Eyelid Disorders

Last updated: September 5, 2017

- normal upper eyelid margin is located 1-1.5 mm below superior limbus.
- eyelid position is quantified by **margin-reflex distance (MRD)** - MRD_1 for upper lid, MRD_2 for lower lid. see p. D1eye >>

LID EDEMA

ETIOLOGY

1. **Allergies**:
   a) **acute type** (***seasonal allergic lid edema***) - hypersensitivity to airborne pollens or direct hand-to-eyelid application of pollens.
   b) **chronic type** - *contact sensitivity* to topical drugs (e.g. atropine, neomycin), cosmetics, metals (e.g. nickel); ***perennial allergic lid edema*** - hypersensitivity to molds or to animal or dust mite dander.
2. **Trichinosis** - chronic bilateral lid edema (resembles allergic type); fever and other systemic symptoms may not be present initially; eosinophilia > 10% is characteristic.
3. **Hereditary angioedema** - acute lid edema.

TREATMENT

For allergic lid edema:
1) removal of offending cause.
2) **cold compresses** over closed lids may speed resolution.
3) **corticosteroid** ointments (for not more than 7 days) if swelling persists > 24 h.

BLEPHARITIS

- inflammation of **lid margins**.

ETIOLOGY

Ulcerative blepharitis - acute bacterial infection (usually staphylococcal).

Seborrheic blepharitis - chronic blepharitis; associated with **seborrheic dermatitis** (Pityrosporum ovale).

Meibomian gland dysfunction (meibomitis) - chronic blepharitis caused by abnormal meibomian gland secretions; often associated with **acne rosacea**.

CLINICAL FEATURES

1) on lid margins: itching, burning, redness (red-rimmed eyelids), thickening, scal*es & crusts clinging to lashes*.
2) lid edema
3) conjunctival irritation (lacrimation, photophobia).

Source of picture: "Online Journal of Ophthalmology" >>

- **ulcerative blepharitis**: small pustules in lash follicles → break down → **shallow marginal ulcers** with **dry adherent crusts** (leave bleeding surface when removed; during sleep, lids become glued together by dried secretions); may result in loss of eyelashes and eyelid scarring.
- **seborrheic blepharitis**: **greasy, easily removable scales** on lid margins; secondary bacterial colonization occurs on scales.
- **meibomian gland dysfunction**: meibomian gland **orifice inspissated** (plugged) with hard waxy plug.

Patients with seborrheic blepharitis and meibomian gland dysfunction often have:
- secondary keratitis sicca.
- history of repeated styes and chalazia.
- exacerbations that are uncomfortable & unsightly but do not result in central corneal scarring or visual loss.

TREATMENT

Ulcerative blepharitis - **antibiotic** ointment (e.g. bacitracin/polymyxin B or gentamicin or sulfacetamide for 7-10 d).

Seborrheic blepharitis - **eyelid hygiene** (scrubbing lid margin daily with cotton swab dipped in dilute baby shampoo); occasionally, antibiotic ointment is indicated.

Meibomian gland dysfunction - normalizing meibomian gland secretions:

1) **doxycycline** tapered over 3-4 mo.
2) **warm compresses** (melt waxy plugs and allow trapped secretions to flow out).

HORDEOLUM

- **acute localized pyogenic infection** of eyelid gland:

a) **ciliary (Moll) gland** (**EXTERNAL HORDEOLUM, *STYE***) - modified apocrine ***sudoriferous glands*** that open into follicles of eyelashes.

b) **Zeis gland** (**EXTERNAL HORDEOLUM, STYE**) - ***sebaceous glands*** that open into follicles of eyelashes.

c) **tarsal (meibomian) gland** (**INTERNAL HORDEOLUM, MEIBOMIAN STYE, ACUTE CHALAZION**) - ***sebaceous glands*** embedded in tarsal plate, discharging at lid edge near posterior border.

- usually **staphylococcal**.
- *polymorphonuclear leucocytes* and necrosis with pustule formation.
- often secondary to blepharitis.
- recurrence is common.

CLINICAL FEATURES

EXTERNAL HORDEOLUM – superficial, at eyelash base: begins with pain, redness, tenderness, foreign-body sensation → small, round, tender area of induration → small yellowish spot in center of induration (pointing) → abscess soon ruptures with pus discharge and pain relief.

INTERNAL HORDEOLUM (very rare) – deeper, more severe.

- conjunctival lid side shows small yellow elevation (site of affected gland).
- abscess points on conjunctival lid side (sometimes points through skin); *spontaneous rupture is rare*!!!
- recurrence is common.

Source of picture: "Online Journal of Ophthalmology" >>

TREATMENT

- suppuration may be aborted in early stages by systemic antibiotics (e.g. dicloxacillin or erythromycin); however, because of minor nature and short natural history, *antibiotics are not indicated*.

  Topical antibiotics are ineffective!
- pointing is hastened by **hot compresses** (applied for 10 min qid).
- hordeolum will rupture on its own; however, to speed resolution, hordeolum can be **incised** (as soon as pointing occurs) and its **contents expressed**.

  Incision direction:
  in conjunctiva – vertical
  in skin – horizontal.

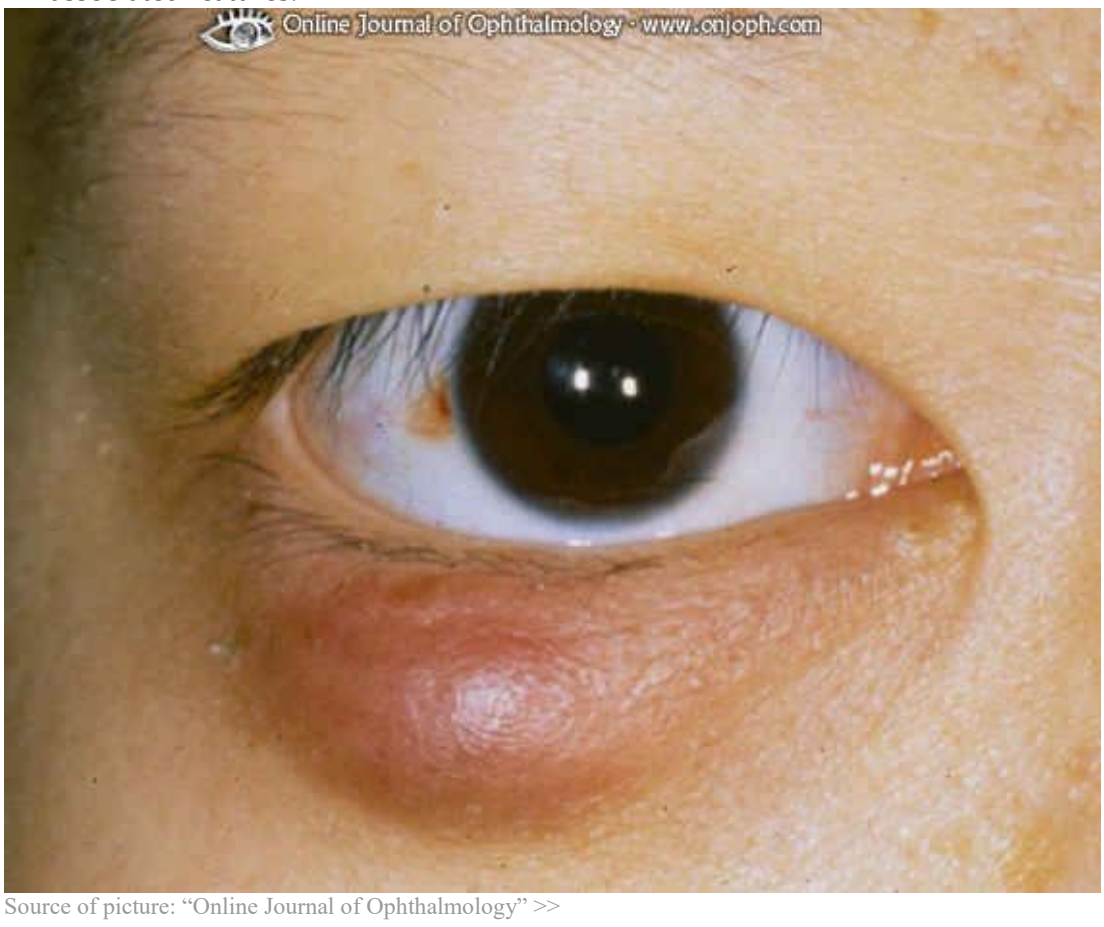
CHALAZION (MEIBOMIAN CYST)

- ***chronic granulomatous inflammation (lipogranuloma)*** *of* ***meibomian gland***.

- due to duct occlusion (often after internal hordeolum) - lipid breakdown products, possibly from bacterial enzymes, leak into surrounding tissue and incite granulomatous chronic inflammation (with *lymphocytes* and *lipid-laden macrophages* [Touton-type giant cells]).
- contrary to popular opinion, research has not shown that ***eyelid cosmetic products*** either cause or aggravate condition.
- hormonal influences on sebaceous secretion and viscosity (androgenic hormones increase sebum viscosity) may explain clustering at **puberty** and during **pregnancy**.

CLINICAL FEATURES

- onset - indistinguishable from stye; more common on upper lid.
- after few days → **painless, slowly growing round mass in lid**; seen *subconjunctivally* as red-gray mass; overlying skin can be moved loosely.
- large lesions have been reported to cause astigmatism or hyperopia resulting from central corneal flattening.
- *acute inflammatory exacerbation* (internal hordeolum) can result in anterior rupture (beneath skin) or posteriorly (through conjunctiva); it never points to lid margin (unlike sty).
- sebaceous dysfunction and obstruction elsewhere (e.g. comedones, oily face) are the only associated features.



Source of picture: "Online Journal of Ophthalmology" >>

TREATMENT

- most disappear after few months (**hot* compresses** for 10-15 min qid may hasten resolution);
  *as hot as can be tolerated – melting lipid secretions.
- early in condition, blocked glandular orifices may be opened by vigorous **lid massage** between 2 cotton wool buds at slit lamp (local anesthesia may be beneficial);
  self-administered technique is also available - called "***4 fingers times 10 massage***"
  (at conclusion of bath / shower, patient warms hands under hot water; using 1 drop of baby shampoo, patient works up lather, and then places index finger over closed lids at lid margin and vigorously massages lid back and forth 10 times; then repeats procedure with middle, ring, and little fingers).
- if there is no resolution after 6 wk:
  a) **incision & curettage**; after procedure, cauterization with ***phenol*** or ***trichloroacetic acid*** may prevent recurrence of small chalazia.
  b) **intrachalazion corticosteroid** (e.g. triamcinolone diacetate).
  – if associated with *ACNE ROSACEA*, 6 month course of low dose **TETRACYCLINES** may help sebaceous glands to produce shorter-chain fatty acids that are less likely to block gland orifices.

N.B. recurrent chalazia, especially if recur despite previous successful drainage in the same location, must be considered *sebaceous cell carcinoma*!

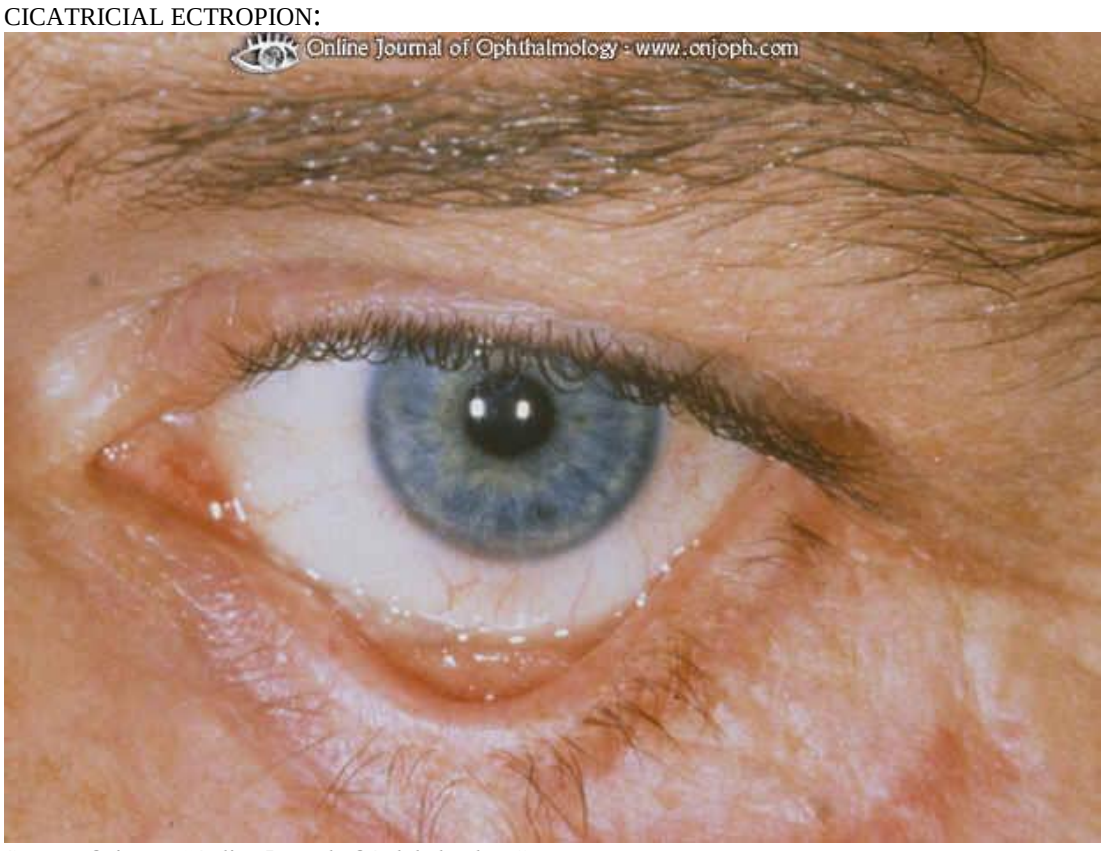
ENTROPION AND ECTROPION

Both conditions, if persistent and bothersome, are ***best treated surgically***!

ECTROPION - eyelid *eversion*

- results from:
  1) tissue relaxation with aging (LID-LAXITY ECTROPION)
  2) scar (CICATRICIAL ECTROPION)
  3) CN7 palsy (PARALYTIC ECTROPION)
  4) ichthyosis (CONGENITAL ECTROPION).
- usually involves lower lid.
- **poor tear drainage** through nasolacrimal system → epiphora.
- **conjunctival / corneal exposure** → redness, irritation, keratinization of palpebral conjunctiva, corneal ulceration.

CICATRICIAL ECTROPION:



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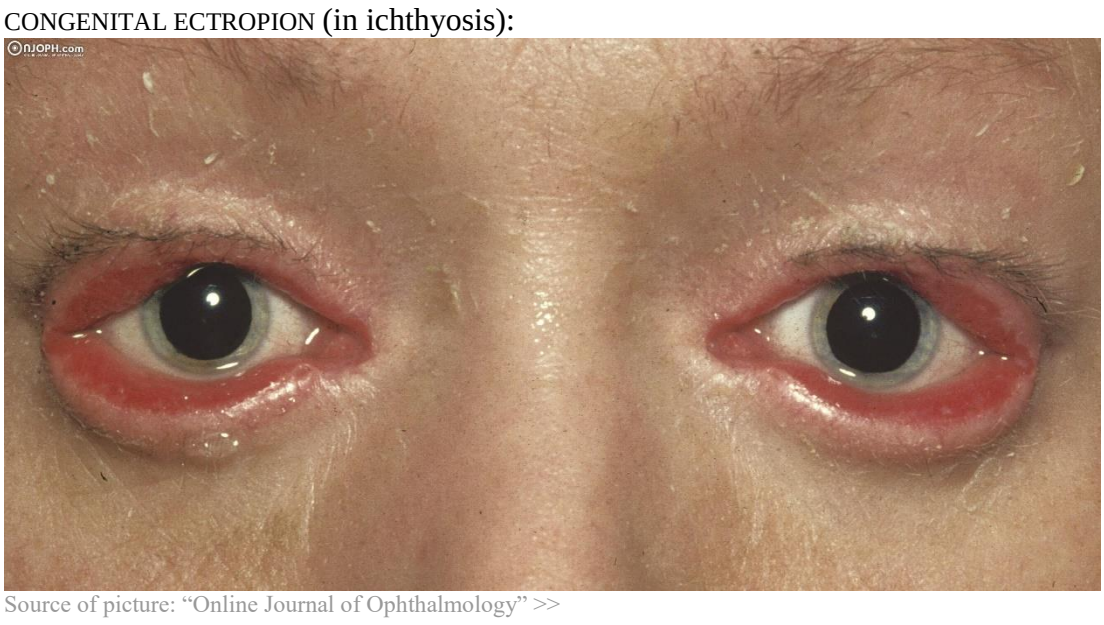
CONGENITAL ECTROPION (in ichthyosis):



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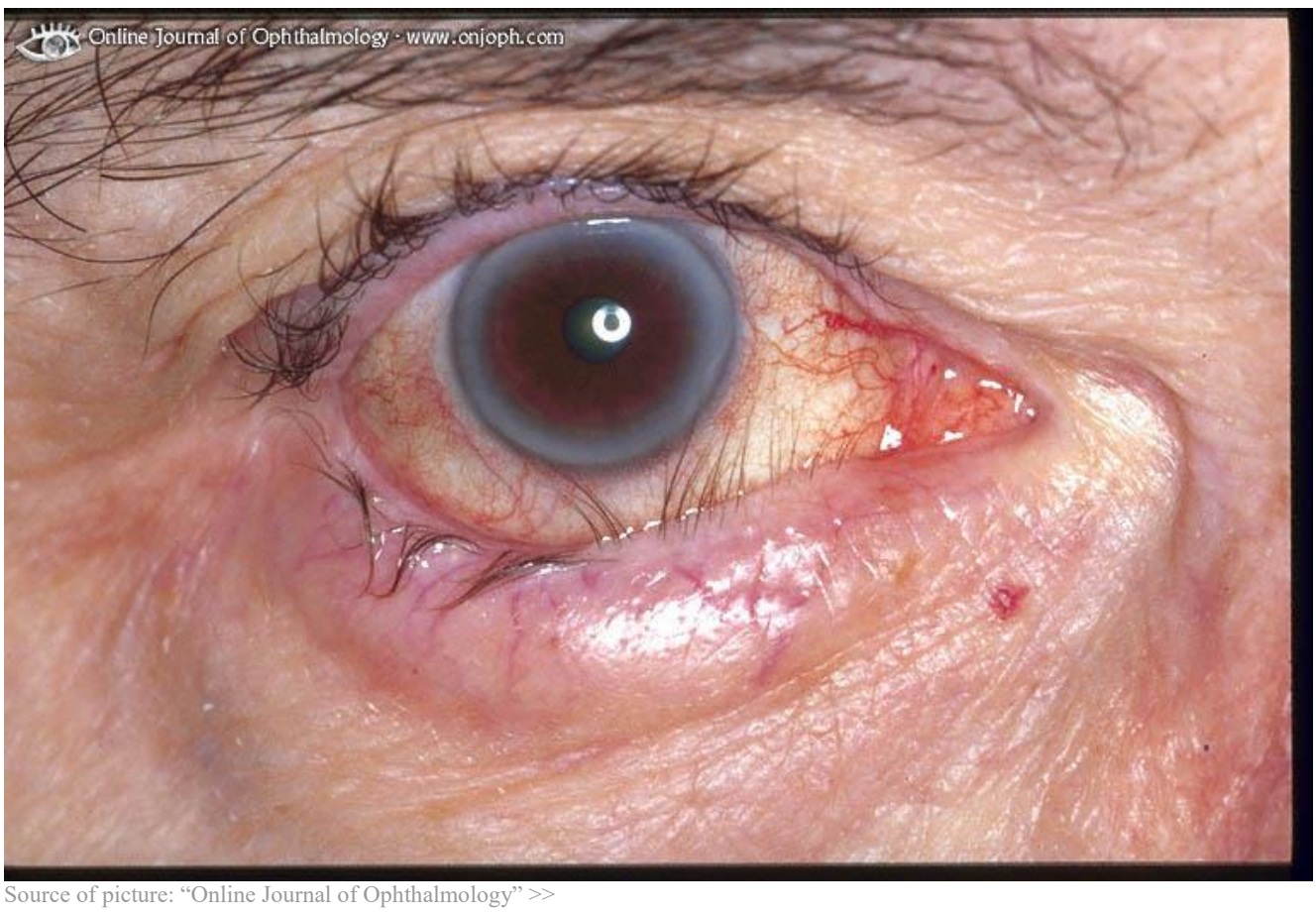
TREATMENT

- lubrication, moisture shields.
- cicatricial ectropion - digital massage to stretch scar, steroid injection into scar.
- paralytic ectropion - taping lateral canthal skin supertemporally provides temporary relief; external paste-on upper lid weights.

Entropion - eyelid *inversion*

1. **Acute spastic entropion** - orbicularis oculi spasm due to ocular irritation.
2. **Involutional entropion** - horizontal laxity of medial and/or lateral canthal tendons, involution of orbital fat (involutional enophthalmos with unstable eyelid position).
3. **Cicatricial entropion** - scar tissue of conjunctiva; digital eversion of eyelid margin is difficult!
4. **Congenital entropion** (very rare) - dysgenesis of lower eyelid retractors, structural defects in tarsal plate also (tarsal kink syndrome.

- causes irritation (lashes rub against globe) → corneal ulceration and scarring.



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TREATMENT

- ocular lubrication (tear preparations).
- spastic entropion - eyelid hygiene, antibiotics, corticosteroids, botulinum toxin.

TUMORS

XANTHELASMA - common, benign subcutaneous deposit, with yellow-white, flat plaques of lipid material; associated with hypercholesterolemia; do not need be removed (except for cosmetic reasons).

BASAL CELL CARCINOMA frequently occurs at lid margins, at inner canthus, and on upper cheek.

- other malignant tumors are less common; tumors simulating chronic blepharitis or chronic chalazion should be biopsied rather than treated for a long time.

LID RETRACTION, LAGOPHTHALMOS

Whenever lid retraction is suspected, *exclude contralateral ptosis*!

- etiology:
  1) **thyroid-associated** ophthalmopathy see p. 2744 >>
  2) **PARINAUD** (dorsal midbrain) syndrome see p. Eye64 >>
  3) prior lid **surgery / trauma**.
- differentiate from CN7 palsy.

LAGOPHTHALMOS - condition in which complete closure of eyelids over eyeball is difficult or impossible.

- etiology: exophthalmos, mechanical obstacles, CN7 palsy.
- lubricate eyes with liquid paraffin ointment.
- **corneal ulceration** may develop; H: temporary tarsorrhaphy.

(BLEPHARO)PTOSIS

Etiology:

1) weakening of levator aponeurosis due to **age / trauma**.
2) **hypotropia** (causes *PSEUDOPTOSIS*).
3) **Horner syndrome** – both MRD_1 & MRD_2 ↓
4) **CN3 palsy** – MRD_1↓ with unchanged MRD_2
5) **myasthenia gravis**; ptosis is transient;
   - ***curtain sign*** (not specific for myasthenia gravis) - elevation of one lid causes contralateral lid to droop (explained by Hering law);
   - ***COGAN lid twitch*** - patient is asked to quickly look upward from downward position → lid overelevates and then droops.

BIBLIOGRAPHY for ch. "Ophthalmology" → follow this LINK >>