

## Tip rhinoplasty – A modified delivery approach\*

Rui Xavier

Hospital da Arrábida, Porto, Portugal

### SUMMARY

**Introduction:** For many cases of tip surgery a delivery approach is selected. If the patient has long alar cartilages, it may be difficult to deliver the cartilages without twisting or tearing the domes. In such a patient, a modified delivery approach may be easier to perform.

**Methods:** For the modified delivery approach a transcartilaginous incision is first made and cephalic resection of the alar cartilage is performed. Then a marginal incision is made, and the remaining alar cartilage is dissected and easily delivered. After both alar cartilages being delivered, they are compared, and, if necessary, further resection is done in order to achieve perfect symmetry or to achieve the desired size of the cartilages. The cartilages may then be grafted, sutured or modified as considered necessary.

**Results:** We have been using the modified delivery approach for the last five years and we have had no complications of the technique itself. Two patients operated on by using this approach are presented.

**Conclusion:** We believe that, in patients with long alar cartilages and a wide nasal tip, this modification turns the delivery approach into an easier and safer approach.

*Key words:* delivery approach, nasal tip, rhinoplasty, surgery, nose

### INTRODUCTION

The tip of the nose plays an important role to the facial aesthetic balance; it is also quite important to a proper nasal functioning. When performing tip surgery, many modifications of the cartilages can be planned, but these are usually achieved by using one of the three standard approaches: the non-delivery approach, the delivery approach or the open approach<sup>(1)</sup>.

The non-delivery or cartilage-splitting approach is very suitable to achieve minor modifications of the nasal tip, such as moderate tip rotation or an improvement in tip definition<sup>(2)</sup>. This approach involves only one incision, a transcartilaginous incision, causing almost no interference to the mechanisms of tip support<sup>(1)</sup>.

The delivery approach allows more delicate tip work, such as intradomal or transdomal suturing, but is more traumatic than the non-delivery approach. Two incisions are needed for this approach: an intercartilaginous and a marginal incision. After the cartilages are delivered, they are free to be easily modified<sup>(2)</sup>. This approach is often used to correct bifidity or asymmetry of the tip, to achieve extra tip rotation or to change tip projection<sup>(1)</sup>.

The open approach uses a marginal incision and an external (columellar) incision. The big advantage of this approach is the superb visual control of every structure of the tip in its natural position that it allows<sup>(1,3,4)</sup>. Any modification of the cartilages can be performed and the result may be easily assessed. The open approach allows maximal exposure of the tip, improving

diagnosis and facilitating correction of gross deformities<sup>(5,6)</sup>.

The drawbacks of the open approach are the extra time necessary for the approach and for closing the incisions, the external scar that it produces, which may be of concern for some patients, and the interference that this approach causes to the mechanisms of tip support<sup>(2,4)</sup>, often being necessary to reinforce this support at some stage of the procedure.

These are, briefly, the three standard approaches for tip rhinoplasty. As a rule, the simplest approach that allows the intended modifications to be performed is selected, to cause the least disturbances to the tip support<sup>(1,4)</sup>.

When performing tip surgery, it is often necessary to resect a piece of the alar cartilages to improve tip definition, sometimes combining this procedure with other techniques, such as intradomal or transdomal suturing, scoring or morselization of the cartilages<sup>(6)</sup>. The delivery approach is very appropriate for this goal<sup>(2)</sup>. It is usually quite easy to deliver the alar cartilages, to resect an appropriated sized piece of cartilage and to continue with the other intended modifications.

If the patient has long alar cartilages, it is usually more important to the final result to perform cephalic resection of these cartilages. In this kind of tip, it may be difficult to deliver these long alar cartilages without twisting or tearing the dome areas. The dome segment is usually the most thin and delicate portion of the entire alar cartilage<sup>(7)</sup>, and any weakening of this portion may endanger the strength of the cartilage and, indeed, of the nasal tip. When planning surgery, the open approach

may be chosen to overcome this; however, if the open approach is not necessary for any other reason, a modified delivery approach may be used, turning the exposure of the tip cartilages easier.

## PATIENTS AND METHODS

### *Surgical Technique*

For the modified delivery approach a transcartilaginous incision is first used in each side of the nose. The exact amount of cartilage to be resected may be difficult to assess at this stage, so care must be taken to leave an appropriated sized cartilage caudal to the incision (Figure 1). The cephalic piece of the alar cartilage is dissected free in the vestibular and non-vestibular sides and resected (Figure 2). This procedure is repeated in the opposite side. Then a marginal incision is made (Figure 3), and the remaining alar cartilage is dissected in the non-vestibular side and easily delivered (Figure 4). After the same procedure is performed in the opposite side, both alar cartilages are delivered and compared. At this stage of the procedure, it is easy to assess the size of the remaining alar cartilages; if necessary, further resection is done again in order to achieve perfect symmetry or to achieve the desired size of the alar cartilages (Figure 5). The cartilages may then be grafted, sutured or modified as considered necessary to achieve a good functional and aesthetic result (Figure 6). At the end of surgery, both transcartilaginous and marginal incisions are closed with an absorbable suture material.

## RESULTS

We have been using the modified delivery approach for the last five years and we have had no complications of the technique itself. Two patients operated on by using this approach are presented in Figures 7 - 10.

Patient 1 (Figures 7 and 8) is a 31 year-old woman with a dorsal hump, bilateral alar retraction, under rotated tip and bifid tip with long alar cartilages. A modified delivery approach was used, with cephalic resection of the alar cartilages, interdomal suturing, introduction of alar batten grafts bilaterally (autogenous septal cartilage) and hump removal with nasal bones infraction by using medial oblique and lateral intranasal osteotomies. Preoperative and postoperative photographs of this patient are shown in Figures 7 and 8.

Patient 2 (Figures 9 and 10) is a 43 year-old man with crooked nose, saddle deformity of the pyramid, deviated tip and alar flare on the left side. A modified delivery approach was used, with cephalic resection of the alar cartilages, domal and interdomal suturing, medial oblique, intermediate and lateral intranasal osteotomies and alar base wedge resection on the left side. Preoperative and postoperative photographs of this patient are shown in Figures 9 and 10.

## DISCUSSION

A large proportion of patients seeking for rhinoplasty will benefit from nasal tip surgery. This may involve major surgery for cor-



Figure 1. A transcartilaginous incision is first used in each side, taking care to leave an appropriated sized cartilage caudal to the incision.



Figure 2. The cephalic piece of the alar cartilage is dissected free in the vestibular and non-vestibular sides and resected.



Figure 3. A marginal incision is made in each side.

rection of gross asymmetries or deformities of the tip cartilages, usually achieved by using the open approach. For most patients, however, the nose will benefit from performing slight modifica-



Figure 4. The remaining alar cartilage is dissected in the non-vestibular side and easily delivered.



Figure 5. Both alar cartilages are compared and, if necessary, resected again in order to achieve perfect symmetry.



Figure 6. The other modifications planned, such as intradomal or transdomal suturing, are then performed.

tions in tip rotation or projection, from correcting a bifid or boxy tip or from improving tip definition. This can be achieved by using an endonasal approach, usually a delivery approach.

In some of these cases, patients have long alar cartilages, and these are difficult to deliver, sometimes even with medially and laterally extended standard incisions. In these patients, we believe that the delivery approach may be easier to perform by using a modification of the approach.

We have been using this modification of the delivery approach for the last five years. In the earlier cases, we used this modified delivery approach only for patients with long alar cartilages and wide or bifid nasal tip. We felt that this kind of tip required performing cephalic resection of the alar cartilages and, at least, transdomal suturing. We felt that this modification could make the delivery of long cartilages easier and safer, as the domes would not be under tension or under a twisting strength at any stage of the procedure. In the more recent cases, we started using this approach for most cases of refinement of the nasal tip, as long as this involved more than just cephalic resection of the alar cartilages. Thus, we have been using the modified delivery approach in almost every case that we would, otherwise, be using the standard delivery approach.

The concept behind this modification is combining the non-delivery approach and the delivery approach in the same procedure. Thus, the delivery of the alar cartilages is performed in two steps: the first step is resecting a cephalic piece of the cartilages; the second step is delivering *only* the remaining alar cartilages.

The exact amount of cartilage to be resected may be difficult to assess at the first step, so it is crucial to leave an appropriated sized cartilage caudal to the transcartilaginous incision. At the second step, after the delivery of the remaining alar cartilages, these are easily assessed and compared. Further resection of the alar cartilages may be performed at this stage of the procedure, in order to achieve perfect symmetry or to achieve the desired size of the cartilages.

By using first a transcartilaginous incision and then a marginal incision to deliver the alar cartilages, we are combining the simplicity of the non-delivery approach and the capacities of the more powerful delivery approach.

#### CONCLUSION

When performing tip rhinoplasty, it is often necessary to perform cephalic resection of the alar cartilages to improve tip definition, sometimes combining this procedure with other techniques, such as intradomal or transdomal suturing, scoring or morselization of the cartilages. This may be achieved by using the standard delivery approach but, if the patient has long alar cartilages, these may be difficult to deliver without twisting or tearing the dome areas, thus endangering the strength of the cartilages.

A modified delivery approach may be a way to overcome these dangers, facilitating the exposure of the tip cartilages. This modified approach, using a transcartilaginous and a marginal



Figure 7. Preoperative and postoperative photographs of patient 1: dorsal hump, bilateral alar retraction, and long alar cartilages.



Figure 8. Preoperative and postoperative photographs of patient 1: dorsal hump, bilateral alar retraction, and long alar cartilages.



Figure 9. Preoperative and postoperative photographs of patient 2: crooked nose, deviated tip and alar flare on the left side.



Figure 10. Preoperative and postoperative photographs of patient 2: crooked nose, deviated tip and alar flare on the left side.

incision, combines the simplicity of the non-delivery approach and the capacities of the delivery approach.

We have been using this modified delivery approach for several years, in patients with long alar cartilages and a wide nasal tip. We believe that, in this kind of tip, this modification turns the delivery approach into an easier and safer approach.

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Rui Xavier  
 Rua Aristides Sousa Mendes, 210  
 4150-088 Porto  
 Portugal

Tel: +351 968021860  
 Fax: +351 226106378  
 E-mail: rjxavier@iol.pt