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Case Report
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Revision "Layer-by-Layer" of Severe Iatrogenic Ectropion: Technical Notes

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Abstract

Iatrogenic ectropion is a severe condition that requires careful assessment and management. There are various techniques available to correct different degrees of ectropion and for the management of the most severe cases it becomes necessary to combine them together. This article presents the assessment and treatment of a severe case of ectropion following resection of a basal cell carcinoma of the middle third of the face and initial reconstruction with an inappropriate technique.

The authors present the correction of the above case with a combination of skin and muscle flaps to obtain reconstruction "layer-by-layer". The result achieved with this approach is excellent because each missing component of the lower eyelid is replaced ad hoc with local tissues; the orbicularis oculi muscle flap has proved to be a very powerful sling supporting the lower eyelid all the way from canthus-to-canthus.

Introduction

Iatrogenic ectropion is a serious complication following tissue loss of the lower orbital or malar area. In most of the cases seen in our unit, this is the consequence of 1) damage to the facial nerve, 2) resection performed with wrong orientation in the mid third of the face and 3) following reconstruction with an inappropriate method.

There are various techniques available to correct different degrees of ectropion and for the management of the most severe cases, it becomes necessary to combine them together. Careful evaluation of the tissue loss – mucosa, cartilage, muscle and skin – will guide this decision.

In 2007, Stagno et al. [1] showed how a medially based upper orbicularis oculi muscle flap could be transposed to the lower eyelid through a subcutaneous tunnel at the medial canthus to support the edge of the lower eyelid by working as a sling. The authors have proved the efficacy of this technique in the long term and we have also applied it successfully in our cancer unit.

In this letter, we present a correction "layer-by-layer" of a severe iatrogenic ectropion by combining the Stagno's muscle flap and an advancement V-Y skin flap.

Case Presentation

A 73 year old lady diagnosed with basal cell carcinoma of the lower eyelid was treated 18 months earlier with excision and reconstruction using a Mustarde flap. Unfortunately, she developed an ectropion in the early post-operative period, suggesting inappropriate flap design. Figure 1 shows the significant retraction of the lower eyelid at the time of her first consultation. Relevant details of this injury were 1) vertical skin loss of the lower eyelid and 2) redundancy of the conjunctival mucosa.

The decision was to treat this case with a combined approach by using a V-Y advancement skin flap from the cheek and the Stagno's technique to support the lower eyelid as shown in Figure 2.

Through a blepharoplasty skin approach, a transverse strip of orbicularis muscle was harvested from lateral canthus (distal end of the flap) to the medial canthus (pedicle). Once the flap was elevated, its distal end was obviously very well perfused. A subcutaneous tunnel was performed at the medial canthus to permit transposition of the flap into the lower eyelid.

A V-Y skin flap was designed following the natural creases of the malar area and advanced to replace the vertical skin loss of the lower eyelid from medial to lateral canthus. Once the skin flap was sutured to the redundant conjunctiva, the orbicularis oculi flap was fixed to the lateral canthal ligament to work as a sling to keep the eyelid in the desired position.

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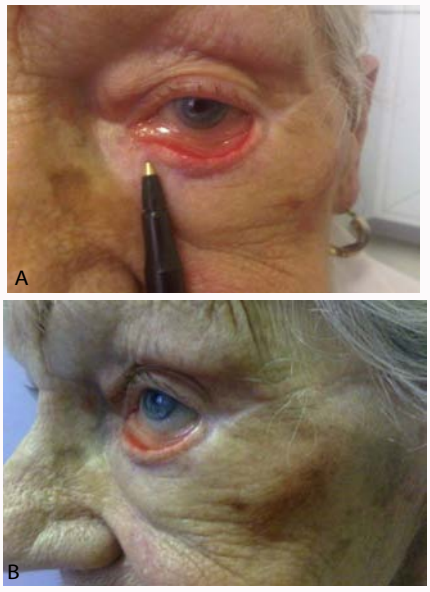

Figure 1: Severe left ectropion secondary to inappropriate reconstruction of lower eyelid with a Mustarde Flap. Note redundant conjunctiva mucosa. The tip of the pen is showing the medial margin of the previous flap.

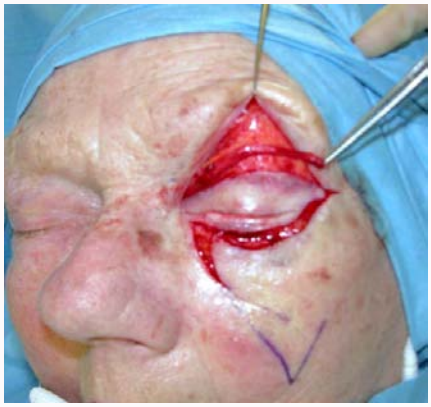

Figure 2: Intraoperative detail: combined approach using the Stagno's technique, a V-Y skin flap and a full thickness skin graft. Note that after release of the Mustarde flap the eyelid margin came back to a more normal position.

We also found it opportune to use a full thickness skin graft (obtained from excess from the medial tip of the V-Y flap) to give extra support to the lateral third of the eyelid. A Frost stitch was left in place for 1 week post-operatively and the results shown are from 6 weeks post surgery.

Six months after surgery, the patient did not require any further surgical intervention and since then she has unfortunately not attended any further clinic reviews with the surgical team. However, she has been seen by her general practitioner and also by the oncology team with no problems reported.

Discussion

The use of a sling is often essential to sustain the lower eyelid.

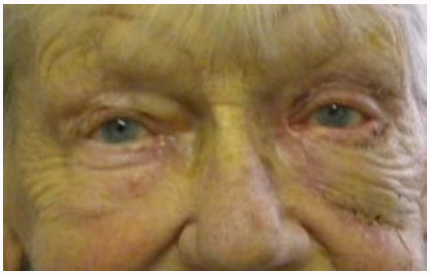

Figure 3: Follow up at 3 weeks. Very good healing of flaps and graft with correction of ectropion. Good symmetry between the eyes.

In cases of early stage facial palsy, there is good indication for using a sling, as this allows repositioning of the lower eyelid without shortening (and thinning) it, which can happen when using the tarsal strip or similar. The use of a transposition muscle flap is a more conservative and effective approach to creating a sling because it does not require the involvement of different anatomical sites such as the temporal area or the lateral aspect of the thigh. The muscle flap is also very well perfused at its distal end, which reduces the risk of infection possibly associated with fascia grafts. We found this technique very powerful in restoring correct symmetry of eyelid position following a severe case of vertical tissue loss of the lower eyelid. The support provided to the edge of the lower eyelid goes all the way from medial-to-lateral canthi.

In our experience, we observed some degree of stretching of this muscle sling during the first 6 weeks but never afterwards; for this reason we recommend 1) performing an initial "mild" hypercorrection when suturing it to the lateral rim of the orbit and 2) an early follow up to consider the need for revision surgery. All candidates for this procedure need to be informed about the possibility of loosening of the sling; and hence the potential need for tightening in a second stage procedure.

Conclusions

Reconstruction layer-by-layer is ideal when working on complex and delicate functional structures. The combination of the Stagno's flap and the V-Y advancement skin flap is very reliable and provides excellent results in this case of iatrogenic ectropion. The orbicularis oculi muscle flap has a very reliable blood supply and its use is "forgiving" allowing secondary tightening if necessary without skin excision.

We recommend the use of this combined approach for all cases of severe vertical skin loss of the lower eyelid.

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