OUR APPROACH TO OPERATIVE TREATMENT OF LOWER LID ECTROPION

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SUMMARY – Ectropion is a malposition of eyelid in which the eyelid is pulled away from the globe. It is classified in the following categories: congenital and acquired, which may be involutional, paralytic, cicatricial and mechanical. Depending on the etiology and the predominant location of ectropion, a variety of surgical techniques are available for its correction. In this retrospective study, 52 eyelids in 40 patients with lower eyelid ectropion were operatively treated at our Department during the 2005-2010 period. Involutional ectropion was present in 23 (44.2%), ectropion due to cicatricial changes in 13 (25.0%) and paralytic ectropion in 16 (30.8%) cases. The method of surgical repair was dependent on the underlying etiology and the predominant location of the ectropion. Surgical procedures for involutional entropion repair included pentagonal excision, Kuhnt-Symanowski type procedure, medial wedge excision, lazy-T procedure and lateral canthal sling. Cicatricial ectropion was treated with Z-plasty, local flaps, full-thickness skin graft, or their combination. Tarsorrhaphy and other surgical techniques for support and tightening of lower eyelid were used in paralytic ectropion repair. In 80% of patients, satisfactory functional and cosmetic outcome was achieved with a single surgical procedure. Eight (20%) patients with severe ectropion needed additional surgery. Ectropion repair presents a challenge in oculoplastic surgery. Therefore, individualized surgical approach based on adequate and thorough preoperative evaluation concerning the etiology and the predominant location of the ectropion is mandatory.

Key words: *Ectropion – etiology; Ectropion – surgery; Eyelids – surgery; Ophthalmologic surgical procedures*

Introduction

In ectropion, the eyelid margin is rotated away from the globe, thus resulting in tearing, exposure keratopathy and conjunctival hypertrophy and keratinization. Ectropion can be unilateral or bilateral and usually involves the lower eyelid. It is classified as congenital and acquired. Depending on the etiology, acquired ectropion can be involutional, paralytic, cicatricial and mechanical[1]. Involutional ectropion is the most common eyelid malposition in elderly patients and it is caused by laxity of all eyelid structures[2,3]. Paralytic ectropion occurs as the result of ipsilateral facial nerve palsy and is associated with retraction of the upper and lower eyelids and brow ptosis[4]. Burns, trauma, or inflammation can lead to scarring of anterior lamella and formation of cicatricial ectropion[5]. Tumors or cysts near the eyelid margin mechanically evert the eyelid, causing mechanical ectropion[6]. Congenital ectropion is quite rare and usually is associated with other congenital ocular malformations[7].

There are several surgical techniques available for correction of lower eyelid ectropion[8-10]. The main step in operative treatment is preoperative evaluation concerning the etiology and the predominant location of ectropion.

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Patients and Methods

Lower eyelid ectropion on 52 eyelids in 40 patients was operatively treated at our Department during the period from May 2005 to January 2010. There were 29 male and 11 female patients, mean age 66.3±16.4 years. The right eye ectropion was found in 33 (63.5%) and left eye ectropion in 19 (36.5%) cases. The surgery was performed by one surgeon, in local anesthesia. The method of surgical repair was dependent on the underlying etiology and the predominant location of the ectropion. The algorithm for the management of lower eyelid ectropion described in Mr. Collin's A Manual of Systematic Eyelid Surgery was used as our guidelines. Antibiotic drops were prescribed for 7 postoperative days. A photo was taken preoperatively and on postoperative day 7, when the sutures were removed.

Results

In 23 (44.2%) eyelids, ectropion was involutional, in 13 (25.0%) it was due to cicatricial changes, and in 16 (30.8%) it was paralytic. The treatment procedures for involutional ectropion were as follows: horizontal lid shortening (pentagonal excision) in 2 (8.7%), Kuhnt-Symanowski type procedure in 1 (4.3%), medial wedge excision in 2 (8.7%), lazy-T procedure in 15 (65.2%) and lateral canthal sling (LCS) in 3 (13.1%) eyelids. Cicatricial ectropion was treated with Z-plasty in 2 (15.4%), local flaps in 2 (15.4%), full-thickness skin graft in 5 (38.4%), and with a combination of full-thickness skin graft and horizontal lid shortening or LCS in 4 (30.8%) cases. Temporary tarsorrhaphy for paralytic ectropion was performed in 7 (43.8%) cases. Permanently paralytic ectropion was treated with medial wedge excision in 2 (12.5%), LCS in 2 (12.5%), medial canthoplasty in 1 (6.2%) and with a combination of medial canthoplasty and LCS in 4 (25.0%) cases.

In 80% of patients, good clinical result was achieved with a single surgical procedure. Six (15%) patients needed a second operation, including one with involutional, two with paralytic and three with cicatricial ectropion. In two (5%) patients with paralytic ectropion, surgery was performed three times.

Discussion

Surgical treatment for lower eyelid ectropion is based on correct identification of the underlying pathogenetic factors; therefore, thorough preoperative evaluation is crucial. The horizontal eyelid laxity in involutional ectropion can be determined by the "snap-back" test[11]. If the eyelid can be pulled by more than 8 mm away from the globe and it fails to snap back to its normal position without the patient first blinking, horizontal eyelid laxity is present. If canthal tendons are lax, the lower eyelid can be pulled by more than 2 mm medially or laterally, depending on which canthal tendon is involved. Mild to moderate involutional ectropion with generalized laxity but without canthal tendon laxity was addressed by pentagonal full thickness eyelid resection. If lower eyelid dermatochalasis was also present, a combination of pentagonal wedge excision and blepharoplasty (Kuhnt-Symanowski procedure) was performed[10]. For moderate ectropion with horizontal eyelid laxity and lateral canthal tendon laxity, we used the lateral canthal sling procedure, in which the eyelid is shortened, a new lateral canthal tendon is created out of the lateral tarsal plate, and then it is attached to the or-

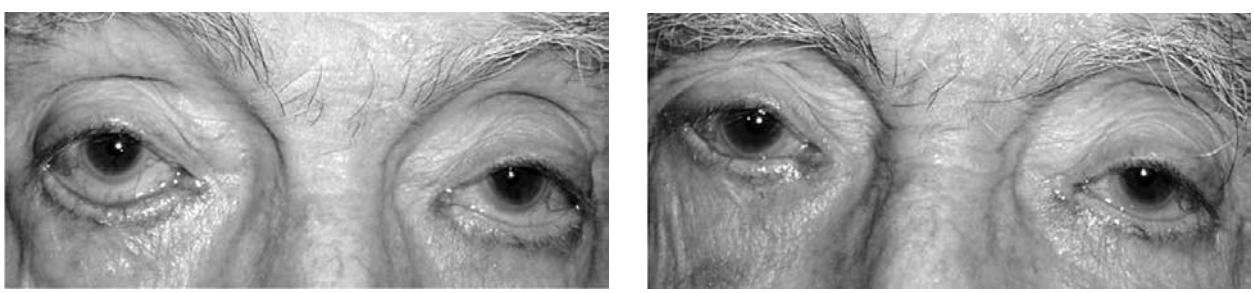

Fig. 1. (a) An 88-year-old male with bilateral involutional lower lid ectropion with marked lateral canthal tendon laxity, preoperatively; (b) the same patient after lateral canthal sling procedure.

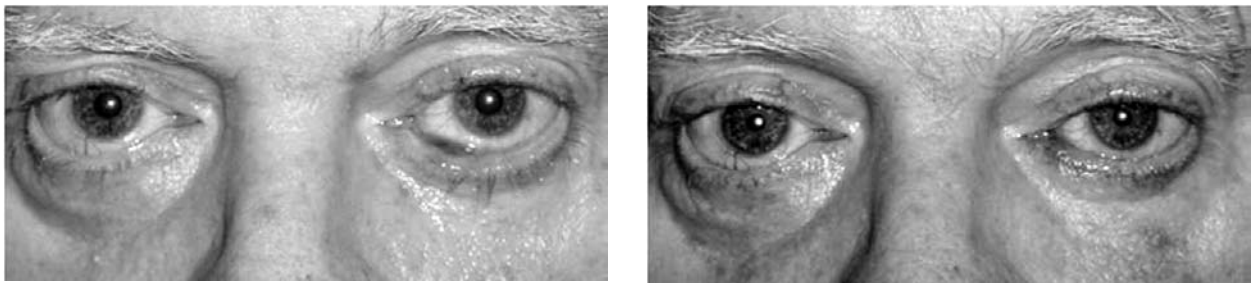

Fig. 2. (a) A 63-year-old male with left eye moderate medial involutional ectropion, preoperatively; (b) the same patient after lazy-T procedure.

bital periosteum[12,13] (Fig. 1a, b). Surgery at the lateral canthus avoids the possibility of eyelid notching and decreases the risk of trichiasis. However, excess lower eyelid tightening and reduction of the horizontal palpebral aperture can occur[10]. Surgical repair of the medial canthal tendon is more complicated because of the close anatomical relation with the inferior lacrimal canaliculus[14]. Lazy-T procedure was the method of choice for moderate medial ectropion that did not predominantly involve the medial canthal tendon. It combines full-thickness pentagonal wedge resection with excision of a diamond of tarsoconjunctiva and lower eyelid retractor plication to invert the lower lacrimal punctum[10,15] (Fig. 2a, b). For reparation of medial ectropion with marked medial canthal tendon laxity, medial canthal resection was used[14,16]. As part of the eyelid resection, the inferior canaliculus is also cut and it is marsupialized into the conjunctival sac[10]. In the postoperative period, it is important to warn the patients not to wipe the tears by pulling the medial lid down to avoid the recurrence of the ectropion. Also, prolonged use of lubricants is essential. In severe involutional ectropion, a combination of procedures is often required. In cicatricial ectropion, the lower lid margin cannot be extended by 2 mm above the inferior limbus. In our study population, the surgical management of cicatricial ectropion depended on the situation after releasing the scar tissue. In mild localized cases, Z-plasty was used to lengthen the anterior lamella (Fig. 3a, b), but in severe generalized cases local transposition flaps or full thickness skin grafts were required[8,10,17]. Skin grafts were obtained mostly from the upper eyelid, but the postauricular area was also used. Temporary treatment for paralytic ectropion is aimed at protecting the cornea, thus preventing the development of exposure keratopathy[18]. Temporary tarsorrhaphy using 5/0 nylon sutures and silicone tubes proved to be very efficient, even in cases when it had to stay for two or more months until the satisfactory facial palsy recovery was achieved[19] (Fig. 4a, b). Permanent treatment of paralytic ectropion is a challenge. Medial canthoplasty, medial and lateral tarsorrhaphy, medial canthal resection, lateral canthal sling, or a combination of these procedures is used to reduce vertical and horizontal dimensions of palpebral aperture[10,20]. In our case study, the combination

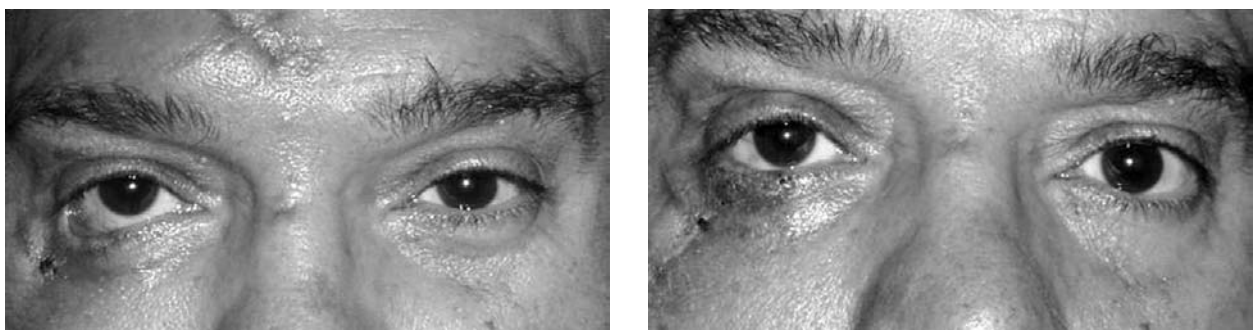

Fig. 3. (a) A 47-year-old male with cicatricial ectropion of the right lower eyelid, preoperatively; (b) the same patient after Z-plasty procedure.

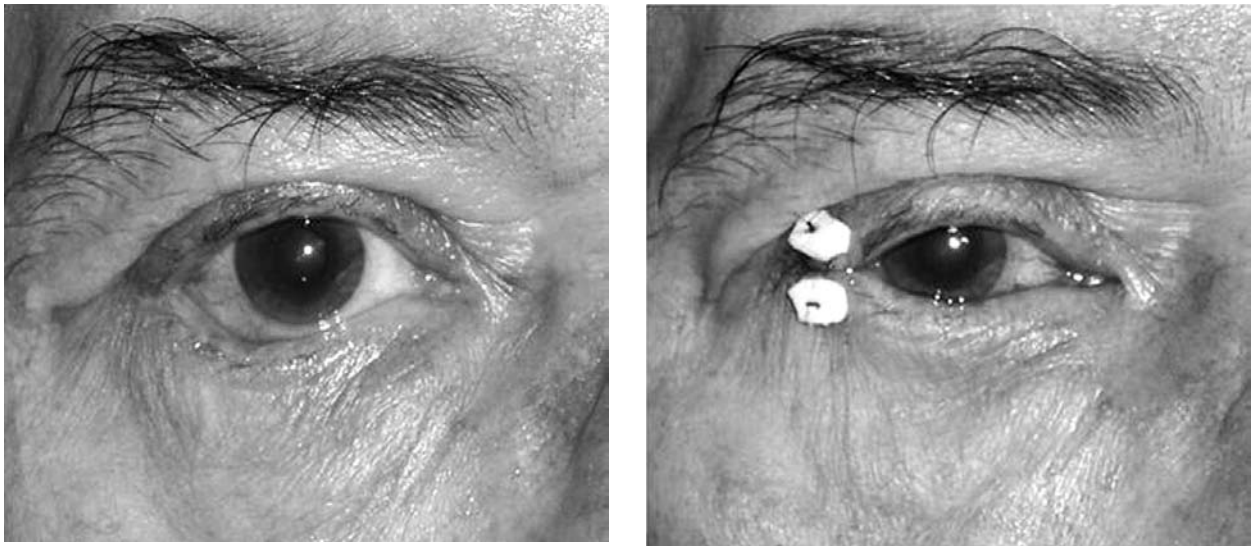

Fig. 4. (a) A 78-year-old male with the right eye lower lid paralytic ectropion due to Bell's palsy; (b) the same patient after temporary lateral tarsorrhaphy.

of these procedures was most rewarding, although the late recurrences are common, so the surgery had to be repeated in 2/16 eyelids.

In conclusion, satisfactory functional and cosmetic correction of lower eyelid ectropion can be achieved only by individualized surgical approach, which is based on understanding the underlying anatomic factors responsible for the malposition.

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Sažetak

NAŠ PRISTUP KIRURŠKOM LIJEČENJU EKTROPIJA DONJE VJEĐE

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Ektropij je izvrtanje vjeđnog ruba prema van. Može biti prirođeni ili stečeni, a etiološki se dijeli na involutivni (nastaje zbog gubitka tonusa vjeđa u starosti), paralitički (paraliza n. facialis), mehanički (tumori i ciste blizu vjeđnog ruba) i cikatricijski (ožiljci kože vjeđa). Liječenje ektropija vjeđe je kirurško, a izbor metode operacijskog liječenja ovisi o etiologiji i predominantnoj lokaciji. U ovoj studiji 52 ektropija donje vjeđe u ukupno 40 bolesnika operacijski su liječena na našoj Klinici u razdoblju od 2005. do 2010. godine. U 23 (44.2%) slučaja radilo se o involutivnom ektropiju, u 13 (25.0%) uzrok su bile cikatricijske promjene, a u 16 (30.8%) ektropij je bio paralitički. Izbor kirurške tehnike je ovisio o predominantnoj lokaciji i etiologiji ektropija. Involutivni ektropij se liječio horizontalnim skraćenjem vjeđe, Kuhnt-Symanowskijevim postupkom, klinastom resekcijom medijalne kantalne tetive, postupkom "*lazy-T*" te postupkom "*lateral canthal sling*". Z-plastika se rabila kod lokalnih defekata prednje lamele, dok su se za opsežne promjene upotrebljavali lokalni režnjevi, slobodni transplanatati kože te njihova kombinacija. Privremena tarzorafija je bila metoda izbora za zaštitu oka kod Bellove paralize, dok je liječenje dugotrajnog paralitičkog ektropija postignuto kirurškim metodama podizanja i skraćenja donje vjeđe. U 80% bolesnika zadovoljavajući klinički rezultat postignut je jednim operacijskim zahvatom. U osam (20%) bolesnika s težim oblicima ektropija bilo je potrebno dodatno liječenje. Kirurška korekcija ektropija donje vjeđe predstavlja izazov u okuloplastičnoj kirurgiji. Stoga, individualizirani pristup koji se temelji na detaljnoj prijeoperacijskoj evaluaciji etiologije i predominantne lokacije ektropija čini osnovu za postizanje zadovoljavajućeg funkcionalnog i kozmetskog rezultata.

Ključne riječi: *Ektropij – etiologija; Ektropij – kirurgija; Vjeđe – kirurgija; Oftalmološki kirurški zahvati*