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## An Orocutaneous Fistula in a Puckered Scar Treated with Local Flaps: A Case Report

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Orocutaneous; Limberg; Superolaterally

## 1. Abstract

Aesthetic facial reconstruction requires understanding regional anatomy and tissue movement and the ability to use innovatively the tissue adjacent to the defect to create a reconstruction that preserves the function of the area and the cosmetic facial units [1].

Here we present a case of right cheek post-operative puckered scar with orocutaneous fistula operated and covered with hinge flap for inner lining and limberg flap for cover. The defect is filled with tissue of the same thickness and colour, and with good vascularity [2]. Here we used local tissues for facial resurfacing to restore facial contour and closure of fistula.

Here we address two problems; puckered scar and orocutaneous fistula. Including local flaps for facial reconstruction seems to have better outcomes in terms of minimal donor site scarring especially in area like face reconstruction with alike tissues give much better cosmetic results with good contour and closure of fistula with no recurrence of fistula till date.

## 2. Introduction

Contour restoration is a key principle in facial reconstruction. The restoration of the complex facial topography is of paramount importance. If the surgical repair affords contour restoration, the overall aesthetic outcome will be significantly improved. Because of the necessity to restore the facial form, deeper surgical wounds may present more advanced challenges to the reconstructive surgeon. If a deeper defect is simply covered with a flap or graft without importing an adequate volume of tissue, there is loss of contour. This topographic disruption results in very noticeable and displeasing operative outcomes. Deeper or larger facial defects

may therefore represent challenging wounds to repair. Aesthetic and functional outcomes may be improved by varied techniques including individual aesthetic subunit repair (with multiple flaps and/or grafts), staged repairs, or laminate repairs in order to preserve both form and function [3].

A case of right cheek orocutaneous fistula operated and covered with hinge flap for inner lining and limberg flap for cover. Limberg flap is basically a parallelogram with two angles of 120° and two of 60°. The defect is filled with tissue of the same thickness and colour, and with good vascularity from surrounding tissue. Here we used local tissues for facial resurfacing to restore facial contour and closure of fistula. For closure of fistula and internal lining hinge flap was used, and for outer defect and scar limberg flap raised.

## 3. Case Report

A 54 yrs male presented in plastic surgery department with complaints of depressed and hypopigmented scar over right cheek for 1 year with pin hole orocutaneous fistula. Patient had history of ulcer over right mucosa of cheek for which he underwent a procedure wide local excision and nasolabial flap done in suspicious of malignancy in another hospital.

HPE done at previous hospital was negative for malignancy. In postoperative period patient developed hypopigmented depressed patch over right cheek with pin hole orocutaneous fistula with very occasional discharge from fistulous tract.

On physical examination there was a scar measuring approximately 3×2 cm dimension hypopigmented and depressed, 2.5 cm from right commissure superolaterally with orocutaneous fistulous pres-

ent 1.5 cm inferiorly from the upper margin of the scar (Figure 1). Procedure was done under general anesthesia with all aseptic precautions. As right nasolabial flap was used previously, decision was taken to perform a simple hinge flap for present scar and give a local flap cover for the contour defect. An incision was kept around the fistula with 10mm margin and thin flaps were raised circumferentially from around the fistula. The flaps were raised and defect created approx 3\*2.5cm. The scar was turned over itself creating a surface of raw area facing outwards and providing lining

epithelium inside (figure 2). For outer coverage limberg flap was done. The lateral margin was hinged medially creating a counter defect of 3\*2.5 cm giving a transposition flap where the shortest dimension of 2.5 cm was extended, flap was raised and transposed to cover the defect (figure 3). Patient discharged on postoperative day 2, followed up in OPD and suture removal done on 10th postoperative day. The patient presented a good postoperative evolution with satisfactory outcomes in terms of aesthetic perspectives and fistula was closed with no recurrence till date (Figure 2-4).



**Figure 1:** Pre-Operative Photographs



**Figure 2:** Marking and Raising of Hinge Flap



**Figure 3:** Marking and Raising of Limberg Flap



**Figure 4:** Postoperative Photographs

#### 4. Discussion

Restoring the complex subunits of the face and reconstructing the facial asymmetry is a principle in establishing the harmony of facial contour. Surgical wounds, previously operated scars can be present over the face which pose a challenge [4] (Figure 5).

The difficulty in facial reconstruction derives from the unique character of the face. By necessity, distant free flaps have become a first choice for large, complicated wounds. Unfortunately, distant tissue does not match facial skin in color, texture, or thickness; nor does it have a facial shape. Distant skin always appears as a mismatched patch within residual normal facial skin [5, 6]. Only local grafts and flaps “match” residual facial skin.

The hinge flap is optimal for reconstruction of deep central facial fistulous lining. The hinge flap is planned at a site contiguous with a margin of the defect and can include the dermis, subcutaneous tissue, muscle, or a combination of these. The desired tissue is folded over on the margin of fistula to fill the defect as done here. Cutaneous coverage is accomplished through a primary closure, a separate flap. In addition to restoring contour and therefore the cosmetic subunit, the hinge flap is performed in a single stage, resists wound contracture, and provides a well vascularized wound bed resulting in a low incidence of flap failure [7, 8].

The rhombic flap is a random-pattern local flap that relies on blood supply through the subdermal plexus. From this plexus, arterioles pass superiorly to supply the dermis and epidermis via the dermal and subepidermal plexuses [9]. The rich anastomotic blood supply of the subdermal plexus provides the basis of circulation to random pattern flaps, without a requirement for the axiality of blood supply to be considered. Whilst maintaining rhombic flap proportions on the horizontal plane, the use of minimal undermining of the pedicle also ensures adequate blood supply and reduces the risk of partial or complete flap necrosis [10]. This flap takes advantage of skin laxity adjacent to the defect to allow the transposition of tissue with similar characteristics to the tissue excised. This can allow a superior cosmesis when compared with skin graft reconstruction [11].

Small to medium-sized defects which cannot be primarily closed may be reconstructed with rhombic flaps. This flap offers advantages over skin grafting, such as improved color and texture matching and fewer wound sites. It may be applied to a variety of anatomic regions, particularly facial defects such as those involving the cheek, eyelids, chin, temple, and nose [12].



**Figure 5:** Follow Up Photographs

#### 5. Conclusion

In this report we treated the defect as per reconstructive ladder, i.e first with local tissue transfer to be used.

Here we address two problems i.e puckered scar and orocutaneous fistula. Including local flaps for facial reconstruction seems to have better outcomes in terms of minimal donor site scarring especially in area like face reconstruction with alike tissues give much better cosmetic results with good contour and closure of fistula with no recurrence of fistula till date.

It results in less postoperative hospital stay, better healing, resolves hypopigmentation and fistula closure.

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