

## REPLACEMENT OF SOFT TISSUE LOSS OF THE EXTERNAL NOSE

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The problems involving the restoration of soft tissue and bony defects of the nasal structures have increased in both number and complexity in recent years. It is essential that any otorhinolaryngologist who involves himself with nasal surgery should be familiar with and capable of the basic procedures, which are commonly employed to this end. In recognition of this need, and the almost daily advances in this area of surgery, the purpose of this presentation is to review some of the more basic techniques which may be employed in residency training programs and utilized by the practicing otorhinolaryngologists in nasal reconstructive efforts following surgery or trauma. One of the primary methods for the reconstruction of nasal defects particularly those which have resulted in complete or almost complete absence of the external nasal structures, is the utilization of the forehead flap. Forehead and scalp tissue has been utilized for reconstruction of the nose since the use of mutilative nasal trauma for punishment of minor offenses became popular in biblical times. In recent years the utilization of forehead and temporal skin based upon a scalp or forehead pedicle has been successful



Figure 1. An example of the forehead flap using split thickness skin to cover the donor site.



Figure 2. A midline forehead pedicle flap for coverage of the nasal dorsum and upper cheek; end result.

for complete restoration of the nasal structures including an inner lining of the epithelial tissue. Recognition of the advantages and indications for the use of forehead skin in nasal reconstruction, and knowledge of the techniques of its employment, should be part of the armamentarium of any rhinologist. Two types of forehead flaps are demonstrated in Figures 1 and 2. A second method of reconstruction of the nose utilizing tissue from distant or adjacent areas is the use of the composite graft. This method has also been employed since antiquity and enjoys almost equally dependable results as does the forehead flap; however, there are definite limitations as to the size defect which can be restored with a composite graft. Generally speaking, areas exceeding two square centimeters in size are unfavorable receptor sites for a composite graft. We have had considerable experience and quite satisfactory results with the use of this modality both for traumatic defects as seen in Figure 3 and for the restoration of nasal contour following the treatment of malignant lesions as seen in Figure 3.

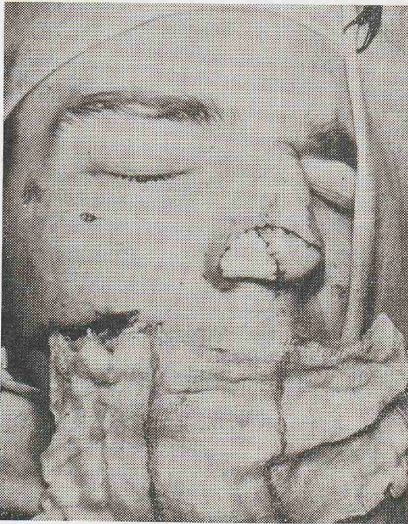


Figure 3. Composite graft reconstruction of traumatic loss of a portion of the nasal tip.

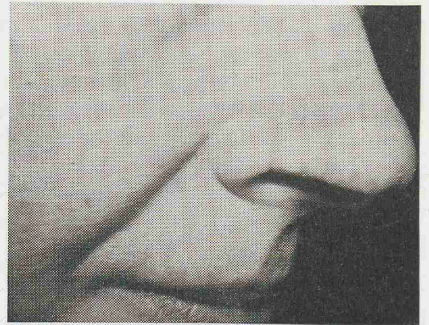


Figure 4. Composite graft appearance following excision of an alar basal cell lesion and graft; end result.

These are examples of the composite graft taken in the classically described manner from the helix of the ear utilizing a wedge of tissue with cutaneous surface of either side of cartilage. Equal success, however, may also be achieved by removing an ellipse of skin from the concha of the ear with cartilage attached to one-half of the ellipse. The skin is then folded over the cartilage giving a piece of cartilage with skin on either side and the donor site covered with split thickness graft. This method of graft is utilized to reconstruct an entire alar border as opposed to the helical graft for short defects in the alar margin where the defect has considerable depth. An example of the conchal composite graft is seen in Figure 5.

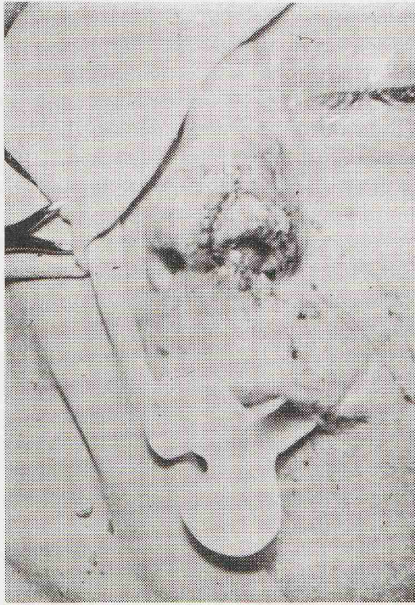


Figure 5. A conchal graft reconstruction of a traumatic loss of the ala.

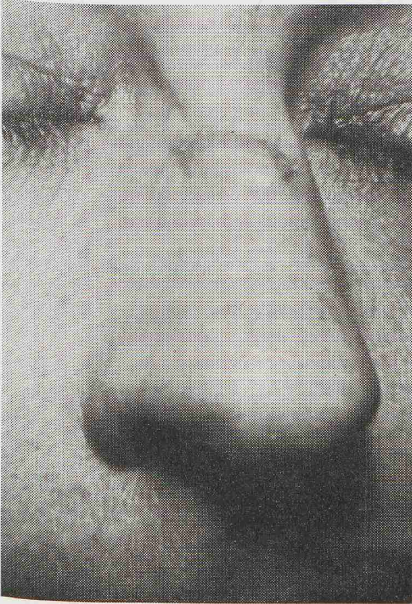


Figure 6. Free graft to the nasal dorsum in the treatment of a compound fracture with skin loss; end result.

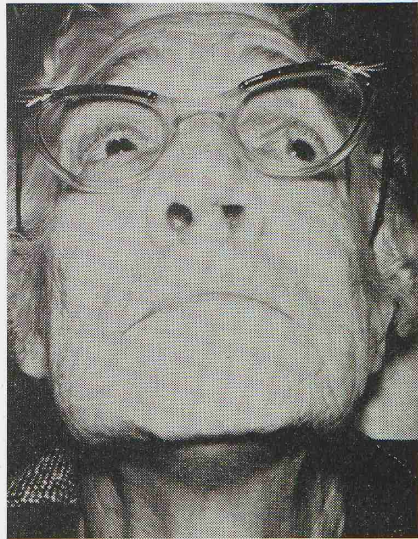


Figure 7. Pedicle graft from alar crease to repair loss of columella and floor of nares in the treatment of carcinoma of the septum; end result.

A third method of replacing soft tissue from the nose which is applicable primarily when cutaneous surface replacement is all that is required, is the use of either full thickness or split thickness skin grafting. In general, the application of skin grafts to the nasal structures should be limited to those cases in which a healthy bed of well-vascularized tissue is present and when adequate split thickness or full thickness skin can be obtained which matches both the color and texture of the nasal skin. In many cases it is easier to utilize a simple advancement of adjacent skin of the cheek, nose, or an island flap from the forehead. By the same token, rotation of local pedicles from the nasal labial crease, or the alar crease area may often give better results. Examples of free grafts and simple rotation pedicle grafts may be seen in Figures 6 and 7.

For more complex reconstruction than simple skin coverage, these same techniques described above may be utilized for reconstruction of a missing columella by the use of bilateral nasal labial crease pedicles rotated to the mid-line for establishment of a columella. An example is seen in Figure 8. Unilateral pedicles of the same type are commonly used to establish an alar margin, although in our experience, composite grafts have given better results in these cases.

A final method which should be mentioned is the utilization of the Z-plasty and Y-plasty for sections of skin from one area to another or for the lengthening procedures as seen in Figure 9.

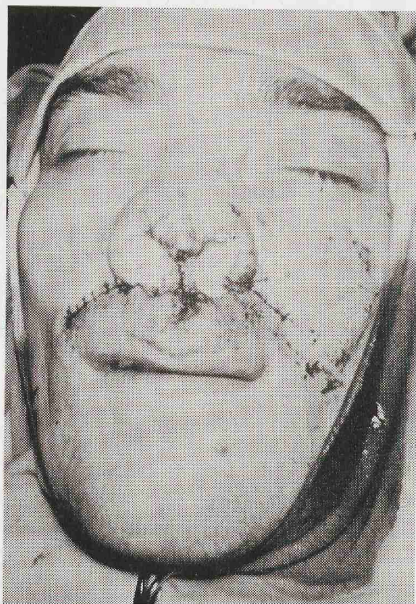


Figure 8. Bilateral nasal-labial flaps rotated into position to form a new columella following surgical excision for carcinoma.



Figure 9. Use of Y-plasty for lengthening a congenital shortening of the columella following successful repair of a bilateral cleft lip; end result.

A clear understanding of the methodology and techniques of utilizing adjacent and distant sources of skin and soft tissue for reconstruction of the nose is essential for any otorhinolaryngologist who involves himself in nasal surgery. In these times it is difficult to specialize in an area of regional surgery without being able to offer total surgical coverage involving all modalities of surgical treatment in that region. Thus, as rhinologists, we must keep abreast of the advancements in reconstructive surgery of the nose as well as those areas involving cosmetic and functional alteration.

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