Contracted Nose and Difficult Complication Cases: My Preferred Technique

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The most common cause of contracted nose is chronic infection derived from remaining foreign materials, infected allograft, and rarely autograft. To prevent the aggravation of contraction is the removal of causing foreign materials. Definitive correction can be done at the same time as removal of causative materials in the case of the inactive infectious condition, but maybe delayed until scar maturation after removal of causative materials. My principle to correct the severely contracted nose or other challenging deformed nose is: disassembling the remaining every structure, and rearranging them at the ideal position, and reconstructing the defect components with a graft similar to the original structures, and maintaining the rearranged structure into the ideal position with autogenous graft with a similar physical property, therefore, that the tip mobility will have preserved in the post-operative state. Among the severely deformed nose, many patients may not be corrected at once, so they need a staged operation. Some patients need skeletal framework reconstruction first. In some patients whose skin envelop is extremely bad to reconstruct skeletal framework, skin envelope restoration is the priority. Sometimes, extension of the skin flap is limited, and we should wait quite a long time after the 1st stage of the operation to get more extension of the skin.

The cases in this chapter all underwent rhinoplasties before, and many of them had multiple surgeries.

Most of my preferred techniques and basic principle were described in detail in Chapters "Nasal Tip Techniques (1): Tip Augmentation Techniques" and "Surgery of Columella, Alar Rim & Alar Base".

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Case 1

Pre-operative Findings

Short nasal length, asymmetric nostrils, right retracted ala, low dorsal height, deviated columella, tip skin irregularity (Fig. 1a, b).

Intra-operative Findings

Symmetric and severely distorted alar cartilages, defect on right alar cartilage.

Operative Procedures

The skin flap was elevated from underlying scar tissue for skin extension (Fig. 2a).

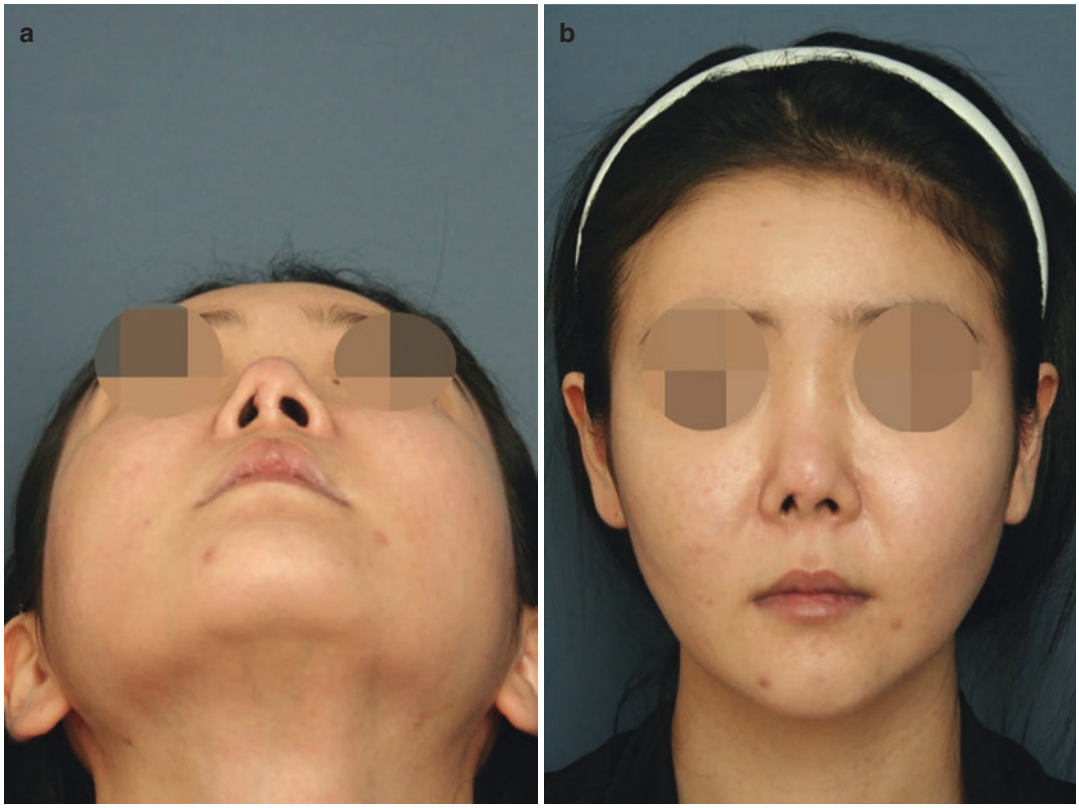

Fig. 1 A patient presents with short nasal length, asymmetric nostrils, right side retracted ala, low dorsal height, deviated columella, and tip skin irregularity

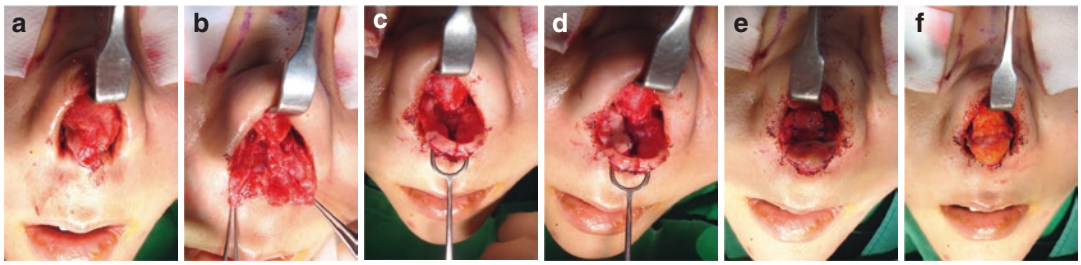

Fig. 2 Surgical procedures

Alar cartilage was released from scar tissue, upper lateral cartilage, and septum for a freely movable tip in the ideal position (Fig. 2b).

An umbrella-shaped columellar strut was used for the symmetry of the medial crura and dome area (Fig. 2c).

The defect portion of the right Lateral crus was covered with a conchal cartilage graft (Fig. 2d).

The position of rearranged alar cartilages was maintained with derotation graft (Fig. 2e).

Dermofat graft was used for dorsal augmentation, and dermis graft was done to restore tip skin thickness (Fig. 2f).

Pre-operative and Post-operative Photographs

(Fig. 3a, c, e, g and b, d, f, h)

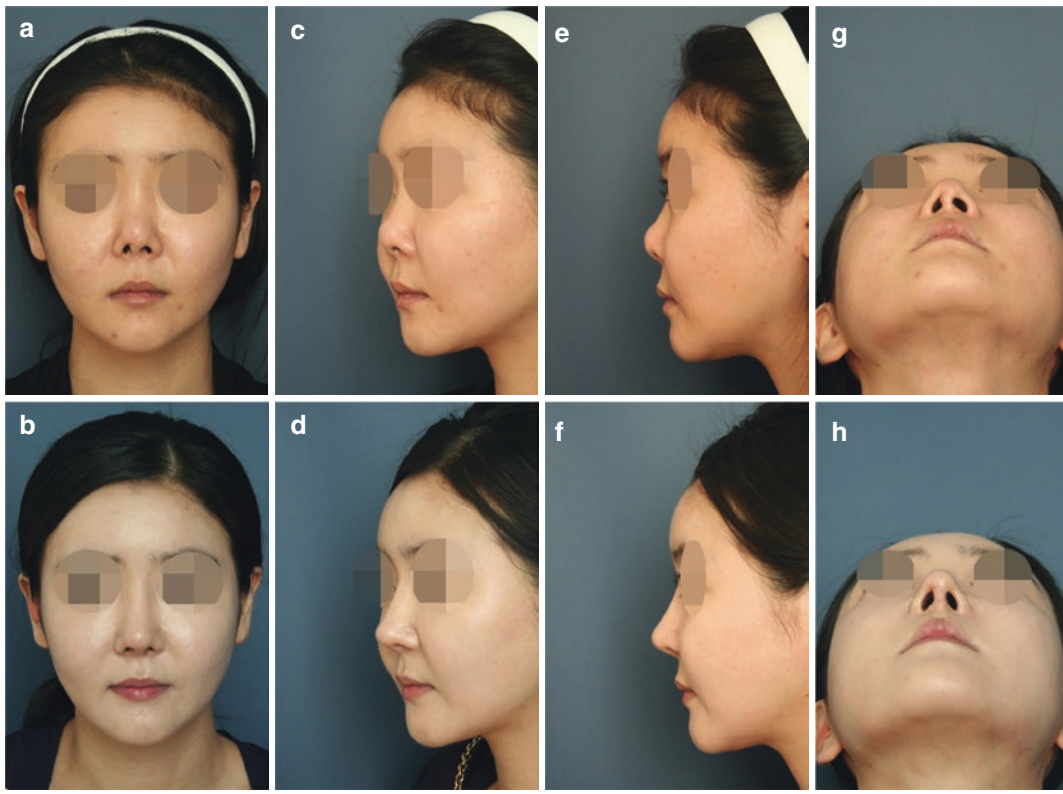

Fig. 3 Preoperative (**a, c, e, g**) and post-operative (**b, d, f, h**) views

Case 2

Pre-operative Findings

Short nasal length, retracted ala, thin tip skin over the implant, excessive nostril show (Fig. 4a–c).

Intra-operative Findings

L-shaped silicone implant (Fig. 5).

Cephalically located both domes and upwardly retracted alar rim.

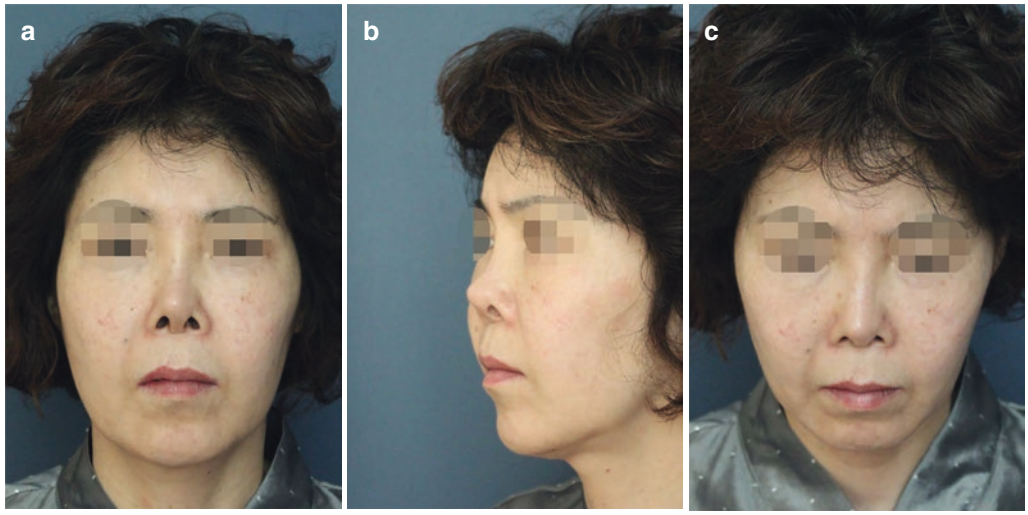

Fig. 4 A patient with short nasal length, retracted ala, thin tip skin over the implant, and excessive nostril show

Fig. 5 Previously used L-shaped silicone implant

Operative Procedures

The skin flap was elevated from the underlying scar tissue (Fig. 6a).

Silicone implant was removed (Fig. 6b, c).

Alar cartilage was released from the scar tissue, upper lateral cartilage, and septum (Fig. 6d, e).

Transdomal suture was performed on a more caudal portion of the alar cartilage, and downward reposition of the alar cartilage was performed (Fig. 6f, g).

Caudally rearranged alar cartilages were fixed with an umbrella-shaped columellar strut and multilayered derotation graft. Columellar septal suture was done on columellar base. Dermofat graft was used on dorsum and tip (Fig. 6h, i).

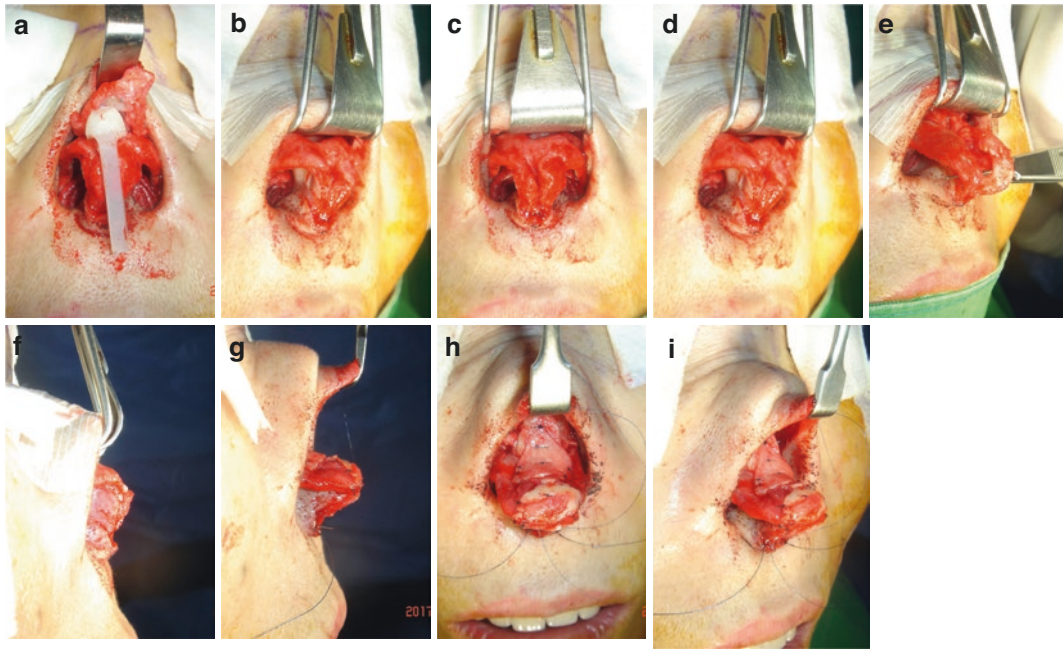

Fig. 6 Surgical procedures

Pre-operative and Post-operative Photographs
(Fig. 7a, c, e, g, i and b, d, f, h, j)

Case 3

Pre-operative Findings

Upturned tip, a severe form of the retracted columella, pinched tip, low nasal bridge, acute-angled nostril apex (Fig. 8a–d).

Fig. 7 Preoperative (**a, c, e, g, i**) and post-operative (**b, d, f, h, j**) views

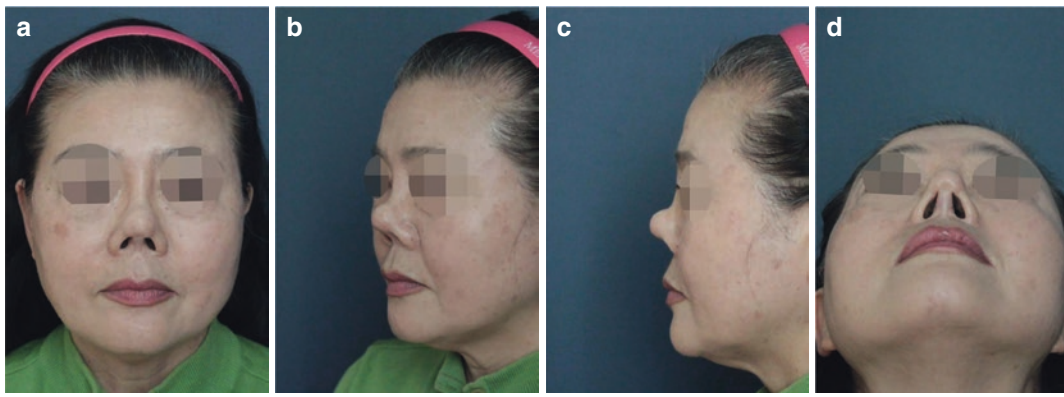

Fig. 8 A patient shows an upturned tip, severely retracted columella, pinched tip, low nasal bridge, and acute-angled nostril apex

Intra-operative Findings

Alar cartilages were poorly distorted, retracted upwardly, and intermingled with thick scar tissue. Some defects on the left lateral crus of the alar cartilage were found.

Operative Procedures

The skin flap was elevated from underlying scar tissue for an extension (Fig. 9a).

Alar cartilages are released from the scar tissue, upper lateral cartilages, and septum so that it can move downwardly without resistance (Fig. 9b, c).

The defect area on the left lateral crus was covered with ear cartilage (Fig. 9d).

Columella strut was performed (Fig. 9e).

The membranous septum was free from any solid material such as cartilage can be pushed up without resistance. Caudally repositioned alar cartilages were fixed with a double-layered derotation graft (Fig. 9f, g).

Dorsal augmentation was performed with a dermofat graft (Fig. 9h).

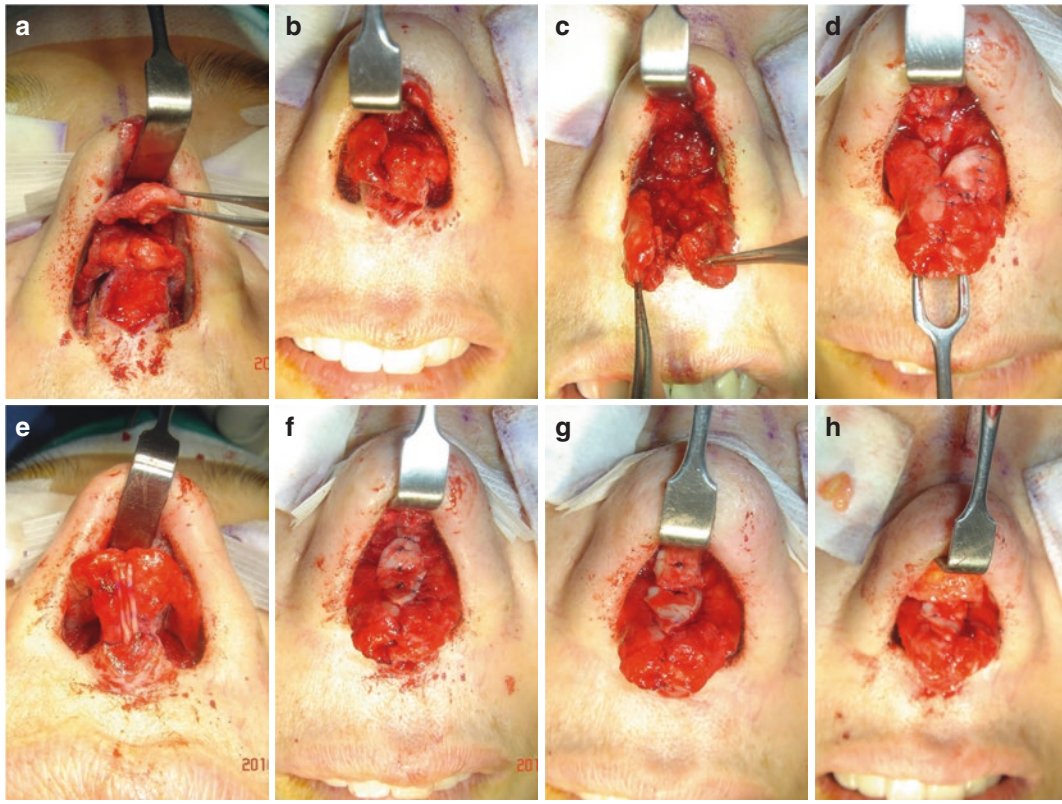

Fig. 9 Surgical procedures

Pre-operative and Post-operative Photographs
(Fig. 10a, c, e, g, i and b, d, f, h, j)

Fig. 10 Preoperative (**a, c, e, g, i**) and post-operative (**b, d, f, h, j**) views

Case 4

Pre-operative Findings

Short nasal length, severely retracted columella, low nasal bridge (Fig. 11a, b).

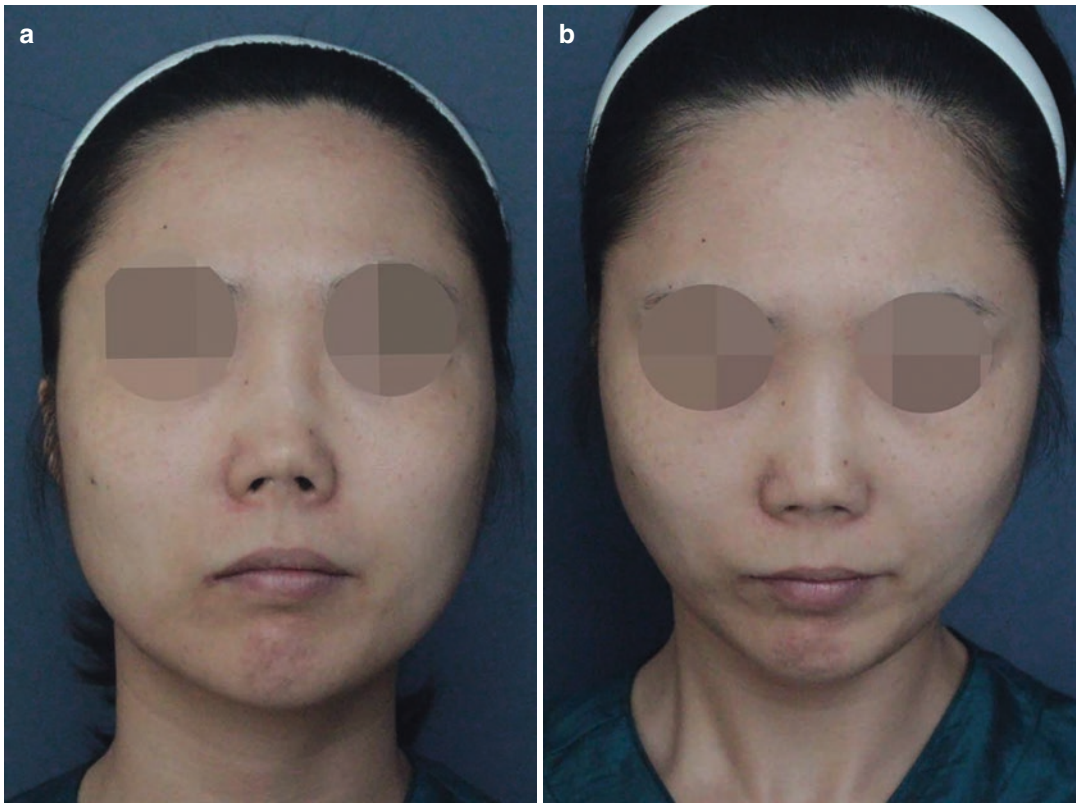

Fig. 11 A patient with Short nasal length, severely retracted columella, low nasal bridge

Intra-operative Findings

Alar cartilages were tightly adhered to each other and retracted upwardly by heavy scar tissue. Two layers of rib cartilages were found in the intercrural space as a columellar strut.

Operative Procedures

The skin flap was elevated from underlying inelastic scar tissue for skin extension (Fig. 12a, b).

Scar flap was elevated from the underlying cartilage framework (Fig. 12c).

Columellar strut with two layers of rib cartilage graft was removed (Fig. 12d).

Alar cartilages were released from each other, from upper lateral cartilages, and septal structures to move downwardly without resistance (Fig. 12e).

Umbrella-shaped columellar strut with two layers of the conchal cartilage graft was done (Fig. 12f).

One layer of derotation graft, two layers of onlay tip graft, and one layer of shield graft with conchal cartilage were performed (Fig. 12g, h, i).

Scar flap was redraped over derotation graft (Fig. 12j).

Dermofat graft was used on nasal bridge and tip (Fig. 12k).

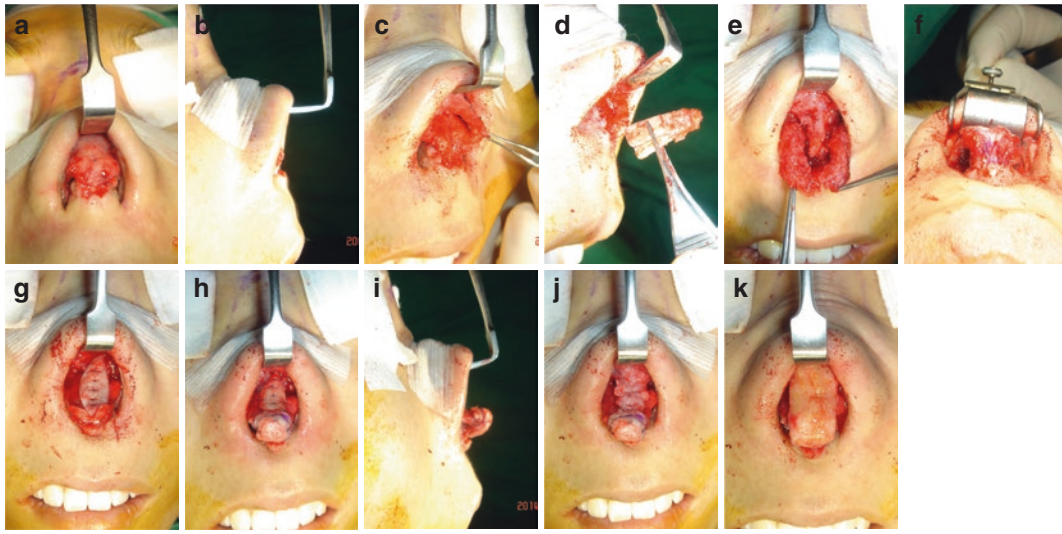

Fig. 12 Surgical procedures

Pre-operative and Post-operative Photographs
(Fig. 13a, c, e, g, i and b, d, f, h, j)

Fig. 13 Preoperative (**a, c, e, g, i**) and post-operative (**b, d, f, h, j**) views

Case 5

Pre-operative Findings

Short nasal length, retracted columella, retracted ala (medial type), pinched tip, low nasal bridge (Fig. 14a, b).

Fig. 14 A patient shows short nasal length, retracted columella, retracted ala, pinched tip, and low nasal bridge

Intra-operative Findings

Alar cartilages were upwardly retracted and densely adhered to upper lateral cartilages and septum. Medial crura also are densely adhered to the caudal border of the septum.

Operative Procedures

The skin flap was elevated from underlying scar tissue or skin extension (Fig. 15a).

Scar flap was elevated from the cartilage framework.

Each alar cartilage was isolated from scar tissue, and separated from upper lateral cartilages and septum to move downwardly without any resistance (Fig. 15b, c).

Umbrella-shaped columellar strut with conchal cartilage was used for tip projection and correction of retracted columella (Fig. 15d).

Three layers of derotation grafts were used for caudal rotation of the tip. Scar flap was redraped (Fig. 15e–g).

A folded dermofat graft from the sacral area was used for dorsal augmentation (Fig. 15h, i).

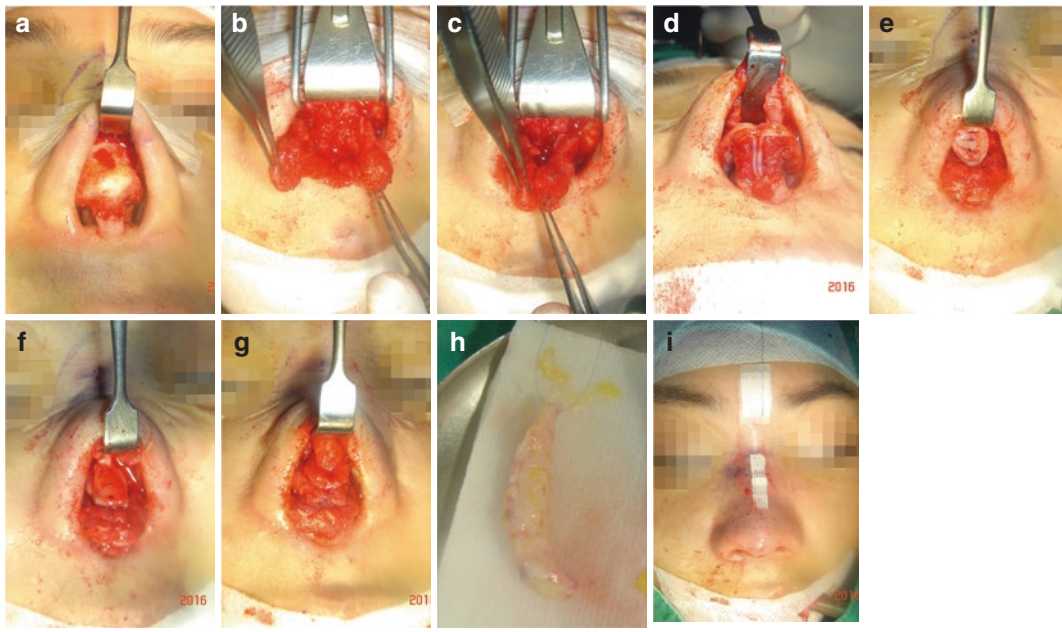

Fig. 15 Surgical procedures

Pre-operative and Post-operative Photographs (Fig. 16a, c, e, g, i and b, d, f, h, j)

Fig. 16 Preoperative (**a, c, e, g, i**) and post-operative (**b, d, f, h, j**) views

Case 6

Pre-operative Findings

Upturned tip, retracted columella, pinched tip (Fig. 17a, b).

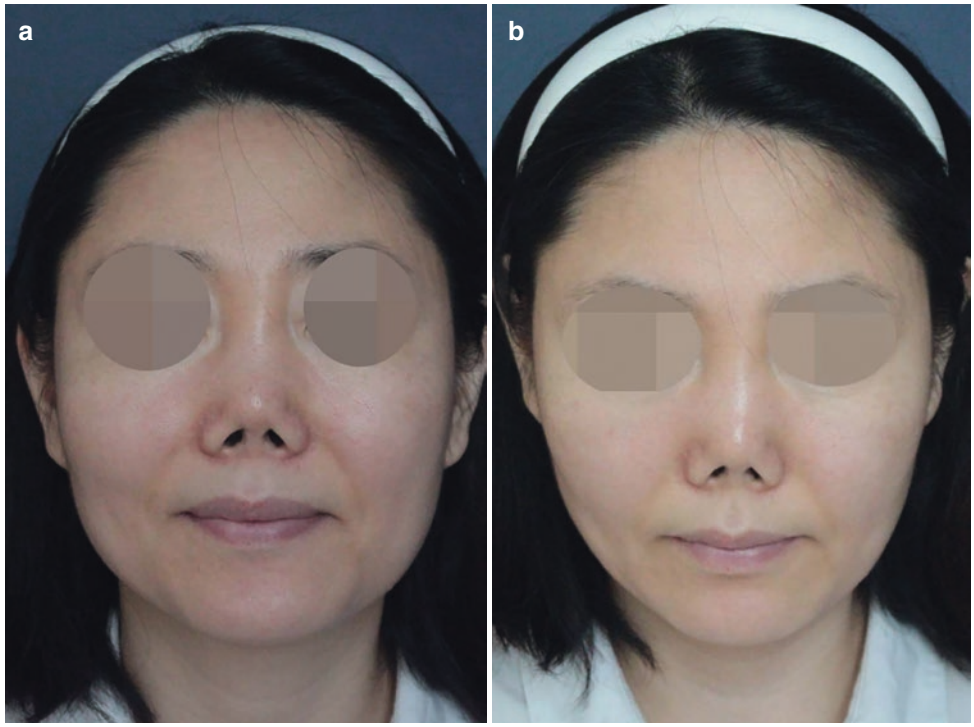

Fig. 17 A patient presents with an upturned tip, retracted columella, and pinched tip

Intra-operative Findings

Skin tightly adhered to the underlying capsule of the implant. Alar cartilages retracted upwardly and densely adhered to the upper lateral cartilage and septum. Silicone implant was on the mid-dorsal area.

Operative Procedures

The skin flap elevated from the underlying capsule of the implant for skin elongation (Fig. 18a).

Scar flap was elevated from the cartilage framework, and the silicone implant was removed (Fig. 18b).

Alar cartilages were isolated from scar tissue and released from upper lateral cartilages and septum. Rib cartilage harvested from the 9th rib of the right chest (Fig. 18c).

Mid-dorsal augmentation was done using rib cartilage graft. Columellar strut graft was performed with rib cartilage (Fig. 18d).

A wide derotation graft with conchal cartilage was placed for caudal rotation of the tip and spreading domes and lateral crura. Tip graft with conchal cartilage (Fig. 18e–g).

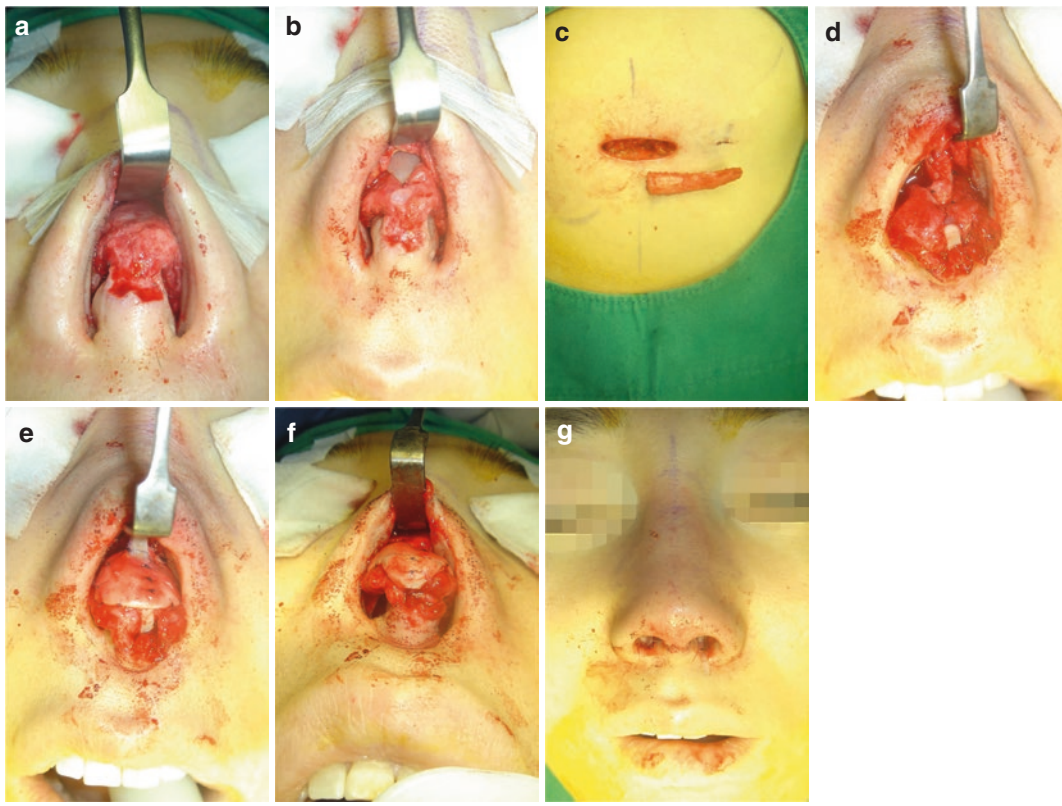

Fig. 18 Surgical procedures

Pre-operative and Post-operative Photographs
(Fig. 19a, c, e, g, i and b, d, f, h, j)

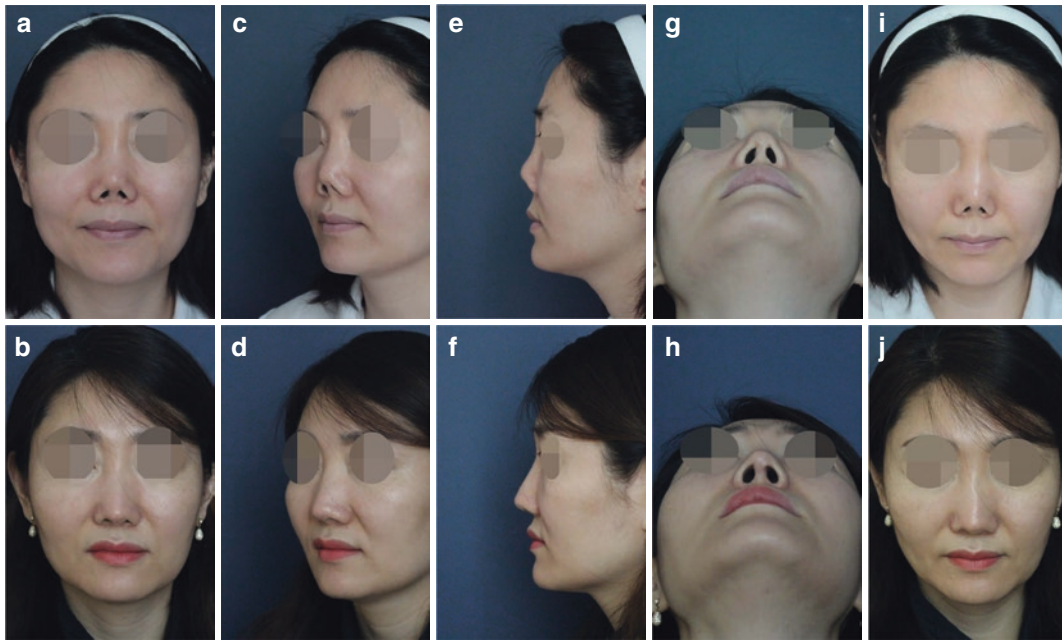

Fig. 19 Preoperative (**a, c, e, g, i**) and post-operative (**b, d, f, h, j**) views

Cases 7

Pre-operative Findings

Upturned tip, pinched tip, retracted columella, asymmetric tip, asymmetric nostrils (Fig. 20a–f).

Fig. 20 A patient shows an upturned tip, pinched tip, retracted columella, asymmetric tip, and asymmetric nostrils

Intra-operative Findings

Heavy scar tissue and remaining alar cartilages were intermingled with each other, and densely adhered to upper lateral cartilages and septal area. The remaining alar cartilages were badly damaged and distorted and had many defect areas. The patient did not have enough ear cartilage for nose correction.

Operative Procedures

Skin flap was elevated from underlying scar tissue for skin elongation (Fig. 21a, b).

Scar flap was elevated (Fig. 21c).

Remnant alar cartilages were isolated and freed from upper lateral cartilage and septum. Columella strut with rib cartilage graft was done. (Fig. 21d–f).

Bilateral septal extension graft with rib cartilage graft was performed. Caudal ends of bilateral septal extension graft and anterior end of columellar strut were fixed with nylon suture. Alar cartilage remnants were fixed to columellar strut (Fig. 21g).

Dermis graft was performed on the caudal end of rib cartilage framework (Fig. 21h).

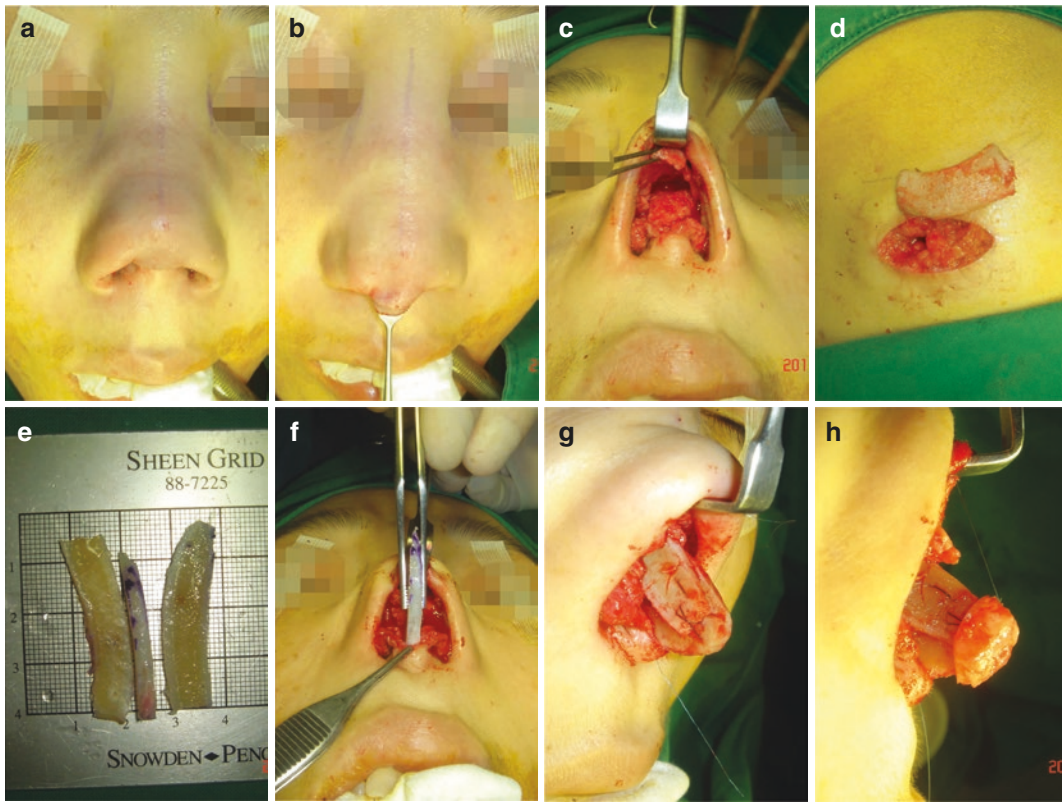

Fig. 21 Surgical procedures

Pre-operative and
Post-operative Photographs
(Fig. 22a, c, e, g, i, k and 22b, d, f, h, j, l)

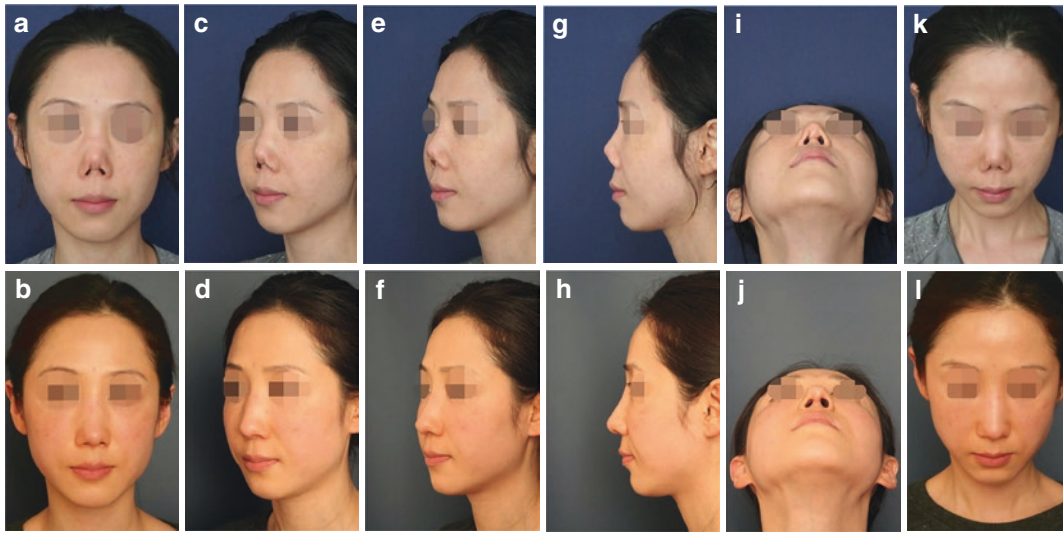

Fig. 22 Preoperative (**a, c, e, g, i, k**) and post-operative (**b, d, f, h, j, l**) views

Case 8

Pre-operative Findings

Underdeveloped small nose, short nose, low nasal bridge, low tip, severely retracted columella (Fig. 23a, b).

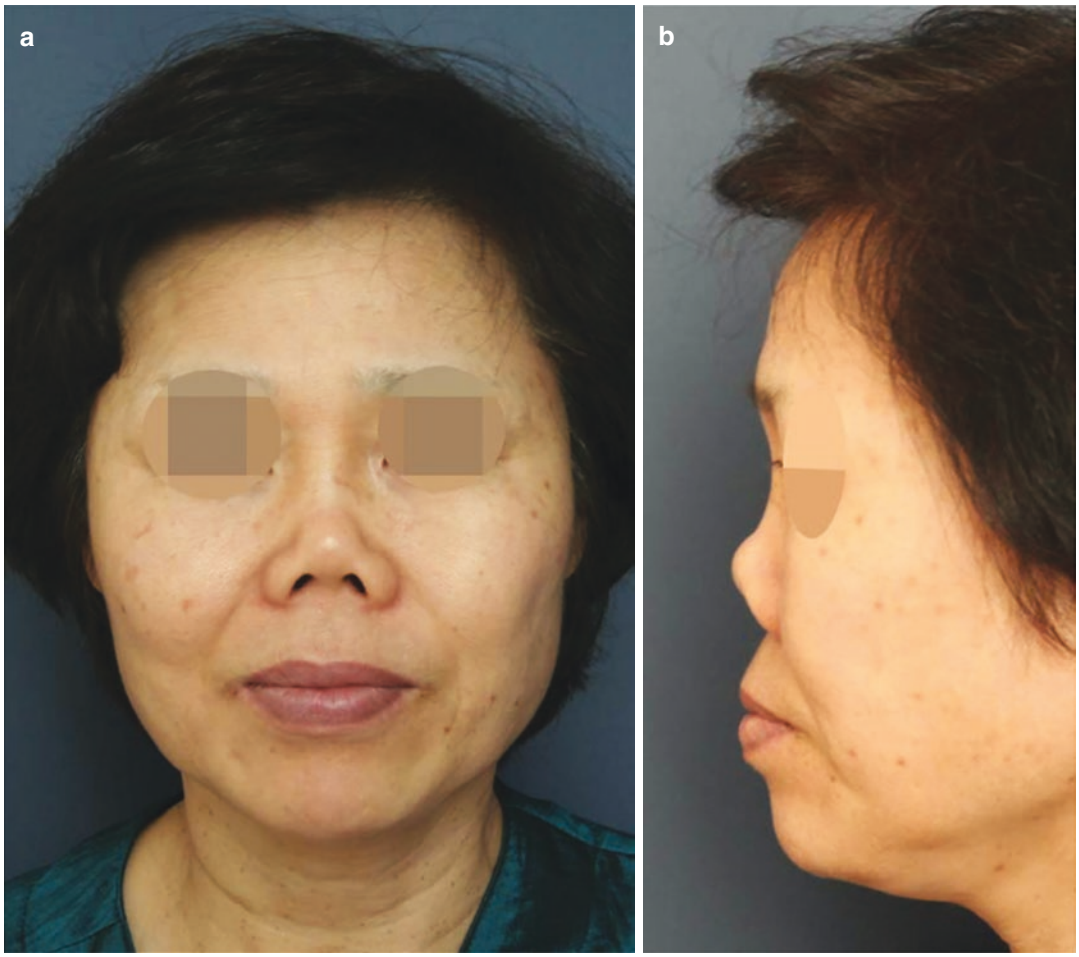

Fig. 23 A patient with an underdeveloped small nose, short nose, low nasal bridge, low tip, and severely retracted columella

Intra-operative Findings

L-shaped implant was found inside the nose (Fig. 24a–c).

Low nasal bridge almost the same level of the cheekbone, short and low underdeveloped septum, poorly developed alar cartilages were found.

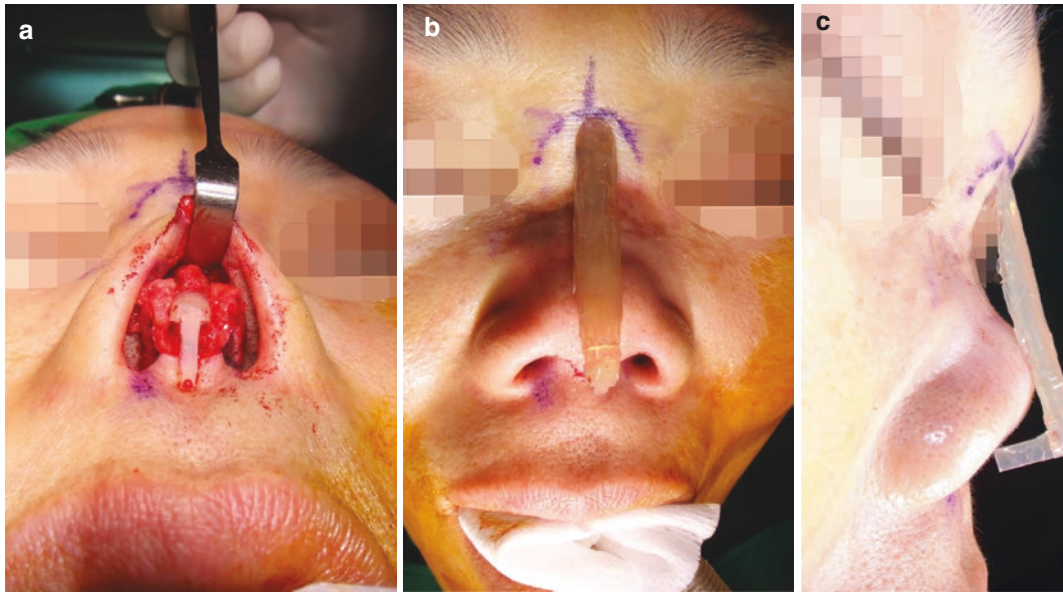

Fig. 24 Previously used L-shaped silicone implant

Operative Procedures

Skin flap was elevated from the underlying capsule of the implant for skin elongation (Fig. 25a, b).

Alar cartilages were isolated from upper lateral cartilage and septal structure to move downwardly (Fig. 25c).

7th rib cartilage was harvested from right Chest and carved into four pieces (Fig. 25d).

One was used for dorsal augmentation and lengthening, another one was used for columella strut, two thin segments were used for stabilization of the former two grafts (Fig. 25e).

Alar cartilages were fixed to columella strut (Fig. 25f, g).

Onlay tip grafts with ear cartilage were done (Fig. 25h).

Dorsal rib graft and tip graft were covered with dermis graft from the sacral area to prevent noticeability of cartilage grafts (Fig. 25i).

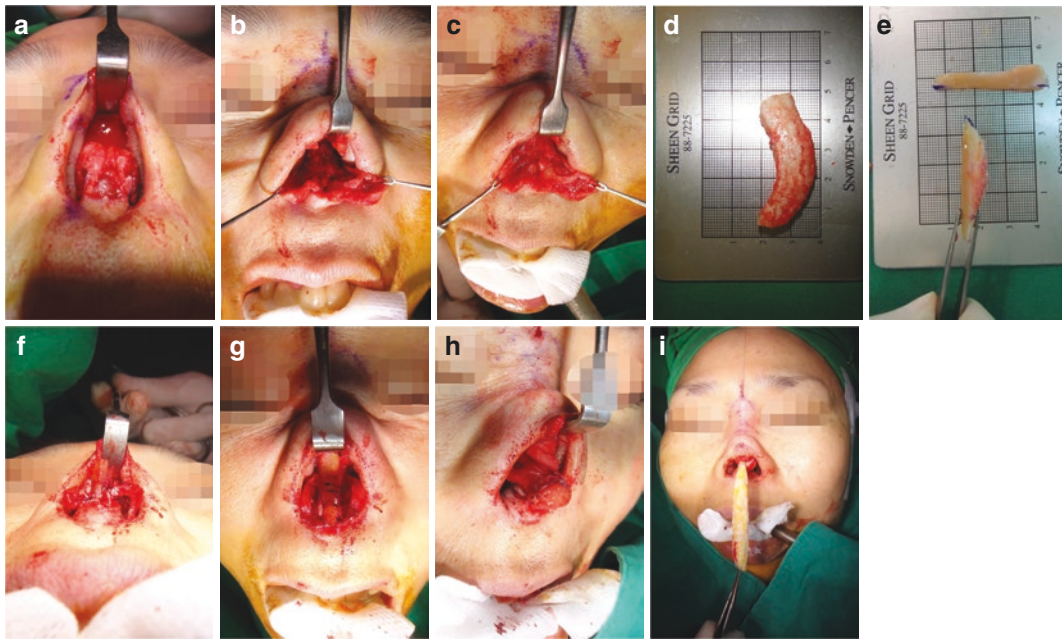

Fig. 25 Surgical procedures

Pre-operative and Post-operative Photographs (Fig. 26a, c, e and b, d, f)

Fig. 26 Preoperative (**a, c, e**) and post-operative (**b, d, f**) views

Case 9

Pre-operative Findings

Upturned tip, retracted ala, asymmetric nostrils, columellar deviation (Fig. 27a–f).

Intra-operative Findings

Scar tissue and alar cartilages were intermingled and retracted upwardly and densely adhered to a cephalically fixed structure. Alar cartilages were severely distorted and asymmetrically arranged. A piece of irradiated homologous costal cartilage was in the intercrural space.

Operative Procedures: 1st Stage Operation

The skin flap was elevated from underlying scar tissue for skin extension (Fig. 28a).

A scar flap was elevated from the cartilage framework. Alar cartilages were separated from scar tissue, upper lateral cartilages, and septal structure to move downwardly. Previously used irradiated homologous costal cartilage was removed (Fig. 28b).

Symmetric arrangement of the caudal border of lateral crura was achieved, and maintained with columella strut and derotation graft (Fig. 28c).

A columella-septal suture was done to prevent hanging columellar base (Fig. 28d).

Despite insufficient elongation and augmentation, the operation had to be finished for the moment due to worsened tip skin circulation during the surgery (Fig. 28e).

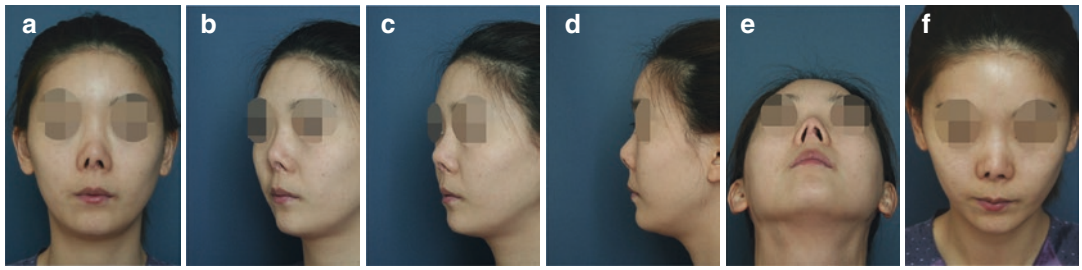

Fig. 27 A patient presents with an upturned tip, retracted ala, asymmetric nostrils, and columellar deviation

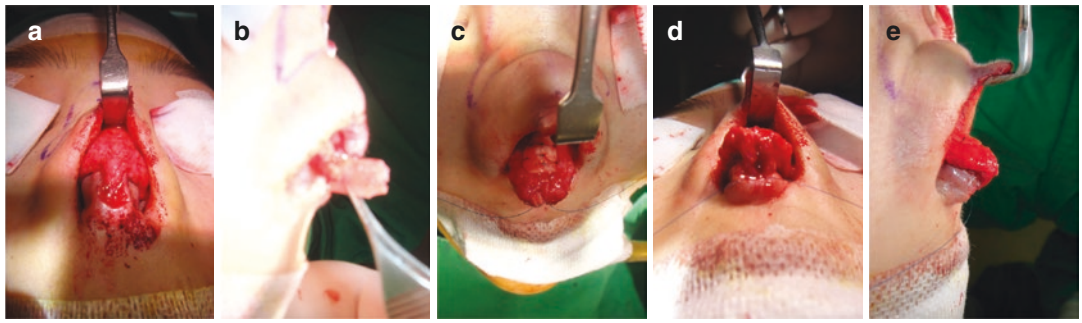

Fig. 28 Surgical procedures in the first stage operation

Pre-operative and
Post-operative Photographs
(Fig. 29a, c, e, g, i, k and b, d, f, h, j, l)

Fig. 29 Before (**a, c, e, g, i, k**) and after (**b, d, f, h, j, l**) the first stage operation

Operative Procedures: 2nd Stage Operation

Retracted right alar cartilage was separated from left alar cartilage and upper lateral cartilage and moved caudally and laterally (Fig. 30a, b).

The gaps were covered with alar spreader graft and intercartilaginous graft. A multilayered onlay tip graft was done for tip augmentation (Fig. 30c).

Dermofat graft from the sacral area was used for dorsal augmentation and tip skin reinforcement.

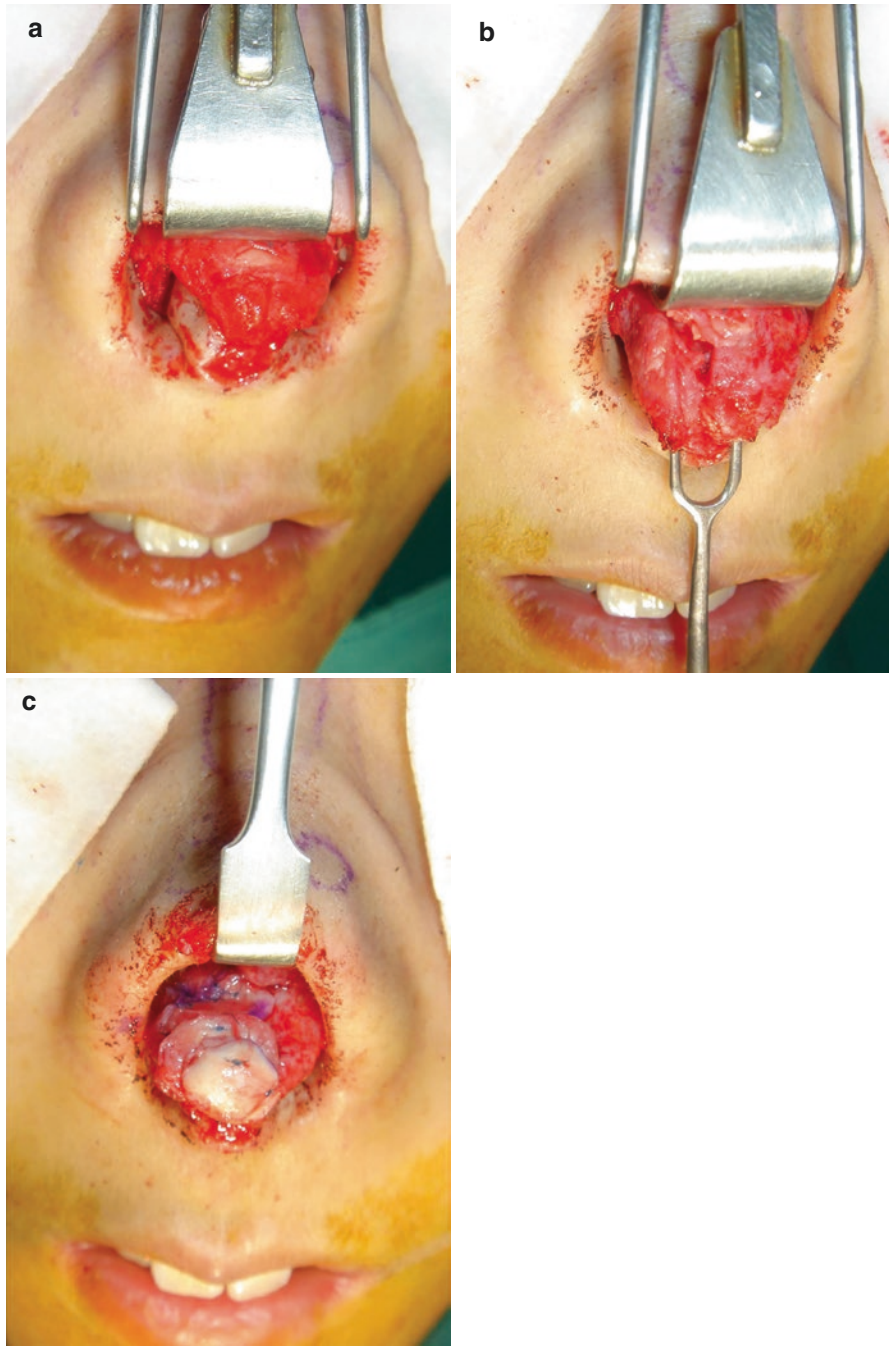

Fig. 30 Surgical procedures in the second stage operation

Pre-operative and Post-operative Photographs (Fig. 31a, c, e, g, i, k and 31b, d, f, h, j, l)

Fig. 31 Before (**a, c, e, g, i, k**) and after (**b, d, f, h, j, l**) the first and second stage operations

Case 10

Pre-operative Findings

Upturned tip, tip deviation, columellar deviation, asymmetric nostrils, low nasal bridge (Fig. 32a–e).

Intra-operative Findings

Severely shortened nose, tightly adhered skin to underlying scar tissue was found. Alar cartilages were badly deformed and retracted over upper lateral cartilages and septum. There was a bilayered columella strut with septal cartilage fixed to the base of the caudal septum.

Operative Procedures: 1st Stage Operation (Skeletal Framework Reconstruction)

The skin flap was elevated from underlying inelastic scar tissue for skin extension (Fig. 33a, b).

Alar cartilages were separated from each other (Fig. 33c).

Bilayered columella strut was removed (Fig. 33d).

Both alar cartilages were isolated from scar, upper lateral cartilages, and septum to move caudally without resistance (Fig. 33e).

Rib cartilage graft was harvested from the 6th rib of right Chest (Fig. 33f).

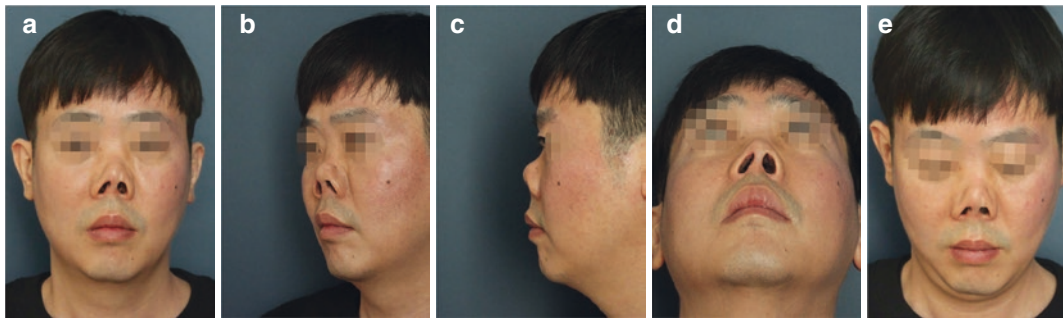

Fig. 32 A patient shows upturned tip, tip deviation, columellar deviation, asymmetric nostrils, and low nasal bridge

L-shaped cartilage framework with rib cartilage was made and fixed to the nasal bridge (Fig. 33g–i).

Alar cartilages were pulled down and medial crura were sutured to the vertical limb of L-shaped framework (Fig. 33j).

Both domes and lateral crura were lateralized and maintained in that position with alar spreader graft (Fig. 33k).

Onlay graft and cap graft with septal cartilage were done. Lateral strut grafts were done bilaterally with a thin rib cartilage graft (Fig. 33l).

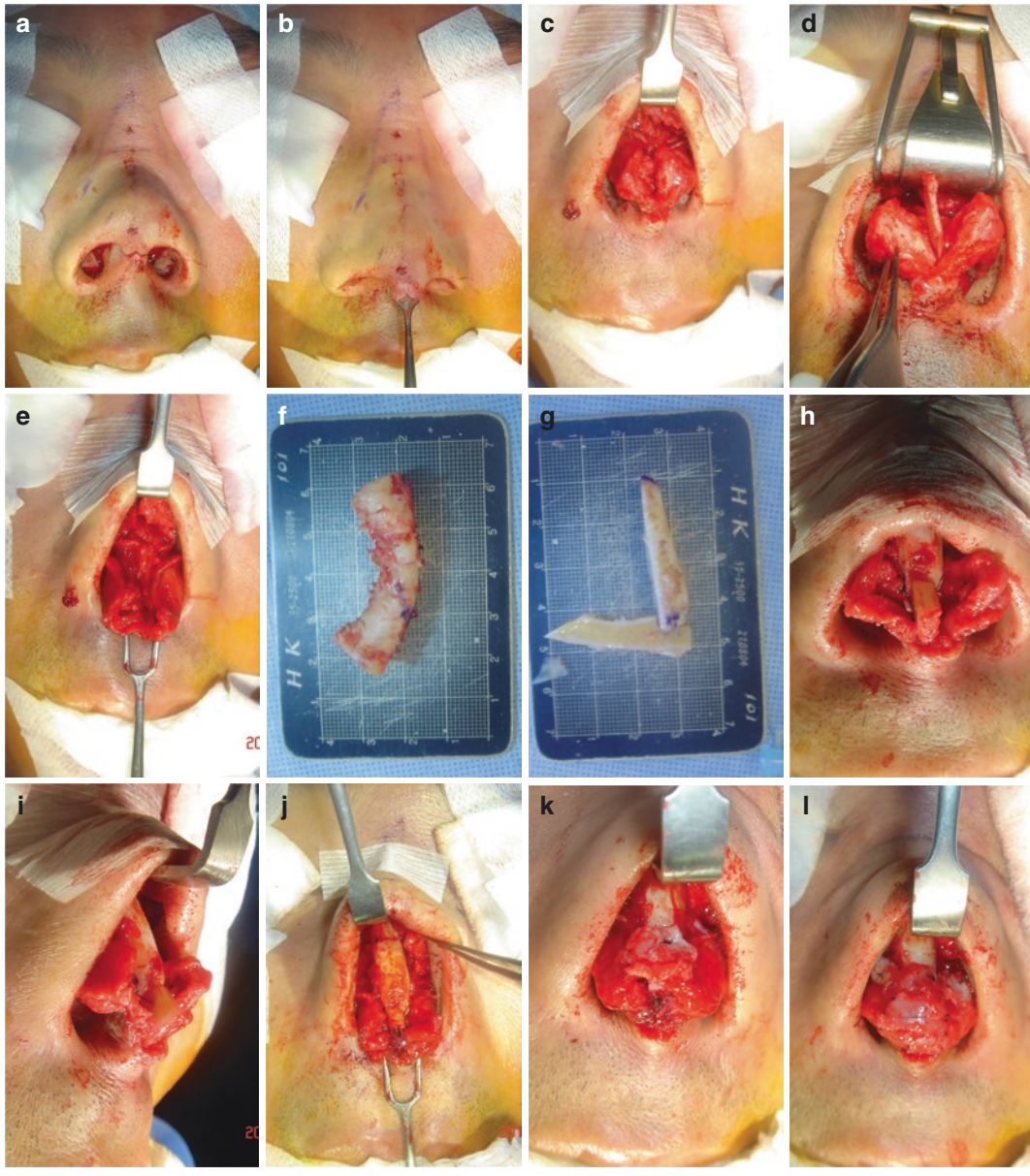

Fig. 33 Surgical procedures in the first stage operation

Pre-operative and Post-operative Photographs
(Fig. 34a, c, e, g, i and b, d, f, h, j)

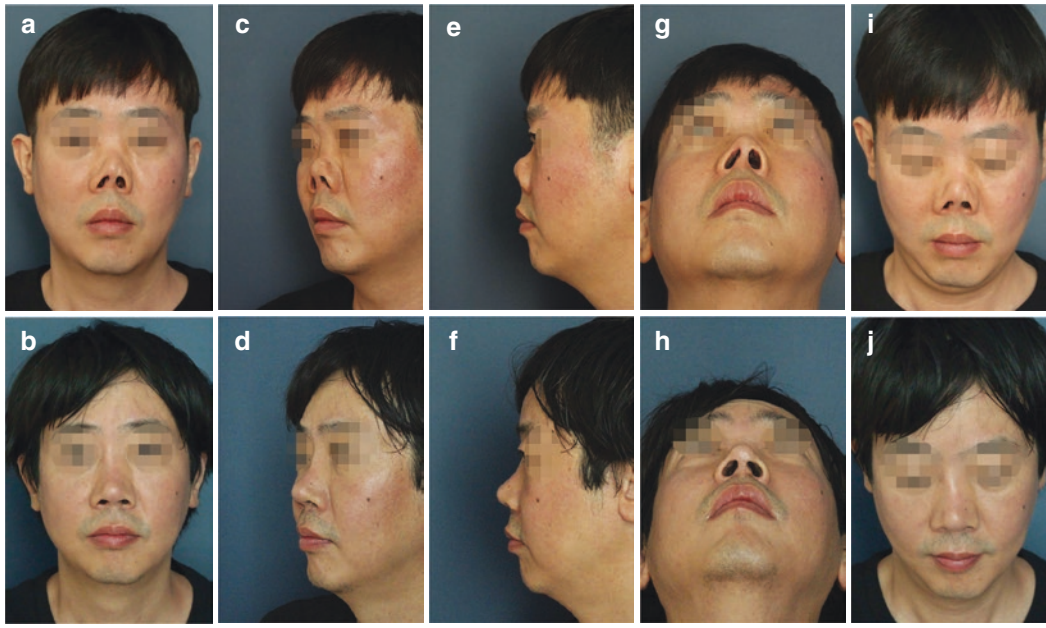

Fig. 34 Before (**a, c, e, g, i**) and after (**b, d, f, h, j**) the first stage operation

Operative Procedures: 2st Stage Operation (For More Tip Lengthening, Dorsal Augmentation, Tip Refinement)

The skin flap was elevated from underlying scar tissue. Scar flap including previous tip graft and alar spreader graft was elevated.

Alar cartilages were separated from L-shaped rib cartilage framework of the previous operation, and moved caudally (Fig. 35a).

Umbrella-shaped columella strut was made with conchal cartilage. Multilayered derotation graft using thinned rib cartilage graft with banked rib in the patient's abdominal wall (Fig. 35b).

Scar flap including tip graft and alar spreader graft was redraped. Dermis graft on dorsum and tip over the rib graft and tip graft (Fig. 35c, d).

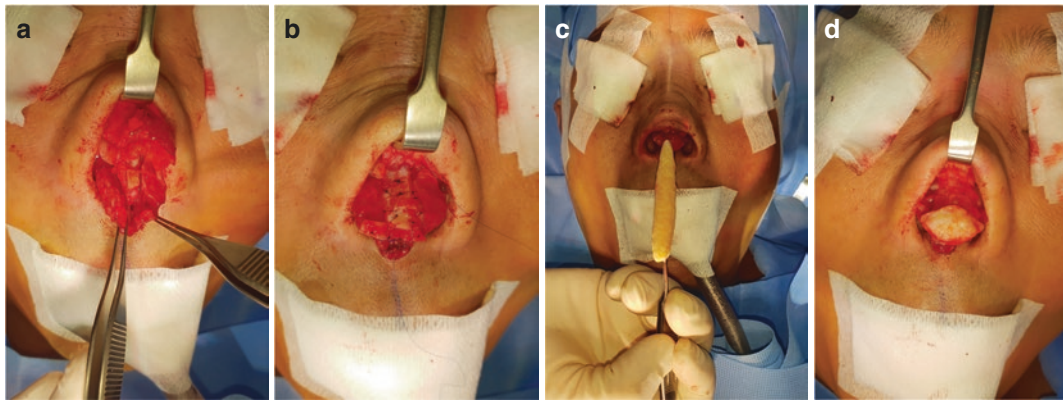

Fig. 35 Surgical procedures in the second stage operation

Pre-operative and Post-operative Photographs
(Fig. 36a, c, e, g, i and b, d, f, h, j)

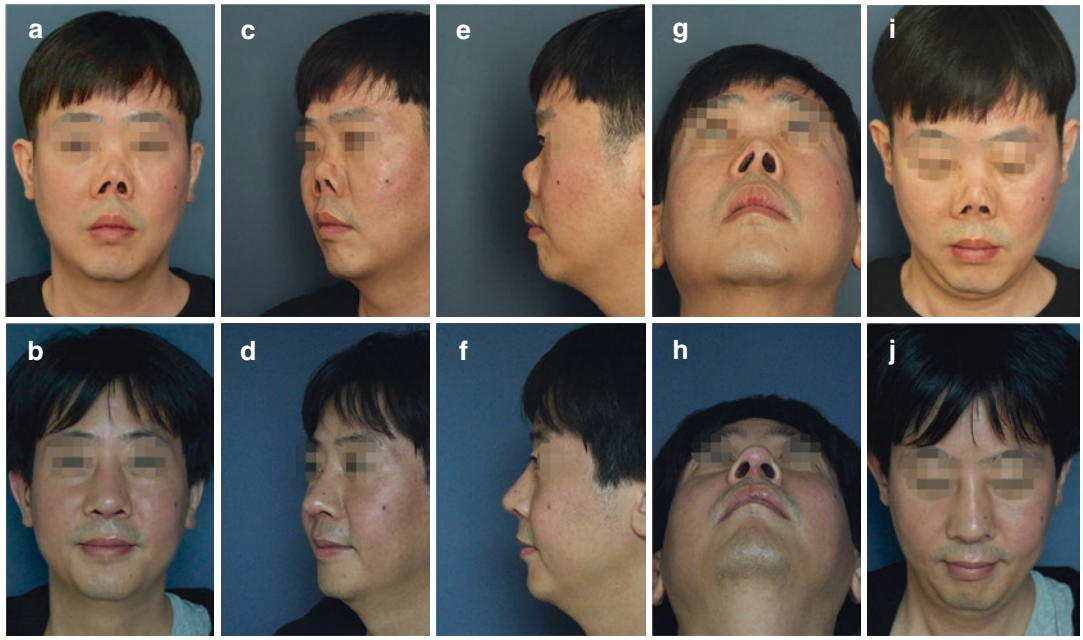

Fig. 36 Before (**a, c, e, g, i**) and after (**b, d, f, h, j**) the first and second stage operations

Case 11

Pre-operative Findings

Collapsed nasal tip, deeply retracted scar on the tip, short nasal length, retracted columella (Fig. 37a–e).

Intra-operative Findings

Tip skin was very thin, deeply retracted and tightly adhered to the septum.

Operative Procedures: 1st Stage Operation

Through bilateral infracartilaginous incision, skin flap was elevated carefully not to make a perforation (Fig. 38a, b).

A piece of dermofat graft from the sacral area was inserted in the tip (Fig. 38c, d).

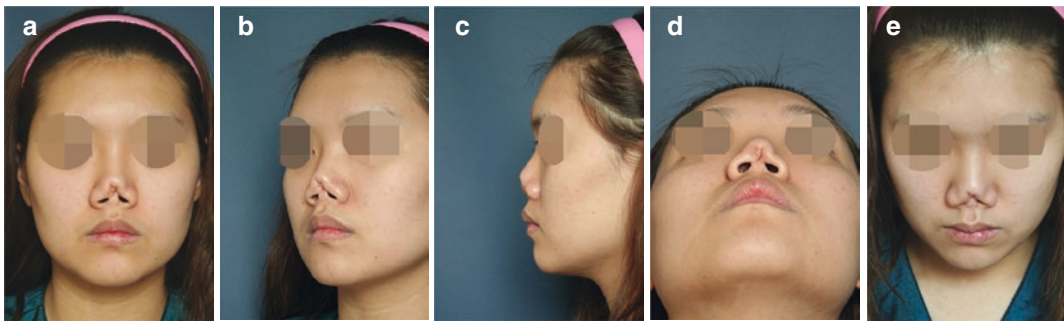

Fig. 37 A patient with collapsed nasal tip, deeply retracted scar on the tip, short nasal length, and retracted columella

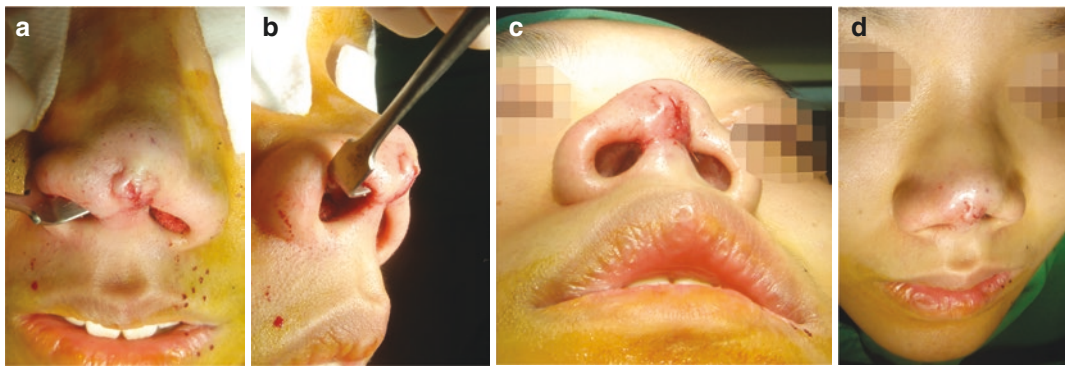

Fig. 38 Surgical procedures in the first stage operation

Pre-operative and Post-operative Photographs (Fig. 39a, b)

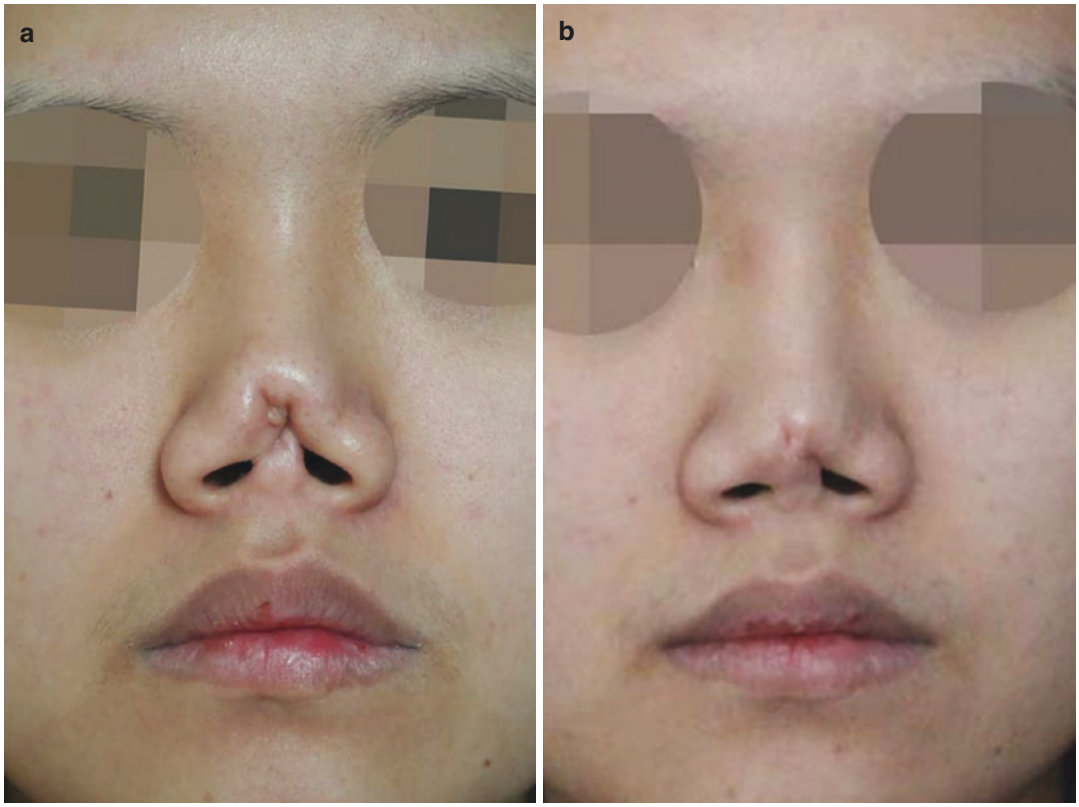

Fig. 39 Before (**a**) and after (**b**) the first stage operation

Operative Procedures: 2st Stage Operation

Skin flap including some portion of previous dermofat graft was elevated through transcolumellar and infracartilagenous incision. Soft tissue flap including the remaining dermofat graft of the previous operation was elevated (Fig. 40a).

Alar cartilage was released from scar tissue and isolated from upper lateral cartilage and septum. A defect area on left lateral crus was covered with ear cartilage (Fig. 40b).

Umbrella-shaped columella strut was used for tip projection (Fig. 40c).

The tip complex was caudally rotated and fixed with a derotation graft (Fig. 40d).

Onlay tip graft was done with ear cartilage, and soft tissue flap was redraped over derotation graft (Fig. 40e).

Operative Procedures: 3rd Stage Operation

Onlay tip grafts with three layers of conchal cartilage were done (Fig. 41a–c).

A layer of dermis graft was done over the tip grafts (Fig. 41d).

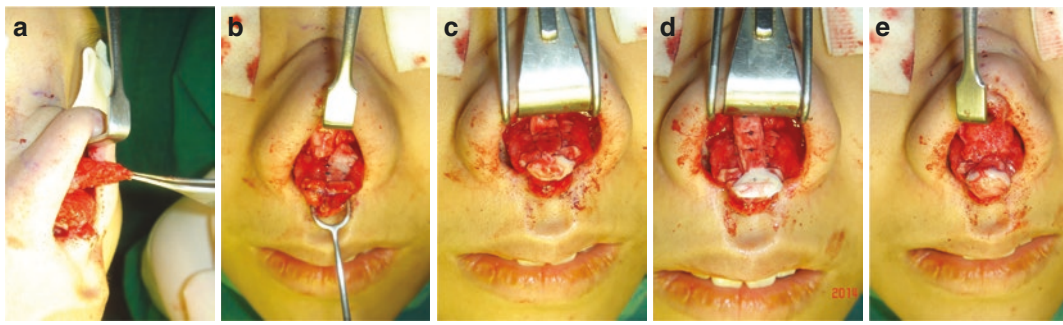

Fig. 40 Surgical procedures in the second stage operation

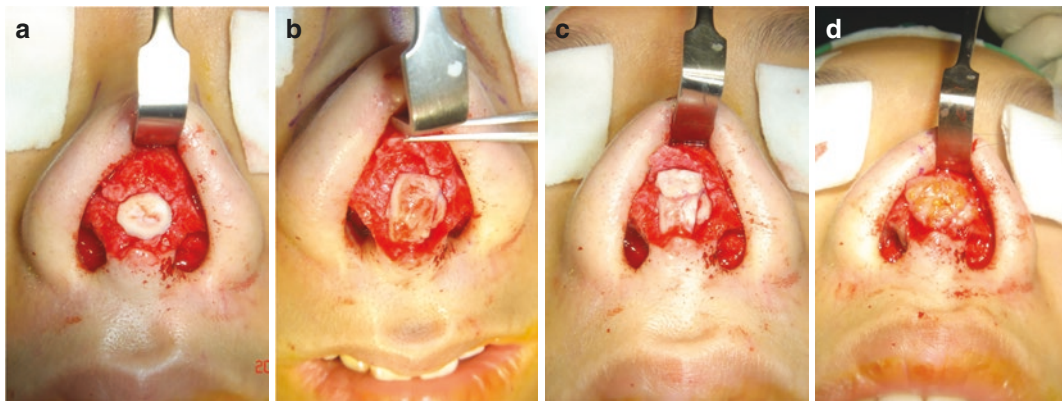

Fig. 41 Surgical procedures in the third stage operation

Pre-operative and Post-operative Photographs (Fig. 42a, c, e, g, i and b, d, f, h, j)

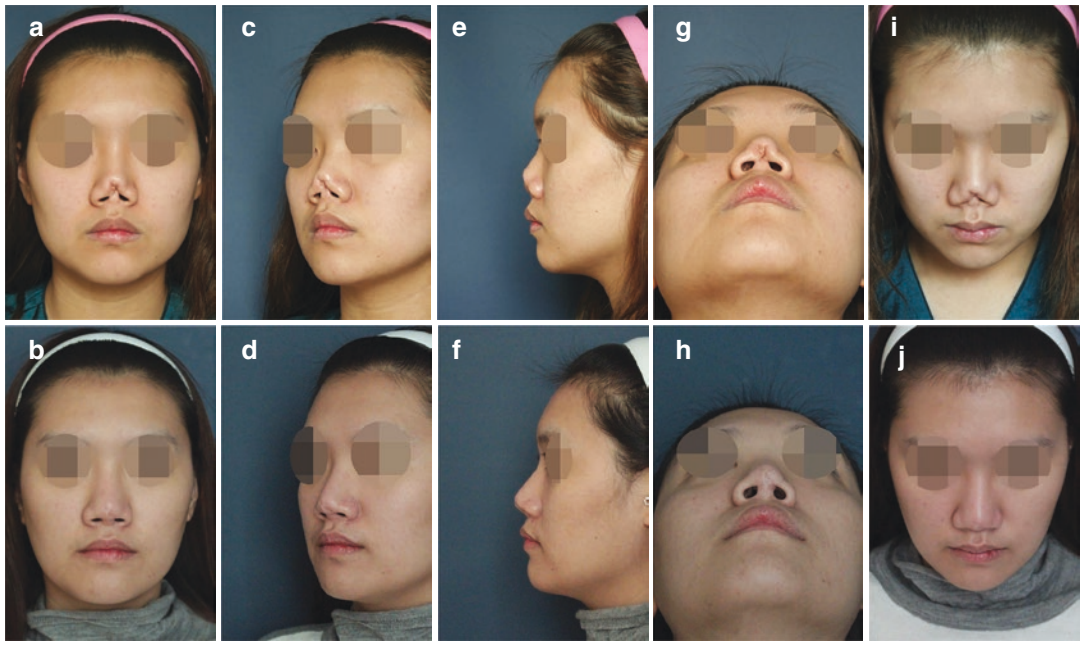

Fig. 42 Before (**a, c, e, g, i**) and after (**b, d, f, h, j**) the first, second and third stage operations

Case 12

Pre-operative Findings

Right nostril was small by nostril stricture (Fig. 43a, b).

Intra-operative Findings

Shortage of inner lining of right nostril caused by the previous operation.

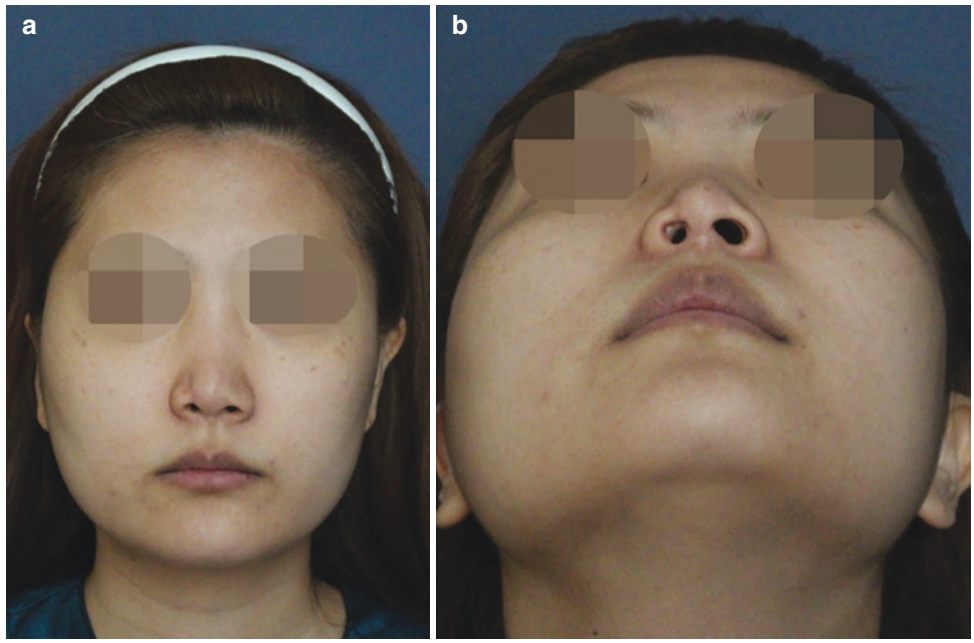

Fig. 43 A patient presents with right nostril stricture

Operative Procedures

The skin flap was elevated (Fig. 44a).

Alar cartilages were released and freely isolated from scar tissue, upper lateral cartilages, and septum (Fig. 44b).

Umbrella-shaped columella strut with conchal cartilage was used for tip augmentation and dome symmetry (Fig. 44c).

Onlay graft and shield graft were used for more tip projection. A derotation graft was used for length control (Fig. 44d).

Right lateral crus and underlying mucosa were cut from the pyriform aperture area, and the incision was extended following intercartilaginous junction, and this chondromucosal flap was moved anteromedially (Fig. 44e).

The defect area of this flap donor area was covered with a full-thickness skin graft (Fig. 44f).

Dorsal augmentation with dermofat graft from the sacral area was done (Fig. 44g).

Dermis graft on the tip graft was done (Fig. 44h).

Right nostril was supported with a Silastic nostril retainer for 3 months (Fig. 44i).

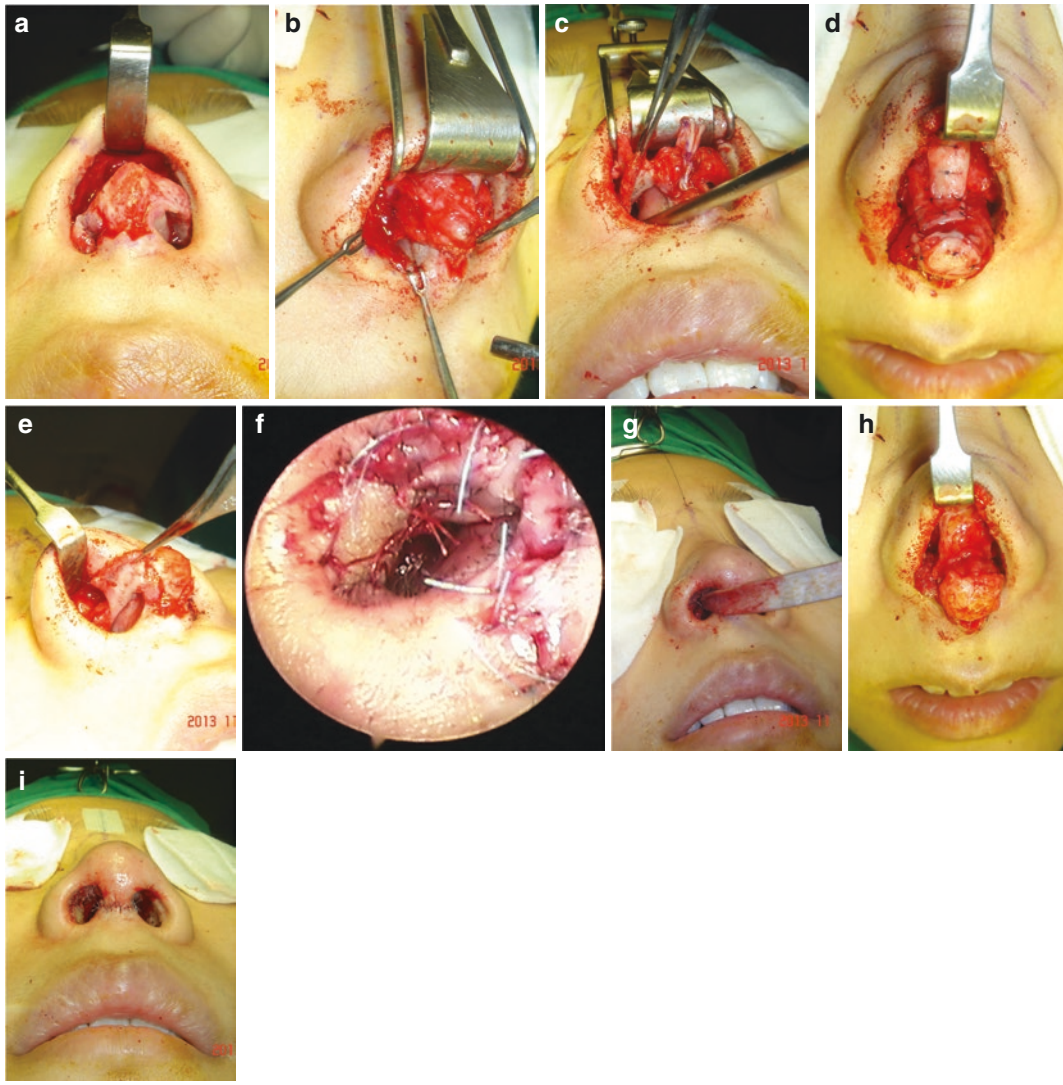

Fig. 44 Surgical procedures

Pre-operative and Post-operative Photographs (Fig. 45a, c and b, d)

Fig. 45 Preoperative (**a, c**) and post-operative (**b, d**) views

Case 13

Past Surgical History

She had six times of nose operation for nostril widening by using simple scar excision and stent insertion, and every operation worsened the results.

Pre-operative Findings

Both nostrils were completely obliterated by scar tissue, and there was no lining (Fig. 46a–d).

The severely contracted scar was around nostrils, alar rims, and columella. Retracted columella, left Retracted ala were found.

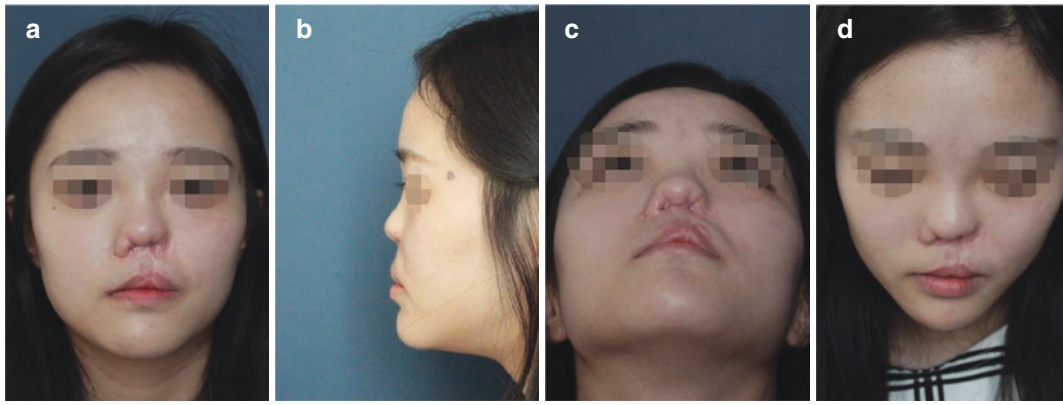

Fig. 46 A patient with complete obliteration of both nostrils

Operative Procedures: 1st Stage Operation

Left perialar transcolumella incision was made (Fig. 47a, b).

A Gore-Tex implant was removed from the nasal bridge (Fig. 47c).

A piece of Medpore implant for septal extension graft was removed from the septum (Fig. 47d).

Left lower lateral cartilage with underlying mucosa was separated from the pyriform aperture area and upper lateral cartilage, and this chondromucosal flap was moved anteromedially. Right lower lateral cartilage with underlying mucosa was also moved anteromedially in the same manner (Fig. 47e, f, g, h).

Retracted left alar base was pulled down (Fig. 47i, j).

The defect area of the chondromucosal flap on a lateral wall of both nasal cavities was covered with a full-thickness skin graft (Fig. 47k, l, q, r).

The defect on columella was covered with chondrocutaneous composite graft from left helical rim (Fig. 47m–o).

Nasal bridge augmentation was done with a dermofat graft (Fig. 47p).

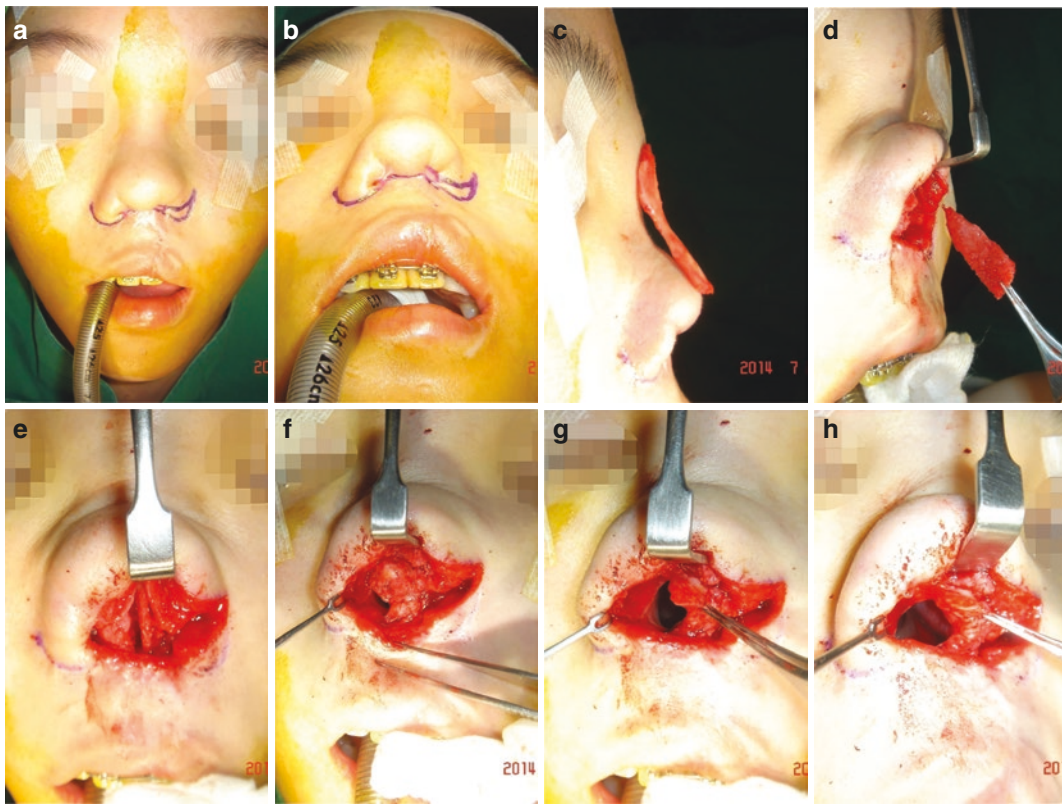

Fig. 47 Surgical procedures in the first stage operation

Fig. 47 (continued)

Pre-operative and Post-operative Photographs (Fig. 48a, c, e and b–f)

Fig. 48 Before (**a, c, e**) and after (**b, d, f**) the first stage operation

Operative Procedures: 2st Stage Operation

Columella was lengthened with a chondrocutaneous composite graft from right helical rim (Fig. 49a–f).

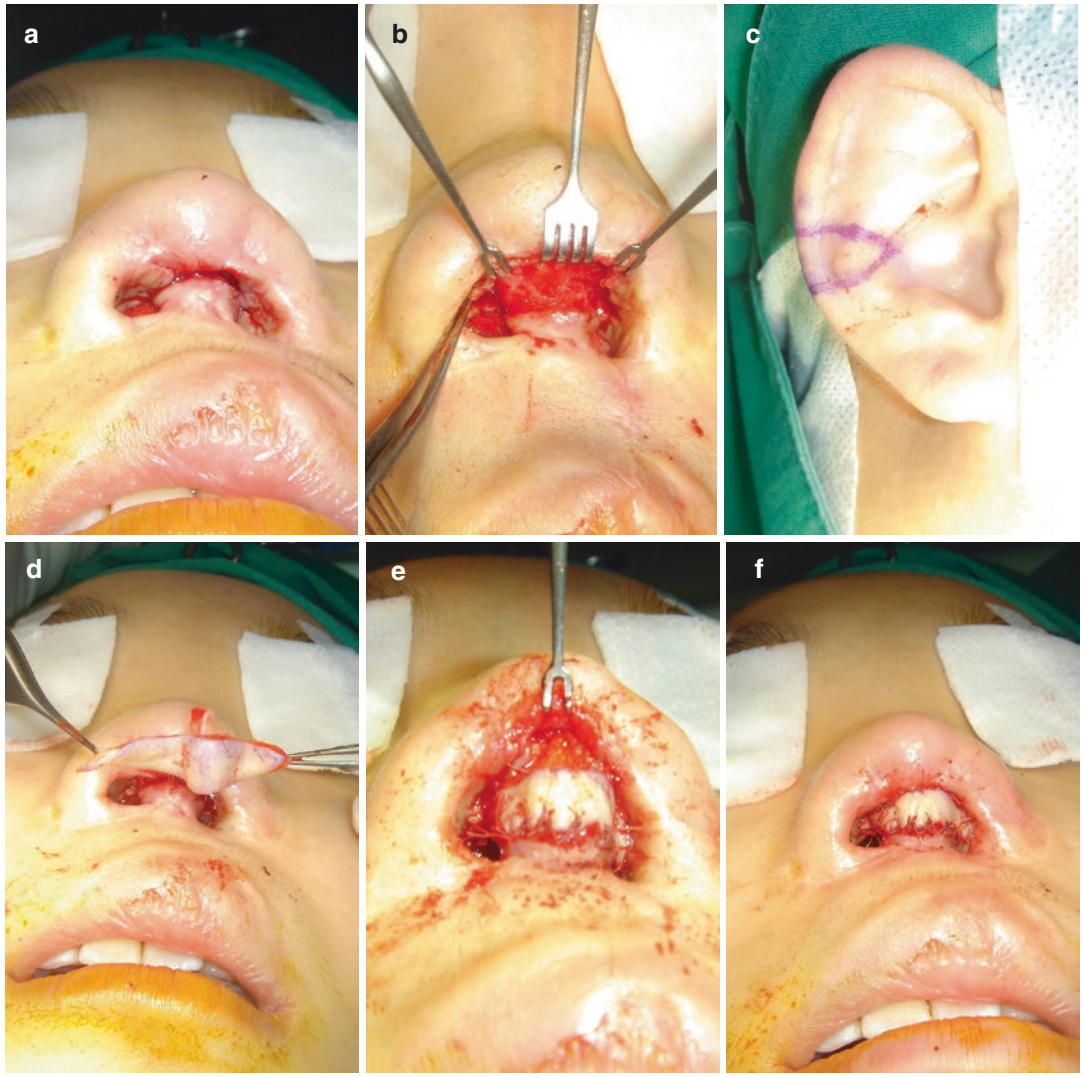

Fig. 49 Surgical procedures in the second stage operation

Operative Procedures: 3rd Stage Operation

Depressed scar on intralobular and columella was corrected by dermis graft through right rim incision (Fig. 50a–d).

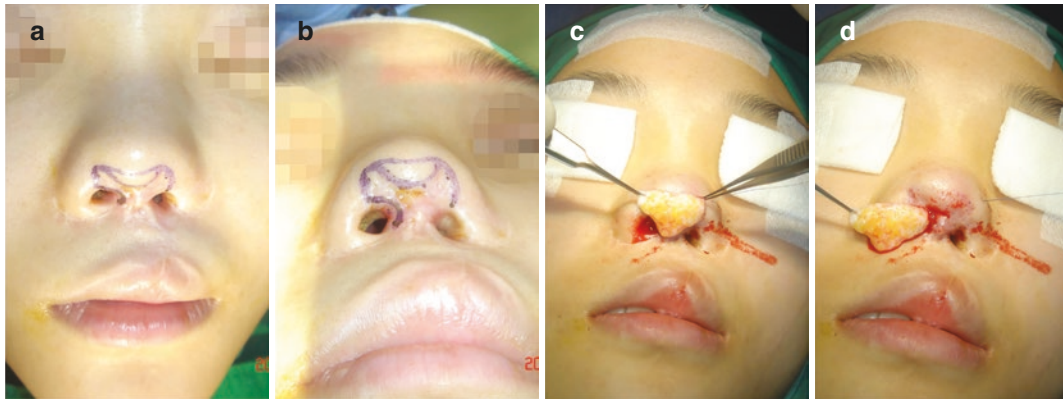

Fig. 50 Surgical procedures in the third stage operation

Pre-operative and Post-operative Photographs (Fig. 51a, c, e, g and b, d, f, h)

Fig. 51 Before (**a, c, e, g**) and after (**b, d, f, h**) the first, second, and third stage operations