaving the nasal bone and upper lateral cartilage in lateral and the septum in medial.



Fig 1. Spreader graft and it's position.

Fixation:

The graft was close in place slowly absorbed sutures "PDS" 5/0, it was important that graft well attached to minimize their movement given that their resorption is caused by mobility.

Closure:

The Columellar skin incision was closed by 5/0 prolene sutures but their lateral extension in the nasal vestibule was closed by 4/0 vicryl sutures. A light internal and external splinting was done, the internal splint was removed after 1 day but external was removed after 2 weeks (sometimes we need to reshape the external splint after subsidence of the edema). Additional steps were done according to the deformity found in the case e.g. Septoplasty can be done through external approach, osteotomies, hump resection or nasal tip refinement.

Postoperative Assessment

Complete history, general and otolaryngological examination were done in 1, 2, 4 weeks, 3 months and 6 postoperatively also a photographic examination (Frontal and lateral) was repeated 3 months after surgery.

Results

Thirty two patients were included in the study with a mean follow up period of 6 months. Twenty patients (62.5%) were reclassified as excellent, believing that their noses were completely straight, and this was congruent with physical examination and postoperative photographs. In 8 patients (25%), there was a minimal residual deviation according to either photographs or clinical examinations. Therefore, despite clinical improvement in aesthetics and patient satisfaction, the results were classified as fair. Four patients (12.5%) demanded revision surgery and were categorized as the group with poor results. Although the initial results were acceptable for those patients, recurrence of the deviation was detected after 4 months by physical examination and postoperative photographs. Careful follow up revealed no other complications (e.g., infection, graft necrosis, graft rejection, septal perforation, or nasal airway compromise). (**Figs. 2-4**).



Fig 2. The deviation was in the middle third of the nasal vault.



Fig 3. The deviation including the hole dorsum.



Fig 4. The deviation was in the upper third.

Discussion

Spreader graft was extensively used as a surgical intervention to correct twisted nose. [7,8] So in this study, we evaluate the activity and effectiveness of spreader graft technique.

C-shape, linear, and S-shape are 3 types of Deviated nose. [1] In this study the majority of the cases were c shaped and deviation was cited in the upper osseous third and or the middle cartilaginous third. Our results agree with Zoumalan, (2009) who stated that, most of his cases were deviated in the upper osseous third or the middle and the lower cartilaginous thirds. The efforts for managing the middle third deviation are septoplasty and grafting; while, osteotomy was a common procedure for the proximal deviation. [9] Using grafts and septoplasty are the main procedure to manage and correct caudal septal deviation. It is consider an essential step for straightening the lower third. [10]

Anatomic reconstruction was alternated by anatomic alignment in this study. OCSG are intended to widen narrow middle vault, reconstruct dorsal aesthetic lines, strengthen the weakened septal L-strut, lateralize the upper lateral cartilage by the width of the graft and thereby, increase the cross-sectional area, and maintaining straight dorsal alignment.

Also medial osteotomy was performed to lateralize the nasal bone on the concave side which was recommended by. [11] As the bone and cartilage are depressed or concave in the non-deviated side so it was vital to address this problem otherwise the nose still appeared deviated. [5,6]

An osteocartilaginous spreader graft extending from the proximal part of the nasal bone to the distal part of the upper lateral cartilage on the concave side simultaneously corrects the residual deformity in the bony and the cartilaginous parts. In this method, bony material is located between the nasal bone and the bony septum, and the cartilaginous part of the graft is fixed between the upper lateral cartilage and the quadrangular cartilage of the septum. We tried the use of an osseous graft on the site where it is naturally bony and a cartilaginous graft on the naturally cartilaginous part is not only more compatible with the structure of the body but also decreases the risk of resorption but it wasn't accessible due to lack of bone cutting instrument. The spreader graft can be designed for straightening the nasal septum in proximal dorsal parts. The major positive role of the spreader graft in the nasal function is the widening of the internal valve. [3]

We offered the external approach for the fixation of the spreader graft as it allows appropriate positioning and suturing of the graft. In addition, there are usually accompanying tip asymmetries in the patients with twisted nose for which an open approach rhinoplasty is necessary. Nevertheless, this graft can be fixed with a closed approach by creating a tight tunnel in the submucoperichondrial and submucoperiosteal space. [3]

The graft acts as a supportive strut for preserving the septum in its new position and to protect against further traumatic force or scar contracture. [3] In addition to widening the narrow or pinched dorsum, the spreader graft makes the brow-to-tip aesthetic line more distinct. [3] The tip can be augmented and a short nose can be lengthened by the extension of the spreader graft to the tip-lobule region.

During septoplasty, we attempted to complete the surgery only by removing or fracturing the bony part of the septum without cross-hatching incisions on the cartilage. Only in the cases that the deviation was not immediately corrected, the cross-hatching incisions were made onto the cartilage at the end of the procedure.

On the other hand Ahmet Seyhan et al [9] recommended other technique for deviated nose. A double-layered, stepped spreader graft was used on the shorter wall side to construct symmetrical lateral nasal walls. The composite graft was constructed by fixing a smaller cartilage graft to the side of the dorsal border of a slightly larger than normal standard spreader graft. The smaller graft component adds height to the shorter lateral wall while the larger one functions as a usual spreader graft.

It is so important for any type of grafting to be well fixed in place and to surrounding structures to minimize their movement given that their resorption which is caused by mobility. Deylamipour et al., [13] preferred to fix the graft with 4/0 nylon sutures which objected strongly by many authors as these sutures are thick and non-absorbable and they preferred 5/0 vicryl sutures. In our study we used 5/0 PDS sutures as this type is soft and slowly absorbable.

As regarding the age and sex distribution of our study patients, they are in young age group ranging from 18 to 30 years old and the majority of them are males this can be explained as this category of young males more vulnerable to trauma which cause multiple deformities and these patients seek medical

advice mainly for cosmetic appearance and so most of them were satisfied as regarding the cosmetic pattern.

We applied in our study a simple grading system of subjective sense of nasal deviation, there were twenty patients (62.5%) were classified as excellent, believing that their noses became completely straight, and this was congruent with physical examination and postoperative photographs. In eight patients (25%), there was a minimal residual deviation according to either photographs or clinical examinations. Therefore, despite clinical improvement in aesthetics and patient satisfaction, the results were classified as fair. Four patients (12.5%) demanded revision surgery and were categorized as the group with poor results.

our results are comparable to the results of (HyoKim et al., 2011) who used a synthetic graft which is Porous High-Density Polyethylene (PHDPE) with (44%) of their patients were improved, (11%) with no change and only (1%) was judged as worse nasal shape. Also our results in nasal volume coincide with the results of Ahmet Seyhan et al (3) who used a double-layered, stepped spreader graft.

As regarding the complications of this procedures, no major hurdle as hemorrhage, infection, or graft extraction were detected. Some minor complications included skin allergy at external splint which can be treated with local anti-allergic and corticosteroids creams, and for that we changed the usual adhesive strips into sterile strips which are more healthy and less antigenic. Other minor complication was excessive scar formation so during removal of the stitches we painted contractubex cream and for about 2 weeks after stitches removal.

The osteocartilagenous spreader graft is an autologous graft with a very low risk of infection or extrusion. [13] The usual complications of autologous grafts are related to errors in surgical techniques. These errors include mistakes in graft reshaping and fixation leading to graft extrusion, displacement, or nasal obstruction following scar formation in the mucosa of the internal nasal valve. [3]

Since the open approach was chosen for all patients and the grafts were appropriately fixed, none of the above-mentioned complications were encountered. Aside from recurrence of deviation in 3 patients (5.1%), the only disadvantage of this procedure was a modest but inevitable widening of the dorsum.

Conclusion

In cases of "twisted nose" "Osteocartilagenous spreader graft" is an effective technique for correction.

References

1. Emsen IM (2008). A different approach to the reconstruction of the stubborn crooked nose with a

different spreader graft: nasal bone grafts harvested from the removed nasal hump. *Aesthetic Plast Surg.* 2008;32:266-273.

2. Rohrich RJ, Gunter JP, Deuber M. (2002). The deviated nose: optimizing results using a simplified classification and algorithmic approach. *Plast Reconstr Surg.* 2002;110:1509-1523.
3. Ansari K, Asaria J, Hilger P. (2008) Grafts and implants in Rhinoplasty—techniques and long-term results. *Operative Techniques in Otolaryngology.* 2008;19:42-58.
4. Guyuron B, Behmand RA (2003). Caudal nasal deviation. *Plast Reconstr Surg.* 2003;111:2449-2457.
5. Fanous N (1997). Unilateral osteotomies for external bony deviation of the nose. *Plast Reconstr Surg.* 1997;100:115-123.
6. Jin HR, Lee JY, Shin SO, (2006). Key maneuvers for successful correction of a deviated nose in Asians. *Am J Rhinol.* 2006;20:609-614.
7. Sheen (1984). A method for middle vault reconstruction in primary rhinoplasty: Upper lateral cartilage bending. *Plast Reconstr Surg.* 1984;100:1941.
8. Prendiville, H, Zimble MS, Kokosaka MS, et al (2002). middle vault narrowing in the wide nasal dorsum, the reverse spreader technique. *Arch Facial Plast Surg.* 2002;4:52.
9. Ahmet S, Sema O, Melike G (2009): A double-layered, stepped spreader graft for the deviated nose. *Ann Plast Surg.* 2009;62:604-608.
10. Zoumalan RA, Carron MA, Tajudeen BA, (2009). Treatment of dorsal deviation. *Otolaryngol Clin North Am.* 2009;42:579-586.
11. Oliveira PW, Pezato R, Gregório LC (2006). Deviated nose correction by using the spreader graft in the convex side. *Braz J Otorhinolaryngol.* 2006;72:760-763
12. Deylamipour M, Azarhoshangh A, Karimi H (2005): Reconstruction of the internal nasal valve with a splay conchal graft. *Plast Reconstr Surg.* 2005;116:712-720.
13. Sadooghi M&Kouhi A (2009): Mastoid bone as a new graft material in rhinoplasty. *Am J Rhinol Allergy.* 2009;23:e42-e46.