

Nasal Tip Deprojection- An Incremental Approach

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Abstract

Rhinoplasty is one of the most commonly performed aesthetic procedures worldwide. Any alteration of nasal tip is technically challenging as every small manoeuvre may lead to dramatic outcomes. There is paucity of well-defined guidelines for sequence of steps to de-project nasal tip. We propose an incremental approach for deprojection of nasal tip. It emphasises on re assessment of tip after each manoeuvre to attain a final pleasing outcome.

We analysed 60 patients of true over projected nasal tip over a period of eight years. In all patients sequence of surgical steps were the same as described. In the process, when desired tip de projection was achieved, further steps were not performed.

Keywords: Rhinoplasty; Nasal Tip; Manoeuvre

Introduction

Rhinoplasty is one of the most commonly performed aesthetic procedures worldwide. It is also one of the most tricky operative procedures where small alterations lead to dramatic results.

Any alteration in nasal framework demands meticulous and thoughtful assessment. Out of all aspects of aesthetic rhinoplasty, modification of the nasal tip is the most challenging operative procedure. Several small manoeuvres add together to bring a significant change in the tip. Nasal deprojection is a procedure in which each small step counts. It may be very difficult to decide correct order and extent for different steps taken to reach an optimal desired outcome.

In the present article we try to address the issue and emphasize the incremental approach for deprojection.

Tip support mechanisms

Nasal tip is composed of a pair of alar cartilages, upper lateral cartilages and caudal part of nasal septum.

Janake and Wright first described tip support mechanisms and divided them into major and minor support mechanisms [1].

Tripod theory of Anderson [2] in 1969 described nasal tip as a tripod structure with lateral crural cartilage forming the side legs of the tripod whereas both medial crura formed the central pillar. Caudal part of nasal septum support medial pillar and contributes to the stability of tip. The medial pillar is generally smaller than the lateral pillars.

Any de projection of the nasal tip requires disruption of one or the other tip support system which makes it challenging. In the present article we propose an incremental approach for tip de projection to achieve a tip which is placed very precisely in three dimensions.

Case Series

We evaluated sixty patients between 2010 to 2018 in which nasal tip deprojection was performed as an isolated tip plasty or as a part of a reduction rhinoplasty. All patients were operated under general anaesthesia using the standard open rhinoplasty approach.

Pre operative assessment

When analysing nasal aesthetics it is prudent to consider formulas as guidelines. Formulas have been described by various surgeons for assessment. Crumley and Lancer suggested to draw a line from nasion to upper vermillion junction, then dropping a second perpendicular line on it from the tip defining point. the ideal ratio should be 0.28. Baum calculated the nasal tip projection by dividing the length of a line from the nasion to the nasal tip by the length of a perpendicular line from the nasal tip to a vertical line from the subnasale. The ideal ratio is 2.8:1. The Simons ratio is found by dividing the length from the subnasale to the nasal tip by the length from the subnasale to the superior labium and the ideal ratio being 1:1 [3]. These guidelines can be modified in view of the existing anatomy, patient desires and surgeons experience. Analysis of tip should be done in relation to radix and not as an isolated unit [4].

Other factors contributing to illusion of over projection are tension septum, saddle nose deformity, retrognathia and short upper lip. All of these should be considered while assessing the tip [5].

Position of nasal tip in three dimension is another factor to be considered. Slight rotation of tip upwards or down wards may also change the perception of tip projection.

In present study we have considered only the truly over projected nasal tip.

For assessment standard photographic views were taken in all the patients and discussed with them. Projection was objectively assessed using Goode's index [6].

After the initial discussion and analysis of photographs, palpation of the nose was done. It allows assessment of the relative contribution of the septum and the alar cartilage towards projection.

Operative procedure

All the patients were operated through standard open rhinoplasty approach. Modification of the nasal tip was done after the alteration of the dorsal profile.

The first step for de projecting the tip was cephalic trim of lateral crural cartilage (Figure 1). It was done to remove the projecting part of alar cartilage. It was marked and performed in such a manner that atleast 6 mm strip of cartilage was preserved to prevent weakening of external nasal valve. Interdomal sutures were taken to refine the tip (Figure 2). The tension and placement of stitches were modified to address any asymmetries of the nasal tip. The placement of interdomal sutures may increase the projection of the tip and hence re-assessment of the tip deprojection was done.

Figure 1: Cephalic trim.

Figure 2: Interdomal sutures.

If further deprojection was required additional manoeuvres were planned.

The next step was complete transection of lateral crural cartilage (Figure 3). The exact location of the transection was determined according to the effect required. It is necessary to create an adequate submucosal pocket around the proposed incision of the cartilage to allow the overlap. After transection cartilages were allowed to overlap and at this juncture the tip rotation was addressed around the new pivot point created at the overlap.

Figure 3: Transection of medial crura.

Assessment was done for adequacy of deprojection achieved and if more deprojection was required next step was performed which was complete transection of medial crura (Figure 4). It was planned just at the junction of intermediate and medial crura. After the transection, the residual cartilage was allowed to overlap. Usually a 2 to 5 mm of deprojection can be achieved through this step.

The overlapping segments of cartilage were sutured back together to create medial pillar with PDS 5.0. Care was taken to knot the stitch in between the cartilages to prevent the exposure.

Columellar graft and alar alar grafts were utilised if additional support was considered essential to achieve a stable tip.

Results

All the patients were followed for 6 months to 3 years post-operative period. All patients were satisfied with the outcome.

Figure 4: Transection of lateral crura.

Figure 5

Discussion

Alteration of projection of nasal tip is a complex problem which at times demands sacrifice of nasal tip support mechanisms. Several different techniques have been described by various surgeons over the years. Joseph first described a transverse resection of cartilaginous dome following which Goldman introduced his method

of truncation of dome [7]. These techniques were prone to contour irregularities. Rees described transection of medial and lateral crural cartilages proximal to dome with cut ends left to overlap [8].

Later on surgeons shifted to more cartilage conserving surgeries and emphasis shifted on to various suture techniques [9]. This has led to development of various techniques to address the de projection to choose from.

It is important to assess the true nature of the deformity. There are several objective methods to assess the projection [2] but none is truly revealing. Goode's index is the most commonly used criteria for this purpose, but it does not consider the height of nasal dorsum, so it is left for experience of surgeon to make a judicious assessment.

It has to be emphasised that the true nature of nasal tip in three dimension has to be carefully analysed before contemplating any procedure.

Several manoeuvres are described for de projection which often violates the tip support mechanisms so one should not be over zealous to attempt all the procedures. We think that the approach to de project the tip should be a gradual and incremental in nature as it is difficult to predict the final outcome after each alteration. After performing each step its adequacy should be assessed and the next step should be added accordingly.

Conclusion

We suggest that the approach to de project the tip should be a gradual and incremental in nature as it is difficult to predict the final outcome after each alteration. After performing each step its adequacy should be assessed and the next step should be added accordingly.

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