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Case Report

Tunneled superior naso-labial island flap in post mucor infraorbital defect

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ABSTRACT

Reconstruction of facial infraorbital defects, an untoward sequel of mucormycosis, is an issue confronting the rhinologist. Tunneled island flap was used in a patient with a wide defect involving the infraorbital region. Inspite of intricate pedicle dissection and likelihood of a trapdoor deformity these flaps facilitate repair in a single-staged procedure. The flap is so sited that its vascularity is not compromised neither by stretch tension or overlying tissue compression; while in the tunnel. The occasional, slight bulging is observed which is due to the pedicle; just over the undermined tunnel. This effect settles down with time and doesn't need corrective intervention**.** Moreover**,** the donor site scars are merged in the margins of the aesthetic units thereby retaining central facial symmetry.

Keywords: Face, Mucor, Nasolabial, Island flap, Reconstruction

INTRODUCTION

Subcutaneous tunneled island flaps are modified conventional island flaps, utilized in facial reconstructive surgery, with emphasis on the defects in the region of the medial and inferior canthus as well as the dorsum of the nose and alae.

Harvesting a tunneled flap, necessitates, a cutaneous island with matching measurements, shape, color and texture to the defect so created. Moreover, the paddle should be" nearby" but not exactly in its "vicinity". The incision encircles the entire circumference of the flap on the surface, but preserves a subcutaneous pedicle, with sufficient length to permit mobilizing the cutaneous island towards the defect, through an underlying tunnel so created between the donor and recipient site. Tunneled island flaps have been described for the reconstruction of the medial canthus of the eye, dorsum and ala of the nose, and when adequately performed, represent an excellent alternative.[1-5]

A patient with a fistula after treatment of mucor, lying at the infra-orbital region repaired with an island flap is discussed.

CASE REPORT

In a 62-year-old patient of mucormycosis, the radical debridement of the osteitic and osteomyelitic bone of the infra-orbital region of the maxillary sinus resulted in a wide defect on the left side (Figure 1). The defect was about 10 mm by 20 mm and was sited just beneath the orbital rim. The reconstruction was performed using a superiorly based nasolabial island flap with the dissection of a subcutaneous pedicle up to the medial canthus of the eye and then laterally tunneled anti clockwise to obliterate the defect (Figure 2). The flap was supported

circumferentially by the adjoining bone. It was sutured in two layers using vicryl and ethilon (Figure 3). Three months after the procedure the defect was imperceptible. The final outcome was considered satisfactory by the patient and by the surgical team (Figure 4).

Figure 1: Deep defect in the infraorbital region after sequestrectomy.

Figure 2: Superior naso-labial island flap mobilized through the subcutaneous tunnel created above the canine fossa.

Figure 3: Repair of the infra-orbital defect.

Figure 4: Three months after surgery.

DISCUSSION

The principle of tunneling has wide application in the repair of defects of the ear, ear lobe, concha, upper lip, and the nasal vestibule. Flip-flop flap is the term used in certain groups.[3,6-8] As it is a modified island flap, it has to be extensively irrigated .It is quite mobile and the undermined tunnel facilitates a straight trajectory towards the area of concern.[3,9]

This flap needs only a single stage procedure, though technically demanding, thereby avoiding the morbidity of subsequent interventions.

Island flaps are utilized in the region of the dorsum and ala of the nose, specifically in intact alar crease and the lateral nose, in order to allow tunneling of the flap through these structures.[4] The configuration of this flap permits planning of the scar on the donor site to be placed in transition areas of the facial aesthetic units.[10] Thereby one can repair large defects of the nasal region, where tissue mobility is reduced, retaining thereby color and texture of the surrounding skin and preserving the alar crease.

Moreover, these flaps are unique that they can repair deep defects, in the proximity of the eye. Secondary intention healing is often an acceptable option in such situation, but glabellar or frontal tunneled island flaps can be used in, extensive and deep defects to fill the concavity of the medial canthus or the infraorbital region.[1]

Tunneled island flap infact is difficult to harvest and requires meticulous, precise, patient and slow dissection of the pedicle.

Emphasis is laid on to measure with precision the length of the pedicle to compensate for the shortening to be expected on mobilizing and tunneling the skin paddle, thereby not shearing the flap and traumatizing the structures beneath during the procedure.[10] The flap is so sited that its vascularity is not compromised neither by

stretch tension or overlying tissue compression, while in the tunnel. The occasional, slight bulging is observed which is due to the pedicle; just over the undermined tunnel. This effect settles down with time and doesn't need corrective intervention.

In addition to the usual complications of surgical interventions, namely hemorrhage, infection and necrosis, these flaps are likely to exhibit a trapdoor effect. Like lihood of this deformity can be minimized by deliberately reducing the flap area in 20 to 25%[3] and undermining the borders of the recipient site.[5]

Minimal trapdoor effect does not require any action besides frequent massaging of the flap and it can actually be beneficial in some situations as, for example, when recreating the round shape of the ala nasi.[10]

CONCLUSION

Tunneled nasolabial island flap is a modified conventional island flap, with an excellent outcome in the reconstruction of the vicinity of the eye and the nose. Inspite of the likelihood of developing a trapdoor deformity it is an ideal procedure to repair defects at crucial sites in the head neck region, thereby retaining symmetry of the mid face.

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REFERENCES

1. Mombaerts I, Gillis A. The tunneled forehead flap in medial canthal and eyelid reconstruction. Dermatol Surg. 2010;36:1118-25.
2. Kersaf S, Sacak B, Bayraktaroglu S, Ozcan A, Ugurlu K, Bas L. A novel approach for the reconstruction of medial canthal and nasal dorsal defects: frontal hairline island flap. J Craniofac Surg. 2008;19:1653-7.
3. Cook JL. Tunneled and transposed island flaps in facial reconstructive surgery. Dermatol Surg. 2014;40:16-29.
4. Kearney C, Sheridan A, Vinciullo C, Elliott T. A tunneled and turned-over nasolabial flap for reconstruction of full thickness nasal ala defects. Dermatol Surg. 2010;36:1319-24.
5. Krishnan RS, Clark DP, Donnelly HB. Tunneled transposition flap for reconstruction of defects of the nasal ala. Dermatol Surg. 2007;33:1496-501.
6. Kishi K, Imanishi N, Shimizu Y, Shimizu R, Okabe K, Nakajima H. Alternative 1-step nasal reconstruction technique. Arch Facial Plast Surg. 2012;14:116-21.
7. Fader DJ, Johnson TM. Ear reconstruction utilizing the subcutaneous island pedicle graft (flip-flop) flap. Dermatol Surg. 1999;25:94-6.
8. Wang SQ, Goldberg LH, Kimyai-Asadi A. Tunneled island pedicle flap for an earlobe defect. Dermatol Surg. 2007;33:835-7.
9. Georgiade NG, Mladick RA, Thorne FL. The nasolabial tunnel flap. Plast Reconstr Surg. 1969;43:463-6.
10. Mahlberg MJ. Tunneled melolabial pedicle flap for small but deep lateral alar rim facial. Dermatol Surg. 2013;39:1527-9.
11. Gouveia MP, Gouveia AI, Brinca A, Vieira R. Tunneled island flaps in facial defects reconstruction. A Bras Dermatol. 2017; 92(5):151-3.

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