

Post Traumatic Lower Lid Reconstruction by Wolfe Graft: A Case Report

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Abstract

In this modern area where cosmetic and aesthetic sense prevails, every reconstructive surgeon needs various skills to meet the challenges to bring back the former structure and function of the area involved. Eyes are an integral part of the face and hence more challenging for the surgeon. Eyelid tumor excision and trauma are two common causes of eyelid defects requiring surgical reconstruction. Nowadays, there are a wide variety of techniques available for various types of construction. This case report is on lower lid reconstruction for an anterior lamellar defect using full-thickness skin graft (FTSG). FTSG is easy to perform and gives very good results.

Keywords: Eyelids, Reconstructive procedures, Skin transplantation

INTRODUCTION

Eyelids are like protective shutters for the eye. Not only do they impart aesthetic appeal to the face, it imparts several purposes like protecting the eye from dust, foreign body, trauma, maintaining moistness, draining the tears, etc.

Eyelid reconstruction is an art of its own. Many a times, it is warranted following excision of tumors, in congenital anomalies and following trauma. Uncorrected wounds can later go for cicatricial ectropion and entropion, scarring, symblepheron and cosmetic disfigurement and hence correction is imperative.

The choice of procedure for the reconstruction will depend upon the degree of anterior or posterior lamellar involvement. The principles guiding upper and lower reconstruction are also different. There are several methods now available which include primary closure of wound, free skin grafts, myo-cutaneous advancement

flaps, tarsoconjunctival substitutes like hard palate mucoperiosteum, nasal septalchondromucosa, acellular human dermis etc.¹ In this article, we describe a case of post-traumatic lid reconstruction using Wolfe Graft.

CASE REPORT

A 22-year-old male patient presented to our outpatient department with a history of injury to right lower eyelid following road traffic accident 10 days back. He had presented himself to the emergency department of a local hospital where immediate first aid was given. No history of loss of consciousness, vomiting or nausea. No history of blurring of vision, diplopia, floaters, etc.

General examination was normal. No signs of head injury or long bone fracture. Local examination revealed two deep lacerated wounds. One was on the forehead, 2 cm above lateral end of right eyebrow measuring 4.2 cm × 2.6 cm × 1 cm. There was a second anterior lamellar defect involving the lateral 2/3 of right lower lid and measured 5.3 cm × 2.4 cm × 1.7 cm (Figure 1). There was also a superficial abrasion over the upper eyelid just below the lateral end of right eyebrow.

Floor of the wound had red granulation tissue and wound margins were healthy.

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Anterior segment examination was normal. Visual acuity was 6/6 OU and dilated fundus examination was normal.

Patient was taken up for wound reconstruction by full thickness graft under general anesthesia. The donor site was skin of inner brachium (Figure 2). After measuring both the defects, full thickness graft was taken from both inner arms and the site was sutured back using 5-0 chromic catgut for deep sutures and 4-0 vicryl for skin. The grafted skin was meticulously placed over the wound sites and sutured with 5-0 vicryl (Figures 3 and 4).

Non-adhesive dressing was placed after the suturing and patient shifted out from the operation theater. Adequate coverage of injectable antibiotics and anti-inflammatories were given. In the serial follow-ups, the graft was well taken up.

DISCUSSION

Once the eyelid anatomy is compromised, only surgical repair will help restore the integrity of the eyelid. Eyelid

reconstruction will help restore the anatomy and function, normalize the eyelid position and movements.² Hence sound knowledge of eyelid anatomy is required. Each eyelid has an anterior and posterior lamella. The anterior lamella consists of skin and orbicularis muscle and posterior lamellae consisting of the tarsal plate, layer of smooth muscle and conjunctiva.

There are several methods for eyelid reconstruction. The methodology adopted will vary depending upon whether the upper or lower lid is involved, whether the anterior or posterior lamella is involved and also with the extent of the defect.

Free skin grafts are helpful in covering areas of anterior lamellar defects of the lower lid especially that cannot be covered with myo-cutaneous flaps.

Skin grafts, which can be used are of two types: Full thickness skin grafts (FTSG) and split thickness skin grafts (STSG).



Figure 1: Pre-operative photo

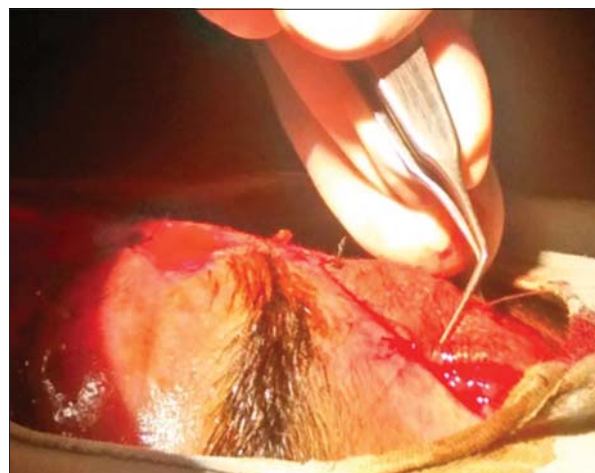


Figure 3: Graft being sutured to the site

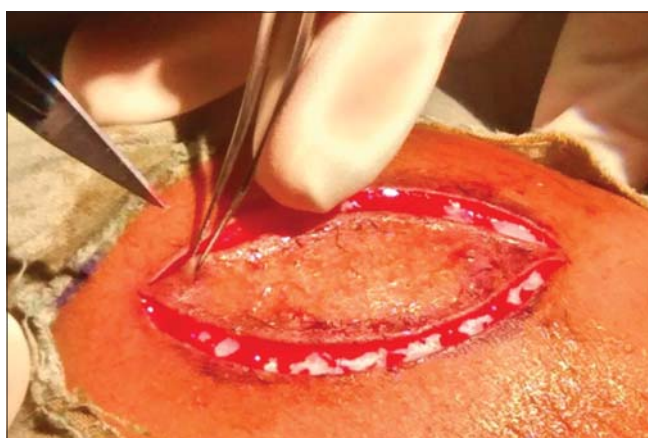


Figure 2: Skin graft harvested from inner arm



Figure 4: Post-operative day 1

STSGs involve the epidermis and partial thickness of the dermis. It is used to cover large areas of defect and the rate of auto rejection is also low. Also these grafts tend to be fragile and appear paler when compared to the adjoining skin. Humpy's knife, dermatome, etc. are used to take a STSG. Split thickness grafts however are usually not used in lid reconstruction.

FTSGs are also known as Wolfe Graft. It consists of the entire thickness of the epidermis as well as the dermis. They are harvested by sharp dissection with a scalpel. They are mostly used for small wounds and on the visible parts of the body like face. They provide excellent color match and cosmetically also they look excellent.

The donor site for the FTSG should be matched well in terms of thickness and texture. Retro-auricular skin, supraclavicular area, inner arm skin, groin (children), upper eyelid if lax are the preferred sites.³

In the upper and lower eyelids, the underlying orbicularis provides excellent vascular bed for the graft and if it's absent, muscle should be moved in from around the defect.

If the posterior lamella is involved, skin graft cannot be used as there must be a tarso-conjunctival substitute. Many different materials can be used like ear cartilage, temporalis fascia, nasalseptal cartilage etc.

Early complications include infection, hematoma or seroma collection under the graft which will result in difficulty for the graft to be taken up. Long-term complications include graft hypertrophy, partial graft failure, long time

to vascularization, rarely graft contracture and its sequelae such as ectropion and lid retraction.⁴ Graft hypertrophy can be managed in the same lines of hypertrophic scars and keloids.

Contra-indications for performing skin graft include infection at the donor and recipient site, wounds contaminated with foreign body, inadequate blood supply to sustain a graft etc.

CONCLUSION

Today, there are several methodologies available to correct anomalies and defects of the lid. Reconstruction of the lid and peri-ocular area using free skin grafts is an easy procedure without any steep learning curve and gives cosmetically and functionally very good results. The complications seen with this technique is also very less. Hence, it should be a part and parcel of every reconstructive surgeons skill.

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