Nasal Tip Techniques (1): Tip Augmentation Techniques

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Tip Augmentation (Correction of Low Tip)

Most of the rhinoplasty performed in East Asians is to raise the nasal bridge and the nasal tip. However, what cannot be overlooked in tip plasty is that it is hard to obtain satisfactory results by merely increasing the height of the nasal tip. For successful tip plasty, not only the height of the nose tip is raised, but to achieve a natural and beautiful nose, the shape, width, and position of the nasal tip must be adequately maintained or changed. Therefore, the suture technique and the cartilage graft, which are the two most commonly used tools in nasal tip surgery, should be appropriately applied.

Suture Techniques

If the patient has well-developed alar cartilages, tip projection can be made by suture techniques alone. But most of the patients who want to get tip augmentation in the East Asian population have underdeveloped alar cartilages. Tip augmentation by suture techniques alone can be used in limited cases. In most instances, suture techniques and ear cartilage graft are used in combination. Although the suture technique is a valuable way to solve many problems in tip plasty, it has been undervalued and ignored a lot due to the complex algorithm and nomenclature that confuse us. To simplify the various suture techniques, it is classified into three categories by the three fundamental components of the nasal tip, the left and right alar cartilage, and the septum. The suture was classified into three types by dividing the left and right cartilage and the septum, which are the basic three components of the tip of the nose.

(A) Suture on each alar cartilage
- Transdomal suture
- Lateral crural mattress suture

(B) Suture between alar cartilages
- Interdomal suture
- Intercrural suture
- Lateral crural spanning suture

(C) Suture between septal cartilage and alar cartilages
- Medial crural septal suture
- Lateral crural septal suture
- Columellar septal suture

In using the suture techniques for tip plasty, several sutures can be used in combination. The precise location of the suture point and proper

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tension is very important to get a successful result. A 5-0 or 6-0 PDS or Nylon with a round or cutting needle can all be used according to the surgeon's preference. The method and function of each suture are as follows.

Transdomal Suture

Transdomal suture is a mattress suture at the dome area of each alar cartilage, which makes a more acute dome angle to get more tip projection and tip definition (Fig. 1). This suture also can be used for shifting the dome position cephalically or caudally to control the nasal tip position (Fig. 2). Overzealous narrowing of the dome angle can make pinched tip deformity and acute angle of nostril apex (Fig. 3). To avoid suture material exposure, injection of local anesthetics on underlying mucosa or undermining the underlying mucosa is helpful before suture placement (Fig. 4).

Lateral Crural Mattress Suture

This suture is for changing the convexity of lateral crura to correct the bulbosity and pinched deformity of nasal tip as well as asymmetrical convexity of lateral crura (Fig. 5).

Interdomal Suture

It is a suture between both domes for tip narrowing by decreasing the interdomal distance.

Intercrural Suture

The intercrural suture is a suture placed between both medial crura for stabilization of columella and tip support (Fig. 6b). The flaring angle of the medial crura can be controlled by modifying the location of the suture site. In East Asian people who need tip augmentation, the development of the medial crura of alar cartilages is often not enough to support the tip only by intercrural suture, resulting in distortion of medial crura over time (Fig. 7). A columellar strut instead of the intercrural suture is needed in most cases.

Lateral Crural Spanning Suture

It is a mattress suture between both lateral crura for narrowing of the tip and supratip area (Fig. 8). This suture also supports the nasal tip from the cephalic portion of the dome (Fig. 9). Overtightening of this suture may cause narrow and pinched tip deformity as well as retracted ala.

Medial Crural Septal Suture

This suture is performed between the medial crura and the caudal border of the septum for tip rotation, tip projection, and correction of hanging columella (Fig. 10). The degree of rotation, projection, and the correction amount of hanging columella can be controlled by the location and tension of the suture.

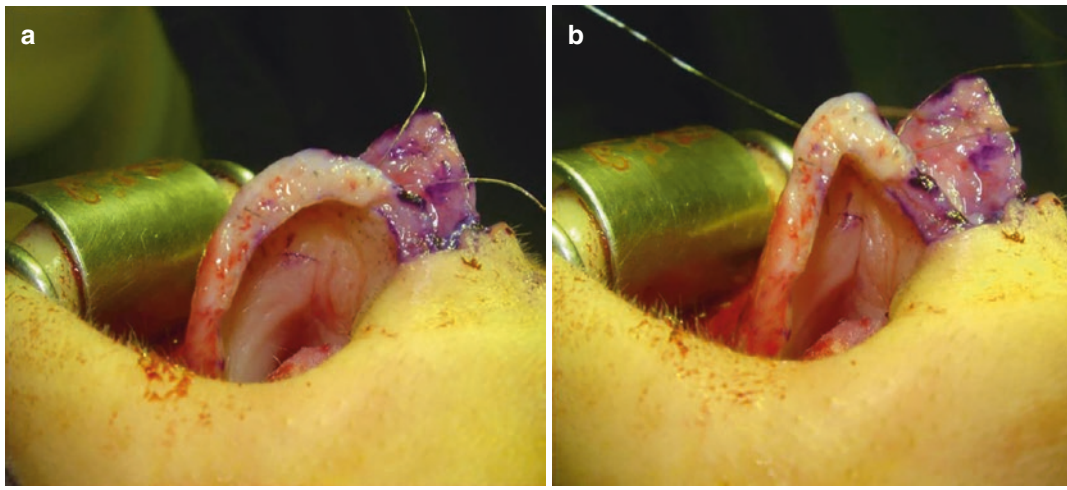
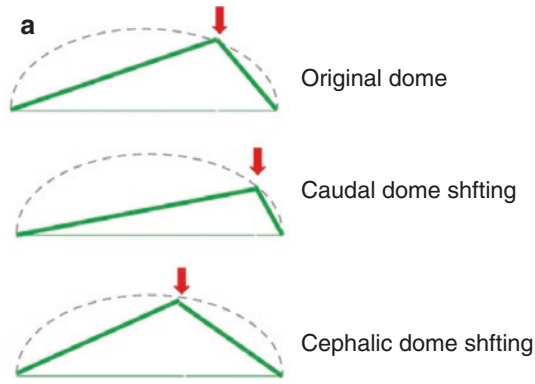
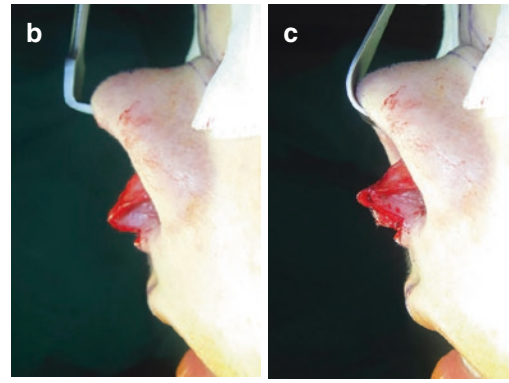


Fig. 1 Transdomal suture. The wide dome angle was narrowed. Before (**a**) and after (**b**) suture tightening





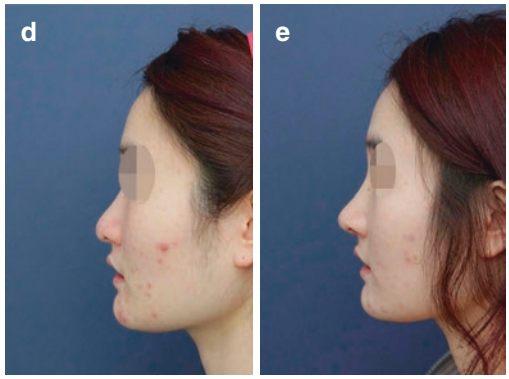


Fig. 2 Transdomal suture. Dome position can be shifted cephalically or caudally. (**a**) If the original dome position is caudally shifted, the tip height is lowered and elongated. If the dome position is cephalically shifted, the tip is projected and upturned. Before (**b**) and after (**c**) cephalic dome shifting using transdomal suture. The original tip (**d**) was upturned and projected (**e**)

Fig. 3 (**a**, **b**) Overtightening of transdomal suture causes acute dome angle

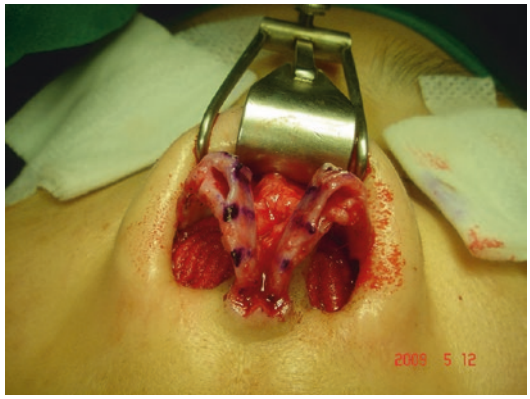


Fig. 4 Separation of underlying mucosa and vestibular skin before suture placement

Lateral Crural Septal Suture

This is a suture between lateral crus and septal dorsum for tip rotation or derotation.

- *Lateral crural septal suspension suture*

If this suture is placed with cephalically rotated alar cartilage, it is called lateral crural septal suspension suture, which makes the cephalic rotation of the tip (Fig. 11).

- *Lateral crural septal derotation suture (Tip extension suture)*

Fig. 5 Lateral crural mattress suture. (**a**) Concave Lt. later crus before suture. (**b**) Convex lateral crus after suture. (**c**, **e**) This patient had an asymmetric tip caused by left side pinching. (**d**, **f**) Postoperatively, she has a symmetric tip without pinching deformity

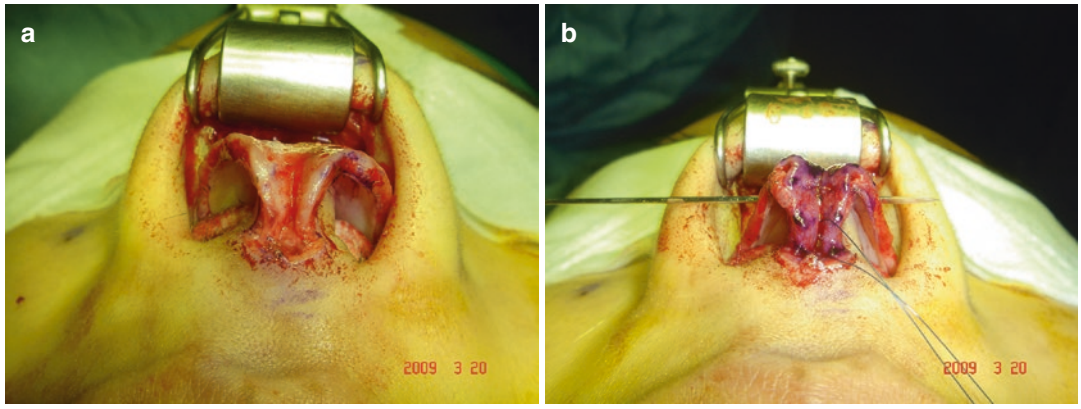


Fig. 6 Interdomal suture and intercrural suture. (**a**, **b**) Transdomal suture, interdomal suture, and intercrural suture narrowed the dome angle, interdomal distance, and intercrural space

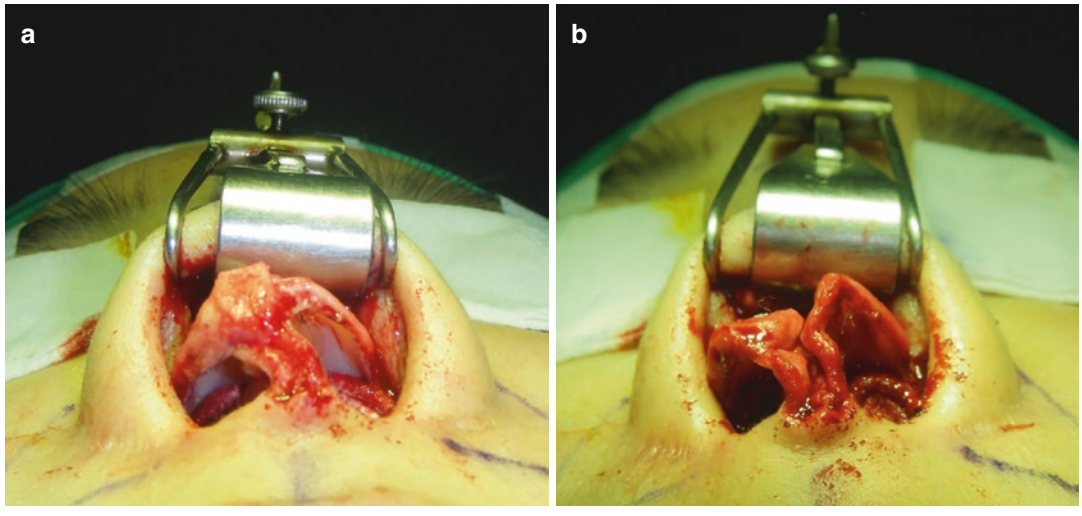


Fig. 7 Distorted medial crura (**a**, **b**). If alar cartilages are weak, only the suture technique cannot maintain the stability of the medial crura for tip support

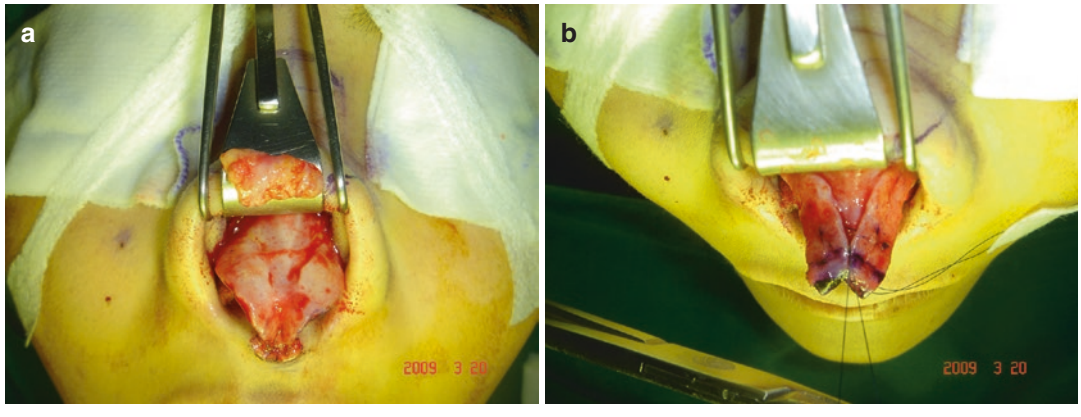


Fig. 8 Lateral crural spanning suture. (**a**, **b**) This suture narrows supratip and tip

Fig. 9 Suture technique for tip plasty. (**a**, **c**, **e**, **g**, **i**) The patient had a broad ill-defined tip. (**b**, **d**, **f**, **h**, **j**) Postoperatively, the tip was projected, narrowed, and more defined

Fig. 9 (continued)

If the suture is placed with caudally released alar cartilage, it is called lateral crural septal derotation suture, also known as tip extension suture, which moves the nasal tip in a caudal direction (Fig. 12).

Columellar Septal Suture

This is a modification of the medial crural septal suture. It is placed between the caudal border of the septum and columellar unit consisting of columellar strut and both medial crura (Fig. 13). The functions of this suture are the same as the medial crural septal suture, resulting in cephalic rotation of the tip, tip projection, and correction of hanging columella.

Ear Cartilage Graft

In general, three different autogenous cartilage can be used in nasal tip plasty: septal cartilage, ear cartilage, and costal cartilage. And for the methods, septal extension graft and columella

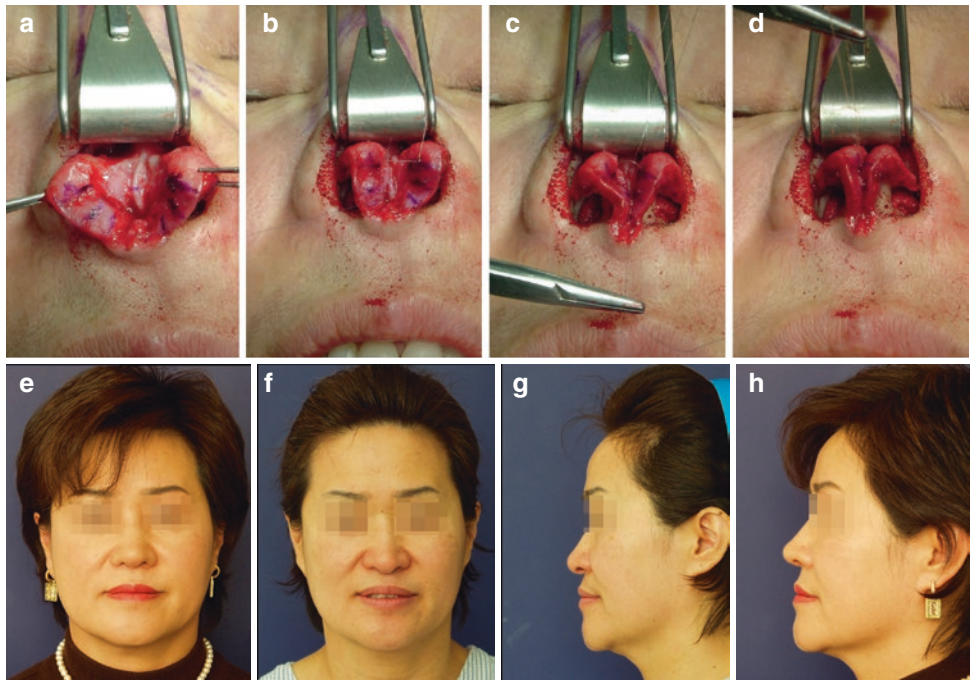


Fig. 10 Medial crural septal suture. (**a**, **b**) The medial crura of alar cartilages are sutured to the anterior septal angle and caudal border of the septum for suspension of the tip and columella. (**c**, **d**) Mediral crural septal suture is being tied. (**e**, **g**) This patient showed tip drooping and hanging columella. (**f**, **h**) Postoperatively, the tip was rotated and projected, and hanging columella was corrected

Fig. 11 Lateral crural septal suspension suture. (**a**, **b**) The cephalic borders of the lateral crura are sutured to the cephalic portion of the septal dorsum. (**c**, **d**) The patient's drooping tip was rotated and projected

strut are the two most commonly used techniques for tip plasty. We have to decide which method and cartilage to use for nasal tip plasty. Usually, septal extension graft with septal cartilage may be the most commonly used technique that enables tip projection and length control at the same time. Moreover, it is simple and easy to apply.

However, a septal extension graft has many possible shortcomings. First, the medial crura of the alar cartilage are fixed to the septal extension graft, which leads to an uncomfortably rigid nasal tip and columella, especially in cephalic direction, and subsequently results in unnatural facial animation (Fig. 14). Second, it is often difficult to harvest a sufficient amount of septal car-

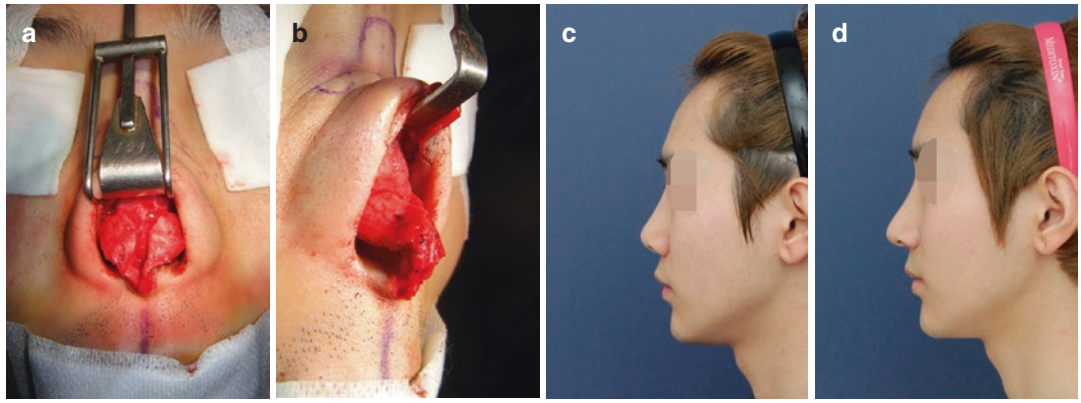


Fig. 12 Lateral crural septal derotation suture (Tip extension suture). (**a**, **b**) Caudally moved alar cartilages are fixed to the caudal dorsum of the septum. (**c**, **d**) A slightly upturned tip was downwardly moved

tilage from the noses of East Asians. Overzealous harvesting of septal cartilage may cause saddle deformity or deviation caused by weakening the remaining septal framework (Fig. 15). Third, in patients with a low tip or upturned tip and a prior septal extension graft using septal cartilage, a rib cartilage graft is the only viable option for additional tip lengthening and projection as it produces a relatively stiff nasal tip and leaves a chest wall scar. Fourth, a septal extension graft usually gathers the lateral crura to the midline, which, in turn, increases the possibility of a narrow, pinched tip and retracted ala. Fifth, it is hard to predict the amount of septal cartilage available accurately in preoperative planning.

The priority of our choice of material and method for tip augmentation is to provide a beautiful and natural nasal tip with fewer complications and less discomfort to the patients. The most protruding parts of the human face, the nasal tip and ears, are composed of elastic cartilage that is physically soft, flexible, and movable. They are less vulnerable to external forces. Considering these characteristics of the human face, we prefer suture techniques and ear cartilage graft in tip augmentation to make the nasal tip as soft as possible. Septal cartilage is used only in limited cases. To maintain natural physical properties, I try not to fix the alar cartilage to the fixed unit (bony and septal cartilage framework) with a rigid graft such as a septal extension graft or rigid structural graft preserving the function of the membranous septum for mobile and less rigid nasal tip.

To overcome the disadvantages of septal extension graft, we have devised a procedure called derotation graft, which uses ear cartilage. In the past decade, we have performed more than 1000 derotation grafts for tip plasty. This method makes possible accurate pre-/intraoperative estimation of the amount of ear cartilage to be harvested. The flexibility of the ear cartilage graft results in a less rigid nasal tip and avoids interference with the function of the membranous septum.

Surgical Techniques

Ear Cartilage Harvesting and Fabrication

The incision is made along the hidden area of the inner surface of antihelix using a separate incision on cymba area and cavum area to avoid a visible scar on the exposed area (Fig. 16).

The skin flap is elevated above the perichondrium on both anterior and posterior surfaces. For proper strength, both layers of the perichondrium were included in all grafts harvested from the ear. Two pieces of cartilage from cymba and cavum choncha are harvested (Fig. 17). To avoid auricle collapse, the bridge area between cymba and cavum concha must be saved at least 7–8 mm in width. The round shape of the cut edge is safer than the angular shape to prevent ear deformity (Fig. 18).

Fig. 13 Columellar septal suture. (**a**) An anchoring suture at the septal angle or caudal border of the septum is done for suspension. (**b**, **d**) Before tightening the suture. (**c**, **e**) After tightening the suture, the tip complex was moved up. (**f**, **h**) This patient had a long nose with a drooping tip. (**g**, **i**) Postoperatively, the tip is rotated and projected

It is recommended to harvest ear cartilage after exploring the nose, which allows for collecting just as much cartilage as you need. After wound closure of the donor site, a compressive dressing with Vaseline gauze and wet cotton is maintained for 1 week and replaced with a rubber-hard putty for 1–2 months to prevent ear deformity (Fig. 19).

The straight portion of the graft from cymba concha is used to make a double-layered columellar strut, and the remaining boat-shaped piece is used to make a derotation graft (Fig. 20). A

Fig. 14 (**a**) This patient shows an unnatural appearance with a rigid immobile tip caused by a septal extension graft with rib cartilage. (**b**) After removing the rigid rib graft and replacing it with the ear cartilage graft, her tip became soft, movable, and natural

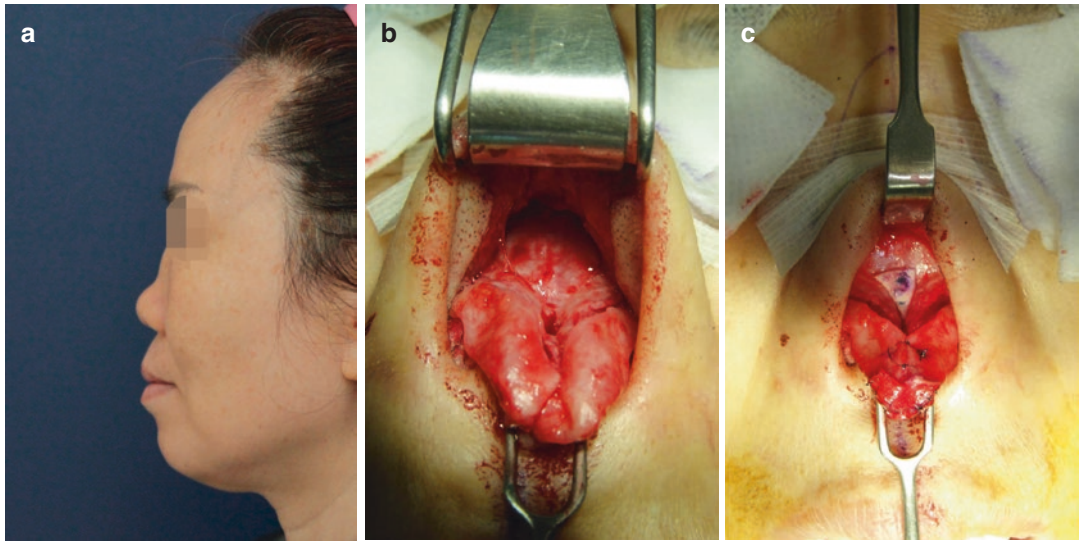
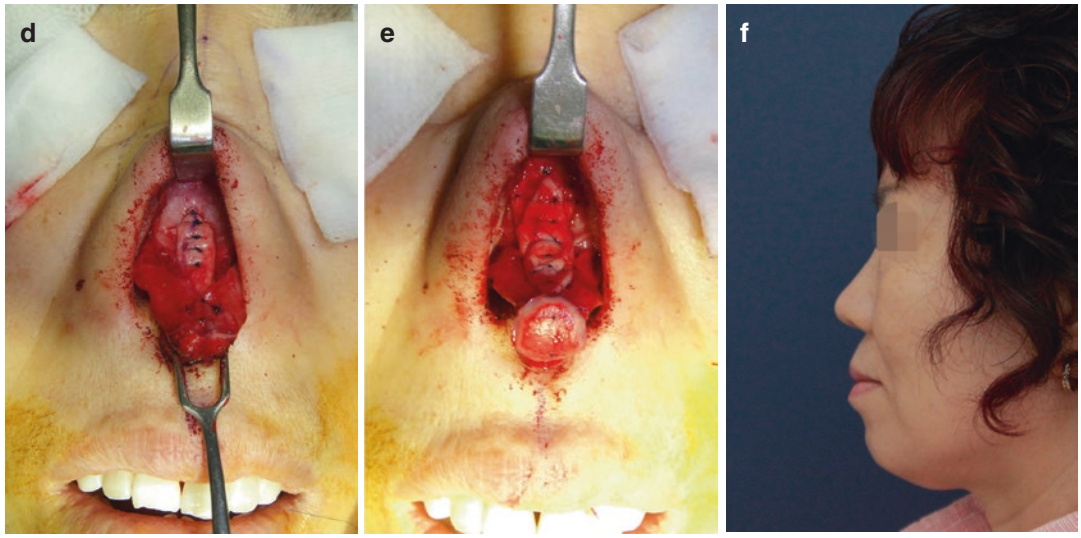


Fig. 15 (**a**) Saddling deformity caused by overzealous harvesting of septal cartilage. (**b**, **c**, **d**, **e**) In this old patient, it was corrected with ear cartilage grafts (multi-layered grafts on depressed area, columellar strut, derotation graft, tip graft) due to calcification of the rib cartilage. (**f**) As a result, she has a straight dorsal line



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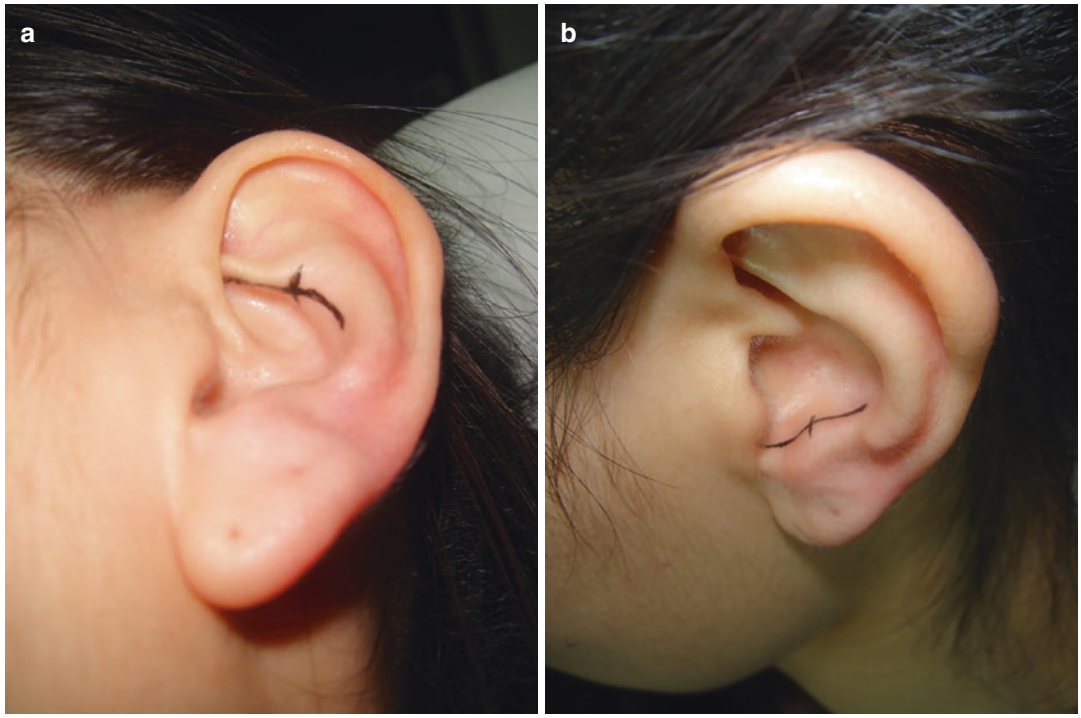

Fig. 16 Ear cartilage harvesting. (**a**, **b**) Separated incisions at the hidden area to avoid a visible scar

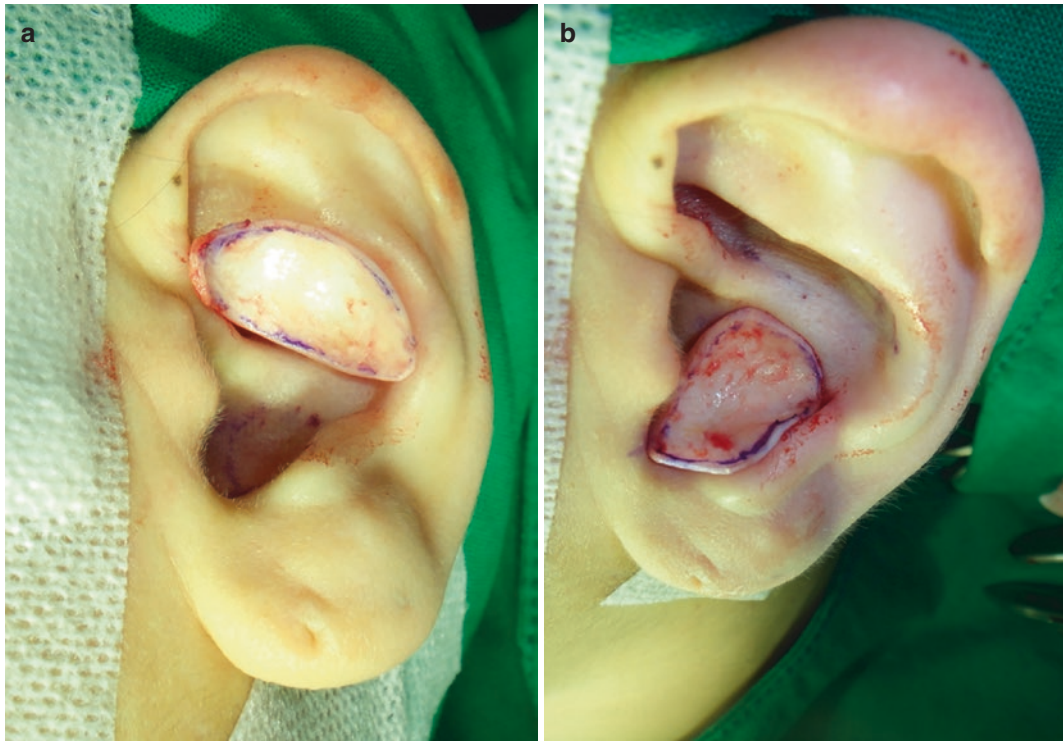

Fig. 17 Ear cartilage harvesting. (**a**, **b**) Two pieces of cartilage from cymba and cavum concha area

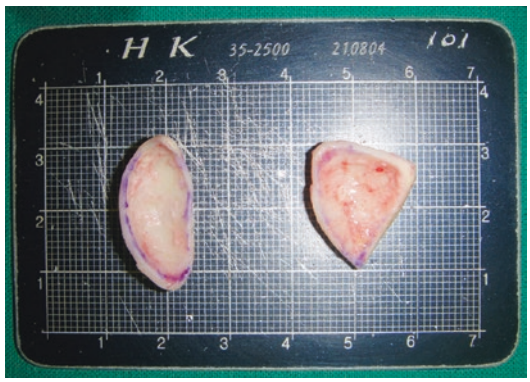

Fig. 18 Round shaped cut edge is safer for the stability of remaining cartilage at the donor site

graft from cavum concha can be used as onlay graft, shield graft, and additional derotation graft for tip plasty (Fig. 21).

Application of Cartilage Graft

Columellar strut

Two layers of mirror-imaged cartilage from cymba concha are sutured with several 6-0 PDS mattress sutures to make a bilayered columellar strut (Fig. 22). In most cases, it is used as a floating type to support and project the tip (Fig. 23). This columellar strut is also useful for correcting long nose and drooping tip (Fig. 24).

The amount of tip projection and cephalic rotation can be controlled by the length of the strut and the fixation point between the strut and medial crus. To correct pinched tip deformity, the columellar strut can be used as an umbrella shape for reinforcement of the dome of the nasal tip to correct pinched tip deformity (Fig. 25).

The deeper the pocket for this graft on the columellar base, the more columellar base retraction can be augmented and corrected (Fig. 26).

Fig. 19 (**a**) A compressive dressing for donor site with vaseline gauze and wet cotton packing for 1 week. (**b**) After 1 week, an ear mold with rubbery hard putty is applied for 2 months to minimize the ear deformity. (**c**, **d**) Cut a wedge out of the putty adjacent to the ear canal for hearing

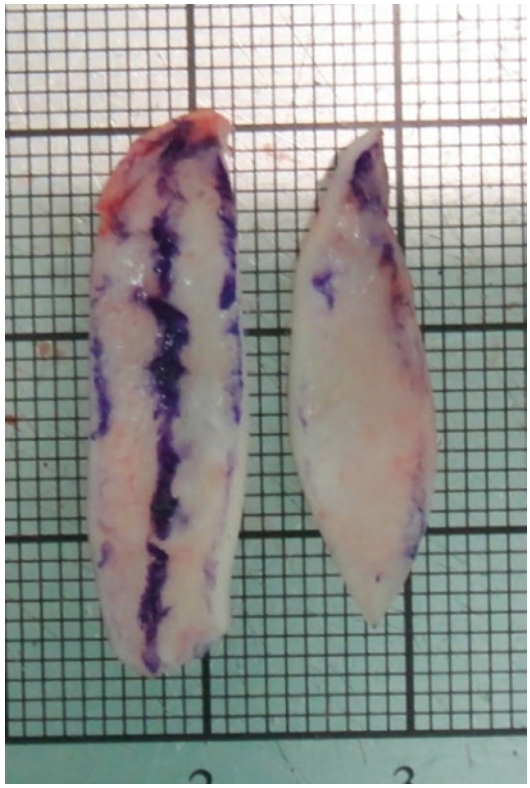

Fig. 20 Cartilage from cymba concha. The straight portion is used to make a double-layered columellar strut, and the remaining part is used to create a derotation graft

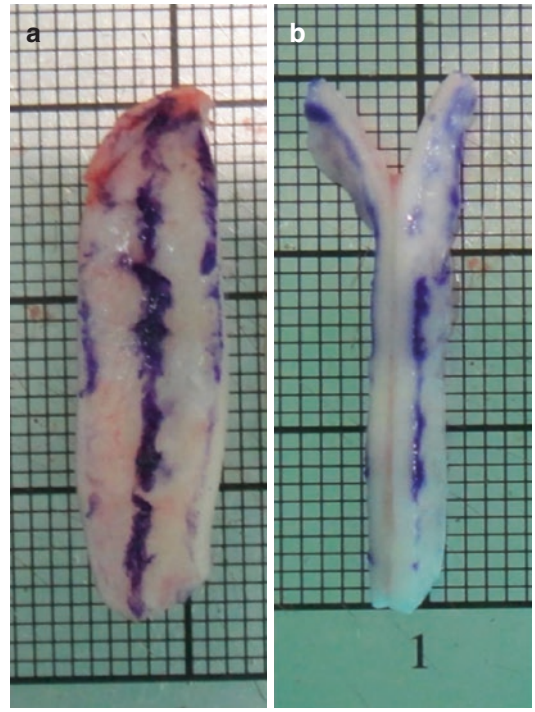

Fig. 22 Columellar strut. (**a**, **b**) Two layers of mirror-imaged cartilage are sutured together

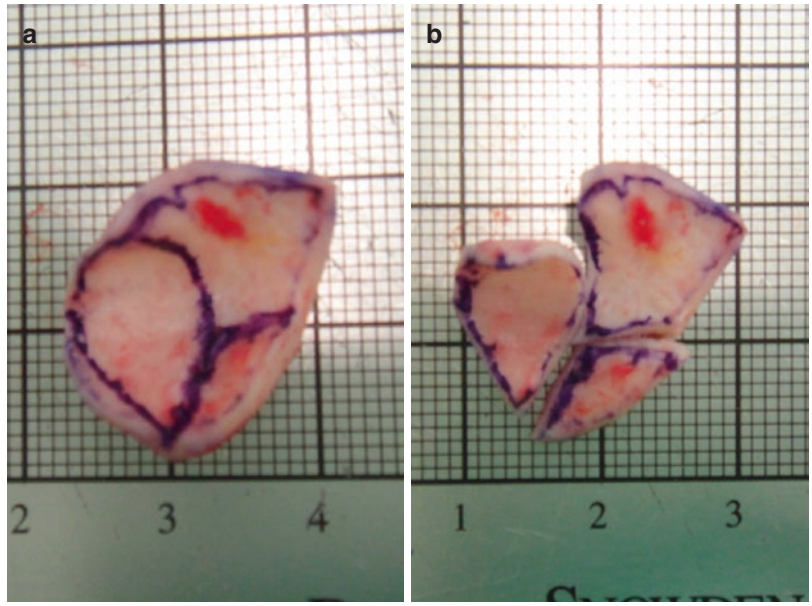

Fig. 21 Cartilage from cavum choncha. (**a**, **b**) This cartilage can be used for onlay graft, shield graft, or additional derotation graft

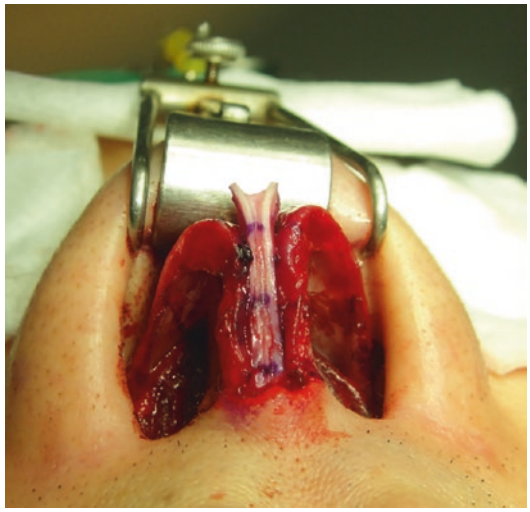

Fig. 23 This columellar strut between medial crura is used as a floating typed strut to support the tip

Derotation graft

Unlike septal extension grafts that can control the projection and length of the tip simultaneously, the tip projection with suture techniques and columellar strut tends to rotate the tip to the cephalad and require another graft or procedure to adjust the tip position.

Derotation graft is a piece of ear cartilage placed between the septal dorsum and lateral crura of alar cartilages, which is used for downward rotation of the nasal tip to control the tip position at the ideal location, minimizing the limitation of cephalic movability (Figs. 27 and 28). In addition to the caudal rotation of the tip in short nose correction, derotation graft also can be used for cephalic rotation of the tip as a tip suspension graft (Fig. 29). In patients with supratip depression, it is a useful graft to augment the

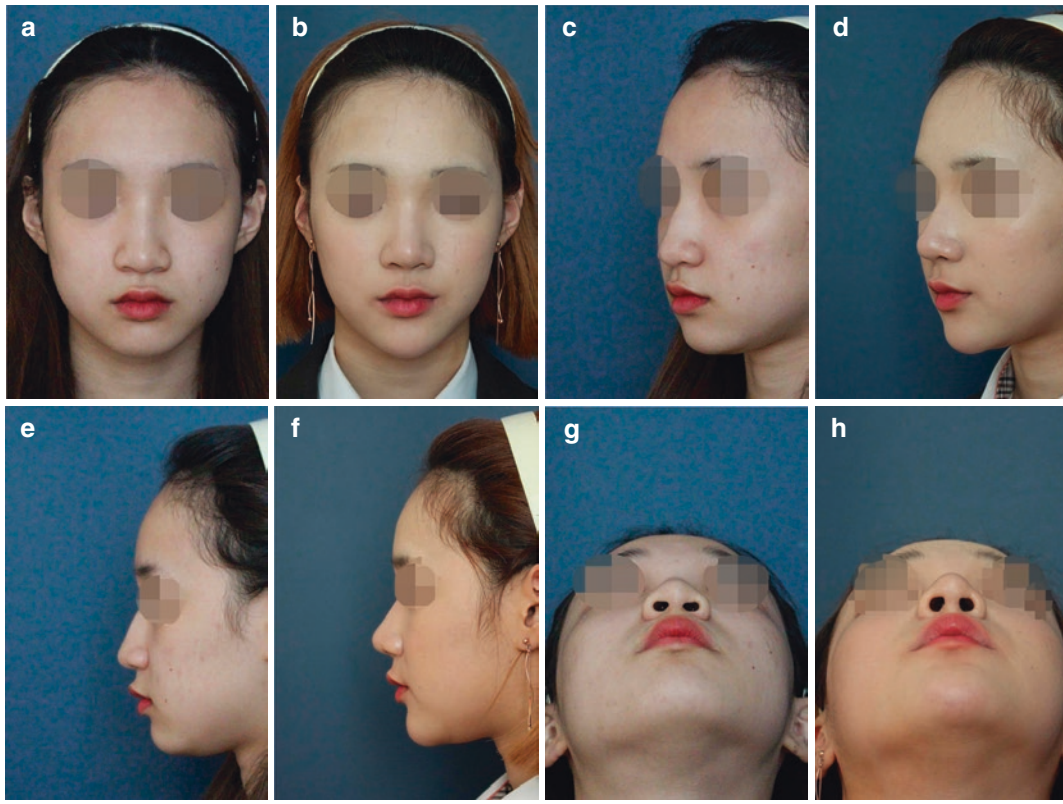

Fig 24 Tip plasty using columellar strut and suture technique. (**a**, **c**, **e**, **g**) This patient had a long nose with a broad drooping tip. (**b**, **d**, **f**, **h**) Postoperatively, she has a shortened nose with a well-defined, projected tip

Fig. 25 Umbrella-shaped columellar strut. (**a**) Too close interdomal distance and acute dome angle. (**b**) Widened interdomal distance and round dome angle. (**c**, **e**) This patient had a narrow, pinched tip and acutely angled nostril apices. (**d**, **f**) Postoperatively, she has a widened tip with natural round nostrils

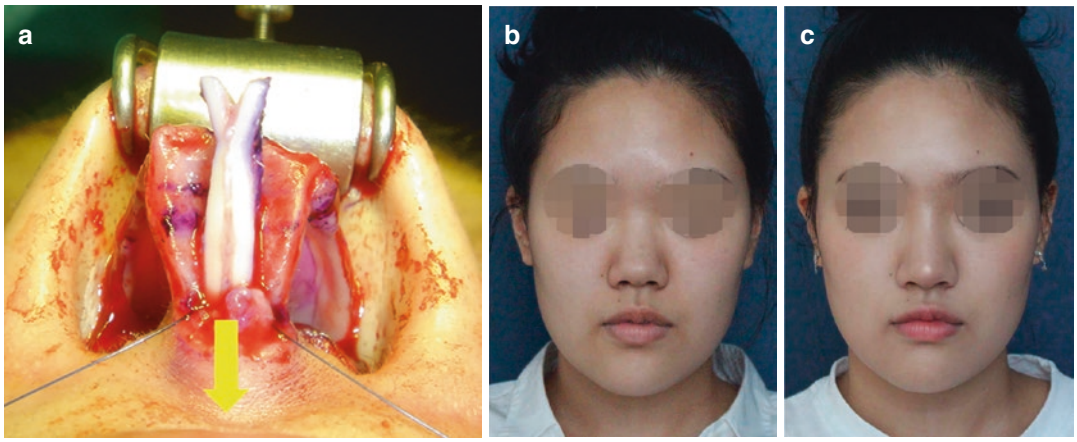

Fig. 26 (**a**) Long columellar strut for correction of the retracted columellar base. (**b**) This patient had a bulbous tip and retracted columella base. (**c**) Postoperatively, she has a well-defined tip and augmented columellar base

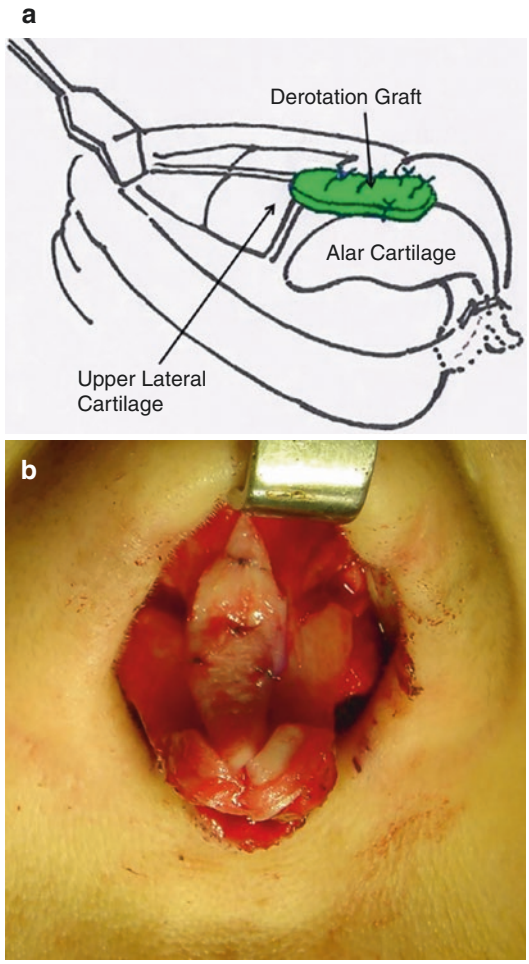

Fig. 27 Derotation graft is placed between the caudal portion of the septum and lateral crura of alar cartilages. (**a**) Schematic drawing. (**b**) intraoperative view

depressed area and adjust the tip position simultaneously (Fig. 30).

When applying the derotation graft, the height of the caudal septum is important. If the caudal septum is high, a reduction of caudal septal height will be needed in advance to prevent supratip bulging. On the contrary, when the height of the caudal septum is low, augmentation of this portion is required before setting a derotation graft. One of the most favorable aspects of derotation graft is that it can be modified as an alar spreader typed derotation graft for correction of narrow, pinched tip and retracted ala using a variety of sizes and shapes (Figs. 31, 32, and 33).

In cases with pinched tip caused by vertically oriented lateral crura, the fixation sutures between derotation graft with alar cartilage passed more laterally through lateral crura can lead to the splay effect of converting vertically arranged lateral crura to the horizontal arrangement (Fig. 34).

Additional tip graft

Compared to septal or rib cartilage, relatively soft and convoluted ear cartilage is more suitable for tip grafts such as only or shield grafts (Fig. 35). The margin of the graft must be carefully tapered and trimmed to prevent noticeability afterward. It is advisable to use a broader graft on the bottom when using it in multiple layers to prevent visible cartilage margin postoperatively.

Tip Lengthening (Correction of the Short Nose)

Lengthening the short nose is one of the most challenging procedures in rhinoplasty. The length of the nose is described as the distance between the nasion and the nasal tip. But the apparent nasal length is influenced by many other factors, including tip position, nasolabial angle, and convexity of profile dorsal line.

In the short nose with an upturned nasal tip, caudal rotation of the tip position is required. For caudal shifting of the nasal tip, three conditions must be satisfied. First, lengthening of the inner lining (nasal mucosa) and caudal movement of alar cartilages, second, maintaining the caudally moved alar cartilages, that is to say, lengthening of the cartilage framework, and third, lengthening of the skin and soft tissues to cover the extended skeletal framework without tension.

There are several techniques for maintaining downwardly relocated alar cartilages. Septal extension graft using septal cartilage may be the most frequently used technique. The derotation graft using ear cartilage, structural graft, or cantilever graft using costal cartilage and tip extension suture can also be applied. Each technique has its advantages and disadvantages. Among them, I will describe my preferred method using the derotation graft.

Fig. 28 (**a**) This patient had a broad ill-defined tip, short nose, and retracted columella. (**b**) Six years after the operation using ear cartilage as a columellar strut, tip graft, derotation graft, and silicon implant for dorsal augmentation. Postoperatively, he has a nose with a well-defined tip and proper length

Fig. 29 (**a**, **b**) Derotation graft can be used as a suspension graft for cephalic rotation of the nasal tip

Fig. 30 (**a**, **b**) The supratip depression was corrected by derotation graft

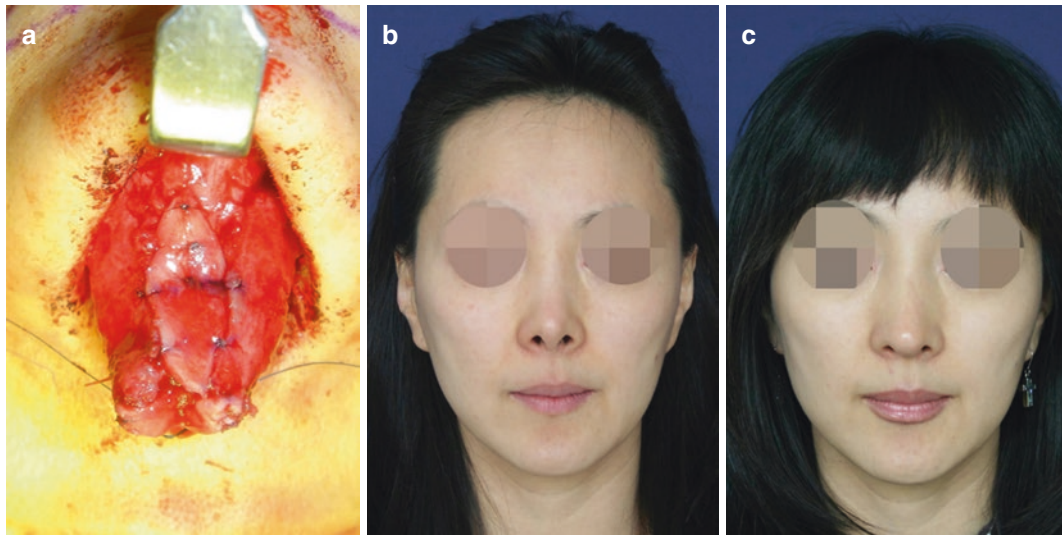

Fig. 31 (**a**) Derotation graft as an alar spreader graft. (**b**) This patient shows a narrow tip and short nose. (**c**) Her nasal tip was widened and downwardly moved using an alar spreader typed derotation graft with ear cartilage

Fig. 32 Modification of alar spreader typed derotation graft for correction of the medial type of retracted ala. (**a**–**d**) Retracted alar domes are released and moved in the lateral and caudal direction, and this new position is maintained with a modified alar spreader typed derotation graft. (**e**) This patient shows a narrow tip with a medial typed retracted ala. (**f**) Postoperatively, she has a widened tip without retracted ala

Surgical Techniques

Flap Elevation

The open approach is more suitable to obtain the maximum extension of the nasal length. In the primary cases, the degloving plane is supraperichondrial from the nasal tip to the cartilaginous vault, and subperiosteal or supraperiosteal over the nasal bones.

In the secondary cases with an alloplastic implant and/or adhesion between the skin and the scar tissue, a dual-plane dissection is performed.

The first plane is created between the skin and the underlying inelastic scar tissue to maximize the skin release for lengthening. The separation of the skin flap from the underlying scar tissue with tedious dissection is one of the most important steps for successful lengthening in secondary

Fig. 33 Intercartilaginous typed derotation graft for correction of the lateral typed retracted ala. (**a**) Umbrella-shaped columellar strut. (**b**) Intercartilagenous typed derotation graft and columellar septal suture at the base of columella. (**c**) Before the procedures, the lateral crus is retracted upwardly. (**d**) After the procedures, the lateral crus is caudally repositioned. (**e**, **g**, **i**) This patient had retracted ala, hanging columellar base, and short nose deformity. (**f**, **h**, **j**) Retracted ala, short nose deformity, and hanging columella were corrected

cases. The second plane is made between the alar cartilage and the scar tissue to allow for caudal rotation of the mobile unit structure. If dorsal augmentation was necessary, the first plane, surrounded by the vascularized tissue, is used for a dermofat graft. For a dorsum implant, a subperiosteal plane extended from the second plane is utilized (Fig. 36).

Fig. 34 Splaying effect of a wide derotation graft. (**a**) Vertically arranged lateral crura make a deep alar crease, it causes a pinching appearance. (**b**) A broad derotation graft has a splay effect on lateral crura, so convert vertically arranged lateral crura to the horizontal arrangement. (**c**, **e**) This patient had a bulbous tip with a pinching appearance caused by a deep alar crease and shows an hourglass appearance in submental view. (**d**, **f**) Postoperatively, the alar creases were shallowed, and her pinching appearance was disappeared

Caudal Release of Alar Cartilage

The soft tissue and ligamentous structure between the alar cartilages and the upper lateral cartilage are released using scissors, leaving the mucosal inner lining intact for a tension-free caudal rotation of the alar cartilages (Fig. 37).

If adequate caudal rotation could not be achieved, further dissection between the mucosa and the perichondrium beneath the upper lateral cartilages is attempted for additional lengthening. In secondary cases with a preexisting septal extension graft, the medial crura are released from the adherent scar on the membranous septum to allow for caudal movement. In either a severely retracted columella or an insufficient caudal advancement of the medial crura, a wide dissection is extended on the septal mucosa to facilitate the caudal release of the columella.

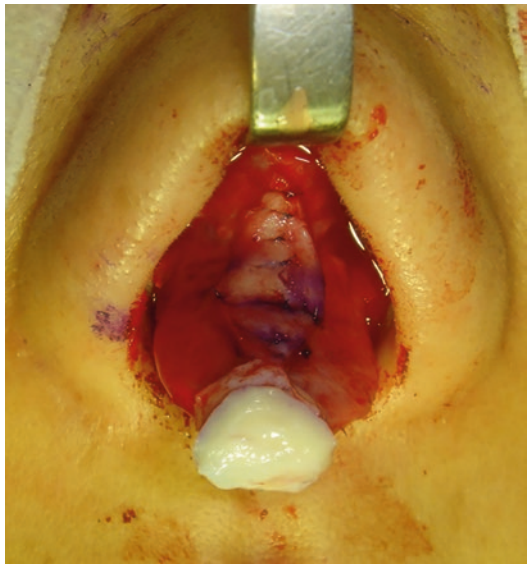

Fig. 35 Convoluted shape of the ear cartilage is useful for the tip graft as onlay graft, shield graft

Fig. 36 Dual plane dissection in secondary rhinoplasty for short nose correction. The skin flap and the cartilage framework must be separated from inelastic scar tissue for lengthening

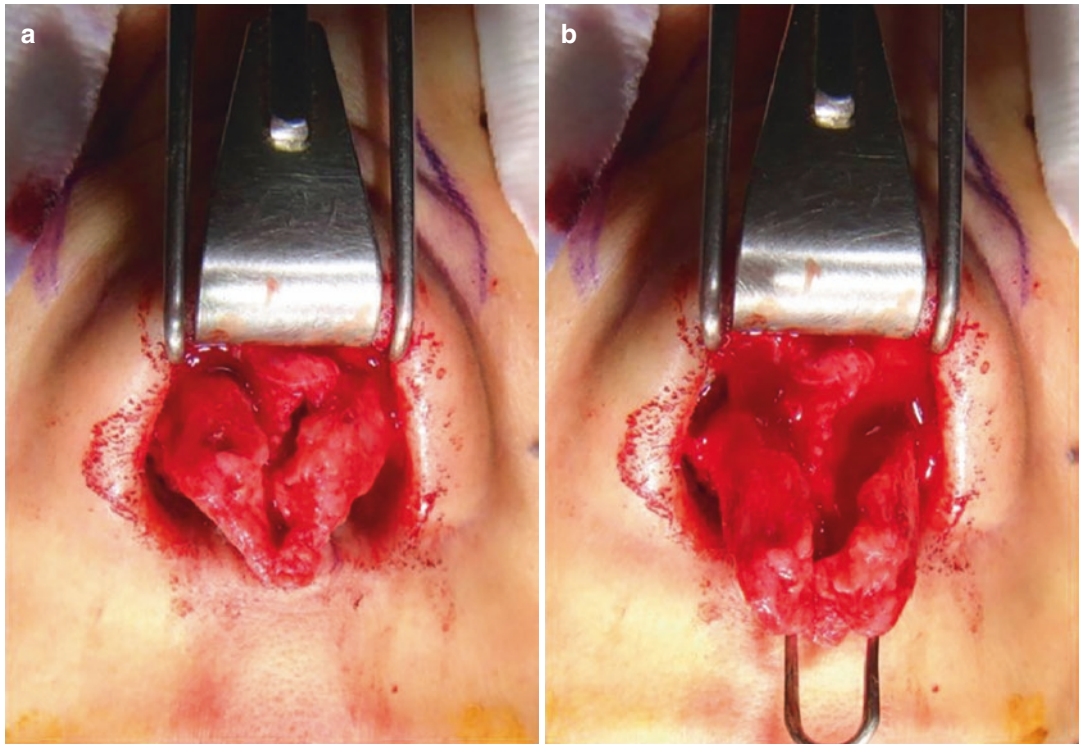

Fig. 37 (**a**, **b**) Alar cartilages were released from upper lateral cartilages and septum to move them caudally

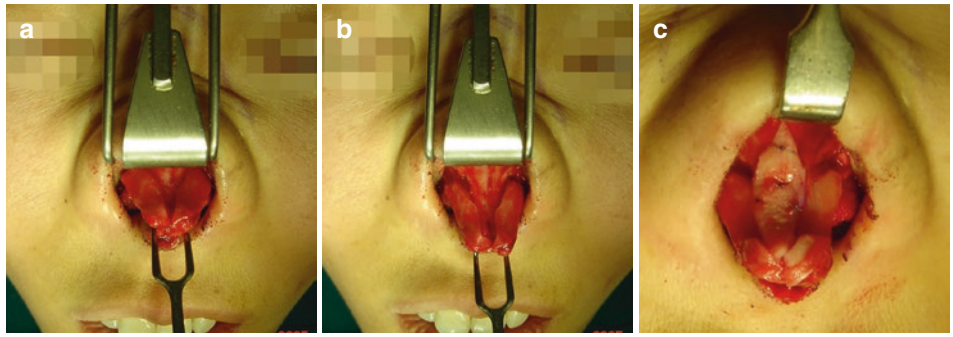

Fig. 38 Derotation graft application. (**a**, **b**) Alar cartilages are released from upper lateral cartilages and caudally moved. (**c**) Derotation graft was placed between the caudal portion of the septal dorsum and lateral crura of alar cartilages to maintain the new caudal position of the tip

Fig. 39 Derotation graft maintains tip length and tip movability. (**a**, **d**, **g**) This patient had severely contracted short nose deformity. (**b**, **e**, **h**) One year after the operation, using multilayered derotation graft, a columellar strut, dermofat graft for dorsal augmentation. This graft maintains nasal length. (**c**, **f**, **i**) This graft enables the tip movement without resistance

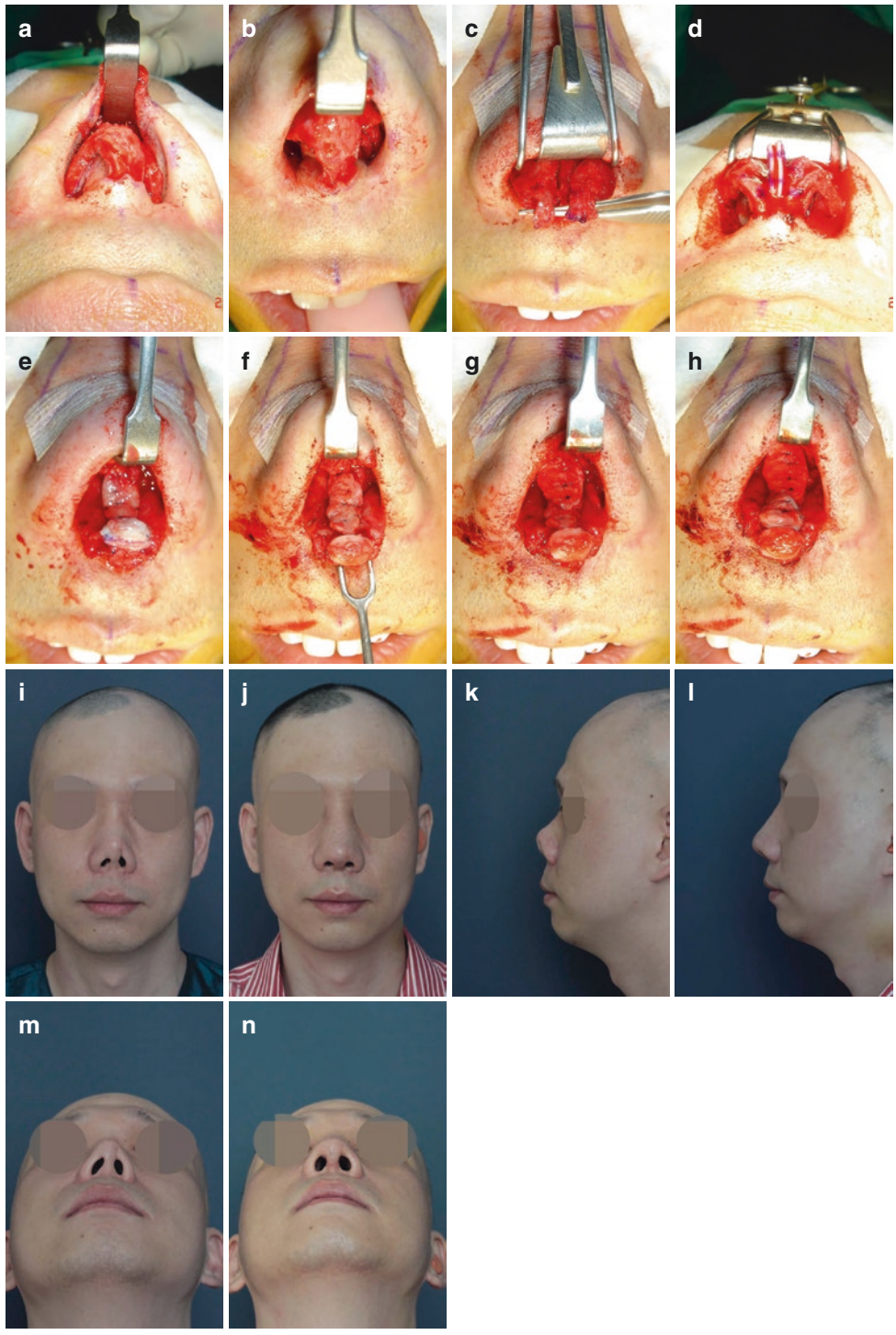

Fig. 40 Multilayered derotation grafts are used to correct the severe form of a short nose. (**a**, **b**) Alar cartilages were severely deformed and adhered to the surrounding scar tissue. (**c**) Alar cartilages were completely released from the scar tissue and upper lateral cartilages. (**d**) A columellar strut was used for tip support. (**e**, **f**, **g**) Alar cartilages were symmetrically rearranged at the caudal position and maintained with a multilayered derotation graft. (**h**) Dermofat graft was used for dorsal augmentation. (**i**, **k**, **m**) The patient had a severely contracted short nose deformity with asymmetric nostrils. (**j**, **l**, **n**) Postoperatively, he has a nose with normal length and symmetric nostrils

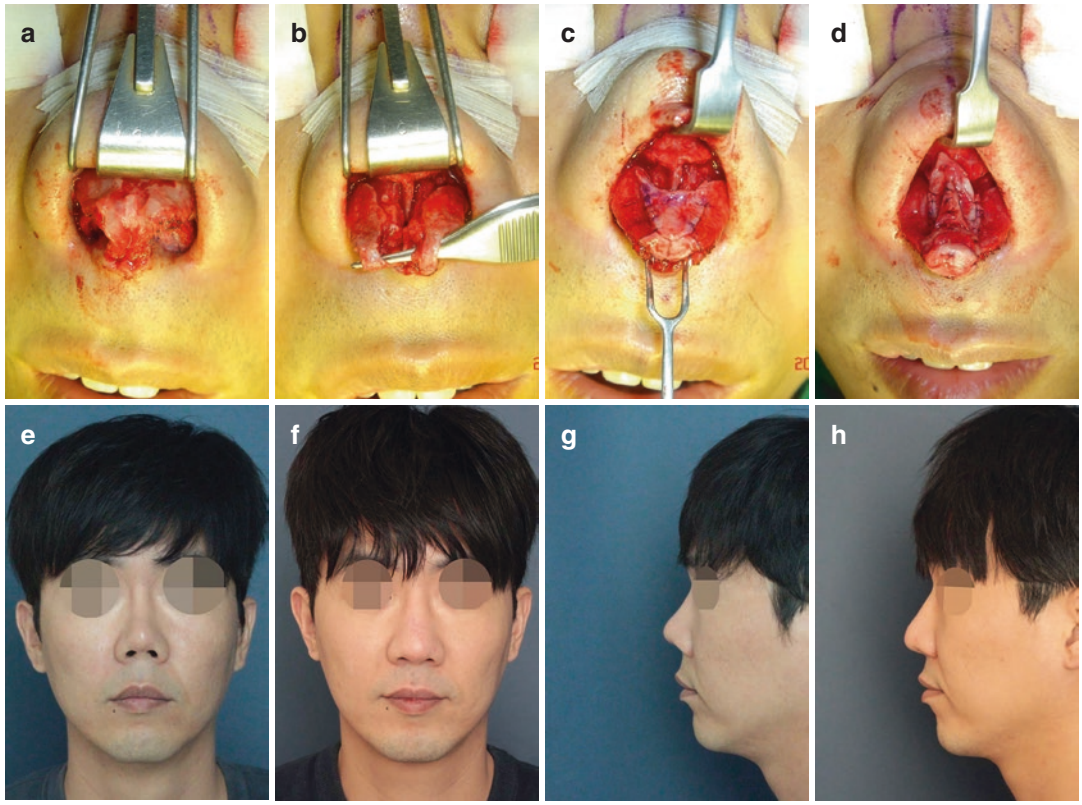

Fig. 41 Alar spreader typed derotation graft. (**a**, **b**) Alar cartilages were released from upper lateral cartilages and septum so these can be moved down easily. (**c**) A wide alar spreader typed derotation graft was used for widening domes and lateral crura. (**d**) This new position of alar cartilages was maintained with multilayered derotation grafts. (**e**, **g**) This patient shows a short nose, retracted columella, and pinched tip. (**f**, **h**) Postoperatively, he has a nose with proper length, well-expanded tip without pinching appearance, and no retracted columella

After all these release procedures, a sufficient release of the alar cartilage can be attained without the necessity of a composite graft. The complete release of both alar cartilages from the surrounding scar tissue with careful dissection not to injure the nasal mucosa is also a time-consuming and vital step to lengthen the inner lining resulting in caudal rotation of the nasal tip.

Fixation of Caudally Released Alar Cartilage

To maintain the nasal tip in a new caudal position, a supporting structure is needed in the gap between released alar cartilage and upper cartilage frameworks, such as septal cartilage and upper lateral cartilages. As mentioned in this chapter, derotation graft using ear cartilage is my preferred method and material in correcting the short nose. This flexible cartilage graft can maintain the alar cartilage at a new caudal position (Fig. 38).

Derotation graft between the dorsum of caudal septum and alar cartilages is a simple and very effective technique for maintaining the caudally repositioned nasal tip with movability in correction of the short nose (Fig. 39). If a piece of derotation graft is not strong enough to keep the tip position, more derotation grafts can be added for reinforcement (Fig. 40). When the short nose deformity is combined with a retracted ala or pinched tip deformity, a derotation graft can be used as an alar spreader graft (Fig. 41). In terms of tip projection, a derotation graft tends to lower the tip and is commonly used along with a columellar strut to maintain or project the height of the tip.

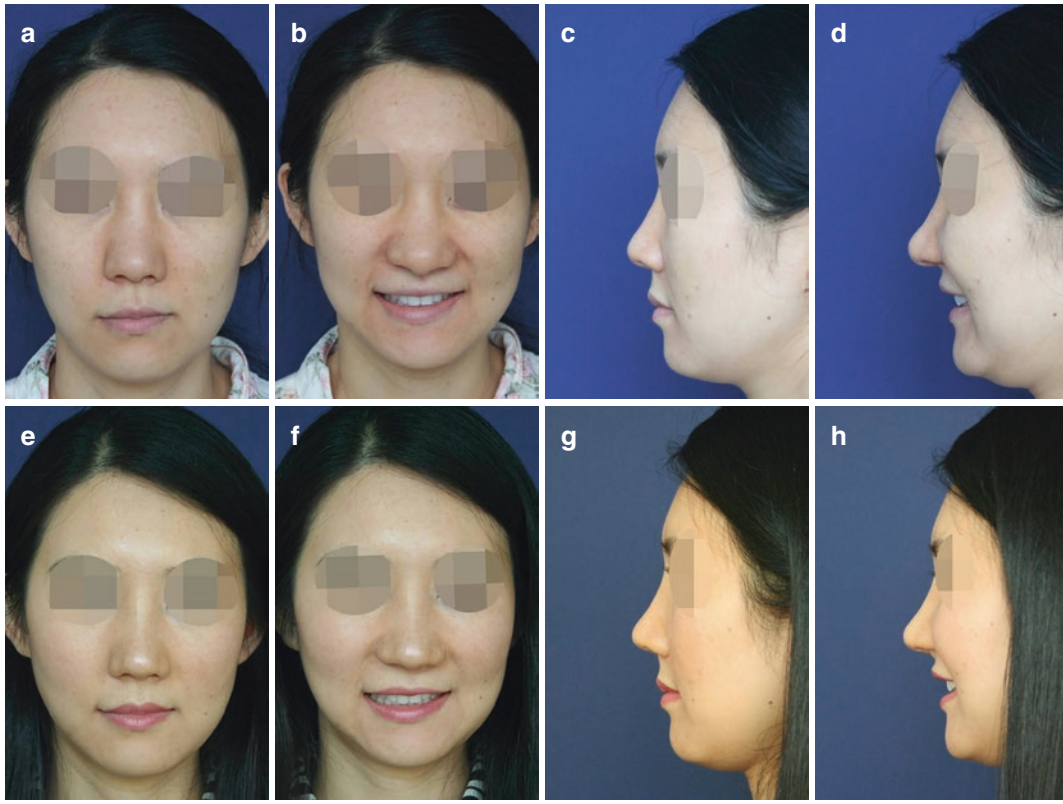

Fig. 42 Comparison between a rigid immobile tip and a soft mobile tip. (**a**–**d**) This patient underwent the septal extension graft, resulting in a rigid immobile tip resulting unnatural looking in animation. (**e**–**h**) After replacing the septal extension graft with a columellar strut and derotation graft using ear cartilage, the tip became movable, and she recovered her natural-looking in animation

Although a derotation graft is a very useful way of correcting a short nose, it also has its limitations in application. It is difficult to effectively elongate the nose if the caudal septum is considerably short and/or if the distance between the caudal septal margin and the new alar cartilage position is too far to allow the graft to bridge the gap, maintaining the tip elongation. Even if the tip lengthening is sufficient, the derotation graft cannot resist the tension after closure in patients with tight skin and a short septal length. Therefore, for patients with a short nose and severely retracted columella, a septal extension graft is necessary to appropriately push down the columellar base.

In patients having a short nose with a short septal length and/or severely retracted columella, a septal extension graft is a good solution, as it allows the dome to move caudally and pushes down the columellar base. Fixing the medial crura of the alar cartilages to a septal extension graft leads to an uncomfortably rigid nasal tip and columella, resulting in unnatural facial animation (Fig. 42).

Further, because of the relatively small and weak septal cartilage in the East Asian population, the under-correction of a short nose is not uncommon. To overcome these shortcomings, the combination of septal extension graft and derotation graft enables to avoid over resection of septal cartilage and help to maintain tip mobility (Fig. 43).

Fig. 43 Combination of septal extension graft and derotation graft. (**a**) Schematic drawing of combination technique. (**b**) Moderated lengthening of the septum. (**c**) A derotation graft was placed between the septal extension graft and lateral crura. (**d**, **f**, **h**) This patient shows a short nose and retracted columella. (**e**, **g**, **i**) Postoperatively, her nose was elongated, retracted columella was corrected, and she can maintain tip softness and movability

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