Lec. 3 | Conjunctiva

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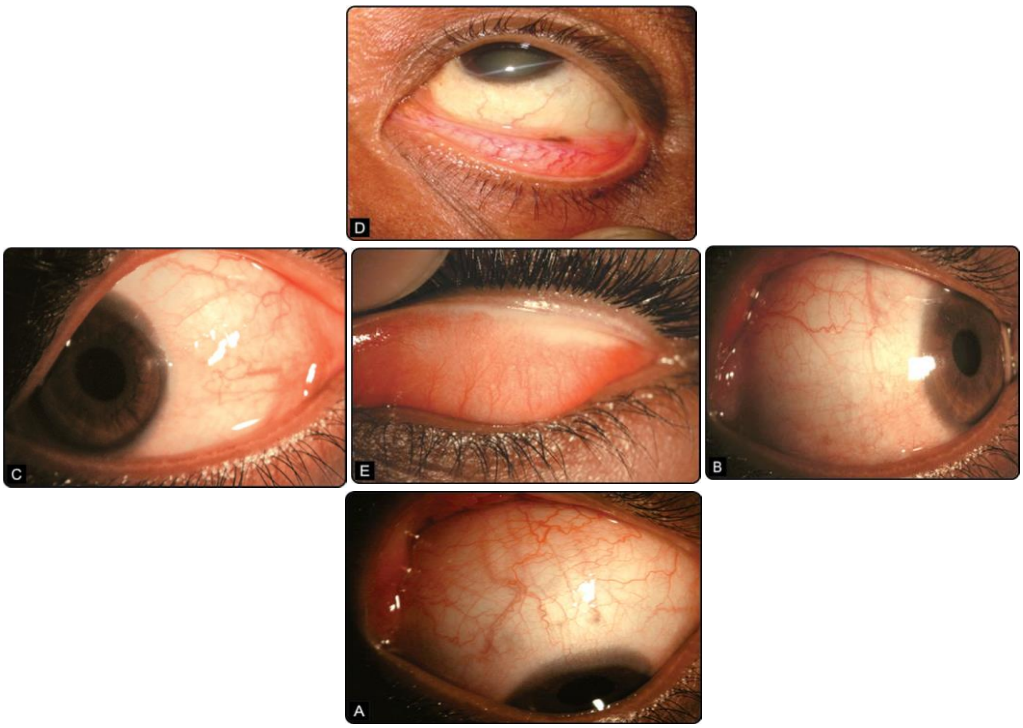
Symptoms of conjunctival diseases:

- Redness
- Discharge
- Itching
- Burning
- Grittiness, FB sensation

Conjunctiva is examined under the headings:

- Bulbar conjunctiva
- Palpebral conjunctiva
- Conjunctival fornices.

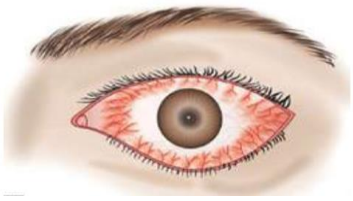
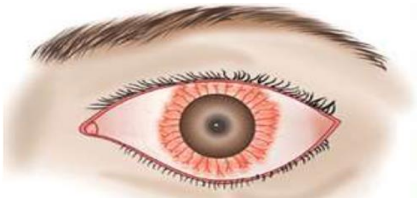


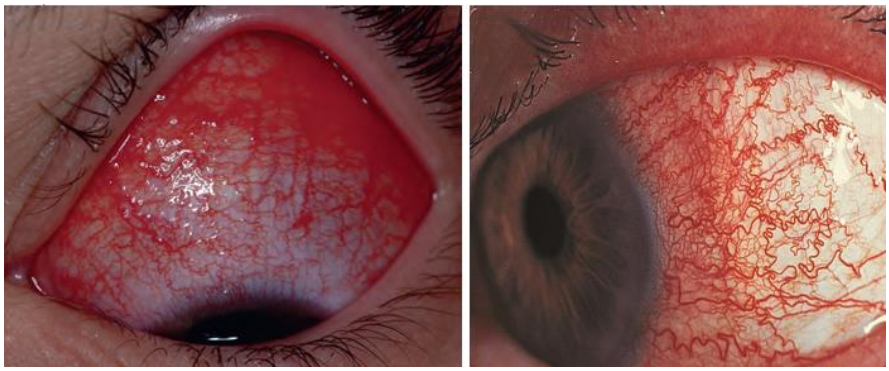
Signs of conjunctival disease:

- **Injection**
- **Chemosis**
- **Follicles**
- **Papillae**
- **membranes**
- **Hemorrhage**

1-Injection

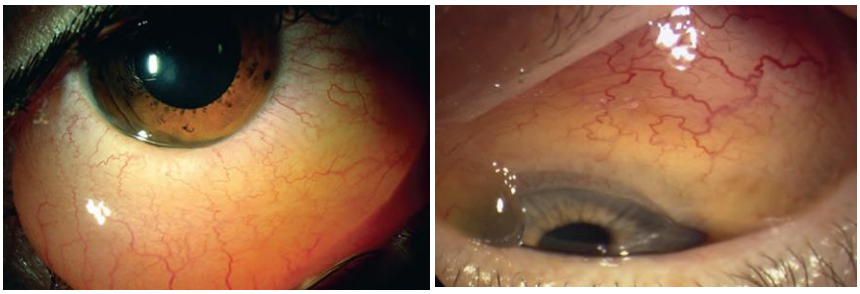
- Diffuse and more intense away from the limbus.
- Is usual in conjunctivitis.
- This 'conjunctival injection' should be distinguished from the **ciliary injection** of keratitis and iridocyclitis

Conjunctival injection	Ciliary injection
Bright red	Greyish red ill defined
Marked at fornix	Around limbus
Superficial vessels (ant. & Post. conjunctival)	Deep vessels (ant. ciliary)
Branch dichotomously	Branch parallel or radially
Fill from fornix	Fill from Limbus
Conjunctivitis	Keratitis, Iridocyclitis, Acute congestive glaucoma
	
	



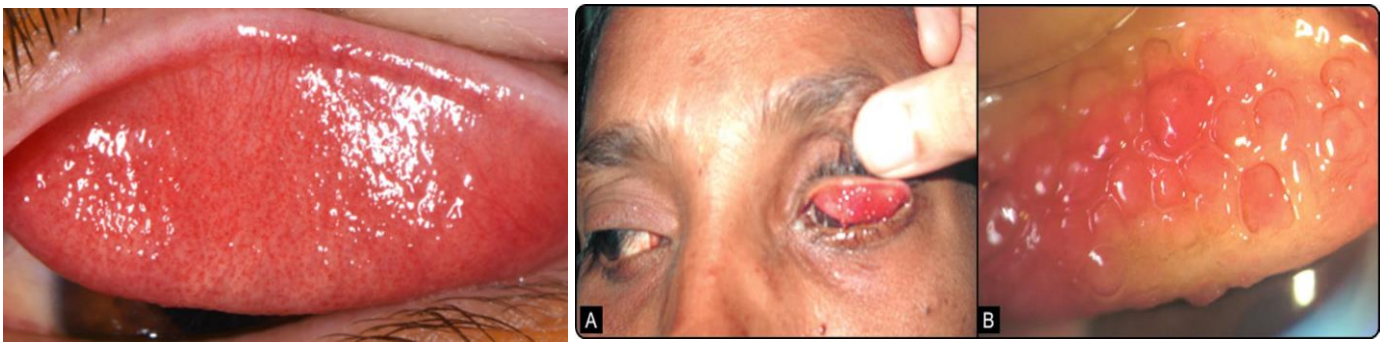
2-Chemosis

- Swelling or edema of the conjunctiva.
- Chemosis is because of collection of fluid under the loosely attached bulbar conjunctiva arising because of exudation from the abnormally permeable conjunctival capillaries.

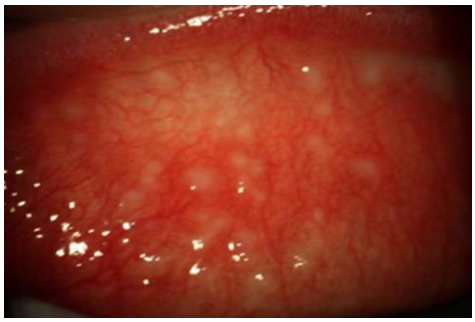


3-Papillae

- Papillae represent blood vessels surrounded by inflammatory cells.
- Present as elevated lesions with hyperemic center.
- Seen in **allergic conjunctivitis.**



4-Follicles



- Follicles are aggregation of lymphocytes.
- Present as elevated lesions with pale centers, resembling translucent grains of rice.
- Seen in **trachoma** and viral conjunctivitis.

Papillae Vs follicles

conjunctival papilla with a central vascular tuft surrounded by acute and chronic leukocytes.

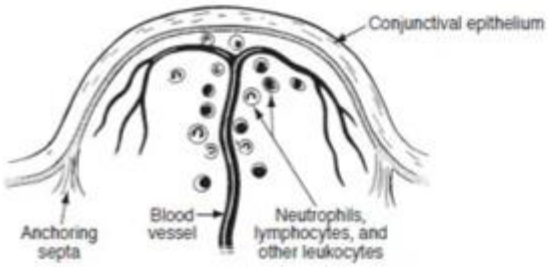
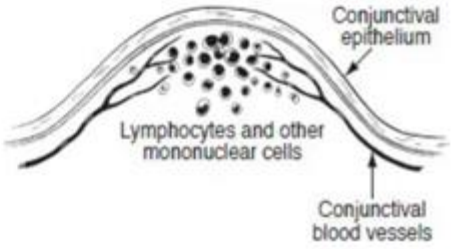
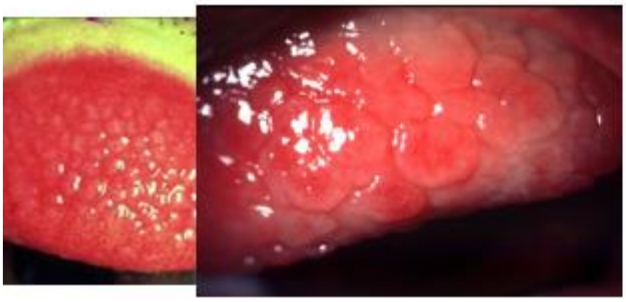


Figure Cross-sectional diagram of a conjunctival follicle with mononuclear cel obscuring conjunctival blood vessels.





Diseases of the conjunctiva:

CONJUCTIVITIS:

» bacterial conjunctivitis
» viral conjunctivitis
» allergic conjunctivitis
» Trachoma

DEGENERATIONS: Pinguecula & Pterygium

SUBCONJUNCTIVAL HAEMORRHAGE

CONJUNCTIVITIS

Definition: Inflammation of the conjunctiva

Characterized by

- Dilation of the conjunctival vessels, resulting in hyperemia & edema of the conjunctiva
- Associated discharge

Causes

Noninfectious	Infectious
○ **Allergic** ○ Toxic ○ Secondary to systemic causes	○ **Viral** ○ **Bacterial** ○ Fungus ○ Parasitic

Viral conjunctivitis

➤ The most common cause of infectious conjunctivitis in the adult population (80%)
➤ More prevalent in the summer

Causes

1. **Adenoviruses (most common),**
2. Herpes simplex virus (HSV),
3. Varicella-zoster virus (VZV),
4. Picornavirus,
5. Molluscum contagiosum,
6. HIV (highly contagious)
7. Measles

NOTE

Between 65% and 90% of cases of viral conjunctivitis are caused by adenoviruses

Clinical form

➲ **Non-specific acute follicular conjunctivitis**

The most common clinical form of viral conjunctivitis.

➲ **Epidemic keratoconjunctivitis**

- **Pathogen**: specific adenovirus subtypes
- **Transmission:** direct contact, fecal-oral route, or contaminated water (e.g., swimming pools)

Sudden onset, acute course (lasts 7–21 days)

Clinical pictures:

- Hyperemia (Red eye)
- Watery discharge
- Chemosis
- Ipsilateral periauricular lymphadenopathy
- Conjunctival membranes or pseudo membranes (in sever cases)

Treatment:

Avoid spreading:

- Frequent hand washing
- Avoid sharing personal care objects such towels
- Avoid contact with eyes
- Avoid shaking hands
- Strict instrument disinfection

Medical therapy:

Although no effective treatment exists, artificial tears, topical antihistamines, or cold compresses may be useful in alleviating some of the symptoms.

Bacterial conjunctivitis

Source of infection

» Contracted directly from infected individuals
» Abnormal proliferation of the native conjunctival flora
» From the spread of infection from the organisms colonizing the patient's nasal and sinus mucosa

Organisms

The most common pathogens for bacterial conjunctivitis in adults are

- **Staphylococcal species**,
- followed by **Streptococcus pneumoniae**
- and **Haemophilus influenzae**. (especially in children and commonly associated with otitis media).

The course of the disease usually lasts 7-10 days.

Clinical picture

- Red eye
- Purulent or mucopurulent discharge
- Chemosis
- Often accompanying eyelid swelling

Treatment

Avoid spreading:

- Frequent hand washing
- Avoid sharing personal care objects
- Avoid contact with eyes
- Avoid shaking hands
- Strict instrument disinfection

Medical therapy:

Topical antibiotic (eye drops & ointment)

Trachoma (Granular conjunctivitis)

» Infection with Chlamydia trachomatis type A–C
» Endemic primarily in developing countries; Africa is the most affected continent

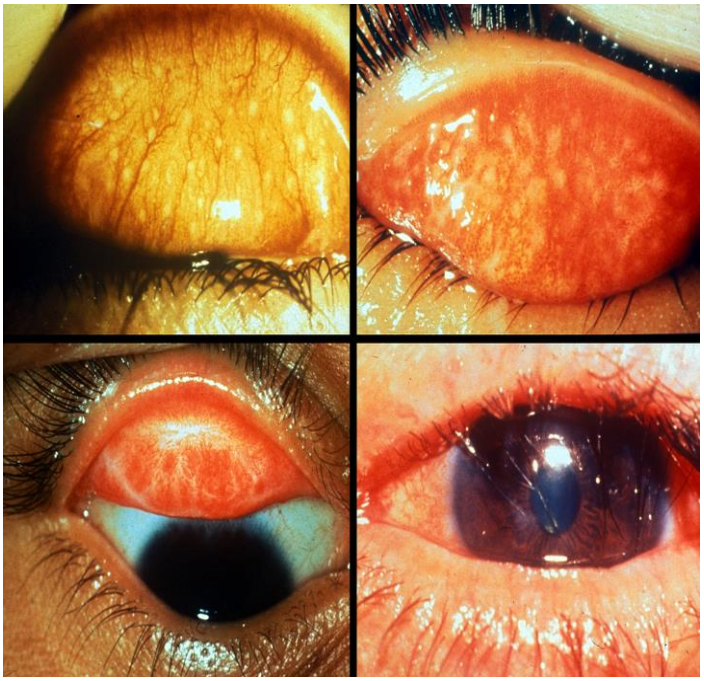
Route of infection:

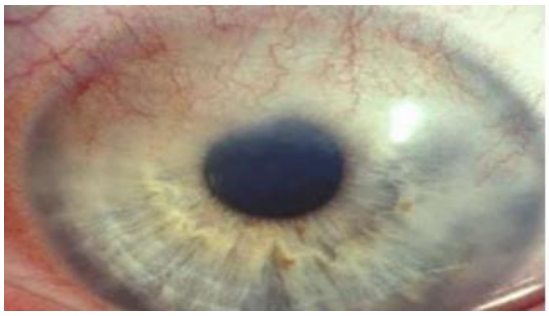
direct (human-to-human contact with eyes or nose) or indirect (flies or towels) contact

Incubation period: 5–12 days

Clinical features

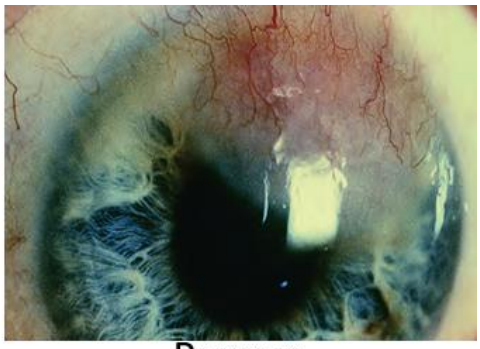
- Follicular conjunctivitis (at tarsal conjunctiva & in the limbic region) Progresses to a mixed papillary and follicular conjunctivitis .
- Corneal haziness with neovascularization is called **pannus** and is a classic presentation of active trachoma.





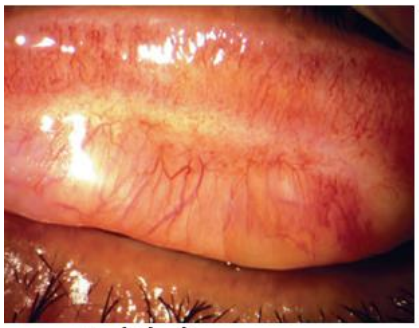
1.Active' inflammatory stage

Follicles

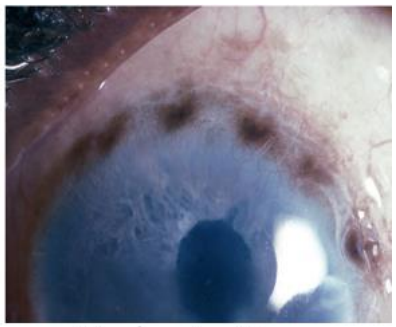


Pannus

2.Cicatricial' chronic stage

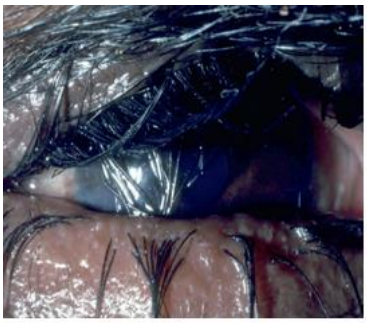


Arlt's line

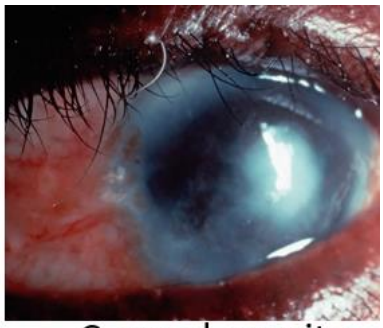


Herbert pits

3.Complications' stage



Entropion

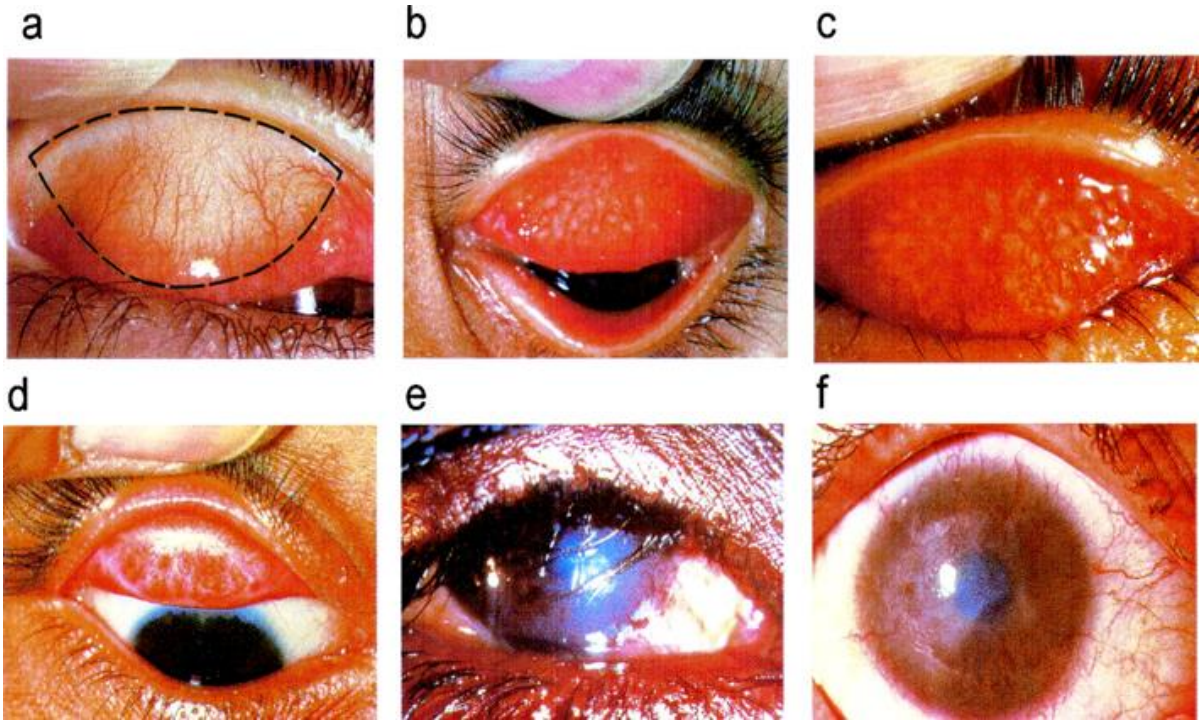


Corneal opacity

WHO classification

(FISTCO)

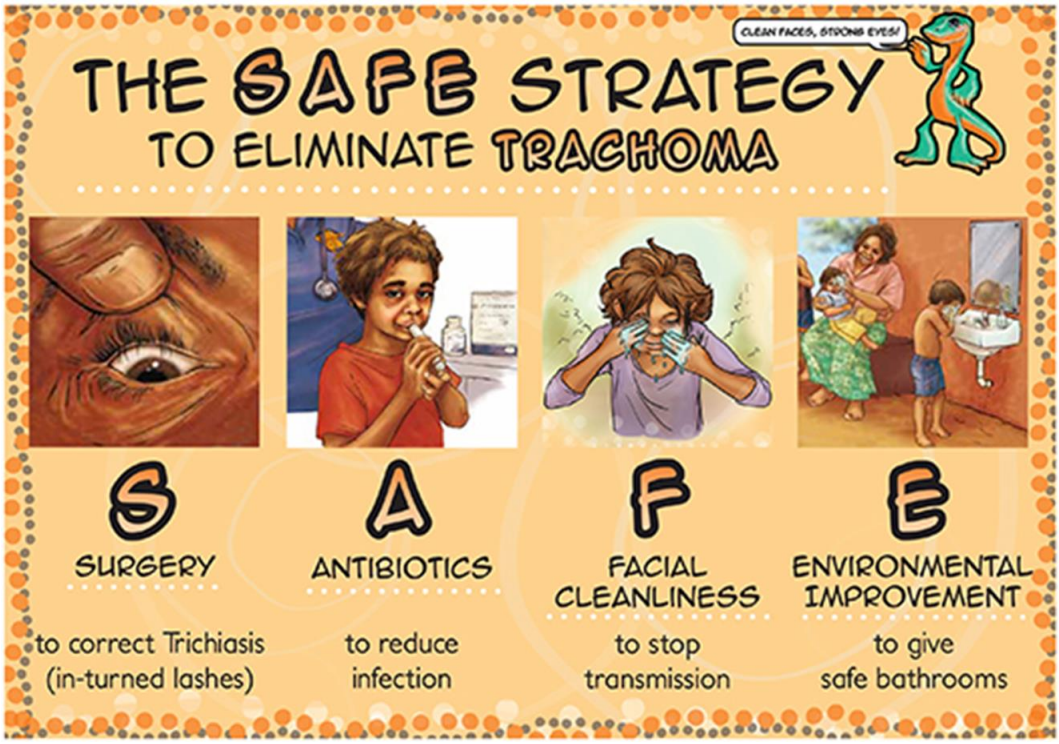
Trachomatous Inflammation (TF)	The presence of 5 or more follicles (>0.5 mm) in the upper tarsal conjunctiva
Trachomatous Inflammation (TI)	Inflammatory thickening of the tarsal conjunctiva that obscures more than half of the deep normal vessels
Trachomatous Scarring (TS)	The presence of scarring in the tarsal conjunctiva
Trachomatous Trichiasis (TT)	At least one lash rubs on the eyeball
Corneal Opacity (CO)	Easily visible corneal opacity over the pupil



	Stage	Description
	**N:** Normal Tarsal Conjunctiva	For examination, the upper eyelid is turned over (everted). Notice the large deep-lying blood vessels that mainly run vertically.
	**TF:** Trachomatous inflammation – Follicular	Presence of 5 or more follicles in the upper tarsal conjunctiva, each at least 0.5 mm in size.
	**TI:** Trachomatous inflammation – Intense	Pronounced inflammatory thickening of the upper tarsal conjunctiva, which obscures more than one half of the normal tarsal vessels.
	**TS:** Trachomatous Scarring	The presence of easily visible white lines, bands, or sheets in the tarsal conjunctiva. Scarring may obscure the tarsal vessels.
	**TT:** Trachomatous Trichiasis	At least 1 eyelash that rubs the globe or evidence of recently removed in-turned lash (*epilation*).
	**CO:** Corneal Opacity	The presence of an easily visible corneal opacity that obscures at least part of the pupillary margin

Treatment/Prevention

- **A**ntibiotics: Drug of choice: **single oral dose azithromycin**
- **S**urgical intervention (eyelid correction in trichiasis)
- **H**ygienic measures (particularly **F**acial cleanliness) and **E**nvironmental improvement (e.g., supply of clean water)



Ophthalmia Neonatorum

Neonatal conjunctivitis is conjunctival inflammation occurring within the first 30 days of life.

Causes

- Chemical conjunctivitis
- Viral
- Bacterial

Timing of onset

- **Chemical irritation:** first few days.
- **Gonococcal:** first week.
- **Staphylococci and other bacteria:** end of the first week.
- **Herpes simplex virus (HSV):** 1–2 weeks.
- **Chlamydia:** 1–3 weeks.

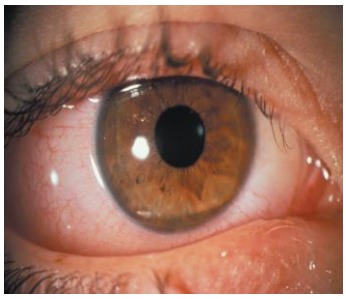
Treatment

- **Chemical irritation:** no ttt required
- **Gonococcal:** ceftriaxone IM or IV
- **Herpes simplex virus (HSV):** Acyclovir IV
- **Chlamydia:** Oral or topical aithromycin

Allergic conjunctivitis

- It is an inflammation of the ocular surface in response to an allergen
- The most frequent cause of conjunctivitis
- Affecting 15-40% of the population
- Observed more frequently in the spring and summer

1.Seasonal allergic conjunctivitis (SAC)

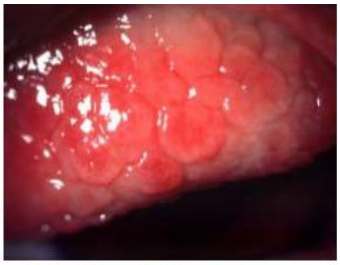


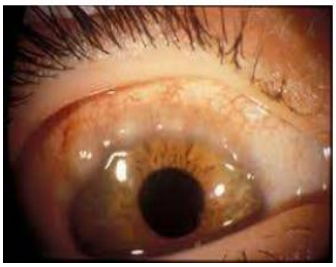
» Seasonal
» Type I hypersensitivity response with conjunctival activated mast cells
» Typically accompanied by seasonal allergic rhinitis.
» The most prevalent form of ocular allergic disease

» **Symptoms**
  - Itching,
  - watery discharge,
  - photophobia
  - and a history of allergies are typical.
  - Usually bilateral.

» **Signs**
  - Chemosis,
  - Red and edematous eyelids,
  - Conjunctival papillae,
  - periocular hyperpigmentation

2.Vernal keratocon junctivitis (VKC)

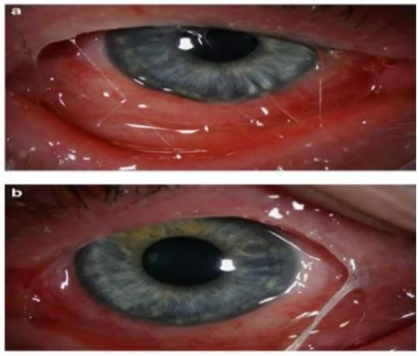




- ♂ > ♀, especially with atopic disease
- Seasonal

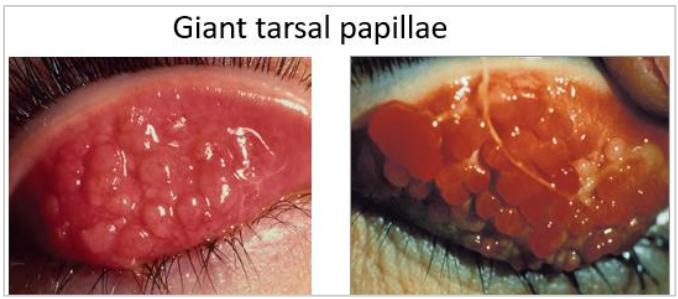
Symptoms

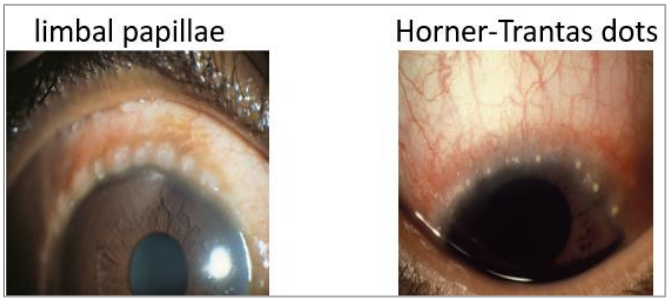
— Bilateral symptoms
— General signs and symptoms of conjunctivitis
— **Itching**
— Excessive tearing**. ropy** discharge,
— Ptosis (mainly in VKC, sometimes in GPC)



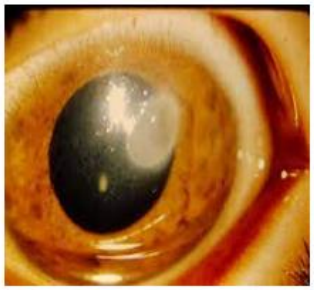
Forms

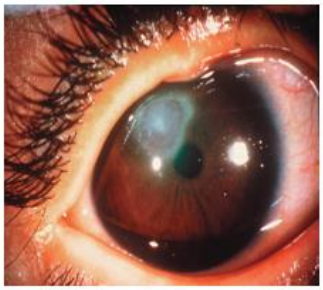
— Palpebral: giant papillae
— Limbal: Horner-Trantas dots





Complication Shield ulcer



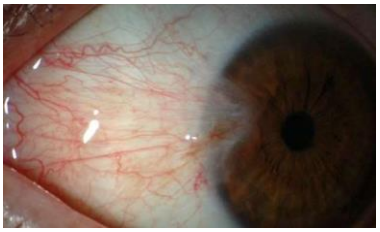


Treatment

» **Avoid chronic irritation (contact lenses, allergens)**
» **Cool compresses several times per day.**
» **Topical drops, depending on the severity:**
  - Mild: Artificial tears four to eight times per day.
  - Moderate: Use antihistamine and/or mast-cell stabilizer drops
  - Severe: topical steroid (e.g., loteprednol 0.2% q.i.d., fluorometholone) and Immunomodulation (eg. cyclosporine)
» **Oral antihistamine in moderate-to-severe cases can be very helpful.**

Non infectious conjunctival condition

Pterygium



» A benign, triangular, fibrovascular wedge of conjunctival tissue, which typically grows laterally starting from the nasal conjunctiva
» More commonly occurs in areas with high **UV radiation**
» Can extend to the cornea, leading to visual impairment

Symptoms

— Irritation
— Scleral/corneal redness
— Lacrimation
— Foreign body sensation
— Mild visual impairment

Management: Surgical excision with risk of recurrence

Subconjunctival Hemorrhage

Collection of blood under the bulbar conjunctiva.

Causes

— Trauma is the commonest cause.
— Vascular diseases because of spontaneous rupture of the capillaries, e.g. hypertension.
— Bleeding disorders like hemophilia or thrombocytopenia

No specific therapy is necessary

» The collection of the hematoma stops at the limbus
» There is no impairment of vision. There is no intraocular or intravitreal damage and hence no impairment of vision.