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SHORT COMMUNICATION

Ectropion of the lacrimal point: The shoelace technique

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PURPOSE. *To describe an alternative technique to repair the ectropion of the lacrimal point, either alone or combined with an ectropion related to outer angle laxity.*
METHODS/RESULTS. *After diamond shape resection of the conjunctiva and the retractors, sutures are placed with each bridle interlacing on the posterior portion of the eyelid below the lacrimal point in a shoelace fashion.*
CONCLUSIONS. *The technique combines treatment of hyperlaxity of several anatomic structures in a single operation and has the advantage of reinforcing the Horner muscle, which is essential for the cure of this type of ectropion. (Eur J Ophthalmol 2005; 15: 267-70)*

KEY WORDS. *Ectropion, Lacrimal point, Horner muscle*

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INTRODUCTION

Ectropion of the lacrimal point is a challenge for the oculoplastic surgeon as the key to success is repair of laxity of several anatomic elements of the inner angle of the eye. Ectropion of the lacrimal point is related to a variable combination of increased laxity of several components: the retractors of the inferior eyelid, the posterior limb of the medial tendon: the Duverney-Horner muscle (1-4), excess length of the tarsal plate of the inferior eyelid, loss of tension of the inferior cul de sac, and the outer angle tendon.

Several techniques have been described in order to repair lacrimal point ectropion, as follows:

- "Lazy T" with vertical resection of the eyelid and horizontal wedge resection of the conjunctiva (5).
- Medial spindle procedure for involutional medial ectropion (6, 7).
- Horner muscle resection (8-11) or vertical triangular full thickness resection of the eyelid at the level of the lacrimal point (12) both address the lacrimal point ectropion in facial paralysis.
- Dermal flap canthal lift (13, 14).
- Reinsertion of the retractors of the lower lid (15, 16).

Outer angle canthoplasties (17-21) can be combined in the case of outer angle laxity. All these techniques have their drawbacks, including complexity or inability to restore the correct position of the lacrimal point.

The technique described herein combines the reinforcement of several anatomic structures in a single operation: the Horner muscle, retractors of the inferior eyelid, the conjunctival inferior cul de sac, length of the lacrimal portion of the eyelid, and the outer angle tendon if necessary.

Technique

Anesthesia is obtained with topical tetracaine and 2% lidocaine injected into the lower inner eyelid, the inner angle tendon along the inner orbital rim, and the inner angle cul de sac.

The operation is performed under the surgical microscope using a 300 mm.

A traction suture is passed through the superior eyelid border in order to avoid its contractions.

Lacrimal point ectropion repair only (Figs. 1 to 5).

The inferior lacrimal point is outlined with a colored marker.

The lower eyelid is inverted with a hook grasping the in-

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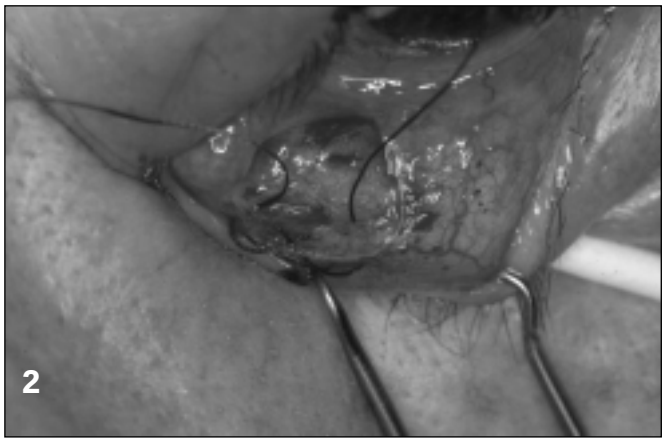
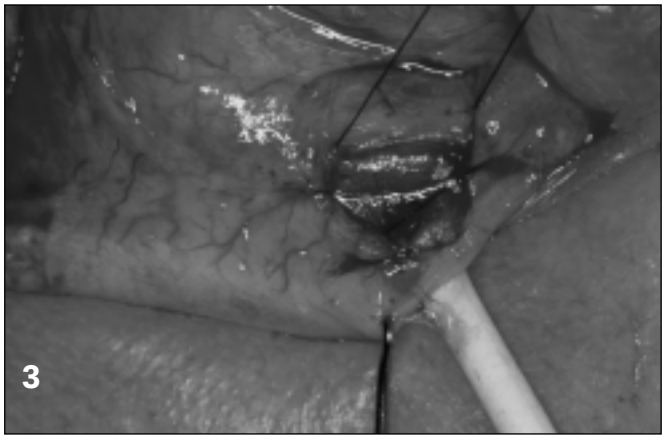
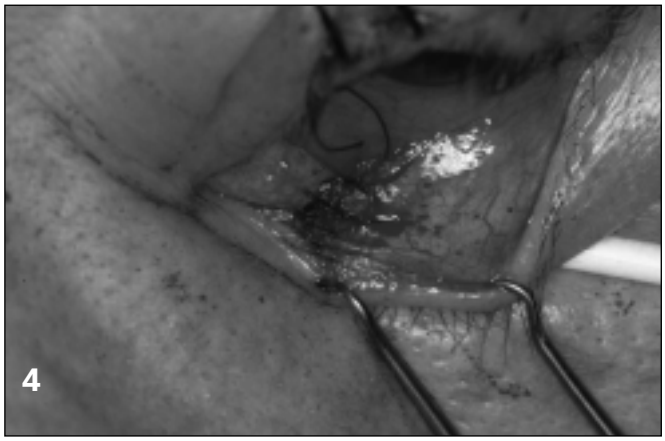






ner tarsus and pulled over a cotton tip placed in the inferior lid crease until the conjunctiva below the lacrimal point can be exposed up to the cul de sac.

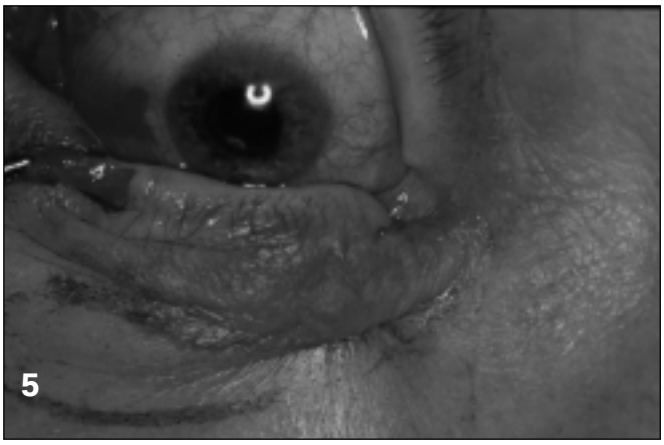
A colorado needle on a monopolar electrosurgical unit is used to create a wide vertical diamond-shaped resection (12 mm by 10 mm) of the conjunctiva, the retractors, and a small amount of Horner muscle. Coagulation is applied on the vessels of the inferior eyelid border.

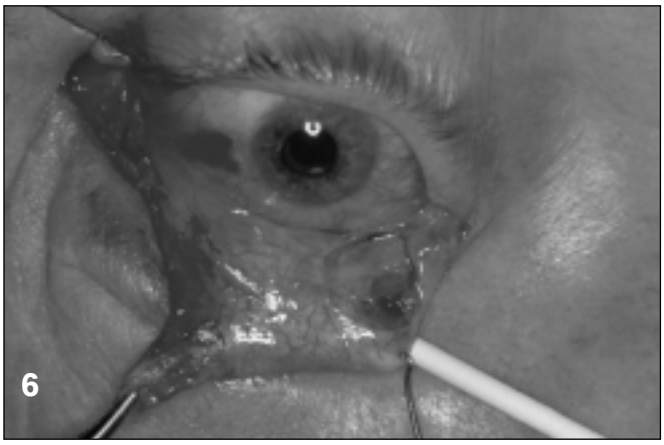
A double armed suture of 5-0 Vicryl enters the conjunctiva and the tarsus and below the lacrimal point, the bridles interlace to enter the border of the caruncula and the Horner muscle medially and the retractors outwards, they interlace again to enter the cul de sac at the bottom of the incision line. The two needles are used to pass the sutures through the orbicularis and the skin towards the inferior lid crease at the crossing of a vertical line taken from the lacrimal point. The two bridles are strongly tightened on the skin in order to create an entropion and inner displacement of the colored lacrimal point.

No additional conjunctival sutures are necessary. The Vicryl sutures are not removed and the knot will spontaneously disappear.

Lacrimal point ectropion repair with lateral tarsal strip procedure (Figs. 6 and 7).

In the case of outer angle laxity, the shoelace bridles are not tightened and a lateral tarsal strip is prepared. A lateral canthotomy is extended for approximately 1 cm in the medial fold of the crowsfoot. A lateral cantholysis is performed by incising the attachments of the inferior crus of the lateral canthal tendon from the lateral orbital rim. With use of scissors the lateral eyelid is split anterior to the gray line into the anterior and posterior lamellae. The length of the split depends on the amount of lid shortening necessary minus the shortening of the first step of the operation at the inner angle. Scissors are used to cut a 4 to 5 mm wide strip of tarsus. The tarsal strip is then grasped with tissue forceps and a number 15 Parker blade is used to shave conjunctiva from the entire surface





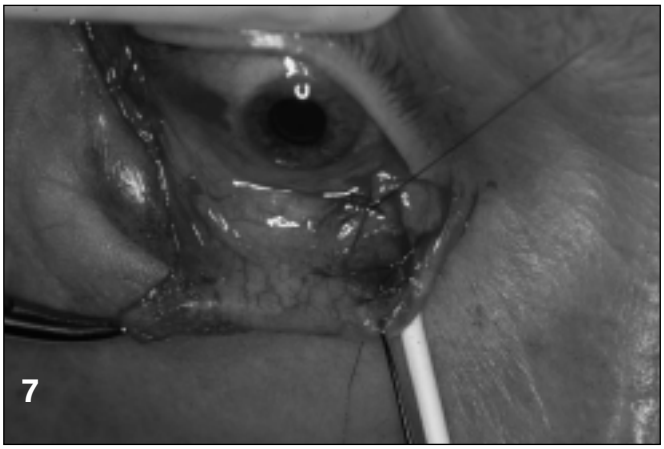


Fig. 1 - *The inferior eyelid is shown from its posterior aspect: diamond shaped resection of the conjunctiva along a vertical axis below the lacrimal point.*
Fig. 2 - *A double-armed suture enters the conjunctiva and the tarsus below the lacrimal point and the Horner muscle medially, and the retractors outwards.*
Fig. 3 - *The bridles interlace to enter the border of the caruncula and the Horner muscle medially and the retractors outwards; they interlace again to enter the cul de sac at the bottom of the incision line.*
Fig. 4 - *The bridles interlace again to enter the cul de sac at the bottom of the incision and then are passed through the orbicularis and the skin towards the inferior lid crease at the crossing of a vertical line taken from below the lacrimal point.*
Fig. 5 - *The two bridles are strongly tightened on the skin at the level of the inferior lid crease. A slight entropion and inwards displacement of the colored lacrimal point is then obtained.*
Fig. 6 - *A tarsal strip procedure can be associated in case of horizontal laxity.*
Fig. 7 - *The tarsal strip tightens the eyelid at the outer angle.*

of the tarsal strip. Then the microcutaneous lid margin is excised with scissors. The tarsal strip is reattached to the posterior stump of the outer angle tendon on the inner wall of the lateral orbital rim just after the tightening of the 5-0 Vicryl in the inner angle. The skin is closed with 6-0 Prolene sutures.

DISCUSSION

- The technique has the advantage of a short and easy procedure that can be performed under local anesthesia.
- The shoelace technique can address various etiologic types of lacrimal point ectropion: hypotonic, senile, paralytic except cicatricial ectropion as soon as they involve laxity of the retractors of the inferior eyelid, the posterior limb of the inner angle: the tendon of the Duverney-Horner muscle, the length of the tarsal plate of the inferior eyelid, or the lacrimal portion of the eyelid. Few techniques (8-12) address the laxity of the Horner-Duverney muscle and these few techniques address the various components of stability of the inner eyelid.
- Several techniques have been described in order to repair lacrimal point ectropion. They have drawbacks and advantages.

Midtarsal horizontal lid-shortening procedures not only fail, but they remove a portion of important full thickness eyelid, displace the punctum laterally, and produce phimosis by reduction of the palpebral fissure. The technique does need a tarsal resection compared to the Lazy-T technique, which is less efficient in our experience.

The technique does not damage or remove the lacrimal point or canaliculus as it is performed in the Crawford-Collin technique.

Outer canthoplasties reduce the horizontal laxity but induce a huge displacement of the lacrimal point outwards,

and do not place the lacrimal point close to the conjunctiva.

The technique is close to the medial spindle technique described by Nowinsky and Anderson (6); however, the placement of the sutures with a shoelace is different and is the original part of the technique inasmuch as it allows the Duverney-Horner muscle to tighten. The technique can be combined with a tarsal strip procedure when lateral and medial elongation or laxity is present.

A tarsal strip or a canthoplasty alone would displace the lacrimal point outwards without inverting the point.

The technique is efficient and its efficiency can be adjusted regarding the displacement of the colored lacrimal point under the microscope.

CONCLUSIONS

The shoelace technique is an alternative technique that address several anatomic elements of stability of the lacrimal point and is efficient for the treatment of lacrimal point ectropion.

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