

Eyelid Abnormalities in 76-Year-Old Male

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A 76-year-old male presents with complaints of frequent eyelid and eye infections. He notes constant dry, yet watering eyes and matting of his eyelashes. He has no history of eyelid surgery or trauma and denies any past history of facial weakness. On physical examination, the patient could not fully close his eyes with normal blinking (*Figure 1*). In addition, there was an outward turning of the lower eyelids leading to excess tearing. He was placed on a dry eye treatment regimen of lid scrubs, lubricating artificial tears and ointment, warm compresses and lid taping at bedtime. This brought some relief to the patient's symptoms; but, he still was not completely satisfied.

QUESTIONS

1. Based on Figure 1, what is the diagnosis?

- A. Lagophthalmos
- B. Exophthalmos
- C. Myasthenia Gravis
- D. Orbital fat prolapse
- E. Bell palsy

2. Based on the finding of outward turning lower eyelids, what is the diagnosis?

- A. Ptosis
- B. Ectropion
- C. Entropion
- D. Blepharitis
- E. Dermatochalasis

3. What is the most common etiology of the condition in Question 2?

- A. Congenital
- B. Paralytic
- C. Involutional
- D. Cicatricial
- E. Mechanical

FIGURE 1:

The patient was instructed to gently close his eyes. Incomplete eyelid closure is seen.



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ANSWERS:

1. Based on Figure 1, what is the diagnosis?

Correct Answer: A) Lagophthalmos

Lagophthalmos is the inability to close the eyes completely and is caused by a variety of conditions¹. Exophthalmos, or an excessively protruding eye, can cause an inability to close the eyes but will show a more prominent globe with visible sclera.² Myasthenia gravis will cause ptosis and progressive weakening of the upper eyelid throughout the day but does not always result in an inability to close the eyelids completely.³ Orbital fat prolapse, a benign finding related to aging, will present with a prominent yellow-white elevated mass under the conjunctiva.⁴ Although Bell palsy will cause lagophthalmos, this patient denied a history of facial weakness, so the condition was ruled out.⁵

2. Based on the finding of outward turning lower eyelids, what is the diagnosis?

Correct Answer: B) Ectropion

Ectropion is the outward turning of the eyelid margin, as shown in *Figure 3*. Entropion is characterized by the opposite finding, an inward turning of the eyelid.⁶ Blepharitis is an inflammation of the eyelids that results in red, irritated eyes. Patients with blepharitis will experience crusting, flaking, eyelids sticking together and often complain of gritty, burning, greasy and itchy sensations.⁷ Ptosis is the weakening of the levator muscle which causes drooping of the upper eyelid.⁸

3. What is the most common etiology of the condition in Question 2?

Correct Answer: C) Involutional

Ectropion is most commonly involutional (age-related) and caused by relaxation of tissue that leads to eyelid laxity and punctal eversion.⁶ Paralytic ectropion is often due to 7th nerve palsy and is usually temporary.¹ Congenital ectropion is rare and usually associated with Down syndrome or ichthyosis.⁸ Cicatricial ectropion can be caused by trauma, chemical burns, surgery or scarring.¹ Eyelid tumors, herniated orbital fat, conjunctival chemosis or other anatomical abnormalities can lead to mechanical ectropion.¹

DISCUSSION

Although lagophthalmos is commonly caused by thyroid ophthalmopathy, in this patient it was secondary to ectropion. Lagophthalmos can also be caused by scarring, tumor, Bell palsy or after blepharoplasty and ptosis lid repair. The incidence of lagophthalmos increases with age and occurs more frequently in females. An estimated 5% of the normal population has lagophthalmos but many consider it to be a commonly underdiagnosed condition. This condition may show staining of the inferior corneal surface and eye irritation that is worse in the morning.⁹ This staining is known as exposure keratopathy when the

inferior corneal surface dries and breaks down while the patient is sleeping.¹⁰

Ectropion in adults is most commonly age-related; more rarely, the condition may be paralytic, cicatricial, inflammatory or mechanical. Involutional ectropion is the result of eyelid tissue relaxation and horizontal lid laxity and presents with eversion of the lower eyelid and punctum.^{11,12}

Involutional ectropion is a progressive condition, so there may be no initial symptoms or mild complaints of dry or watering eyes. In more advanced stages, foreign body sensation, mucus discharge, pain, or even decreased vision may be noted.¹¹

One of the first signs of involutional lower lid ectropion is punctal eversion which prevents tears from draining properly and can lead to epiphora.¹² As the condition worsens and the lower eyelid begins to droop more, exposure of the cornea may occur. This will present as superficial punctate keratitis of the cornea and, in severe cases, ulceration. With chronic exposure, the eyelid can become inflamed and result in redness, keratinization of the conjunctiva and thickening of the tarsal plate. Chronic damage to the surface of the eye and eyelids makes patients susceptible to infection and more inflammation, leading to progression of the ectropion.¹²

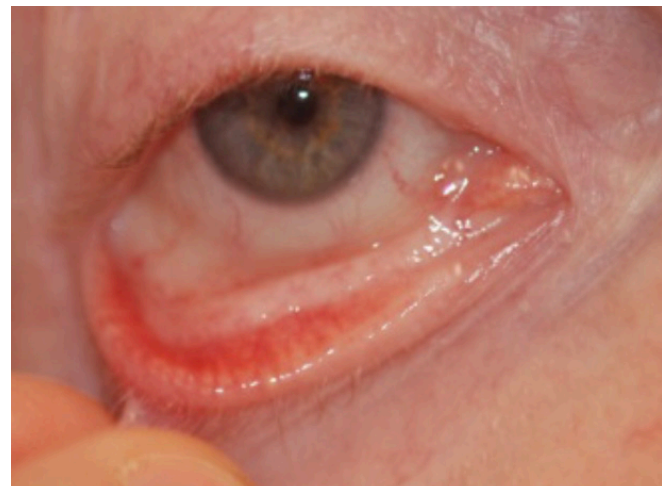
EVALUATION

Prompt identification and initiation of treatment by the patient's family physician can greatly improve the quality of life of these patients. The following tests are useful in determining the presence and degree of involutional ectropion.

Distraction test: Pull the lower lid away from the globe and note the maximum displacement of the eyelid margin. If the distance is >10 mm, ectropion is present (*Figure 2*).^{11,12}

FIGURE 2:

Distraction test showing >10 mm displacement of the eyelid margin from the globe in our patient.



Snap back test: Performed by pulling the lower lid down 8-10 mm and releasing it, then evaluating the return position of the lid. A normal lid should immediately return to position against the globe. The test is graded based on the position of the lid after release (*Figure 3*).¹³

Grade 0: normal eyelid, snaps back immediately on release

Grade I: 2-3 seconds before positioning against the globe

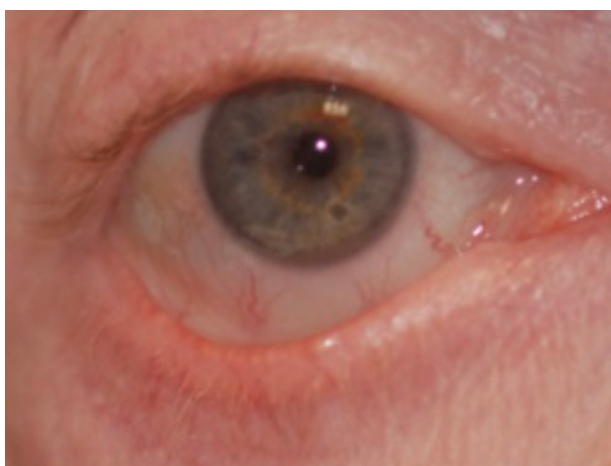
Grade II: 4-5 seconds before positioning against the globe

Grade III: >5 seconds but returns to position with blink

Grade IV: does not return to position and continues to rest away from the globe even after blink.

FIGURE 3:

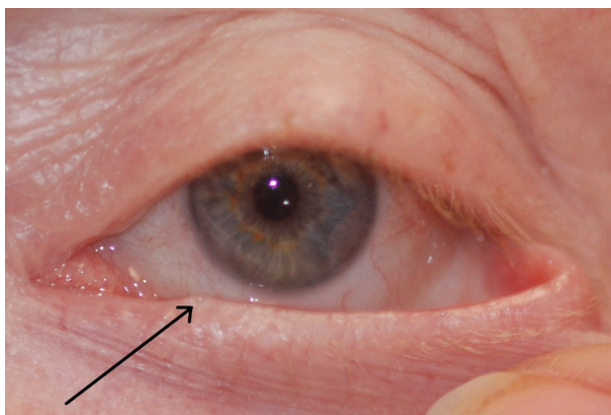
Everted eyelid during the snap-back test, Grade III. Positions itself against the globe only after a blink.



Medial canthal tendon laxity: Pull the lid temporally and observe the lateral movement of the inferior punctum. Lateral movement of 1-2mm is considered normal, the punctum displaced to the limbus of the globe indicates mild laxity, and, if severe, it will be displaced to the margin of the pupil (*Figure 4*).⁶

FIGURE 4:

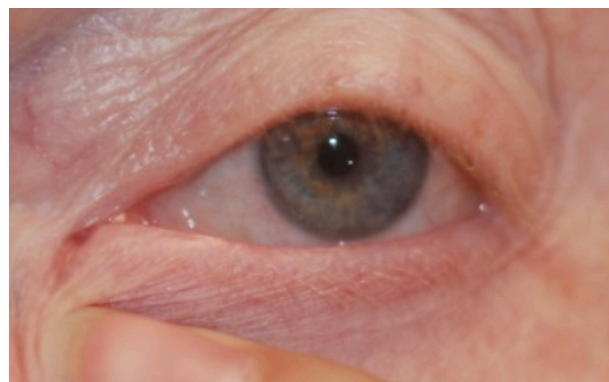
Medial canthal tendon laxity test showing punctal displacement to the limbus (arrow is showing position of the punctum).



Lateral canthal tendon laxity: An abnormal lateral canthus may have a more rounded appearance and can be displaced medially more than 2mm (*Figure 5*).⁶

FIGURE 5:

Lateral canthal tendon laxity test showing >2mm displacement.



Lagophthalmos: Have the patient gently close their eyes, as if they are sleeping. If the eyelids don't touch completely or the inferior part of the eye is visible, the eyelids should be taped at night to prevent ocular surface damage (*Figure 1*).

TREATMENT

Conservative treatment should be attempted before corrective surgery is performed. Reducing corneal and conjunctival exposure is the primary concern, so artificial tears, gels and ointments may be administered throughout the day and before bed (*Table 1 shown on page 35*). At bedtime, the eyelids may be taped shut to prevent nocturnal lagophthalmos. The patient should be reminded not to rub their eyes which can exacerbate the problem. When conservative treatment is no longer sufficient, referral to an ophthalmologist or oculoplastic specialist for eyelid surgery should be considered.

AUTHOR DISCLOSURE:

No relevant financial affiliations

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TABLE 1:

| TRADE NAME | MANUFACTURER | MAJOR COMPONENT | PRESERVATIVE |
|-------------------------------------|--------------------------|--|--------------------------------------|
| Lubricating Drops/Gels | | | |
| Blink Tears | AMO | Polyethylene glycol, hyaluronic acid | OcuPure |
| Clear Eyes Pure Relief for Dry Eyes | Prestige | Glycerin | Preservative free, multi-dose bottle |
| Refresh Optive Gel | Allergan | CMC*, glycerin | Purite |
| Refresh Plus | Allergan | CMC* | None |
| Soothe XP | Bausch & Lomb | Restoryl, mineral oil | Polyhexamethylene biguanide |
| Soothe Preservative Free | Bausch & Lomb | Glycerin | None |
| Systane | Alcon | Polyethylene glycol, propylene glycol | Polyquaternium-1 |
| Thera Tears | Advanced Vision Research | CMC* | Perbonate |
| Lubricating Ointment | | | |
| Advanced Eye Relief Night Time | Bausch & Lomb | White petrolatum, mineral oil | None |
| GenTeal PM | Novartis | White petrolatum, mineral oil | None |
| Refresh PM | Allergan | White petrolatum, mineral oil, lanolin | None |
| Systane Nighttime | Alcon | White petrolatum, mineral oil | None |

*CMC: carboxymethylcellulose

Note: this is not an exhaustive list of all available over-the-counter products

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