

Disorders of the position of the eyelids

The eyelids are an accessory apparatus of the eye. Their main function is to **protect the bulb**, spread the tear film and suck tears into the tear ducts. **The physiological position** of the indo-european race is such that the upper lid covers roughly 1/4 of the cornea, the lower lid adjoins the edge of the cornea.^[1] Between the lids is 9–13 mm^[1] wide slit that is laterally symmetrical.

Congenital developmental defects of the eyelids include:

- congenital coloboma
- epicanthus,
- blepharophimosis.

Other **disorders of the position of the eyelids** usually have both an acquired and a congenital variant. Is part of them:

- ptosis,
- lagophthalmus,
- blepharospasm,
- ectropion,
- entropion.

Eyelid ptosis

Ptosis is a *drop*, without further specification, usually a *drop of the eyelid* (blepharoptosis). **By ptosis of the eyelids** we mean a condition where the eyelids reach the pupil/ partially covering it and interfere with vision.

Cause

Disorder of innervation of *n. III* (oculomotor nerve) or disorder of levator palpebrae superior.

Congenital ptosis

- it is more often bilateral with the disappeared orbitopalpebral groove; caused by hypoplasia, dystrophy or aplasia of the *levator palpebrae superior* or a congenital disorder of *n. III*.

Acquired ptosis

- most often of neurogenic origin (after aneurysm rupture, head trauma, polyneuropathy in DM); ptosis is complete with closed eye socket, mobility is limited.

Distribution

1. **myogenic** - mostly as a congenital defect, otherwise in dystrophies, myasthenia gravis (usually the first symptom, changes during the day), sympathetic disorder (removable by adrenaline);
2. **neurogenic** - e.g. lesions of the oculomotor nerve;
3. **mechanical** - damaged motility of the lid due to its excessive weight or scarring of the conjunctiva;
4. **postoperative** - sometimes after retrobulbar injection;
5. **traumatic**.

pseudoptosis: facial asymmetry, epicanthus, enophthalmos, blepharochelatae.

Note Horner's syndrome = eyelid ptosis + miosis + enophthalmos (caused by paresis of the cervical sympathetic nerve)

Diagnostics

The general examination (habitus), head position (bilateral ptosis - tilt of the head), increase in wrinkles on the forehead (strain of the *frontalis muscle*) is important, we observe whether the ptosis does not change depending on the chewing movements; for an accurate assessment, we measure the height of the eye slits, the distance of the edge of the lid from the pupil and the changes when looking up and down. We evaluate the degree of ptosis of the eyelid (drop 2 mm = mild, 3 mm= moderate, 4 mm =severe) = excursion of the levator palpebrae superior.

Therapy

It consists in a **surgical procedure** - it depends on the functionality of the muscle (when it is not - connecting the lid to the *frontalis* muscle using the *fascia lata*).

- shortening of the lid (e.g. operation according to Fasanella-Servato)
- levator lid resection from the conjunctival approach
- levator lid resection from a percutaneous approach
- lid hinge for eyebrow lifters (e.g. Reese-Burian surgery)

A common problem is achieving symmetry.

Lagophthalmus

Lagophthalmos is an eyelid malposition in which the **eye slit is permanently open**. The lower eyelid is affected more often. Part of the conjunctiva and cornea remains uncovered, their **surface dries out** (there is also a tear film spreading disorder) and inflammatory changes occur – *keratitis e lagophthalmo*.

Causes

The most common is facial nerve palsy. Other causes include:

- exophthalmos,
- eyelid retraction,
- bulb enlargement,
- general causes (unconsciousness, coma, general anesthesia).

Therapy

- **short term:** drops, ointments or contact lenses,
- **long term:** the so-called moist chamber (convex plexiglass, that is firmly glued around the eye – like diving goggles) or tarsorrhaphy (stitching of the eyelids).

Blepharospasm

Blepharospasm refers to involuntary tonic and spastic contractions of the eyelids lasting a few seconds to minutes, which are caused by spasmodic pinching of the orbicularis oculi .

Etiology

The cause may be

- encephalitis ,
- Bell's polio ,
- trigeminal nerve irritation ,
- irritation of diseases of the eyelids, conjunctiva and cornea (eg foreign body).

Clinical picture

Intermittent form

It mostly affects elderly patients. Individual seizures occur at different intervals, may be idiopathic or triggered by different stimuli (eg sneezing, laughter, etc.)

Fixed form

It is usually associated with tearing, photophobia and abrasions on the edges of the eyelids.

Therapy

There are more therapeutic methods. First and foremost, it is necessary to eliminate or treat the underlying cause as far as possible. If the problem persists, we can administer botulinum toxin to the patient , the disadvantage being the need to repeat after 2-3 months. In extreme cases, when the eye slit may be permanently pinched , sedatives may be administered , the fibers of the orbicularis oculi may be surgically weakened, or the fibers of the facial nerve branch may be cut .

Ectropium

Blepharospasm	
Blepharospasm	
Clinical picture	tonic and spastic contractions of the eyelids
Therapy	botulinum toxin (symptomatic)
Classifications and references	
ICD-10	G24.5 ↗
MeSH ID	D001764 ↗
OMIM	606798 ↗
MedlinePlus	000756 ↗
Medscape	1212176 ↗

As **ectropion**, we refer to a change in the normal position of the edges of the eyelids, manifesting itself as **weaning, or up to retraction of the edge of the lid** (mostly the lower one) **from the surface of the bulb**. If only the inner third of the lid protrudes, we speak of an eversion of the *lacrima punctum*. In most cases, therapy consists of surgical correction, which varies according to the clinical findings.

Clinical picture and therapy

Generally, in the first phase, significant **lacrimation** occurs, which is caused by a tear absorption disorder caused by the eversion of the lower lacrimal point. The patient wipes away the tears, which tightens the lid and worsens the condition. **With long-lasting ectropion, hyperemia and thickening of the conjunctiva** gradually occur, sometimes up to its metaplasia (this condition is usually found as the final stage in untreated peripheral paresis of nerve VII, when the muscles around the eye weaken after the initial lagophthalmos). Sometimes we can find **exposure keratopathy or keratits** in the lower half of the cornea.^[2]

Involutional (atonic) ectropion

Atonic ectropion is the most common form and it is found especially on the lower eyelid in old patients, where the **cause is laxity of the tissues and paralysis of the pretarsal part of the orbicularis oculi muscle**.

The therapy consists in horizontal shortening of the lid in the place of the temporal edge, i.e. the lateral canthal hinge, with which we achieve reattachment of the lid to the bulb.^[2]

Congenital ectropion (epiblepharon)

This type of ectropion is **autosomally inherited**, rarely occurs on its own (often associated with, for example, ptosis) and disappears spontaneously as the face grows. It affects the upper eyelids more often.^[3] The therapy is suturing the lateral edges of the eyelids, moving or transferring the skin.^[2]

Paralytic ectropion

As a result of reduced function of the orbicularis oculi muscle, **the patient cannot completely close the eye slit** and lagophthalmos occurs. The cause is **most often paresis of the VII nerve**.

The therapeutic method is the suturing of the lid edges, the so-called external tarsorrhaphy.^[3]

Scarring ectropion

It occurs especially **when scarring changes** on the skin of the eyelids and the surrounding area, often with burns, burns, trauma or tumors of the eyelids.

Therapy is quite complex; a "Z-plasty" is performed at the site of the traction scar^[2], for more extensive scarring processes, scar excision and plastic covering of the skin from the second eyelid or from the area of the mastoid process is performed.^[3]

Entropion

Entropion is a disorder of the position of the edges of the eyelids, in which **the edge of the eyelid with eyelashes is directed against the surface of the bulb**. The cornea and conjunctiva are permanently irritated, erosions of the corneal epithelium and sometimes secondary infection occur. The cause is usually **the loss of integrity of the retractors of the lower lid and a decrease in the elasticity of the ligament**.

The therapy is surgical.

Clinical picture and therapy

Entropy manifests itself in several forms, the most common being scarring and involution (see below). Dominant initial symptoms are **a foreign body sensation in the eye, profuse lacrimation, and conjunctival injection** by eyelash irritation of the conjunctiva and cornea. If the patient is not treated, the cornea becomes vascularized, thinned and, in extreme cases, corneal ulceration occurs.

Congenital entropy

In this **autosomal dominant form of entropy**, the cornea and conjunctiva are not so significantly irritated - the eyelashes are soft in newborns. The lower eyelid is more often affected.

the degree of irritation determines the need for surgical correction.

Involutional (senile) entropy

It appears more on the lower eyelid (more often in patients with enophthalmos), the cause is a **decrease in the tone of the skin of the eyelid and a weakening of the contractility of the retractors of the eyelid** in its wall.

The therapeutic method is cauterization of the skin and subcutaneous tissue parallel to the edge of the eyelashes with the subsequent formation of a scar or shortening of the retractor by resection.^[3]

Scarring entropy

It can occur on both eyelids and its **the result of scarred healing of the damaged tarsal conjunctiva** - most often chemical damage, trachoma, trauma, pemphigoid, Stevens-Johnson syndrome. There is extensive damage to the bulbar conjunctiva and cornea.

The therapy consists in replacing the scarred conjunctiva by transplanting the nasal mucosa (similar histological structure).^[3]

Spastic (acute) entropion

This form of entropy is caused by **spasm of the orbicularis oculi muscle** in older people with senile laxity of the skin in the peripheral areas and irritation of the eye by inflammation. The cause of spastic contraction can be irritation of the cornea by a foreign body, eye surgery, inflammation of the cornea or chronic conjunctivitis. It is more often on the lower eyelid, but both (and the upper) can also be affected.

Acutely, we help the patient by twisting the edge of the eyelid with a plaster or suture to the cheek, surgically making a semilunar incision of the eyelid skin with partial removal of the fibres of the orbicularis oculi muscle. After removing the provoking cause, the lid returns to its original position.

Links

Related articles

- Oculomotor nerve
- Facial nerve palsy
- Horner Triassic

Reference

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2. KUČYNKA, Pavel. *Oční lékařství*. 1. edition. Grada, 2007. 812 pp. ISBN 9788024711638.
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