

# Eyelid reconstruction

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## Abstract

15 eyelid defects were reconstructed in Plastic Surgery Department, bps govt Medical College for women, Sonapat with satisfactory results using various techniques according to the defect and following the basic principles outlined by Mustarde.

## Introduction

Eye is the one which not only looks but also looked upon. The goal of eyelid reconstruction is to protect the globe so that there is neither an obstruction to vision nor an exposure keratitis while maintaining a normal appearance. Eyelid tissue defects may be congenital or may result from excision of neoplasms, trauma, irradiation, burns or inflammation.

Legends who have contributed for the development of this field are Von Graefe (1818) who reconstructed lower lid with a cheek flap. Fricke (1829) used zygomatic and temporal skin flaps for lid reconstruction. Lawson (1871) used skin graft to correct ectropion. Wolfe (1875) reported correction of burn scar lower eyelid ectropion with full thickness skin graft. Teale (1860) reported the correction of symblepharon by the use of a conjunctival flap. Gradenigo (1940) used a graft of eyelid skin to repair an eyelid defect. Landolt was the first to employ tarsconjunctival flap in lid reconstruction. Mustarde in 1980 outlined a system of upper eyelid reconstruction with lid switch flaps. Blaskowics reported the use of tarsal grafts. Kazanjian (1949) was the first to use an island flap for lid reconstruction. Fricke & Kreiberg described a transposition flap from the forehead for reconstruction of the upper and lower eyelid. More medially situated defects of the upper lid can be repaired with a bilobed flap from the forehead. Beyer-Machaule, *et al.* (1993) have described a semicircular flap for the closure of upper eyelid defects involving one-fourth to one-half the length of the lid. Transposition flap of von Langenbeck can be used for repairing a lower lid defect with ectropion.

Gradenigo introduced the concept of using similar available eyelid tissue to replace the deficient tissue. Tripiel flap from the upper eyelid can be used to correct ectropion of the lower lid. Imre cheek advancement is another option for repairing a lower lid ectropion. The lower lid defects of up to 75% were reconstructed with Mustarde cheek advancement flap. Medium to large lower lid defects can be covered with tarsconjunctival flap (Modified Hughes procedure). The Cutler Beard or bridge flap can reconstruct large full thickness eyelid defects. Mustarde's jumping man technique is used for correction of vertical contractures of the medial canthus. Tenzel semicircular rotation flap works well in central defects. Kazanjian (1949) first reported use of an island flap with a subcutaneous pedicle for eyelid reconstruction.

This study was done to evaluate the various reconstructive options available in eyelid reconstruction in 15 eyelid defects with good results. The defects included tissue loss (5), ectropion (6), entropion (1) and eye

brow loss (2). The aim was to achieve maximum functional restoration with acceptable aesthesis and minimal donor site morbidity.

## Material and methods

This study was done in Plastic Surgery Unit, bps govt medical college for women, Sonapat to correct eyelid deformities such as ectropion, entropion and defects following excision of tumor, burn injury & trauma. During the past one year, there were 11 upper eyelid and 3 lower eyelid defects. Nine patients were male and 5 patients were female. Age group ranged from 5 years to 65 years. The 11 upper eyelid defects included post burn scar lid ectropion (6), tumor excisional defect (3) and traumatic loss (1). Six cases of post burn scar lid ectropion were corrected by release and overcorrection (20%) with thick split graft. One case of squamous cell carcinoma involving bridge of nose and medial canthus was excised and reconstructed with forehead flap. Two cases of eyebrow loss was repaired with free composite scalp graft. One patient with lid avulsion & tissue loss was reconstructed with forehead flap. Primary repair of the lower lid was done in 2 cases. All the reconstructed lids healed well with satisfactory results.

## Discussion

Eyelid reconstruction is a challenging procedure demanding technical skill and expertise. Various techniques have been described in the literature for eyelid reconstruction.

Basic principles of eyelid burn scar release involve a thorough, wide, and overcorrecting release of the deformity. Thick split grafts are often used for the upper eyelids, since this is a more mobile unit [1-4].

If direct closure or advancement and rotation flaps are not sufficient to fill in a defect, a skin graft can be used.

Defects extending beyond the medial canthal angle are filled with an advancement flap, rotation flap or a graft. The best colour match is obtained with a full thickness graft from another lid or retroauricular area.

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One patient received a forehead flap for upper eye lid loss. Full thickness skin grafts and tarsorrhaphy are effective in correcting upper eyelid cicatricial ectropion without functional compromise. This approach was used to correct the post trauma upper lid ectropion. This patient has a residual mild ectropion and was given the option of conchal cartilage one month after the initial surgery. However, he was lost to follow up.

Post burn or infective loss of eyebrows is corrected by free scalp grafts, island flap based on the superficial temporal artery, scalp flap or flap of the opposite brow. In our patient with eyebrow loss it was corrected by a free temporal scalp graft and had a satisfactory outcome.

Medial and lateral canthal contractures are corrected by local flaps or Z-plasties. A case of post trauma lower lid entropion with lateral canthal contracture was released and full thickness graft was used to fill in the defect. Adjacent tissue skin grafts are a useful alternative for reconstruction of partial thickness defects of the eyelid& periorbital area [5,6].

Eyelid tumors affecting the eye in general prove to be highly challenging to plastic surgeons. Reconstruction must be precisely detailed when dealing with lesions that primarily affect the skin but progressively the eyelid margin [7].

Closure of upper eyelid defects must not only provide the structural base of the lid but also maintain functional properties to ensure the integrity of the eye.

Role of upper eyelid is for mobility [8-10]. It should be reconstructed with light-weight, pliable tissue. The lower eyelid is for stability. Various options available for reconstruction should incorporate, technical expertise, and the specific needs of the patient before choosing a particular method.

## References

1. McConnell CM, Neale HW (1977) Eyebrow reconstruction in the burn patient. *J Trauma* 17: 362-366. [[Crossref](#)]
2. Older JJ (2003) Eyelid tumors, 2nd Edition, Thieme, New York, pp 90-106.
3. Achauer BM (1991) Burn Reconstruction, 1st Edition, Thieme, New York, pp40-51.
4. McIndoe AH (1983) Total reconstruction of the burned face. The Bradshaw Lecture 1958. *Br J Plast Surg* 36: 410-420. [[Crossref](#)]
5. Kaufman AJ (2005) Periorbital reconstruction with adjacent-tissue skin grafts. *Dermatol Surg* 31: 1704-1706. [[Crossref](#)]
6. Sharma BR, Sharma M (2005) Severe post thermal burn cicatricial ectropion with corneal ulceration: an illustrative case. *JNMA J Nepal Med Assoc* 44: 102-105. [[Crossref](#)]
7. Hudson DA (2000) Some thoughts on choosing a Z-plasty: The Z made simple. *Plast Reconstr Surg* 106: 665-671. [[Crossref](#)]
8. Weerda H (2001) Reconstructive Facial Plastic Surgery, 1st Edition, Thieme, New York, pp95-100.
9. Kohn R (1988) Textbook of ophthalmic, plastic & reconstructive surgery. 2 Philadelphia: Lea&Febiger.
10. Codner MA, McCord CD, Mejia JD, Lalonde D (2010) Upper and lower eyelid reconstruction. *Plast Reconstr Surg* 126: 231e-245e. [[Crossref](#)]