Saudi Journal of Medical and Pharmaceutical Sciences **ISSN 2413-4929 (Print)**
Scholars Middle East Publishers **ISSN 2413-4910 (Online)**
Dubai, United Arab Emirates
Website: http://saudijournals.com/

Lower Eyelid Reconstruction Using Prelaminated Nasolabial Flap: A Revisited Surgical Technique

Ozinko MO*, Otei OO, Ekpo RG
Burns and Plastic Division, Department of Surgery, Faculty of Medicine, University of Calabar, Calabar, Nigeria

Case Report

***Corresponding author**
Ozinko MO

Article History
Received: 22.08.2018
Accepted: 04.09.2018
Published: 30.09.2018

DOI:
10.36348/sjmps.2018.v04i09.002

Abstract: We present the lower eyelid reconstruction using prelaminated nasolabial skin flap in a 28- year old albino, who presented with medial third lower eyelid lesion with a histopathologically proven basosquamous carcinoma. When dealing with skin cancers of the eyelid, it could involve partial and full thickness excision. The excised tissues should be replaced. The eyelid ulcer was excised, with histogically free margin of 3mm but the medial canthus was spared. There was no injury to the nasolacrimal duct. The excised defect measured 28mm by 19mm of the medial lower eyelid. In the first stage of the reconstruction, a turn over proximally based nasolabial flap was raised and stitched to the excised margin of the lower eyelid. The flap was prelaminated with skin graft taken from the upper medial aspect of the thigh which was hairless. The graft had 100% take and after two weeks, the nasolabial flap was divided and inset. There was satisfactory graft and flap survival. About 8 weeks after the second staged surgery , the nasolabial flap was defatted and a functionally as well as aesthetically acceptable eyelid to the patient was achieved .The use of prelaminated nasolabial flap is a good option in the lower medial third eyelid reconstruction .

Keywords: Lower eyelid reconstruction, prelaminated nasolabial flap, Basosquamous carcinoma.

INTRODUCTION

The reconstruction of the medial third of the lower eyelid with or without the medial canthus poses a reconstructive challenge. Various loco-regional flaps have been used with good outcom. Aetiologically, skin cancers, trauma, congenital defects, infections with disfigurement of the lids are frequently encountered by the reconstructive surgeons of the eyelids.

Skin cancers, such as squamous cell carcinoma, basal cell carcinoma, basosquamous carcinoma and melanoma, are commonly encountered ones in our clinical practice.

Structurally, the eyelid is a thin tissue which consists of the palpabral conjunctiva, the tarsal plate , the muscles and the overlying skin .The eyelashes also add beauty to the lid .The adjoining medial canthus is one of the most difficult areas to reconstruct as skin here is in short supply. The region also has a natural concavity which is cosmetically important and nasolacrimal ducts which may not function if there is injury to the duct.

The main aim of lower eyelid reconstruction is to produce a functional and aesthetically pleasing lower eyelid with minimum morbidity .Two specialized layers namely: the posterior lamella (tarso-conjunctival layer) and the anterior lamella (skin and orbicularis muscles) need to be reconstructed to accomplish these goals. Many methods of reconstruction rely on replacing one of the layers with a graft and the other with a vascularised flap. We described and share our experience with the use of prelaminated skin graft and nasolabial flap, which reconstructs both the posterior and anterior lamellae with vascularised tissue similar to that of the native eyelid.

CASE REPORT

A 28 – year old male albino who presented with the history of ulcers on the lower eyelid, forearm and the forehead of two years duration. He first developed actinic keratoses on the exposed parts of the body from where he started noticing some wounds. The onset of the wounds was not preceded by injuries. The lower eyelid ulcer started with a skin tumour which eventually ulcerated. A biopsy was taken and a histopathologically proven basosquamous cell carcinoma was diagnosed. He was worked up for surgery.

SURGICAL ANATOMY

The eyelids act to protect the anterior surface of the globe from local injury. Additionally, they aid in regulation of light reaching the eye; in tear film maintenance, by distributing the protective and optically important tear film over the cornea during

blinking; and in tear flow, by their pumping action on the conjunctival sac and lacrimal sac.

Structures that must be considered in a description of lid anatomy are the skin and subcutaneous tissue; the orbicularis oculi muscle; the submuscular areolar tissue; the fibrous layer, consisting of the tarsi and the orbital septum; the lid retractors of the upper and lowereyelid; the retroseptal fat pads; and the conjunctiva.

SURGICAL PROCEDURE

In the operating theatre, patient had general anaesthesia with endotracheal intubation. Skin prep and draping were done. The eyelid lesion (Fig-1) was excised with histopathologically free margin of 3mm but the medial canthus was spared by the aid of frozen section .There was no injury to the nasolacrimal duct . The excised defect measured 28mm by 19mm of the medial lower eyelid. In the first stage of the reconstruction, a turn over, proximally base nasolabial flap was raised and stitched to the excised margin of the lower eyelid. The flap was prelaminated with skin graft (Fig-2) taken from the upper medial aspect of the medial thigh which was hairless. The graft take was 100% and after three weeks, the nasolabial flap was divided and inset. There was a satisfactory graft take and flap survival. Eight weeks later, the nasolabial flap was defatted and a functionally as well as aesthetically acceptable eyelid to the patient was achieved (Fig-3). The excised and grafted ulcer on the forearm and forehead also healed satisfactorily. Patient has had six months of follow- up with good outcome.

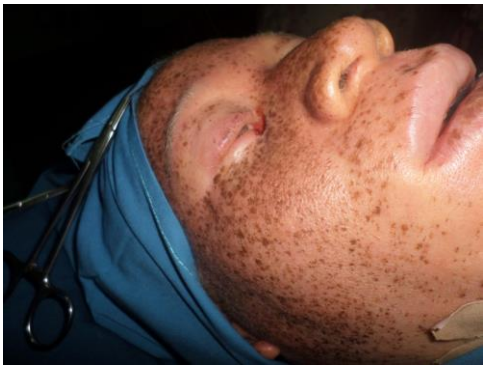

Fig-1: Eyelid lesion

Fig-2: Prelaminitated Nasolabial Flap Awaiting Division and Inset

Fig-2: Eight Week after Debulking Surgery

DISCUSSION

Reconstruction of the medial 3rd of the lower eyelid is done by the reconstructive or oculoplastic surgeons. The reconstruction of full thickness defect to achieve both functional and aesthetic outcome is very complex and challenging.

Aetiologically, skin cancers e.g the basal cell carcinoma, the squamous cell carcinoma, basosqamous carcinoma and melanoma, are the leading causes of eyelid defects. The eyelid defects could be partial or total. The bi-lamellar nature of the eyelid must be replaced. Various methods have been used to reconstruct the lower eyelid which consists of the posterior and anterior lamellae in full thickness loss.

In the reconstruction of the eyelid, the following principles [1] must be observed: The eyelids can be divided into two lamellae: the anterior skin – muscle and the posterior tarso-conjunctival lamella. Both need to be replaced for structural integrity and cosmesis. Secondly, the incisions should be placed along the relaxed skin tension lines or skin wrinkle lines to avoid prominent scarring. Thirdly, there should be symmetry between the two eyelids. Fourthly, the sutures should be placed with the knot facing the cutaneous side to avoid corneal irritation. Fifthly, sutures should be passed to ensure that the suture loop is wider in the deeper layers to evert the edges and avoid depressed scars. Finally, the inferior fornix depth should be enough and the avoidance of injury to the naso-labial duct to prevent epiphora.

The posterior lamella is commonly replaced by the use of nasal septal cartilage [2], auricular cartilage [3, 4], hard palate mucosa [5, 6], skin graft and other autologous grafts. The anterior lamella could be replaced by cheek rotation flap (mustarde) [7], bi-pedicled musculocutaneous Tripier flap, upper eyelid flap [8, 9], angular artery flap, the midforehead or glabellar flap [10], Tenzel's semicircle flap or Fricke flap or a full thickness skin graft. Siegel [6] described the use of nasolabial flap to cover shallow lower eyelid defect combined with a palatal mucosal graft .The flap pedicle included the angular artery.

In the reconstruction of the medial 3rd lower eyelid, the use of tarso-conjunctival flap poses a threat to the medial canthus and the nasolacrimal duct drainage. Although the defect is less than 25%of the lower eyelid, the location could not permit the use of the ideal shape of the defect to be converted to a pentagon or triangular shape for a linear closure. Flaps are commonly used for the anterior lamella. Local flaps are preferred because they tend to be readily available, thin and provide a good colour match. The advantages with nasolabial flap are the reliable vascularity of the flap with satisfactory post operative healing. We have used the prelaminated skin graft with the nasolabial flap in the reconstruction of the medial 3rd lower eyelid defect with satisfactory outcome. The harvesting and donor site morbidity of the skin graft is minimal compared to its equivalent.

The advantages with the use of nasolabial flaps are the inconspicuous donor scar concealed in the nasolabial fold, and the reliable vascularity of the flap. In contrast to the cheek rotation flap, particularly in the male patient, the medial displacement of the hair-baring area is avoided by the use of nasolabial flaps.

When the surgical defect is extensive after lower eyelid trauma, carcinoma, cicatricial secondary healing, congenital defects or sequelae, the nasolabial flap may be considered for eyelid reconstruction.

We therefore advocate the use of this skin graft prelaminated nasolabial flap for lower medial 3rd full thickness defect.

CONCLUSION

Lower medial 3rd eyelid reconstruction poses both cosmetic and functional challenges. The use of skin graft prelaminated nasolabial flap is a good option. There is minimal donor site morbidity as well as good structural integrity and function. Its simplicity is an additional advantage.

CONFLICT OF INTEREST: Nil

FUNDING: Nil

INFORMED CONSENT

We obtained informed consent before publication.

REFERENCES

1. Sharma, V., Benger, R., & Martin, P. A. (2006). Techniques of periocular reconstruction. *Indian journal of ophthalmology*, *54*(3), 149.
2. Mustardé, J. C. (1972). Problems in eyelid reconstruction. *Annals of ophthalmology*, *4*(10), 883-901.
3. Koshima, I., Urushibara, K., Okuyama, H., & Moriguchi, T. (1999). Ear helix flap for reconstruction of total loss of the upper eyelid. *British journal of plastic surgery*, *52*(4), 314-316.
4. Krastinova, D., Franchi, G., Kelly, M. B. H., & Chabolle, F. (2002). Rehabilitation of the paralysed or lax lower eyelid using a graft of conchal cartilage. *British journal of plastic surgery*, *55*(1), 12-19.
5. Nakajima, T., & Yoshimura, Y. (1996). One-stage reconstruction of full-thickness lower eyelid defects using a subcutaneous pedicle flap lined by a palatal mucosal graft. *Journal of Plastic,*

Reconstructive & Aesthetic Surgery, *49*(3), 183-186.

6. Siegel, R. J. (1985). Palatal grafts for eyelid reconstruction. *Plastic and reconstructive surgery*, *76*(3), 411-414.
7. Mustarde, J. C. (1986). Major Reconstruction of the eyelid: Functions and aesthetic considerations. *Clin. Plastic Surgery*, 8:367-69.
8. Porfiris, E., Christopoulos, A., Sandris, P., Georgiou, P., Ioannidis, A., Popa, C. V., & Kalokerinos, D. (1999). Upper eyelid orbicularis oculi flap with tarsoconjunctival island for reconstruction of full-thickness lower lid defects. *Plastic and reconstructive surgery*, *103*(1), 186-191.
9. Furnas, D. W., & Furnas, H. (1983). Angular artery flap for total reconstruction of the lower eyelid. *Annals of plastic surgery*, *10*(4), 322-325.
10. Dortzbach, R. K., & Hawes, M. J. (1981). Midline forehead flap in reconstructive procedures of the eyelids and exenterated socket. *Ophthalmic Surgery, Lasers and Imaging Retina*, *12*(4), 257-268.