

Results of Non-Rib Diced Cartilage Fascia Graft in Secondary Rhinoplasty

The Pearls

- Minimally invasive techniques and using an endoscope with a magnified view helped us to harvest sufficient graft material with the least donor site morbidity.
- It is almost always possible to provide satisfactory support for structural and camouflage purposes from these two non-rib sources.
 - Residual parts of the septal cartilage are a reliable source for preparing spreader grafts, while the perpendicular plate of the ethmoid can be used as a reliable caudal septal extension graft.
 - Ear cartilage is the best cartilage for the lower lateral cartilage structural grafts. Its natural curvature can be tailored to fit, resulting in better aesthetic and functional results.
 - The residual auricular and septal cartilages are diced to particles of less than 1mm, inserted into an insulin syringe and then wrapped in fascia temporalis for correction of an overresected dorsum.
 - Lack of visibility over time, decreased risk of torsion and warping of the graft, better attachment to the recipient bed, camouflaging asymmetries, and postoperative flexibility and shaping are some advantages of DCF grafts.
 - Nasal endoscopes can help in minimizing the incision and bleeding during fascial graft harvest, maximizing septal graft harvest, and aiding in precise insertion of dorsal grafts.
 - A posterior incision to harvest conchal cartilage with complete preservation of the entire posterior perichondrium and suturing it to its origin, restores the natural shape of the ear.
 - Wide dissection of the dorsal pocket ensures horizontal extension of the DCF and creates two parallel aesthetic lines.

Introduction

Cartilages are the most required materials for grafting in secondary rhinoplasty cases with over-resection in multiple structural and surface defects. The selection of the ideal graft has been an issue of concern for its donor site morbidity and other possible problems such as graft visibility and irregularities, infection, and inflammatory reactions. Advances in facial plastic surgery persuaded us to use special techniques to decrease donor site morbidity using autografts. This retrospective result describes the author's experience with non-rib diced cartilage fascia graft in secondary septorhinoplasty.

METHODS AND MATERIALS

Thirty-six secondary rhinoplasty cases underwent non-rib diced cartilage graft with fascia temporalis augmentation from 2015 to 2022. Combining open and endoscopic approaches provided good material for structural support and camouflage purposes exclusively from the non-rib sources, including septum and concha cartilage. Up to five centimeters of fascia was harvested by less than two centimeters of scalp incision and endoscopic dissection. At first, structural grafts were inserted mostly from the septal cartilage remnants. Diced cartilages from the remnants of the non-rib origins can be wrapped in fascia temporalis, avoiding any graft harvest from the rib and other distant areas.

Case 1. Functional and Structural Correction of Over-Reduced Nose by Non-Rib

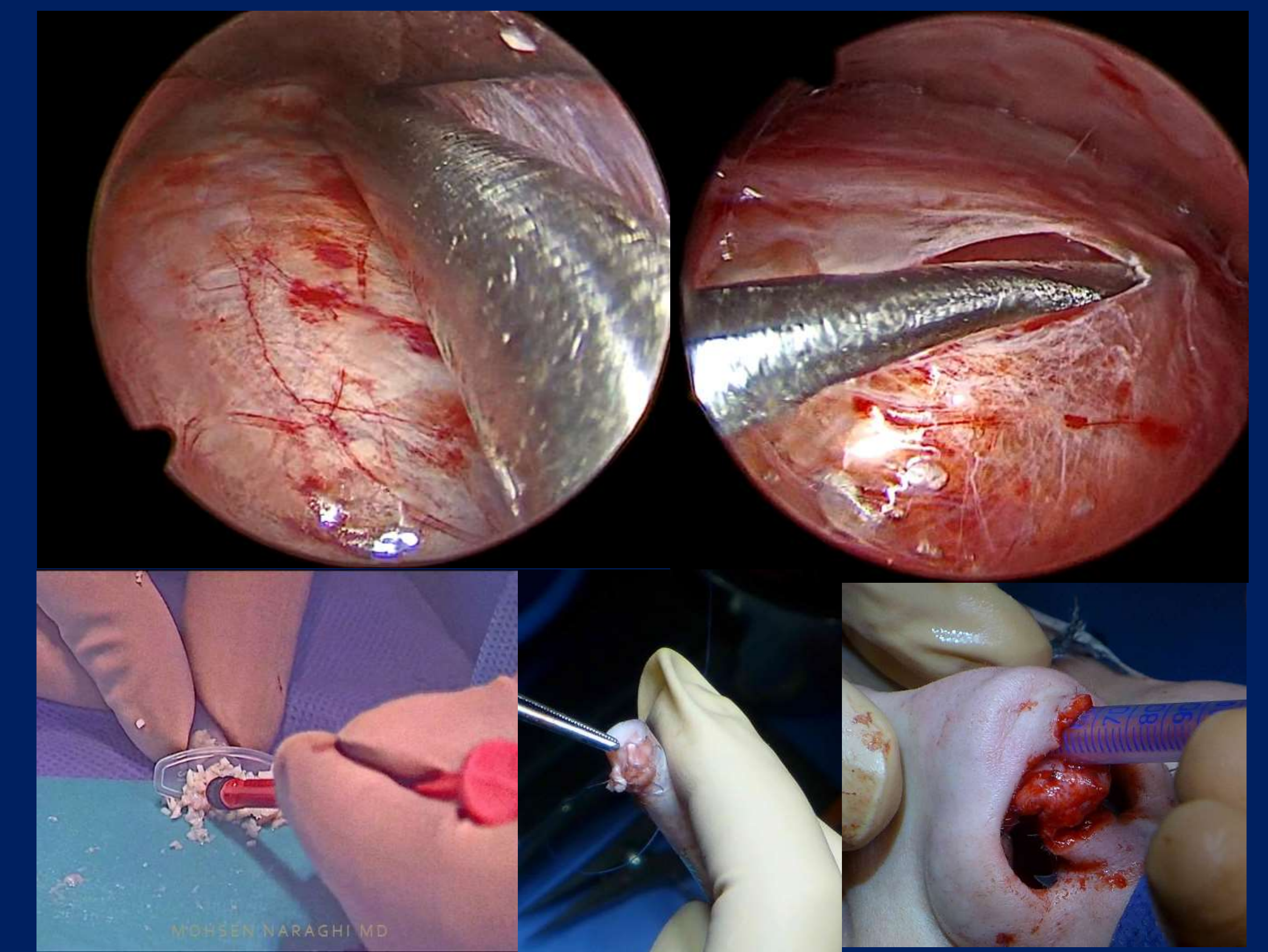
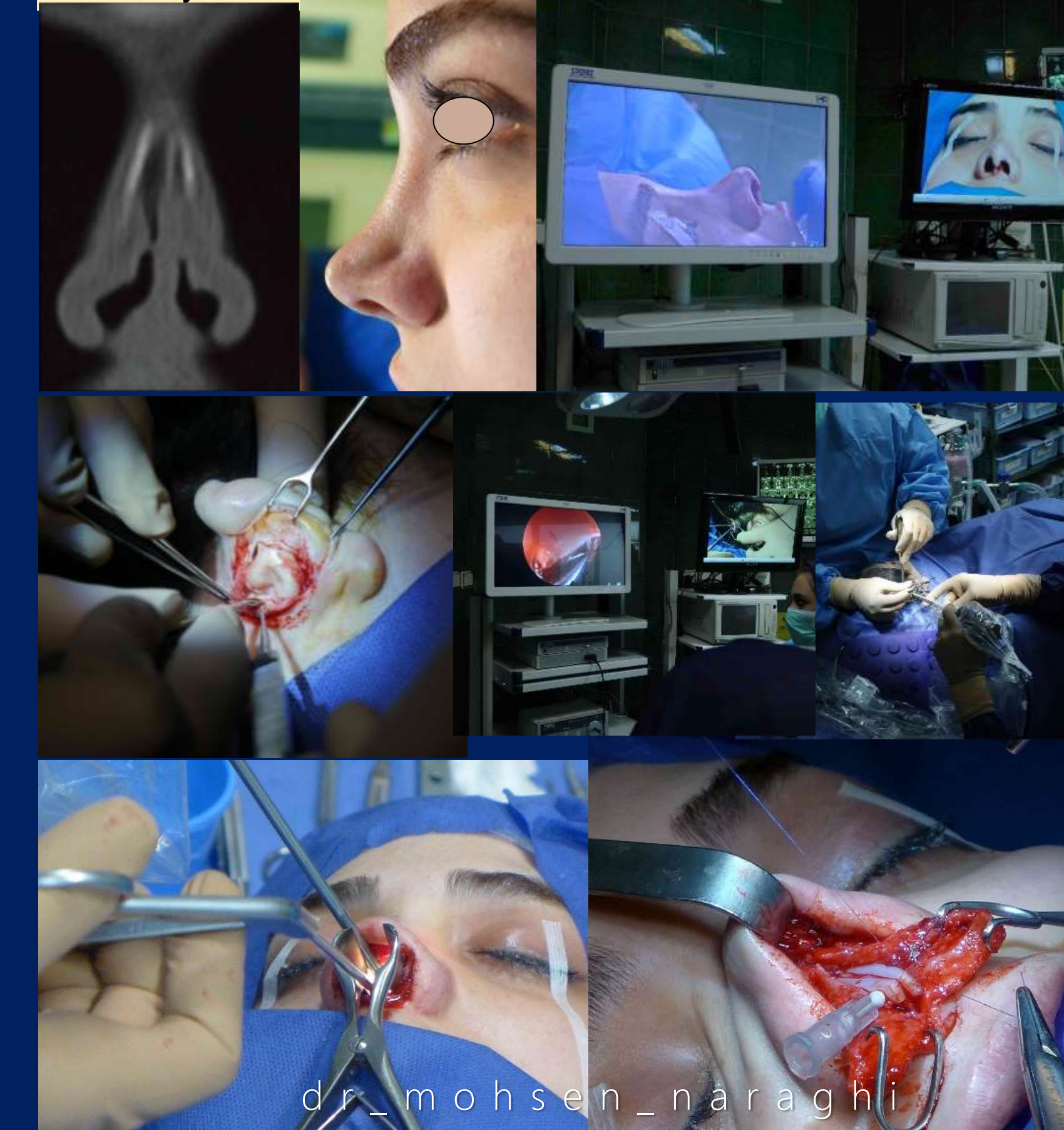


Surgical Steps
Posterior incision and harvesting conchal cartilage
Complete closure of the posterior perichondrium
1.5 cm scalp incision and endoscopic harvesting of fascia temporalis
Open rhinoplasty approach by a stepladder columellar incision
Supraperichondrial dissection and exposing the lower lateral cartilages
Dissection of intercrural space and caudal septal cartilage
Endoscopic posterior dissection and graft harvest from the residual septal cartilage and bone
Preparing and insertion of bilateral spreader grafts
Insertion and fixation of caudal septal extension graft, harvested from septal cartilage
Insertion of lateral crural strut grafts in the rim pocket, fixed to the pocket end and near the dome
Preparing diced cartilage-fascia graft (DCF)
Insertion of the DCF with a syringe into the dorsum
Insertion of bony graft below DCF
Caudal fixation of the DCF
Insertion of the caudal strut from the perpendicular plate
Final sculpturing of DCF
Covering of tip with crushed cartilage
Two-layer closure of the skin

Case 2. Functional and Structural Correction of Over-Reduced Nose by Non-Rib Grafts - 17mm Alar Retraction



Case 3. Functional and Structural Correction of Over-Reduced Nose by Non-Rib Grafts



- Ideal Graft Characteristics:**
- ➔ available
 - ➔ biocompatible
 - ➔ Less donor site morbidity
 - ➔ no risk of infection or extrusion



RESULTS

Functional and aesthetic results revealed significant improvement in all patients. Three cases with more resorption in the supra-tip area were managed non-surgically. Four cases underwent postoperative massage to refine the molding of cartilages up to two weeks after surgery. Improvement of over-resected dorsum on profile and restoration of parallel aesthetic lines were our cases' most common improvement items.

CONCLUSIONS

Advantages of non-rib graft include: Avoiding any incision in the chest to harvest rib cartilage; Using minimal cartilage from different sources; Less visibility over time; Decreased risk of torsion and warping of the graft; Complete attachment of the graft to the recipient bed, ensuring more stability; More compatibility with an asymmetric bed with bony and cartilaginous irregularities and more effectively camouflaging such asymmetries; Flexibility and compliance of the soft cartilage fascia graft to be massaged and modified meticulously even in postoperative visits.