Eyelid Disorders

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**Blepharospasm** → see [p. Mov21 >>](http://www.neurosurgeryresident.net/Mov.%20Movement%20disorders,%20Ataxias\Mov21.%20Hyperkinetic%20Disorders%202%20(Dystonia).pdf)

**Eyelid reconstruction** → see [p. 2215 >>](http://www.neurosurgeryresident.net/USMLE%202\Surgery%20(2201-2250)\2215.%20Plastic%20Surgery.pdf)

* normal upper eyelid margin is located 1-1.5 mm below superior limbus.
* eyelid position is quantified by **margin-reflex distance (MRD)** - MRD1 for upper lid, MRD2 for lower lid. [see p. D1eye >>](http://www.neurosurgeryresident.net/D.%20Diagnostics\D1-5.%20Neurologic%20Examination\D1eye.%20Ophthalmologic%20Examination.pdf)

Lid Edema

Etiology

1. **Allergies**:
   1. **acute type** (***seasonal allergic lid edema***) - hypersensitivity to airborne pollens or direct hand-to-eyelid application of pollens.
   2. **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” >>](http://www.atlasophthalmology.com/atlas/frontpage.jsf?locale=en)

* **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:

1. **ciliary (Moll) gland** (**external hordeolum, s*tye***) - modified apocrine ***sudoriferous glands*** that open into follicles of eyelashes.
2. **Zeis gland** (**external hordeolum, stye**) - ***sebaceous glands*** that open into follicles of eyelashes.
3. **tarsal (meibomian) gland** (**internal hordeolum, meibomian stye, acute chalazio*n***) - ***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.



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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.



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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:
  1. **incision & curettage**; after procedure, cauterization with ***phenol*** or ***trichloroacetic acid*** may prevent recurrence of small chalazia.
  2. **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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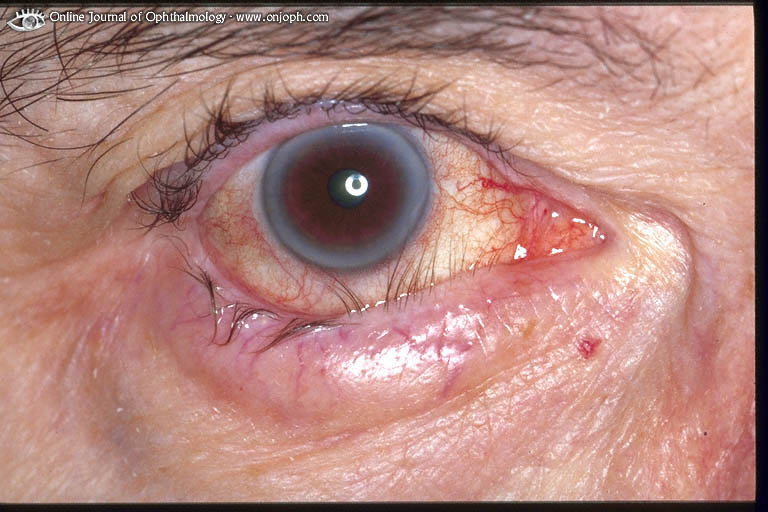
Treatment

* 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.



[Source of picture: “Online Journal of Ophthalmology” >>](http://www.atlasophthalmology.com/atlas/frontpage.jsf?locale=en)

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 >>](http://www.neurosurgeryresident.net/USMLE%202\Endocrine%20system,%20metabolism%20(2701-2800)\2744.%20Hyperthyroidism.pdf)
2. **Parinaud** (dorsal midbrain) syndrome [see p. Eye64 >>](http://www.neurosurgeryresident.net/Eye.%20Ophthalmology\Eye64.%20Gaze%20and%20Autonomic%20Innervation%20Disorders.pdf#Parinaud_syndrome)
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 MRD1 & MRD2 ↓
4. **CN3 palsy** – MRD1↓ with unchanged MRD2
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 >>](http://www.neurosurgeryresident.net/Eye.%20Ophthalmology\Eye.%20Bibliography.pdf)

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