



# Defining the Asian Nasal Tip: Principal Tips for an Ideal Tip

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## Surgical Techniques

Refining the nasal tip is a key step in achieving an attractive nose in Asian rhinoplasty. The nasal tip is generally approached as a separate entity of rhinoplasty, owing to tip mobility and animation. The main goal of surgery should be to create a defined, stable and properly projected tip, which is symmetric and balanced with the face; but outcomes are uncertain in rhinoplasty. Hence, maintaining the stability of the nasal tip continues to be one of the more challenging aspects of functional and aesthetic rhinoplasty [1]. Moreover, correcting the cosmetic deformity of the nose is not the only issue a surgeon has to deal with; the airway function of the nose has to be maintained as well.

Although tip surgery may seem like a simple operation as it involves such a small area, the factors that should be considered are tip rotation, projection and definition. Tip-plasty may become one of the most challenging aspects of Asian nose surgery.

For precise nasal tip surgery, using autologous grafts are recommended. The major case studies in the literature document the reliability of cartilage grafts, which are recognized as easy to shape and resistant both to infection, and to resorption [2,3]. The use of costal cartilage can prove to be more complex and may also present weakness of the donor region. The septum and the auricular cartilage serve as important graft materials for the tip. The ease of harvest, the absence of softness and visible scars in the donor region, and the large amount of tissue available unquestionably constitute the basic reasons for this preference [4].

In this paper, we have discussed the key points to achieve a natural looking nasal tip, whilst retaining proper airway, and also discussed some vital steps which can be useful to avoid postoperative complications.

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## A Natural Appearing Tip Projection

### Caudal septal extension graft (CSEG)

The tip surgery in Asian rhinoplasty needs an adequate support from the caudal septum with a CSEG. Usually this is fashioned from the septal cartilage graft in a triangular or trapezoidal shape. The septal cartilage is flat in shape and has less chance of warping, It is placed in the midline, between bilateral medial crura and is fixed to the caudal septum in an end-to-end fashion or it can be overlapped over the caudal end of the septum (depending on the strength and resilience of the remaining septal cartilage). End-to-end fixation is more likely because the septal cartilage in Asian nose is relatively weaker and limited. This maneuver can secure the CSEG at the midline position compared with the overlapping fixation one. Splint grafts are used on bilateral sides to fix the dorsal septum with the CSEG. We found it to be unnecessary to divide the Upper Lateral Cartilages (ULC) with dorsal septum in order to place the splint grafts for fixation if there is no dorsal deviation. This can maintain the cartilaginous dorsum stability without separating the ULC from the dorsal septum and shorten the surgical time. The CSEG is fixed near the Anterior Nasal Spine (ANS) without deviation. We have to be careful not to fix it too close to the ANS, to avoid postoperative discomfort or upper philtrum crease formation, which may be apparent on smiling and could be cosmetically unappealing. It is paramount for bilateral medial crus of Lower Lateral Cartilage (LLC) to be sutured to CSEG in symmetry to prevent tip deformity or nostrils asymmetry (Figure 1).

### Columellar strut (CS)

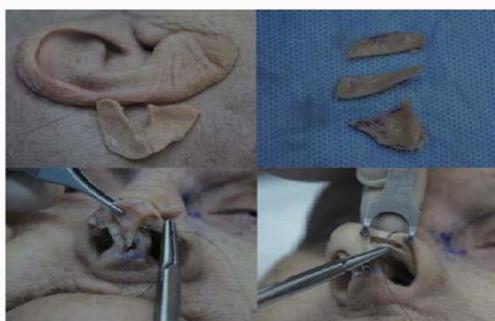
It is usually fashioned from the septal cartilage. We generally use the CS when the CSEG is not sufficient for tip definition. About a 2 mm × 10 mm to 12 mm sized septal cartilage is placed between the divided medial crura of bilateral LLC and close to anterior nasal spine (Figure 2).



**Figure 1:** The caudal septal extension graft is sutured to the caudal septum (overlapping fixation) and fixed with bilateral splinting grafts at the midline position (the upper lateral cartilage is separated from the dorsal septum showing in this case).



**Figure 2:** A columellar strut is sutured between the bilateral medial crura with 4-0 catgut through nasal septal mucosa or 6-0 PDS through crural cartilage. (Cadaveric illustration).



**Figure 3:** The auricular cartilage is carved into a mushroom tip shield graft which is sutured to the caudal margin of medial crura with 6-0 PDS.

**Tip shield graft (TSG)**

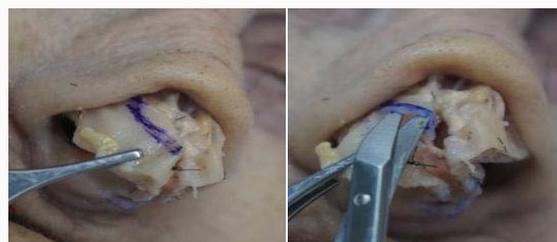
We prefer using the auricular cartilage, owing to its natural contour. It is carved into a mushroom-shaped like tip shield graft and inserted between the medial crura of LLC and fixed with symmetric sutures. The favorable lateral curvature of columella has to be maintained using the curved ear auricular cartilage tip-shield graft which is easier than the septal cartilage graft. It is crucial to carve and place the TSG in a way that there is no postoperative graft show, and it blends with the natural contour of the nose. We place the lateral crural onlay grafts combined with tip-shield graft to smooth the tip contour and prevent the depression at triangular area, near the intermediate crura. We avoid the use of multilayered tip shield graft, which might result in an unnatural looking bulky tip and columella (Figure 3).

**Vertical division of the lateral crura of LLC at its lateral two-thirds**

When in need of more tip projection and rotation, the lateral crura of LLC can be divided from its lateral one-third to its medial two-thirds. We prefer to do division at the lateral two-thirds of LLC, so as to not weaken the cartilage support too much. The underlying mucosa is dissected off and the cartilage (the medial 2/3<sup>rd</sup> of the lateral LLC) can be moved medially- caudally to enhance tip



**Figure 4:** A 5-0 PDS or Nylon is used for the dome binding suture to narrow the tip width.



**Figure 5:** The cephalic trim is cut off a strip of lateral crus about 2 mm to 3mm in width.

projection. Medial crura is fixed on CSEG and a auricular cartilage is placed under the two cut ends of lateral crura and sutured in place, to provide continuity and reinforce lateral crura of LLC. This acts as repositioning of LLC and helps to prevent deformity of tip contour.

**Domal sutures**

Dome binding sutures are done to reduce the flare of the lateral crura and form a new tip contour. It is difficult to get increase of tip height by doing the domal suture in Asian rhinoplasty without a strong CSEG support or tip grafting. While forming the new dome, one should keep in mind that it equals the height of the intermediate crura through symmetric sutures cephalically. This will minimize the possibility of following graft asymmetry or any tip deformity (Figure 4).

**Cap graft**

A layer or multiple layers of ear cartilage or septal cartilage can be placed on the dome on the intermediate crura to increase tip projection. This graft has been used only in some case because it can cause more chance of visible graft or graft migrating, too pointed tip or unnatural tip contour, especially in thin nasal tip skin cases.

**Preventing Alar or Internal Valve Collapse**

**Spreader graft (SG)**

The SGs are carved either from the septum or the rib (normally size in 20 mm to 25 mm × 2 mm to 3 mm), if harvested, to reconstruct the internal nasal valve and to correct the narrow middle vault. It is a relevant graft to correct alar collapse. But in cases of a wide middle vault width, saddle nose, and several revision rhinoplasties, where scarring is more apparent, it would be better to choose a safer graft, such as a dorsal onlay graft instead. SGs are placed between the cartilaginous dorsum and Upper Lateral Cartilages (ULC). A mattress suture fixation is used through the 5 layers of cartilages (ULC - SG - Septum - SG - ULC) for a sturdy support.

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### Lateral crura onlay graft

The auricular cartilage, usually the cymba concha is fashioned as the lateral crura onlay graft. Many may argue that an onlay graft may have the disadvantage of a graft show. But, due to the natural curvature of the graft chosen, combined with careful placement and suturing with the lateral crura of LLC, graft show is less apparent. This graft also can apparently smoothen the triangular area and prevents pinching of the rim when combined with a tip shield grafting.

### Cephalic trimming of the lateral crura of LLC

Usually, a width of 2 mm to 3mm of cephalic trimming is done to reduce the volume of the tip. We prefer to not excise the cartilage. Rather, after the incision, we preserve the cartilage, which provides more support and prevents middle vault collapse, causing upward rotation of the tip. This cephalic lateral crura act as a side wall framework support.

If required, only a tiny strip of cartilage, near the incision site, can be removed in a conservative manner; the core point in Asians is to release it from the underlying vestibular skin. LLC in Westerners is much stronger and bigger, compared to Asians, so a small volume of cartilage (2 mm to 3 mm) can be removed (Figure 5).

Cephalic trimming might not cause immediate postoperative complications, but as the face ages, there will be scaring and contracture of soft tissue and issues such as upward tip rotation can be seen.

## Preventing Supratip Deformities

### Buttress graft (BG)

Either auricular cartilage or septal cartilage can be placed behind the tip grafts to support the grafts and smooth supratip depression.

### Carving of anterior septal angle cartilages and removal of excess soft tissue conservatively

To prevent postoperative pollybeak deformity, one must make sure not to project the supratip (anterior septal angle) beyond the tip in the plane of the nasal dorsum. Excess soft tissue can be only resected conservatively in patients with very thick tip skin to prevent too much scaring contracture. Over projected anterior septal angle must be carved and lowered down, including either dorsal implants or grafts which desire the new anterior septal angle. It might be difficult and confusing to predict the postoperative supratip fullness during surgery, due to swelling of the nasal skin and soft tissue.

Although preventing the tip deformity depends a great deal upon the surgeon's experience, we can make sure during surgery that these concepts need to be kept in surgeon's mind, tip is not over or under projected, the LLC is not cephalically oriented or adjusted asymmetrically, and the caudal septal extension graft is placed precisely.

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