

Rhinoplasty for the Thick Skin

HISHAM M. EL MINAWI, M.D.; AHMED M. SOBHI, M.D. and FADI MAGDI, M.D.

The Department of Plastic Surgery, Faculty of Medicine, Cairo University

ABSTRACT

Treating patients seeking rhinoplasty presented with thick skin of the nose is somehow challenging, whatever the suturing technique used, the skin does not re-drape on the carved cartilage below. This study presents a technique to suture the domal subcutaneous tissue of the nose to the cartilage framework below in a trial to overcome the difficulty of skin re-drape.

Patients and Methods: 18 patients were enrolled in the study over a period of 3 years, where a needle was used to prick the skin outside and identify the points of fixation of the proline suture on the inner surface of the skin, then the suture is passed through the domal cartilage and the septum and then out from the dome on the other side to be tied to one side.

Results: The patients were followed up for a period of 9 months and a patient satisfaction of 4 was noted on a scale from 1 to 5. Only one patient complained at primary stages of the study from parrot beak deformity since the suture in that patient was not passing trans-septal.

Conclusion: The technique offers a new way to deal with thick skinned nasal tips without defatting or scoring thus avoiding complications.

Key Works: *Rhinoplasty – Thick skin – Sutures – Domal sutures.*

INTRODUCTION

The history of suture evolution, wide, thick, heavy and ill defined nasal tip, is one of the most commonly encountered nasal tip deformities and its operative management remains a challenging, unresolved problem [1].

Tebbetts led the crusade to replace the resection and scoring philosophy with that of suture control.

His vector tip rhinoplasty algorithm included the lateral crural spanning suture, which not only narrows but also increases tip projection.

Whereas, scoring techniques have become much less necessary and resection techniques, yet for the purpose of reducing tip bulbiness, techniques

have been largely limited to trimming of the cephalic end of the lateral crus [2].

Yet, few studies that were done on the effect of standard rhinoplasty techniques on the nasal tip projection and bulbiness have been published. The precise pre-operative analysis of a patient's nasal tip deformity is critical to obtaining a consistently successful result in rhinoplasty [3].

Earlier techniques were based on principles of cartilage removal or disruption and relied on destabilization of the intrinsic nasal framework, disrupting the support mechanisms of the nasal tip complex. Over the decades, philosophies about rhinoplastic surgery have changed. Radical cartilage resection and disruption of tip support mechanisms have been replaced by techniques that emphasize preservation and orientation of nasal tip cartilages while maintaining or restoring intrinsic tip support mechanisms [4].

Gruber and Friedman, stated that the first suture for the bulbous nose is the trans-domal suture, but clearly warned that care should be taken not to overly narrow the domes. If the domes are made too narrow, then it is difficult for the skin to accommodate to the smaller framework. A broader, less defined tip may result from such an overzealous effort to narrow the domes [5].

The aim of this study is to present a technique to suture the domal subcutaneous tissue of the nose to the cartilage framework below in a trail to overcome the difficulty of skin re-drape.

PATIENTS AND METHODS

Eighteen patients, 16 females and 2 males were included in this study over a period of three years. The patients' age ranged from 25 years to 48 years old with a mean age of 32.72 years. All patients were subjected to pre-operative careful analysis

of the nasal tip and routine laboratory investigations.

Photography was done for all patients as part of a pre-operative and post-operative clinical assessment for an exact evaluation of the results. Standard open rhinoplasty using stepladder columellar incisions or V shaped incisions were done to all patients. Dissection of the lower nasal framework was done preserving the alar cartilages. Standard nasal cartilage tip suturing, mainly transdomal suturing, with resection of part of cephalic plate of lower lateral cartilage was done. (Table 1 shows the techniques used on the patients enrolled in the study).

The second step was to fix the domal cartilage of the overlying skin. This was performed by transfixing the needle from the skin outside to identify the fixation points on the skin inside.

Moreover, a prolene suture (4/0) was used to suture the cartilage to the dermofat utilizing a horizontal mattress sutures, for better re-draping of skin over the nasal framework. The needle then passed through the septal cartilage to prevent the suture from overhanging over the dorsum, the suture was tied to one side of the tip (Figs. 1,2). Careful coaptation and closure of the columellar incision. Steri-strips were then applied on the nasal splint for 4 days to reduce edema of skin and subcutaneous tissues.

Follow-up was done for all patients post-operatively after one week, 3 weeks, 6 weeks, 3 months and 9 months.

RESULTS

All patients are examined in the post-operative follow-ups; one week, 3 weeks, 6 weeks, 3 months, 6 months and 9 months to observe resolution of soft tissue edema and reshaping of the nasal tip in addition to patient satisfaction.

There was one case of Parrot beak deformity, which happened, in the 1st case done in this study as trans-septal suture was not done.

Two cases with prolonged edema were managed conservatively and have improved within 7-9 months post-operatively (Table 2).

No cases of infection, hematoma or asymmetry were encountered (Table 2).

An evaluation of the results was done using pre and post-operative photographs (Figs. 3,4) and a patients' satisfaction poll.

Patients' satisfaction was classified from 1 (not satisfied) 2 (acceptable) 3 (good) 4 (very good) to 5 (completely satisfied) and in this study the average patient' satisfaction was 4.

Table (1): Anatomic structures of the nose and procedures done.

	Number of patients	Procedure done
Skin	1 (5.56%) 17 (95.44%)	Defatting No defatting
Hump	3 (16.6%) 9 (50%) 6 (33.4%)	Bone excision Bone and cartilage excision Nothing
Spreader grafts	8 (44.4%)	
Alaa	14 (77.7%) 4 (22.3%)	Cephalic excision Lateral crural overlap
<i>Tip:</i>		
Sutures only	13 (72.2%)	
Sutures and tip grafts	5 (27.8%)	
Columellar strut	13 (72.2%)	Septoplasty
Septum	13 (72.2%)	
<i>Base:</i>		
None	4 (22.2%)	
Nostril sill	6 (33.4%)	
Wedges	5 (27.8%)	
Combination	3 (16.6%)	
Dorsum	14 (77.7%)	Internal lateral osteotomy

Table (2): Complications.

Complication	Incidence %
Haematoma	0%
Infection	0%
Asymmetry	0%
Prolonged oedema >6 months	11.1%
Parrot beak deformity	5.5%

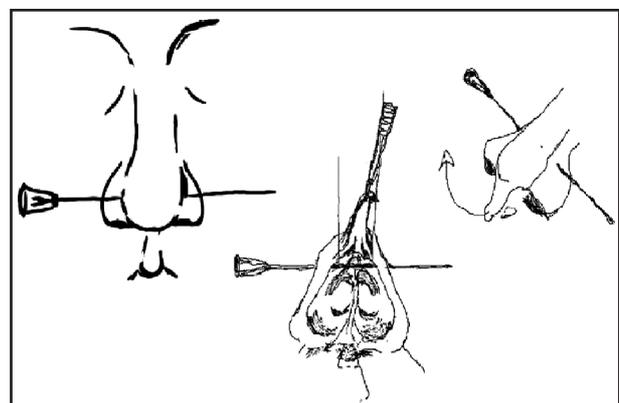
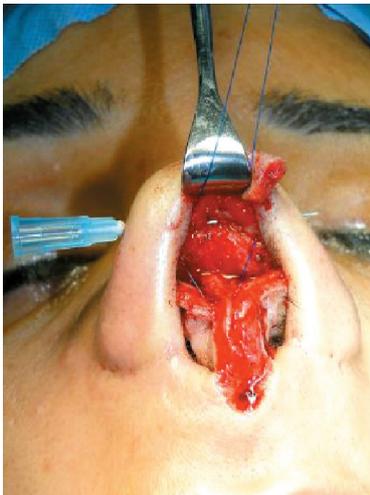


Fig. (1): Diagram showing the marking with the needle.



(A)



(B)



Fig. (2): Intraoperative steps of marking with the needle and suturing.

Fig. (3A,B): Pre and 9 months post operative photos.



(A)



(B)

Fig. (4A,B): Pre and 4 months post operative photos.



(C)



(D)

Fig. (4C,D): Pre and 4 months post operative photos (lateral view).

DISCUSSION

Nasal tip surgery is considered the most interesting and difficult part of rhinoplasty. It obliges the surgeon to perform a detailed pre-surgical analysis of each patient, analyzing ethnic characteristics, skin thickness, cartilage strength as well as nasal tip shape and position [6].

The thick skin amorphous or wide nasal tips are estimated by inspection and palpation rather than by measurement. Some authors measured the soft tissue thickness of nasal tip by a B-mode sonography with a 12-MHz transducer in a non-contact mode to measure tip width 0.5cm occipital to the tip defining point, distance between the alar cartilage domes and thickness of the soft tissue cover overlying the lower lateral cartilages. They concluded that the trans domal suture tip plasty will likely prove an inadequate technique for nasal tip narrowing in patients with nasal tip soft tissue cover measuring more than 4mm [7].

In our study a needle was also used to estimate the skin thickness by passing the needle from the inner aspect of the skin of the tip until it reaches the epidermis from the outside, the needle is then marked from the inside, pulled out and measured. Patients with skin thickness 4mm or more were considered thick skin and should have this suture procedure done to show the underlying cartilage suture work.

Over the years, a number of suture techniques have been proposed to modify the shape of the tip cartilages. At this time, the issue is not whether sutures are successful. Sutures have clearly eliminated the need for excision, transection, and scoring of alar cartilages. They have even provided better long lasting tip shape and reduced the need for grafts. The issue discussed lies in the question of which sutures are best applicable for a given task and in what sequence these sutures should be placed [8].

In our study the sutures were taken to fix the domal cartilages after reshaping the skin overlying the thick skin patients for better redrapping of it over the nasal framework. This suture passed through the septal cartilage to prevent the suture from over-hanging over the dorsum, avoid trimming the nasal tip fat and no handling of subcutaneous tissue to prevent prolonged skin edema and minimizing the complications that can happen to skin in the form of ischemia or skin necrosis.

Defatening of the tip is only done when there are fat globules seen on the undersurface of the dermis, which were only seen in one patient and subsequently trimmed to thin the skin.

Tying the suture after the transdomal-transseptal suturing prevents the parrot beak deformity, which is considered a stigma of rhinoplasty by patients. Only one patient showed this in the beginning of the study, but didn't seek secondary surgery and was treated with hyaluronic acid to camouflage the defect.

The patient satisfaction was 4 in a scale from 1-5, a statistic that denotes that this technique would be helpful for a lot of patients with thick nasal skin in order to achieve satisfaction to some extent.

Avoiding unnecessary procedures in esthetic surgery of the nose should prevent complications which are unpleasant for patient and surgeon [9].

This transdomal-transdermal suturing technique was described as a step in some surgeries to treat cleft nasal defects. However not for the same purpose here or by marking the skin with the needle pricking to mark the suture points (personal communication with Professor Doctor Bahman Guyuron).

In conclusion, the fixation of domal cartilages to the overlying skin after reshaping by suture transfixing the septal cartilage in thick skinned tip rhinoplasty helps to produce good results with minimum complications.

REFERENCES

- 1- Hafezi F., Naghibzadeh B. and Nouhi A.: Management of the thick skinned nose: A more effective approach. *Ann. Oto. Rhino. Laryngol.* June, 115 (6): 444-9, 2006.
- 2- Tebbetts J.B. Shaping and positioning the nasal tip without structural disruption: A new, systematic approach. *Plast. Reconstr. Surg.*, 94: 61, 1994.
- 3- Rod J. Rohrich and William P. Adams: The boxy nasal tip: Classification & management based on alar cartilage suturing techniques. *Plastic and Reconstr Surg.* June, Vol. 107, No. 7 P. 1849-1863, 2001.
- 4- Anthony Corrado Do, Jason D. Bloom and Daniel G. Becker: Domal stabilization suture in tip rhinoplasty. *Arch. Facial Plast. Surg.*, 11 (3): 194-197, 2009.
- 5- Gruber R.P. and Friedman G.D.: Suture algorithm for the broad or bulbous nasal tip. *Plast. Reconstr. Surg.* Dec., 110 (7): 1752-64, 2002.

- 6- Fernando Pedroza: A 20 years review of the “new Domes” technique for refining the drooping nasal tip. *Arch. Facial Plast. Surg.*, 4: 157-163, 2002.
- 7- Abel-Jan Tasman and Matthias Helbig: Sonography of nasal tip anatomy & surgical tip refinement. *Plast. Reconstr. Surg.*, Vol. 105, No 7, 2573, 2000.
- 8- Ronald P. Gruber and Gary D. Friedman: Suture algorithm for the broad or bulbous nasal tip; *Plastic and Reconstr. Surg.* December, Vol. 110, No. 7, 1752-1764, 2002.
- 9- Teoman Eskitascioglu and Alper C. Kemaloglu: Skin necrosis in nasal dorsum following rhinoplasty. *Euro. J. Plast. Surg.*, 33: 49-51, 2010.