

Case Report

Transposition glabellar flap in post orbital exenteration fistula: case report

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ABSTRACT

Reconstruction of facial orbital region defects, secondary to wound dehiscence following orbital exenteration to treat Mucormycosis is an issue confronting the rhinologist. The transposition flaps have a vital role when expected result is unlikely, neither aesthetic nor functional, with a simple primary closure, secondary intention, advancement sliding flap or by free skin grafts. Glabellar transposition flap was used in a patient with a wide defect involving the medial wall of the orbit. Though there is a delicate dissection of pedicle there is likelihood of a trapdoor deformity but the glabellar flap facilitates repair in a single-staged procedure. Moreover, the donor site scars are merged in the margins of the aesthetic units thereby retaining facial cosmesis.

Keywords: Transposition, Flap, Glabellas, Defect, Mucor

INTRODUCTION

Skin, subcutaneous tissue, mucosa complex is designed, cut, raised, transferred and fitted into the defect to facilitate closure of the surface discontinuity. This tissue complex is labeled a “flap” and is utilized to close wounds by second intention, primary linear closure or when expected that free skin grafts are likely to result in functional or aesthetically unsatisfactory outcome.¹ Transposition flaps have a shape that is usually rectangular and are mostly utilized to close defects in their exact vicinity or often at any angle up to 180 degrees. Defects of similar square or of a rectangular configuration are filled by these transposed flaps. The flap turns on a pivot point to reach the adjacent defect or at any angle up to 180 degrees to the defect (Figure 3b).

Enhancement of the angle is consequent with a decrease in the effective length of the flap, moreover increased folding of skin fold at the base of the flap leads to kinking of the blood supply. Thus, 90 degrees is the usual upper limit to a flap designed with respect to the defect.

CASE REPORT

A 16 year old juvenile diabetic male underwent right sided medial maxillectomy and later orbital exenteration for mucormycosis. A month after the surgery, the stitch line at the medial side, overlying the former region of the lamina papyracea gave away. There was a 1×2 cm fistulous communication with the ethmoidal region (Figure 1). He was taken up for surgical intervention under general anesthesia. An inverted V shaped transposition flap was harvested from the glabellar region

(Figure 2). It was medially rotated at 90 degree and the edges were beveled (Figure 3). The margins of the fistula were undermined, the forehead skin undermined to create two advancement flaps (Figure 4). The edges were approximated and sutured over an indwelling drain (Figure 5). After the 15th day the sutures were removed with satisfactory results (Figure 6).



Figure 1: 1×2 cm fistulous communication with the ethmoidal region.



Figure 2: Inverted V shaped transposition flap was harvested from the glabellar region.

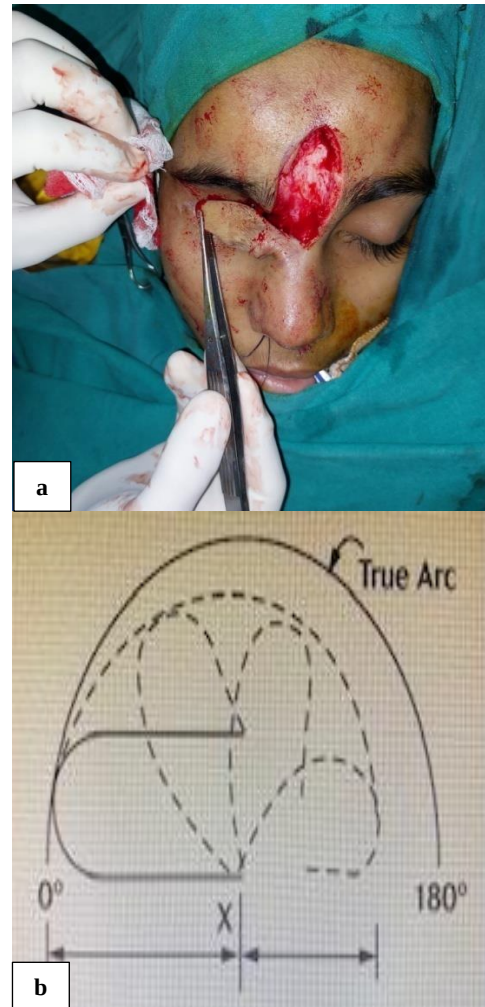


Figure 3: (a) Flap medially rotated at 90 degree and the edges beveled; (b) schematic.



Figure 4: The forehead skin was too undermined to create two advancement flaps.



Figure 5: The edges were approximated and sutured over am indwelling drain.



Figure 6: Repaired fistula after 3 weeks (a) lateral view; (b) anterior view.

DISCUSSION

Transposition flaps in head and neck reconstructive procedures include the bilobed, rhombic and nasolabial or the melolabial flaps, and the z-plasties. Another category of flap movement, interpolation, is often considered where tissue from a distance is transferred across or beneath intact tissue. The latter remains undisturbed by the procedure. Regional flaps are the appropriate terminology for these flaps.²⁻⁴

Human integument is constituted by the superficial epidermis and the deep dermis. Epidermis further is comprised of four to five layers, vis a vis, its location, stratum corneum, stratum lucidum (palms and soles of hands and feet only), stratum granulosum, stratum spinosum and stratum basale. Dermis has a superficial papillary layer and a deeper reticular layer. Vascularisation of the skin runs vertically through perforating vessels taking origin from the sub dermal plexus, sited either between the dermis and sub dermal fat or deep within the reticular dermis itself. Precise comprehension of the nature and location of the vascular pattern is vital to a successful flap transfer and thus healing of the defect.^{5,6}

The necessity of transposition flaps arises when expected outcome is unlikely, neither functional nor aesthetic, with primary closure, secondary intention, advancement sliding flap or by free skin grafts.^{7,8}

The transposition flaps require less undermining when compared to large, sliding advancement flaps and displace tissue stress away from the defect and the proximal free margins as well as reorient tension vectors in more favorable directions. Rhomboid shaped transposition flaps are particularly useful for defects adjoining the medial and lateral canthi, cheeks and lateral upper two-thirds of the nose. Moreover, they are employed widely in the lateral forehead, temple, perioral, inferior chin and dorsal hand defects. Bilobed transposition flaps are utilized in defects of the lower third of the nose, the helix and back of the ear. Nasolabial transposition flaps are time tested for medium-sized defects of the nasal ala. Procedures like the Z-plasty improves cosmesis of scars crossing relaxed skin tension lines (RSTLs) and are ideal to release scar contractures by redistributing tension over the wound.⁹⁻¹²

The transposition flaps are to be avoided in subjects with co-morbidities, poor compliance or are expected to interfere with their surgical site postoperatively.

Other contraindication to the transfer of a flap includes failure to achieve a NO tumor clearance and an existing active infection at the flap site. Residual tumors lead to recurrent tumors growing unrecognized for long periods of time along planes of undermining and ultimately cause a larger tumor burden. This risk can be minimized by local control via adequately excised margins or Mohs

micrographic surgery. Infected skin if used for a flap, enhances the morbidity and complication rates and thereby flaps failure.

Smoking, bleeding diatheses or predisposition to impaired vascular supply are issues to be considered. Nicotine multiplies the risk of necrosis of the flap. Necrosis, leads to dehiscence of wounds, prolongs the healing times and often secondary infections. Abstinence from smoking a fortnight prior to, and one week after surgery can minimize these complications. Patients with inherited bleeding diatheses or anticoagulation therapy are vulnerable to perioperative or postoperative haemorrhage and hematoma formation. Hematologist crosses consults before surgery of patients with known inherited bleeding diatheses is required. Antiplatelet and anticoagulant medications, when appropriately managed, are generally continued during surgery to avoid the risk of thrombotic events. Flaps from irradiated skin or scar, tissue with likelihood of impaired vascular supply is generally avoided as it can reduce blood flow in the pedicle and adversely affect the viability of the flap.^{13,14} The untoward aspects of these procedures are edema, pain, infection, flap necrosis, scarring, hemorrhage, hematoma, and hypertrophic scar or keloid. Transposition flaps may have the trapdoor effect, where there is a pincushion appearance, elevation of part of the flap above surrounding skin. This is more noticeable where there is insufficient tissue undermining, an oversized flap, excess subcutaneous fat in the flap or insufficient flap contact with the wound base. Trapdoor deformities are more likely in superiorly based flaps as the lymphatic drainage pathways are interrupted at the dependent aspect of the flap due to an incision.^{11,15,16}

CONCLUSION

Lateral forehead transposition flap is a common method for repairing cutaneous surgical, defects that may otherwise be functionally or aesthetically unacceptable if other reconstructive methods are selected.

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