

Original Research Article

Quick and easy septoplasty: our technique

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Received: 18 August 2019

Revised: 12 October 2019

Accepted: 15 October 2019

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ABSTRACT

Background: Septoplasty is among the most common procedure in nasal surgery, and it has some difficulties, especially at the beginning of the surgical training.

Methods: A prospective study including 154 patients underwent septoplasty surgery in Zahrawi Private Hospital using our surgical technique from October 2015 to June 2017, preoperative examination using zero degrees 3 mm sinuscope, anterior active rhinometry (AAR), and computed tomography of paranasal sinuses was done. Operative time and postoperative AAR was calculated.

Results: A significant reduction in nasal breathing resistance was found in 146 patients (95%), there are two patients with postoperative bleeding, and one patient develops synechia. No septal perforation or other major deformities. The mean septoplasty operation time was 15.34 ± 3.66 min (range 10-35 min).

Conclusions: Our surgical technique is an effective and rapid procedure for the correction of septal deformities. It is reproducible and easily learned.

Keywords: Septoplasty, Operative time, Operative complications, Easily learn

INTRODUCTION

The nasal septal deformity is commonly seen as a physical disorder of the nose in which the septum displaced away from its normal position. Most of these displacements that affecting the people are asymptomatic, and they did not cause any discomfort.^{1,2} However, the septal deviation may cause a nasal obstruction which leads to various related problems like sinusitis, epistaxis, dysfunction of the eustachian tube, otitis media, and respiratory tract infections both upper and lower, dental mal-alignments and in turn poor general health.²

Septoplasty is a common surgical procedure used for correction of septal deformity, and it is a conservative surgery in which we remove only the deviated cartilage

and bone, leaving as much as we can the non-deviated part in the septum. The operation was first described in 1947 by Cottle.³

Septoplasty is an elective operation and must be avoided in an acutely ill patient, like acute sinusitis, nasal infections or medically unfit patient as in untreated diabetes, severe hypertension or bleeding diathesis.⁴

Septoplasty is a common procedure without major complications, and there is no external swelling of the face. If septoplasty is done with excellent surgical technique and dissection in the exact plane, bleeding will be little, and post-operative nasal packing is rarely used.⁵ Nasal splint inside the nose is important to prevent synechia and removed after a few days post operatively.

In the case of sever intraoperative bleeding, nasal packing is important. Septal hematoma and septal perforation can happen, but they are rare with modern surgical technique.⁶

The study aimed to assess our surgical technique for septoplasty operation regarding time, accessibility, and improvement in nasal breathing.

METHODS

This study was conducted as a prospective, randomized clinical trial on 154 patients aged 15-57 years old, attending the ENT department of Zahrawi hospital, Misrata (Libya). The indication of septoplasty was nasal obstruction. Exclusion criteria include a patient with the associated nasal disease, such as acute sinusitis, nasal infection, and any patient with systemic disease. Patients were informed about the study protocol before surgery,

and a written, informed statement consent were obtained from all participating patients. All operations were done under general anesthesia, and the time of operation calculated from the first incision until the surgeon complete the operation.

Careful history and examination was done. Preoperative examination using zero-degree sinuscope, and computed tomography were done pre operatively for all patients.

Statistical analyses

Collected data were analyzed using the IBM SPSS Statistics for Windows, released 2017, version 25.0.

Continuous data is expressed as (mean±SD) or median (interquartile range (IQR)). Comparisons between data were done by using the t-test, Mann-Whitney rank sum test, or Chi-squared test.

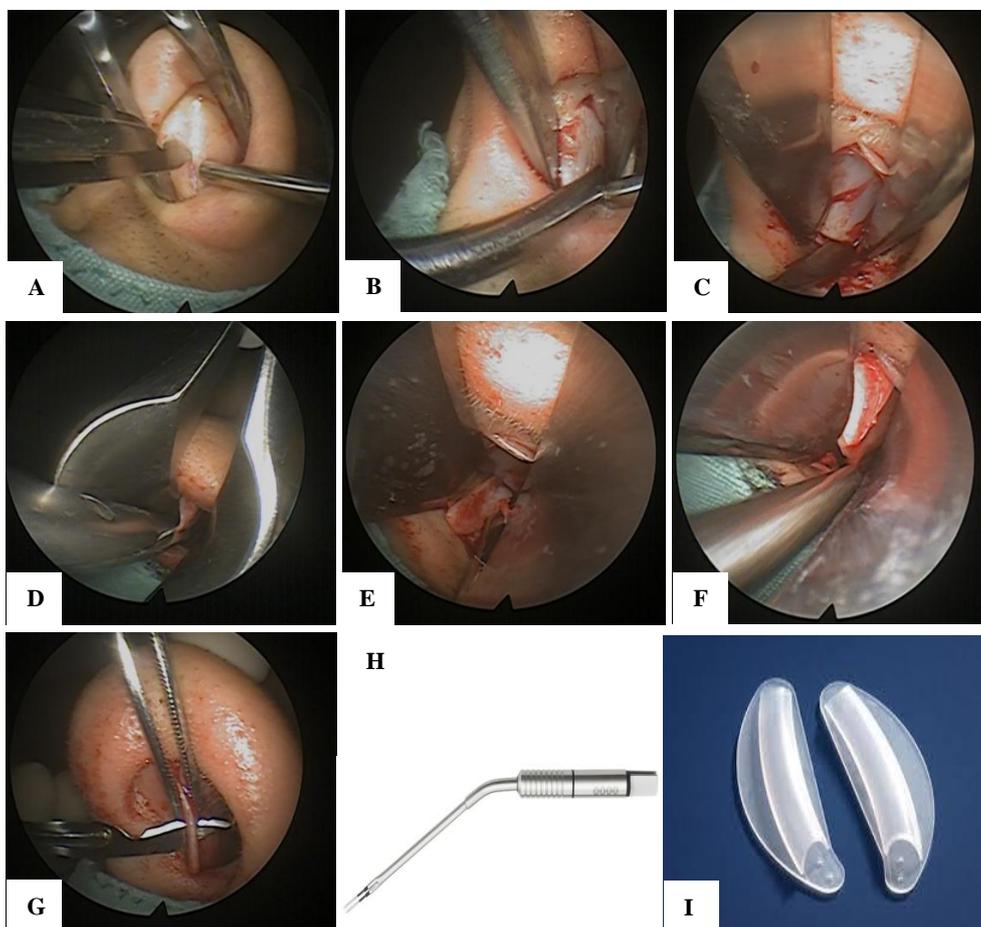


Figure 1 (A-I): Represent the steps of operation.

Surgical technique

All the operations were done under general anesthesia. Patient in the supine position with an elevation of head 15 degrees. Local infiltration of 1:100000 xylocaine with

adrenalin is performed along the deviated area of the nasal septum on both sides. A hemitransfixation incision is performed on the left side of the nasal septum (by the right-handed surgeon) about 1 mm behind its caudal border using a no. 15 blade (Figure 1A). Careful dissection in the left side of the septum to find the exact plane is

important. mucoperichondrium then elevated on the left side of the nasal septum using Cottle elevator helped by suction dissector instrument (Figure 1B). This elevation continues posteriorly to involve the mucoperiosteum up to the end of deviation and superiorly if there is deviation, while inferiorly up to the end of the cartilage (no need to dissect maxillary crest). After finishing dissection of the left side, we enter the right side of the nasal septum by sliding the dissector at the nasal spine to the right side because this area usually easy. As seen in (Figure 1C), the elevation of the mucoperichondrium and mucoperiosteum flaps in the right side is done, making a 5 mm tunnel along the maxillary crest. The septum is then separated from the maxillary crest and perpendicular plate of the ethmoid. About 3-5 mm strip then removed along the inferior border of the septal cartilage, making the septum free moving (swing - door concept) (Figures 1 D-F) Deviated maxillary crest is treated by fractured toward the center using the elevator (medialization of the maxillary crest). If there is posterior deviation (vomer), removed using straight Blakesley forceps. About 2-3 mm of the anterior end (caudal end of the cartilage) also removed (Figure 1G). Sub mucosal diathermy was done in the patient with hypertrophied inferior turbinate using Binner needle connected to BM 780 II radiofrequency generator machine at low power (Figure 1H).

Using cutting, 4/0 vicryl suture, we will close the hemitransfixation incision. One knot is taken in the middle of the septum (transseptal) to prevent postoperative hematoma. An internal nasal splint is then used and fixated by Vicryl 4/0 at the anterior end of the septum (Figure 1I). No need for nasal packing unless there is severe bleeding. If any perforation happens accidentally in the flap, no need for suturing, it just approximates the flaps before insertion of the nasal splint.

Post-operative care

The entire patient was discharged on the same day of operation on oral analgesia and antibiotic. Regular follow up was done on the second day and the sixth day postoperatively. On the 2nd day, cleaning and suction were done and check if there is any post nasal bleeding. Where as in the 6th day, we remove the nasal splint, and we give the patient nasal wash for nasal cleaning.

RESULTS

Out of 154 patients included in this study, there were 98 males (63%) and 56 females (37%), with a mean age of 28.6 years (range from 15-57 years). So according to this study, the septal deviation is more common in males than females (Figure 2).

In our study, improvement in nasal breathing functions was noticed in 146 patients (95%); only 8 patients (5%) are not satisfied from breathing post operatively (Figure 3).

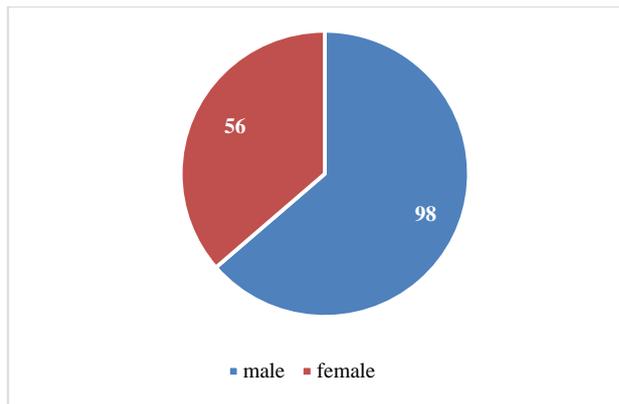


Figure 2: Gender distribution.

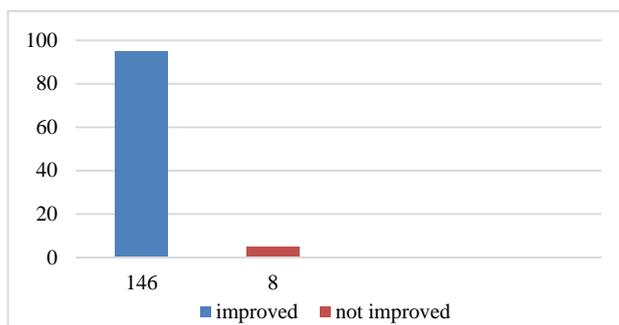


Figure 3: Distribution of patients according to the result of the operation.

Two cases was complicated by postoperative nasal bleeding (1.2%), and only one patient develop synechia (0.6%) and no another postoperative complications as septal perforations or nasal infections. The mean septoplasty operation time was 15.34±3.66 min (range 10-35).

Table 1: Postoperative complications of septoplasty technique used in this study.

	No. of patients	Percentage (%)
Nasal bleeding	2	1.2
Synechia	1	0.6
Septal perforation	0	0

DISCUSSION

Nasal obstruction is a common problem among the population. In a study of nasal obstruction among randomly chosen adults sample, Vainio-Mattila found that the incidence of nasal obstruction was 33%.⁷ To facilitate the operation of the septoplasty, several authors have tried to classify septal deviations and propose a different surgical approach for each.⁸

Our septoplasty technique, which described in this study, is affective technique to manage all types of septal deformity with very minimum complications.

In 1946, Fuchs already understood the utility of leaving the mucoperichondrium attached to the septal cartilage on one side and minimize the elevation of the unnecessary flap to prevent postoperative septal perforations.⁹

In comparison with other approaches and according to other studies. Our surgical technique is characterized by a lower rate of complications.¹⁰

In our study, we find that septal deviation is more common in males than females (63% males and 37% females). Ayaz et al study found that the percentage was different (35% males and 65% females), and the cause of this difference may be due to increased incidence of war and accidents among males in our county.⁵

Good surgical technique used in our study is the underline cause of our minimum complications. Preserving of mucoperichondrium and mucoperiosteum flaps as possible as we can, minimum intra operative bleeding due to perfect dissection in the right plane and trans septal suture (mattress suture) are also important factors in our best results.

In our study, the post-operative bleeding was 1.2%, which is very low compared with other studies. For instance, Jain et al. reported that post-operative bleeding was 0%.¹¹ Satyaki et al reported that 24% of the participants had post-operative bleeding.¹² Similarly, Suligavi et al. found that 26% had bleeding postoperatively.¹³ However, Kamran et al and Manjunath et al found that the post-operative bleeding was 3% and 4%, respectively.^{14,15}

Post-operative synechiae in our study were 0.6%, which very low percent comparing with other studies, and it is due to meticulous dissection without trauma to the lateral wall of the nose and due to the use of internal nasal splint post operatively. Kamran et al found that the post-operative bleeding was 1%, while Manjunath et al found 4% post-operative bleeding.^{14,15}

Septal perforation usually due to bad surgical technique. In this study using our surgical technique, the septal perforation was 0%. Kamran et al found that the septal perforation 2% and Manjunath et al found 0%.^{14,15}

The mean time of operation was 15.34±3.66 min (range 10-35), which is short duration, and this due to our simple technique and our methods in dealing with deviated maxillary crest where we medialize it without dissection of the mucoperiosteal flap. Also, Luca et al describe a short duration of operation (13.83±4.22 min).⁶

CONCLUSION

Nasal septum deviation is not always symptomatic; if symptomatic, it treated surgically by a septoplasty. There are many techniques for septoplasty; our septoplasty technique is effective characterized by the low incidence of complications, and short surgical time, and easy to trained. Based on our findings, we strongly recommended using the proposed maneuver. However, further researches on other population are recommended.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Jahan AM, Eldanfur YM, Elheshani KA, Hanash BAA. Quick and easy septoplasty: our technique. *Int J Otorhinolaryngol Head Neck Surg* 2019;5:1507-11.