LEARNING OUTCOMES

By the end of this lecture the students would be able to:

1. Classify diseases of the conjunctiva
2. Identify the common symptoms and signs of conjunctival diseases
3. Identify the common symptoms and signs of conjunctival diseases
4. Enlist the causes & risk factors of conjunctivitis.
5. Differentiate between bacterial, viral, chlamydial and allergic conjunctivitis on the basis of clinical presentation.
6. Describe the associated complications, treatment and prevention strategies for each type of conjunctivitis.
Classification of conjunctival diseases

- **Inflammatory**
  - Infective & non-infective conditions like conjunctivitis

- **Degenerative disorders**
  - Pinguecula, Pterygium, concretions and cysts

- **Neoplastic**
  - Squamous cell carcinoma, melanoma, lymphoma etc

- **Miscellaneous disorders**
  - Dry eyes
Symptomatology

- Red eye
- Watering (lacrimation)
- Irritation, stinging, burning and foreign body sensation
- Itching
- Blurring vision/ decreased vision, Photophobia and pain (danger alarm)
- Growth or mass in the eye
SIGNS

- Redness; conjunctival redness
- Discharge
- Follicle & papillae
- Phylectenule
- Conjunctival oedema
- Presence of membrane/pseudomembrane
- Subconjunctival haemorrhage
- Lymphadenopathy
- Keratinization
- Scarring
- Pigmentation
- Mass
REDNESS; CONJUNCTIVAL REDNESS

- Superficial
- Maximum at the fornices and fades towards the limbus
- Mild to severe
Conjunctival congestion

Ciliary congestion
What is discharge?

- Reflex tearing and exudative response of the inflamed conjunctiva mixed with mucus
- **Serous;** watery exudate in acute viral and acute allergic conjunctivitis.
- **Mucoid;** mucus discharge in Vernal Kerato Conjunctivitis (VKC) and dry eyes.
- **Purulent;** puss in severe acute bacterial conjunctivitis.
- **Mucopurulent;** puss plus mucus in mild bacterial conjunctivitis and Chlamydial conjunctivitis.
Ophthalmia neonatorum

Bacterial conjunctivitis
Follicular reaction

- Sub epithelial foci of hyperplastic lymphoid tissue
- More prominent in fornices.
- Multiple, discrete, slightly elevated,
- Size from 0.5 to 5 mm.
- Commonly seen in Viral conjunctivitis, Chlamydial conjunctivitis & in cases of hypersensitivity to topical medications.
Papillary reaction

- What are papillae?

Hyperplastic conjunctival epithelium with central core vessel surrounded by infiltrate separated from each other by fibrous septa - seen in allergic & bacterial conjunctivitis
Papillary reaction

- Can develop in palpebral conjunctiva and limbus - why?
- Giant papilla (confluence)
- Make the conjunctiva look rough and velvety
- Difficult to see the underlying conjunctival vessels
- Seen in Allergic conjunctivitis, Bacterial conjunctivitis, Chronic blepharitis, Contact lens wearers
Cobblestone papillae
Phylectenule
Conjunctival oedema - chemosis

- It can happen in acute inflammation of the conjunctiva as in acute infective/allergic conjunctivits, orbital disorders (obstructing the outflow of lymph and venous drainage) and certain systemic conditions (acute nephritis, lymphoma)
Conjunctival oedema - chemosis
Membranes & Pseudomembrane

- Coagulated exudate adherent to the inflamed epithelium.
- Can be easily peeled off.
- Causes; Severe adenoviral infection, Ligneous conjunctivitis, Gonococcal conjunctivitis, Stevens-Johnson syndrome
- True conjunctival membrane infiltrates the superficial layers of conjunctival epithelium.
- Conjunctiva bleeds if attempted to be removed.
- Causes; infection with Diphtheria & Beta-hemolytic Streptococci and Neisseria Gonorrhoeae.
Subconjunctival Haemorrhage

- Can happen in severe cases of viral or bacterial conjunctivitis
- Trauma
- Haemotological disorders (bleeding disorders, leukaemias)
- Fracture base of the skull
Traumatic subconjunctival haemorrhage

Adenoviral conjunctivitis
subconjunctival haemorrhage
Lymphadenopathy

- Pre auricular and sub mandibular.
- In ; Viral infection, Chlamydial infection
Systemic symptoms in conjunctivitis

Severe conjunctivitis with

- Gonococcus,
- Meningococcus,
- Chlamydia
- H.Influenzae
Diagnosis

**Bacterial**

- **Symptoms**
  - Acute onset
  - Bilateral with one eye affected a day or two earlier
  - Discharge is purulent or mucopurulent
  - Glued eyelashes in the morning

- **Signs**
  - Lid swelling in severe cases
  - Conjunctival redness
  - Punctate corneal epithelial erosion are common
  - Peripheral corneal ulceration may in gonococcal and meningococcal infection rapidly progressing to perforation.
  - Lymph adenopathy usually absent (except in gonococcal and meningococcal infection)
Diagnosis

- **Viral**
  - Symptoms
    - Acute onset watering, redness, discomfort & photophobia
    - Usually bilateral
    - Lid swelling
  - Signs
    - Conjunctiva:
      - Follicular conjunctivitis.
      - Mild-moderate chemosis.
      - Subconjunctival Haemorrhage.s
      - Pseudomembrane & membrane formation.
    - Tender pre-auricular lymphadenopathy.
    - Keratitis (80%) - 7 to 10 days later in the form of superficial punctate keratitis, subepithelial opacities and may remain for quite a long time.
    - Conjunctival scarring (rare)
Treatment of conjunctivitis

Bacterial conjunctivitis

- Topical: Aminoglycosides, quinolones, polymyxin B, Fusidic Acid, chloroamphenicol, Bacitracin
- Systemic in some cases?
- Lid hygiene
- Contact lens wear to be discontinued till the antibiotic therapy is completed
- Hand washing and avoid sharing towels
Treatment of conjunctivitis

Viral conjunctivitis

- Spontaneous resolution within 2-3 weeks.
- Symptomatic & supportive treatment with
- Topical steroids to be avoided
- Antivirals are ineffective
- Reduce the risk of transmission
  - Hand hygiene
  - Avoid eye rubbing & towel sharing
  - Disinfection of eye instruments after examination
Ophthalmia neonatorum

- Conjunctivitis of the new born
- Onset
  - Chemical... First few days
  - Gonococcal... 1\textsuperscript{st} Week
  - Staphlococcal and other bacteria... End of 1\textsuperscript{st} week
  - Herpes Simplex.....1-2 weeks
  - Chlamydia.....1-3 weeks

Treatment of conjunctivitis
- **Treatment**
  - **Mild – moderate cases** topical antibiotic eye drops and ointment
  - **Systemic antibiotics and antiviral therapy**
    - Gonococcal, Chlamydial and Herpes Simplex
Allergic conjunctivitis

- Acute allergic conjunctivitis
- Seasonal conjunctivitis
- Vernal Keratoconjunctivitis
- Atopic Keratoconjunctivitis
- Giant Papillary conjunctivitis
Recurrent & Bilateral

IgE & cell-mediated reaction

Common in males

Age-5 to late teens

Remission in late teens

Symptoms & Signs occur on seasonal basis.

Peak Incidence: April - August.

More common in warm, dry climates

Associated with other allergic disorders like?
Signs-Palpebral type

A

B

C

D
Signs - Limbal type

Tranta's dots
Limbal papillae
Complications

- Keratopathy
- Side effects of steroids; Cataract & Glaucoma

Associations

- Keratoconus
- Herpes simplex keratitis
Corneal complications
Treatment

- Allergen avoidance
- Drugs
  - Mast cell stabilizers
  - Antihistamines
  - NSAIDs
  - Steroids
  - Decongestants
  - Lubricants
Other signs

- **Keratinization**
  - Vitamin A deficiency
  - Systemic Immune disorders
    - Ocular pemphigoid
    - Stevens-Johnson Syndrome
    - KCS
- **Scarring**
  - Chemical burns or mechanical trauma
  - Immune disorders
  - Chronic conjunctivitis (Trachoma)
Conjunctival Growth /mass

- Benign; cysts, pterygium, lipodermoid
- Malignant; melanoma, squamous cell carcinoma and others
Benign Growths
Pterygium

- A degenerative condition
- Triangular, fibrovascular connective tissue overgrowth of bulbar conjunctiva onto the cornea usually on the nasal side
- Can reduce vision through producing Astigmatism and corneal opacity
- Many treatment modalities have been tried but so far the best option with least recurrence rate is excision of the pterygium with conjunctival autograft.
Laboratory Investigations

Indications

- Severe purulent conjunctivitis
- Follicular conjunctivitis: viral vs chlamydial
- Conjunctival inflammation
- Neonatal conjunctivitis
Laboratory Investigations

- Cytological investigations
- Cultures
- Detection of viral and chlamydial antigens.
- Impression cytology
- Polymerase chain reaction for adenovirus, herpes simplex, chlamydia trachomatis.
- Biopsy for tumours
1. What is WHO Grading for Trachoma?
2. How is Trachoma spread?
3. What is SAFE strategy?
4. Why is Ophthalmia neonatorum an emergency?
5. What are the risk factors for corneal disease?
6. What is the most appropriate treatment for pterygium?