

An Observational Assessment of Modified Fine Graft (MMG) for Correcting Nasal Soft Triangle DeformityPuja Priyadarshini¹, Satyendra Kumar Jha², Pranava Dutta Verma³¹Senior Resident, Department of Plastic Surgery, Nalanda Medical College and Hospital, Patna, Bihar, India²Assistant Professor, Department of Plastic Surgery, Nalanda Medical College and Hospital, Patna, Bihar, India³Professor and HOD, Department of Plastic Surgery, Nalanda Medical College and Hospital, Patna, Bihar, India

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Conflict of interest: Nil

Abstract:**Aim:** The aim of the present study was to assess modified fine graft (MMG) for correcting nasal soft triangle deformity.**Methods:** This observational study was conducted on 50 rhinoplasty candidates with ST triangle deformity who underwent primary or secondary rhinoplasty to correct the deformity and soft triangle augmentation using an MFG by open method in the Department of Plastic Surgery Nalanda Medical College and Hospital, Patna, Bihar, India for the period of 18 months**Results:** The mean age was 35.64±12.048 years (range 18 to 60 years). 42 (84%) were female, and 8 (16%) were male. 44 of the surgeries were primary rhinoplasty, and 6 were secondary rhinoplasty. After the operation, all four indicators of non- correction of ST triangle deformity, exposed graft, recurrence, and visibility were checked for all patients. Graft exposure, recurrence, and visibility were not reported in any of the patients.**Conclusion:** MFG was highly effective in correcting the deformity of the nasal ST triangle and did not cause serious complications in patients. Therefore, this method could be considered an appropriate method with great efficiency for correcting the nasal deformity of the soft triangle.**Keywords:** Rhinoplasty; Modified fine graft; SOFT triangle deformities.

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Introduction

The soft-tissue (ST) triangle is located between the dome of alar cartilage superiorly and the nostril margin inferiorly. The name “soft” triangle came from the lack of cartilage support in this area as it is formed only of skin and soft tissue. The ST triangle is made of two juxtaposed layers of skin, the external nasal skin and the internal vestibular skin, separated by loose areolar tissue and some terminal fibers of nasalis and depressor septinasi muscles. [1,2] Aesthetically, the ST triangle should appear as a soft facet that is not too defined or too deep, otherwise it would detract from the aesthetically pleasing tip lobule contour.

The shape and appearance of the ST triangle is influenced mainly by the thickness of the lobular skin as well as the strength, shape, and position of alar cartilage. Commonest deformities of the ST triangles include retraction and notching. The soft triangle retraction will form deep pronounced soft triangle facets and can be encountered in both primary as well as revision cases. However, soft

triangle notching is encountered mostly in revision cases and may be either isolated or as a part of a wider alar rim notching. The external rhinoplasty approach can result in soft triangle notching if the columellar incision is wrongly placed too high and extending across the nostril apices to join the marginal incision. [3,4]

The increasing number of primary rhinoplasties coupled with heightened patient expectations, has led to an increase of revision surgery. In a recent study of revision rhinoplasty in Asians, we have shown that most revision rhinoplasties were associated with problems arising from the use of alloplastic implants, reflecting the trend of using alloplastic implants in many Asian countries. [5] Although studies and years of clinical experience have proven that these implants can be used safely, incorrect surgical techniques coupled with inappropriate patient selection, can cause an array of complications.

Like other revision surgeries, the difficulty of revision rhinoplasty arises not only from the effort it takes to correct the specific deformities and scars left by the primary surgery, but also from the psychological stress experienced by both the patient and the surgeon. An in-depth understanding and sufficient experience in various rhinoplasty techniques together with familiarity with the alloplasts' characteristics and related complications become necessary with dealing with the highly variable cases of Asian revision rhinoplasty. [6-11]

The aim of the present study was to introduce a new technique using modified fine graft (MMG) for correcting nasal soft triangle deformity and evaluate the effects of using this method.

Materials and Methods

This prospective observational study was conducted on 50 rhinoplasty candidates with ST triangle deformity who underwent primary or secondary rhinoplasty to correct the deformity and soft triangle augmentation using an MFG by open method in the Department of Plastic Surgery, Nalanda Medical College and Hospital, Patna, Bihar, India for the period of 18 months. Before the surgery, the procedure was explained to the patients, and informed consent was obtained from all the patients before the surgery. All patients were operated by a plastic surgeon with more than ten years of experience.

The inclusion criteria included a diagnosis of ST triangle deformity, access to the photographic findings of patients before and during surgery, age over 18 years, cooperation of patients to participate in the study, informed consent for patients over 18 years old, and parental consent for patients under 18 years old. The previous surgical history was a correction of the ST triangle deformity; patients with wing grafts and congenital diseases such as cleft palate or cleft lip were defined as exclusion criteria. Diagnosis and screening of patients prior to surgery were performed using the photograph. The diagnosis of ST triangle deformity was performed by a plastic surgeon using standard photography in four front, right, left, and basal planes. Photographs were taken before, during, and immediately after, and 3 and 6 months after. The presence of deformation was confirmed by two other independent surgeons from the same center. The deformity was corrected using a cartilage graft. This surgery technique was new and was carried out on these patients for the first time.

Cartilage graft harvest and surgical procedure

The Cartilage graft was harvested from the septum cartilage, if it was not possible to re-harvest cartilage from the septum, trimming of the lower lateral cartilage (LLC) was used, and if it was insufficient, concha cartilage was used. The size of

the cartilage was designed according to the size of the ST defect, and the cartilage was briefly crushed (For more flexibility). In this method, the space designed for embedding the cartilage in the soft triangle should be larger than the size of the defect. An open rhinoplasty incision was used to design the space; if the size was not enough, the space was expanded. 0.6 nylon thread was used to pass the graft for better positioning. In this method, the needle first passes through the outer layer of the media space. Then it is inserted from one side of the graft, crosses the width of the graft, and exits from the other side; the graft is placed inside the space. The needle passes through the lateral outer layer of the space, then the two ends of the thread placed on the skin of the soft triangle are tied. To prevent scarring on the skin of the nose, a delicate clamp is placed under the knot, the knot is tightened, and then the rest of the rhinoplasty closing steps are performed. The Cartilage and the lateral alar walls, the presence of ST, and the surgical procedures are performed. The tampon is placed in the nose and briefly pressed under the insertion site. Two days after the surgery, the tampon is removed. 0.6 nylon thread is pulled for each patient on the seventh day after the surgery. The surgeon followed up and evaluated the patients immediately after the operation, 3 and 6 months after the operation.

Data Collection and Outcome Evaluation

Data was collected using a two-part checklist. The first part includes demographic characteristics (age, sex). The second part includes clinical information, radiography, photography, and outcomes, including (type of surgery, duration of surgery, amount of bleeding during the surgery, correction of deformity, degree of exposure of the graft, degree of visibility of the graft, the rate of recurrence and the need for revision). The outcomes of the surgery immediately after the surgery, 3 and 6 months after the surgery, were recorded for all patients. A plastic surgeon evaluated all outcomes.

Statistical Analyses

The data were analyzed using SPSS 22 statistical software (IBM Corp., Armonk, NY, USA). Descriptive statistics (frequency and percentage) were used to provide qualitative variables. Quantitative variables were reported using mean and standard deviation. The chi-square test was used to compare quality variables. The normality of the distribution of quantitative variables was assessed by the Shapiro–Wilk test. To evaluate the outcomes before and after surgery, assuming a normal distribution of variables, Pair Test was used, and assuming non-normality, a non-parametric Wilcoxon test was used. A P value less than 0.05 were considered significant.

Results

Table 1: Demographic characteristics of patients

Gender	N (%)
Male	8 (16)
Female	42 (84)
Age in years	35.64±12.048
Rhinoplasty	
Primary	44 (88)
Secondary	6 (12)

The mean age was 35.64±12.048 years (range 18 to 60 years). 42 (84%) were female, and 8 (16%) were male. 44 of the surgeries were primary rhinoplasty, and 6 were secondary rhinoplasty.

Outcome

After the operation, all four indicators of non-correction of ST triangle deformity, exposed graft, recurrence, and visibility were checked for all patients. Graft exposure, recurrence, and visibility were not reported in any of the patients.

Discussion

Rhinoplasty is one of the most common cosmetic surgeries performed to remove defects and defects of the nose. [12,13] Rhinoplasty is one of the most popular plastic surgeries, and at the same time, it is one of the most difficult surgeries. [14,15] Rhinoplasty is one of the most common cosmetic procedures in the world [16] and the most common cosmetic surgery in Iranian populations. [17,18] This surgery can be performed in a primary form to correct facial defects such as nasal obstruction or beauty or in a secondary (remedial) form to correct the defects of the primary surgery. [19,20]

The mean age was 35.64±12.048 years (range 18 to 60 years). 42 (84%) were female, and 8 (16%) were male. 44 of the surgeries were primary rhinoplasty, and 6 were secondary rhinoplasty. After the operation, all four indicators of non-correction of ST triangle deformity, exposed graft, recurrence, and visibility were checked for all patients. Graft exposure, recurrence, and visibility were not reported in any of the patients. Foda et al [21] Evaluated the outcomes of the correction of ST triangle deformities in 150 rhinoplasty candidates who, like our study, were mostly women by examining the thickness of the skin, the strength, and lines of the alar cartilage, the orientation of the lateral crus, length, and inclination of intermediate crura and horizontal and vertical dual angles between lateral and intermediate crura. In this study, all cases underwent surgery using an external rhinoplasty technique in which bilateral marginal incisions are connected through an inverted V-shaped columnar incision. The marginal incision is placed just on the caudal edge of the lateral crus on the outside. As we move inward, the

marginal incision is directed away from the cartilage and toward the alar advantage, thus preserving the vestibular skin cuff. [22]

Another predisposing factor was the long intermediate crus that may be commonly encountered in the Pinocchio nose with over projected nasal tip or may result from surgical maneuvers that lengthens the intermediate crus, as in the lateral crural steal technique. [23-26] Accordingly, when using medial crural shortening techniques to deproject nasal tip, it is safer to shorten the intermediate crus and not the medial crus. [26-28] Also, when performing a large lateral crural steal of more than 4 mm or performing lateral crural steal in cases with vertically oriented lateral crura, it is helpful to use a soft triangle graft to support the soft triangle skin and prevent the risk of possible retraction. In their study, in contrast to our study, most cases were secondary rhinoplasty. Also, this study showed that no cases of infection, displacement, or extrusion were observed, which confirmed the results of our study. Yazar et al [22] evaluated the correction of deformity by open rhinoplasty with reverse V trans-columellar incision and bilateral lip edge incision in 24 patients. In this study, the ST triangle deformity was not corrected in only one patient. Cartilage absorption or visibility of exposed cartilage and cartilage and the need for review three months after surgery were not reported in any patients. The results from this study were consistent with our study results with the new technique.

Conclusion

MFG was highly effective in correcting the deformity of the nasal ST triangle and did not cause serious complications in patients. Therefore, this method could be considered an appropriate method with great efficiency for correcting the nasal deformity of the soft triangle.

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