

**ORIGINAL RESEARCH****Clinical evaluation of safety and complications of the nasal tip defatting in rhinoplasty**

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**Objective:** Nasal tip refinement is an important objective in aesthetic rhinoplasty and one of the surgical options for soft tissue management in very thick bulbous skin and subcutaneous noses is tip defatting. The aim of this study was to evaluate the safety and complications of tip defatting in thick skin and bulbous noses.

**Methods:** Among 527 patients that underwent rhinoplasty in Modarres hospital between February 2011 and January 2014, nasal tip defatting were performed in 162 of these patients. Intraoperatively and in follow up examinations, any signs of skin congestion, ischemia, hematoma, and skin quality evaluated.

**Results:** Among 162 patients who had performed tip defatting [39 (24.1%) male patients and 123 (75.9%) female], complications were skin congestion in 6 patients (3.7%), ecchymosis in 10 patient (6.1%). There were no cases of skin necrosis, skin perforations or skin irregularity.

**Conclusion:** Our study and many previous studies show that tip defatting in association with lower lateral cartilage reduction is a safe and helpful method in correction of bulbous nose deformity

**Keywords:** Defatting, Rhinoplasty, Nasal tip

## Introduction

Skin thickness and its subcutaneous are important and essential parameter determining the preoperative planning and surgical outcomes in rhinoplasty cases. In the lower third of the nose, the thickest skin may be found in the tip and supra-tip regions[1,2,3], so nasal tip refinement is an important objective in aesthetic rhinoplasty. One of the surgical options for soft tissue management especially in bulbous nose or a very thick skin and subcutaneous is tip defatting [4]. Bulbous nose is used for patients whose nose tips are similar to a ball. Nasal tip in this deformity looks wide. The space between the two domes related to lobule is wide and projection little and looks round. It is also likely that a large divergent angle exists between the two middle crura in lower lateral cartilages (LLC) which is measurable greater than 30 degrees. According to Adams Rohrich's definition, the distance between these two points is about 5-6 mm and in cases where it is above 6 mm, nasal tip will

look wide and is considered to be bulbous tip and based on this distance different surgical operations are required [ 9, 10 ,11] Nasal tip blood supply is derived primarily from lateral nasal arteries with a variable contribution from columella artery. There is concern that extensive tip defatting or extended alar base resection may compromise nasal tip blood supply [5]. The aim of this study was evaluation aesthetic results and complications of nasal tip defatting in tip and supra-tip skin thickness in rhinoplasty cases.

## Materials and Methods

We performed rhinoplasty surgery for aesthetic purpose in 527 patients [114 men

(21.6%) and 413 women (78.4%)] between February 2011 and January 2014, in Modarres hospital in Tehran. Nasal tip defatting were performed in 162 of these patients (39 men and 123 women). Exclusion criteria included heavy smoking, allergic rhinitis. Patients that underwent tip defatting had thick or moderate skins and subcutaneous with bulbous nose. All rhinoplasty procedures were performed by one surgery team, using open rhinoplasty approach. After injection of 1/200000 epinephrine solution and did incision in columella, skin dissection was done in the sub perichondrial and then sub periosteal planes just superficial to the nasal cartilages and bony dorsum up to the root of the nose. By using scissors, under direct vision, we resected subcutaneous fat and part of SMS in tip of noses without damage to subcutaneous blood vessels (figure. 1). Defatting in tip area continued until subcutaneous vessels would be visible. In first 20 cases we performed defatting at end of procedure, before skin closure, but due to blood accumulation and increase incidence of ecchymosis, we did it earlier after skeletonization, in remained patients. In all the cases, noses were taped and casted. Nose casts and tapes were left in place for 7 days. Casts were then removed, and new tapes were placed in dorsum and sidewalls that changed every 5 days for 1 month. We had visited all patients a day after the procedure and again one, second weeks and 3, 6 and 12 months after surgery. Any signs of skin congestion or ischemia, hematoma and ecchymosis, skin contracture and skin quality were documented.



Figure 1

### Results:

A total of 527 patients underwent open rhinoplasty during the study period. Among these, 162 patients who had performed tip defatting were included in the study. There were 39 (24.1%) male patients and 123 (75.9%) female patients. The average age at operation was ----- years and ranged from 17 to 54 years. From 162 patients, 156 were primary and 6 were secondary rhinoplasty and 8 (4%) of primary rhinoplasty patients needed revision surgery. Blood accumulation beneath the skin flap was seen in 23 cases (14.1%). In our first 20 patients, tip defatting was performed in end of

procedure before skin closure and 9 (45%) of these patients had blood accumulation and ecchymosis around tip areas. Because of higher rate of ecchymosis, we did defatting in earlier stage of procedure (0.7%). 5 patients (3%) had skin congestion, that all of were treated with conservative managements. No cases of skin necrosis or skin perforation found. In one case with history of rhinoplasty, after defatting in second operation, sever congestion in tip of nose happened and it addressed with warm compress and relaxing tapes over nose (table 1).

**Table 1:**

	Males	Females
Sex	39(29, 1%)	123(75, 9 %)
Average Age at operation (years)	26.9	27.2

Skin quality in follow-up examinations reveals that in the first few weeks after surgery, skin thickness was reduced but over time due to skin contracture in the tip area, the degree of skin thinning was reduced. Three months after surgery, all patients asked about their surgery

satisfaction. (Figures 2, 3, and 4). We measured the degree of surgical satisfaction with excellent, very good, good and dissatisfied. Results are shown in tables 2 and 3.

**Table2. Degree of surgical satisfaction**

	Excellent	Very good	Good	Dissatisfied
	29 (17.9%)	83 (51.2%)	41(25.3%)	9 (5.5%)
<b>Table3. Complications</b>				
<b>Complications</b>				
	Mild Skin congestion		5 patients (3%)	
	Sever skin congestion		1 patient (0.6%)	
	Skin necrosis		0 (0%)	
	Skin perforation		0 (0%)	
	Blood accumulation and ecchymosis		10 patient (6.1%)	

in rest of cases and only in one case ecchymosis happened

### Discussion

There are a variety of tissues within the fining points that can be influential in over-widening of tip; of which superficial musculoaponeurotic system, ligaments and fat can be named [11,13]. Sebaceous glands are more numerous in the caudal half of the nasal skin which commonly displays a greater amount of subcutaneous fibrous fatty tissue. This dense layer of tissue often measuring as

much as 6 mm thick obscures the contour of the underlying alar cartilages in the non-Caucasian nose [6]. A thick subcutaneous layer usually accompanies the thick skin. This leads to soft tissue Polly peak deformity, excessive supra tip scaring and long-standing postoperative edema [7,8]. Nasal tip re-shaping and creation of beautiful tip is an important



Figure. 2

Before

After



Figure. 3



Figure. 4

Before

After

goal in rhinoplasty. For achieve this goal, there are many options that tip defatting is one of them. There is concern that extensive tip defatting or extended alar base resection may compromise nasal tip blood supply [5].

*George K. Sun* et al. evaluates 22 patients with thick nasal skin, 31 with average skin, and 10 with thin skin and found that discrete fat pad occupying the interdomal space was in 13 of

the patients with average skin, in 12 with thick skin, and in 2 with thin skin. This anatomical discrete fat pad was observed in skin of all thicknesses. He found that there was a relation between the configuration of the medial intermediate crura and the presence or absence of this interdomal fat pad. The presence of a fat pad was associated with a greater separation of the intermediate crura and

increased interdomal distance, whereas when there was no fat pad, the crura and the domes were closer together. He believes that an important additional cause of supra-tip fullness and poor tip definition is the presence of an interdomal fat pad, which has significant surgical implications if unrecognized. This interdomal fat pad may be a common source of post-rhinoplasty nasal tip fullness since this structure can affect the contour of the nasal tip in all skin types. An extensive fat pad may interfere with dome medialization during rhinoplasty, preventing adequate tip narrowing. The interdomal fat pad fills the angle of divergence, which is an index of tip definition and a measure of the relative separation between the 2 domes. This fat pad was excised in all patients to achieve the refined nasal tip definition. Conservative removal of this fat pad, in their experience, did not damage the dermal-subdermal plexus or cause any skin changes in the nasal tip area [14].

The thickness of the soft tissue envelope acts as a limiting factor in solving the bulbous nasal tip problem. However, regardless of the level of difficulty that the SSTE presents in correcting a bulbous tip, the hypertrophic thickening of the SMAS, which is the underlying cause of a thick SSTE around the nasal tip, is the most important factor in the correction of a bulbous tip [15, 16, 17]. Some surgeons have negative opinions about tip SMASectomy, recognizing it as a potential threat to tip circulation [18, 20]; there are scarce reports that discuss SSTE management [19, 20]. However, investigating the literatures on this topic, the blood supply to the tip is

known to flow from the lateral nasal and dorsal nasal arteries to the inner SMAS, creating an abundant subdermal plexus around the tip [15, 16, 17, 21]. Thus, as long as the subdermal plexus is not damaged, partial enbloc SMASectomy can safely be done [20]. *Albarh* et al removed thick skin nose for treatment of , excess fibro-fatty tissue with preserving of subdermal plexus and find that this maneuver is safe and could enhance tip definition by decreasing the thickness of the overlying soft-tissue envelope [8,22]. *Whitaker* et al uses tip defatting and believed that defatting the supra-tip skin is an important step in a patient with a very thick and sebaceous SSTE. But it must be done carefully, to avoid compromising the subdermal plexus [23]. *Elshahat* et al found that, defatting in the moderately thick skin group improved skin quality and allowed the achievement of esthetic tip [10].

In our study, we evaluate results of tip defatting in patients with thick skins and bulbous nose. There was no skin necrosis or sever complication and edema and skin congestion also resolved after many weeks. Patients satisfaction's about tip of their nose were good. Our study like previous studies, show that, tip defatting of nose is safe, if perform meticulously until subcutaneous vessels would be visible and is useful in reshaping of tip especially in thick skins. We believe that defatting in association with other techniques like lower lateral cartilage reduction and interdomal suture could decrease the width of tip and gives better aesthetic tip shape.

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