Conjunctiva
Anatomy of the conjunctiva

- conjunctiva is a thin, transparent mucous membrane which lines the inside of the eyelids and covers the sclera, it’s composed of rare stratified columnar epithelium.
The conjunctiva is typically divided into three parts:

1- **Palpebral** or tarsal conjunctiva: lines the eyelids.
2- **Bulbar** conjunctiva: covers the eyeball, over the sclera.
3- **Fornix** conjunctiva: Forms the junction between the bulbar and palpebral conjunctivas.
Layers of the conjunctiva

1) **The epithelium**: is non-keratinizing and around five cell layers deep.
2) **The stroma** (substantia propria): consists of richly vascularized loose connective tissue.
3) **Conjunctiva-associated lymphoid tissue (CALT)**: is critical in the initiation and regulation of ocular surface immune responses.
Function of the conjunctiva

- The conjunctiva:
  1) helps lubricate the eye by producing mucous and tears.
  2) contributes to immune surveillance.
  3) helps to prevent the entrance of microbes into the eye.
Inflammatory diseases of the conjunctiva
BACTERIAL CONJUNCTIVITIS

Bacterial conjunctivitis is commonly caused by staphylococci, streptococci, chlamydial organism, and gonocci. Mild conjunctivitis is usually benign and self-limited and can be easily treated with antibiotics. Severe conjunctivitis, such as that caused by gonococci, can cause blindness and can signify a severe underlying systemic disease.

Signs & Symptoms:
* Redness of the eyes.
* Discharge (purulent white yellow).
* Ocular irritation.

Treatment:
* This condition is usually self-limiting 10-14 days, although a broad spectrum antibiotic eye drops 1-3 days will resolve the condition.

Dx:
* Conjunctival swabs for culture are indicated if the condition fails to resolve.
BACTERIAL CONJUNCTIVITIS
**OPHTHALMIA NEONATORUM**

** which refers to any conjunctivitis that occurs in the first 28 days of neonatal life. It commonly occurs in neonates due to maternal vaginal infection.

** neonatal conjunctivitis, with *Chlamydia* being the most common infectious agent. Infants may acquire these infective agents as they pass through the birth canal during the birth process.
OPHTHALMIA NEONATORUM

Severe purulent discharge and eyelid edema in a newborn with gonococcal conjunctivitis (confirmed with Gram stain and culture).
** Viruses are a common cause of conjunctivitis in patients of all ages.

** Adenovirus is by far the most common cause, and herpes simplex virus (HSV) is the most problematic

** Patients with viral conjunctivitis may give a history of recent exposure to an individual with red eye at home, school, or work because it’s highly contagious, or they may have a history of recent symptoms of an upper respiratory tract infection.

** Viral infection is characterized commonly by an acute follicular conjunctival reaction and preauricular adenopathy and it may be unilateral or bilateral.

** Viral conjunctivitis, although it’s usually benign and self-limited, tends to follow a longer course lasting for approximately 2-4 weeks.
** Signs & Symptopms :

- Ocular itching & foreign body sensation.
- Tearing
- Redness
- Discharge
- Lid oedema.
- Photophobia.

** This is distinguished from bacterial conjunctivitis by:
  * A watery and limited purulent discharge.
  * Presense of follicles*.
  * Enlarged preauricular lymph nodes.
VIRAL CONJUNCTIVITIS
Follicular reaction on lower eyelids of viral conjunctivitis
✓ **Follicles**: These are raised, gelatinous, oval lesions about 1mm in diameter found usually in the lower tarsal conjunctiva and upper tarsal border, and occasionally at the limbus. Each follicle represents a lymphoid collection with its own germinal center. Unlike papillae, the causes of follicles are more specific (e.g. viral and chlamydial infections).
**Chlamydia trachomatis** are responsible for two forms of ocular infections:

1- Inclusion keratoconjunctivitis
2- Trachoma
1- Inclusion keratoconjunctivitis:

** It’s a sexually transmitted disease, the patient present with mucopurulent follicular conjunctivitis and develop Micropannus* with subepithelium scarring.

** Diagnosis is confirmed by detection of chlamydial antigens, using immunofluorescence or by identification of typical inclusion bodies by Giemsa staining conjunctival swab or scrape specimens.

** Treated by topical and systemic tetracycline
** The commonest infective cause of blindness in the word although it’s uncommon in developed countries.
** The disease is encouraged by poor hygiene and overcrowding in a dry, hot climate.
** The housefly acts as a vector.
** The hallmark of the disease is subconjunctival fibrosis caused by frequent re-infection associated with the unhygienic conditions.
** Blindness may occur due to corneal scarring from recurrent keratitis and trichiasis.
** Trachoma is treated with oral or topical tetracycline or erythromycin.
** Entropion and trichiasis require surgical correction.
scarring of upper eyelid  
scaring of the cornea
Trachoma
ALLERGIC CONJUNCTIVITIS

*It’s divided into acute and chronic forms:

1-Acute (hay fever conjunctivitis)*: acute IgE-mediated reaction to airborne allergen usually pollens.

* Signs & Symptoms include:
  >> Itching.
  >> Conjunctival injection and swelling (chemosis).
  >> Lacrimation.
Acute allergic conjunctivitis
2- Vernal conjunctivitis (spring catarrh): 
Is mediated by IgE, it affects male children with hx of Atopy.

* Signs & Symptoms include:
  >> Itching.
  >> Photophobia.
  >> Lacrimation.
  >> Papillary conjunctivitis on the upper tarsal plate, papilla may coalesce to form Giant (cobblestone).
  >> Limbal follicles and white spots.
  >> Punctate lesions on the corneal epithelium.
  >> An opaque, oval plaque which in severe disease replaces an upper zone of the corneal epithelium.
** Initial therapy is with antihistamines and mast cell stabilizers, topical steroids are required in severe cases but long-term use is avoided if possible because of the possibility of steroid induced glaucoma or cataract.

** Contact lens wearer may develop an allergic reaction to the lens or to lens cleaning material leading to giant papillary conjunctivitis (GPC)* with mucoid discharge on the upper tarsal plate, while this may respond to topical treatment with mast cell stabilizers it is often necessary to stop lens wear for a period or even permanently. Some patients are unable to continue contact lens wear due to recurrence of the symptoms.
**Signs**

✓ **Papillae:** These are raised lesions on the upper tarsal conjunctiva, about 1 mm in diameter with a central vascular core. They are non-specific signs of chronic inflammation. They result from fibrous septa between the conjunctiva and sub conjunctiva which allow only the intervening Papillae tissue to swell with inflammatory infiltrate. *Giant papillae,* found in allergic eye disease, are formed by the coalescence of papillae.
Palpebral Vernal conjunctivitis

Limbal Vernal conjunctivitis
Complication of vernal conjunctivitis is Keratoconus
Conjunctival Degeneration

**Pinguecula**: it’s a common benign asymptomatic degeneration of the collagen fibers of conjunctival stroma.
* You notice a small yellow white nodule usually near the limbus nasally.
* It happens due to excessive exposure to UV light
* No treatment requires, only if inflamed use mild topical steroids.

**Pterygium**: a triangular wing shaped continuous growth of the degenerative conjunctival tissue over the limbus toward the cornea.
* Treatment by surgery if threatens visual axis.
Pterygium

Pinguecula
CONJUNCTIVAL TUMOURS

>> It’s Rare!

1- **Sequamous cell CA** : irregular raised area of conjunctiva may invade deeper tissue.

2- **Malignant melanoma** : The differential diagnosis from benign pigmented lesions (for example a naevus) may be difficult. Review is necessary to assess whether the lesion is increasing in size.

>> Biopsy, to achieve a definitive diagnosis, may be required.
Sequamous cell CA  Malignant melanoma
Band Keratopathy

Subepithelial deposition of calcium phosphate in the exposed part of the cornea.
• Seen in chronic uveitis / glaucoma
• May cause visual loss or discomfort if epithelial erosion form over the band.
• If symptomatic: scraped off surgically, aided by chelating agent (sodium adetate) & excimer laser (ablating affected surface)
• Can also be sign of systemic hypercalcemia
Foreign Body

Most common cause: “spark metal” •

Treatment: •

1- Must be removed + evert eyelids
2- Antibiotics
3- Treat as corneal abrasion
4- CT scan if hx suggests a foreign body in posterior segment of the eye.
Thank you

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