

## Case Report

# Total upper and lower eyelid reconstruction using deltopectoral flap

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## ABSTRACT

Total upper and lower eyelid unilateral full thickness reconstruction is a surgical challenge. A case of right orbital haemangioma with unilateral complete defect of total upper and lower eyelids with right orbital exenteration is reported, together with the surgical technique of reconstruction. Patient was a 24-year-old female who underwent right orbital exenteration with total upper and lower eyelid excision for orbital haemangioma presented after 3 weeks of the above procedure. In the first stage split thickness skin grafting is used to resurface orbital cavity raw area followed by staged reconstruction of total upper and lower eyelid reconstruction using pedicle deltopectoral flap. This reconstruction provided stable eyelid reconstruction to retain ocular prosthesis with concealed and minimal donor area. After reconstruction patient underwent rehabilitation with ocular prosthesis, now the patient is satisfied with cosmetically acceptable results.

## KEY WORDS

Deltopectoral flap; total eyelid reconstruction; total upper and lower eyelid reconstruction with DP flap

## INTRODUCTION

Eyelid is an important structure which protects the eyeball and is made of specialised tissues. Hence, replacing the similar tissue following loss of eyelid especially in total loss of both eyelids is difficult and challenging owing to both its size and the fact that reconstructive techniques relying on neighbouring tissue are often not possible.<sup>[1]</sup> In case of orbital exenteration with full thickness loss of both upper and lower eyelid, the aim of reconstruction of both eyelids is to support

ocular prosthesis. Very limited reconstructive options are available in such cases. While reviewing the literature, we found cases of total eyelid defects, following periocular tumour excision,<sup>[2]</sup> the remaining conjunctiva was used to provide corneal coverage in few cases<sup>[3-5]</sup> whereas nasal chondromucosal and buccal mucosa were used for the posterior lamella in another.<sup>[6]</sup> Anterior lamellar repair was described with pedicle tissue flaps,<sup>[3,4]</sup> sandwich flaps containing pedicle muscle under free skin grafts<sup>[6]</sup> and free flaps.<sup>[5]</sup> This article reports the case of a patient with unilateral total defect of both upper and lower eyelids with orbital exenteration following haemangioma excision. We used deltopectoral flap (DP) with split thickness skin grafting (STSG) on the inner surface to reconstruct total upper and lower eyelid.

To the best of our knowledge, this is the first report of DP for total upper and lower eyelid reconstruction.

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## CASE REPORT

A 24 year-old woman, who had undergone a right orbital exenteration with total upper and lower eyelid excision for orbital haemangioma, presented to us for reconstruction of eyelids, after 3 weeks of the above procedure. At presentation right socket was covered with healthy granulation tissue [Figure 1]. At the first stage STSG done to cover the raw area of right orbital socket [Figure 2]. At 2<sup>nd</sup> stage 3 weeks after the first procedure delay of DP was done beyond DP groove on the right side. The dimension of the flap was 24 cm × 8 cm. 1 week later DP was raised; inset given to skin margin at upper orbital rim and inner surface of the flap at the distal part, which forms upper and lower eyelid in the future, is covered with STSG [Figure 3]. The donor area covered with STSG. 3 weeks later flap division was done and lower inset of the given to skin margin at lower orbital rim [Figure 4] and part of proximal flap

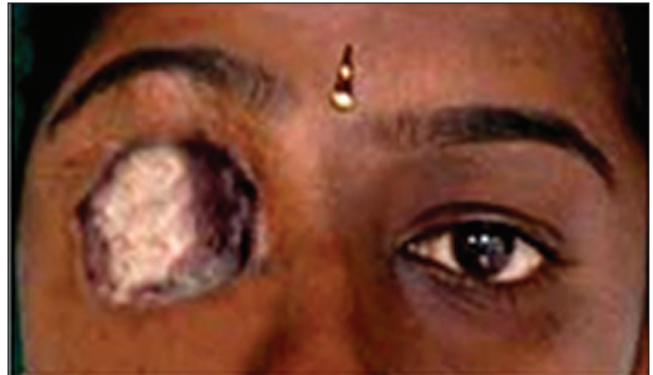
after division is returned to donor area. 3 weeks later flap is divided into horizontally in centre to form upper and lower eyelids. The palpebral aperture was 15 mm, whereas the cavity inside was approximately 32 mm at the end of the procedure [Figure 5]. In co-ordination with prosthodontic department ocular prosthesis was made and fitted into ocular defect [Figure 6]. Spectacles were used to camouflage the scarred tissue. We are publishing the results after 2 years follow-up [Figure 7].

## DISCUSSION

Total eyelid defects are rare and reconstruction of unilateral full thickness upper and lower eyelid is a formidable task. Thin pliable skin, mucosal layer, mechanical support and mobility should ideally be provided. In our patient there was a loss of both eyelids with orbital exenteration, so the aim was to provide ocular prosthesis to camouflage defect and eyelid reconstruction was necessary to provide support for ocular prosthesis. There are many methods that may be applied to reconstruct full-thickness eyelid



**Figure 1:** Right orbital exenteration with total upper and lower eyelid excision. Orbital socket covered with granulation tissue



**Figure 2:** Right orbital socket covered with split thickness skin grafting



**Figure 3:** Right deltopectoral flap inset given to skin margin at right upper orbital rim. Donor area covered with split thickness skin grafting



**Figure 4:** Deltopectoral flap division and lower inset to skin margin at lower orbital rim. Part of proximal part of flap returned to donor area



**Figure 5:** Deltopectoral flap is divided in the middle to form upper and lower eyelid



**Figure 6:** Ocular prosthesis is fitted into right orbital socket



**Figure 7:** Spectacles used to camouflage the scarred area around the right orbital socket

defects.<sup>[1]</sup> A single large flap from the midline forehead or a pedicle superficial temporal artery–based scalp island flap<sup>[7]</sup> or free tissue transfer<sup>[8]</sup> (free anterolateral thigh flap or free dorsalis artery flap) can be used to cover both eyelids, with separation of the flap after several weeks to re-form the palpebral aperture. Superficial temporal artery based flaps tend to have poor venous drainage and may

become congested postoperatively.<sup>[7,9]</sup> Midline forehead flap was not chosen because patient was young female to avoid scar over forehead. Free flap need expertise in micro-vascular surgery and is expensive. Other option would be a spectacle mounted prosthesis, but use of this is obvious and an unsightly appearance. Similar results can be achieved either with pedicle or free flap. Hence, we chose pedicle DP flap with STSG on the inner surface for reconstruction of unilateral full thickness loss of total upper and lower eyelid. This reconstruction provided stable eyelid to retain ocular prosthesis with concealed and minimal morbid donor area. After reconstruction patient underwent rehabilitation with ocular prosthesis, now the patient is satisfied with cosmetically acceptable results.

In conclusion, the DP flap could be a reliable option for total upper and lower eyelid reconstruction in such selected and challenging situations.

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