



Gaza Ophthalmic Centre

2.1 The Conjunctiva

(Part 1)

Ophthalmology

FOR GP's & MEDICAL STUDENTS

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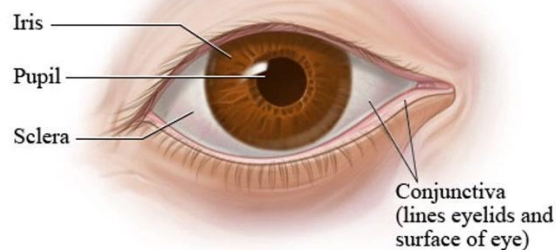


Good morning. This is part one of three parts about the conjunctiva disease. This part one is about infective conjunctivitis

The Conjunctiva

Gross anatomy:

- **It is**
 - **thin**
 - **semitransparent**
 - **membrane**



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conjunctiva is a thin semi transparent membrane that covers the anterior part of the sclera and the back of the eyelid

The Conjunctiva

Gross anatomy:

- Consists of 5 parts :

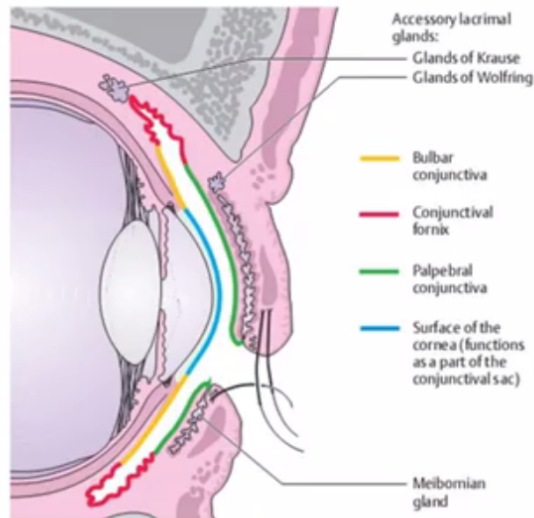
1. *Palpebral conj.*

2. *Bulbar conj.*

3. *Fornix*

4. *Plica Semilunaris*

5. *Caruncle*



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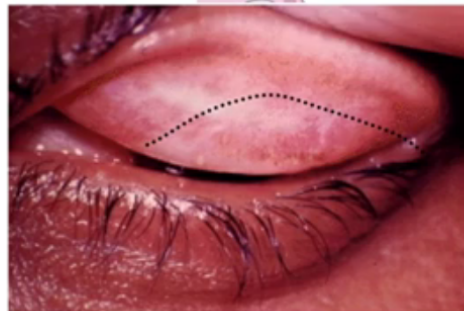
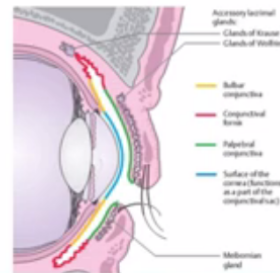


It consists of five parts the palpebral conjunctiva, the Bulbar and the Fornix together with two main structures plica semilunaris and the caruncle

The Conjunctiva

Palpebral conjunctiva

- *Line back of the lid*
- *Firmly adherent to tarsus*



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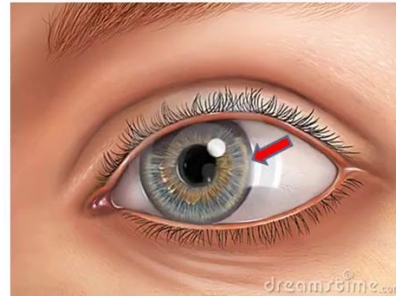
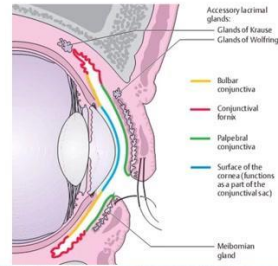


.The palpebral conjunctiva lies the back of the eyelid and it is firmly adherent onto the tarsus

The Conjunctiva

Bulbar conjunctiva

- Cover sclera
- Loosely adherent to sclera
- Except 3 mm around limbus
- → fixed



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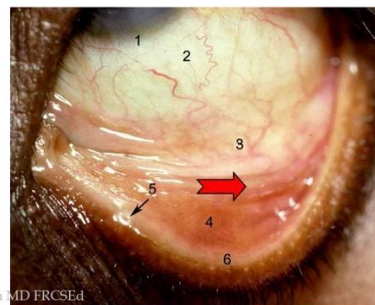
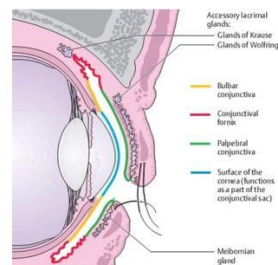
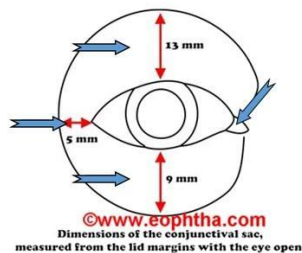
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Bulbar conjunctiva covers the sclera however, it is loosely adherent onto the sclera except for the three millimeters around the Limbus, which is fixed, that allows the eye globe to move freely due to the action of the extraocular muscle in relation to the orbit

The Conjunctiva

Fornix:

- Site of reflection
- Number: 4
 - Sup
 - Inf
 - Med
 - Lat



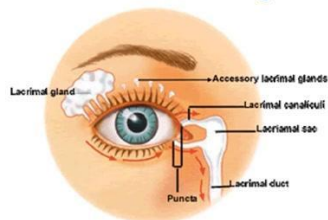
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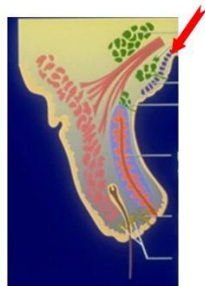
The fornix is divided into four sites and it is the site of reflection between the palpebral and the bulbar conjunctiva, we have superior and inferior fornices, as well as medial and lateral ones

The Conjunctiva

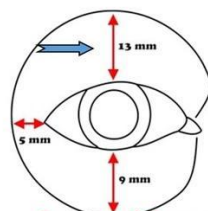
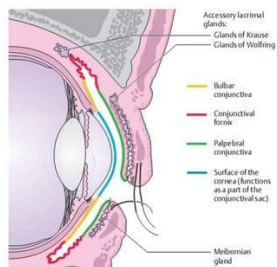
- **Superior fornix:**
 - Deepest & receives
 - Levator insertion
 - Ducts of lacrimal gland



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Dimensions of the conjunctival sac, measured from the lid margins with the eye open.



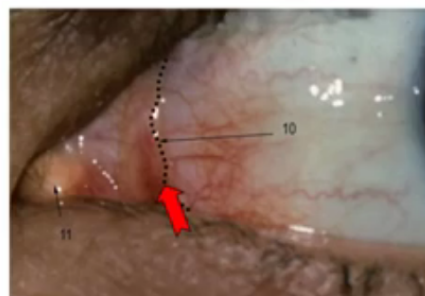
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This superior one is the deepest and it receives the levator palpebrae superioris insertion as well as the ducts of the lacrimal gland which opens in the latter part of the upper fornix

The Conjunctiva

Plica Semilunaris:

- Crescentic fold of conjunctiva
- At inner canthus



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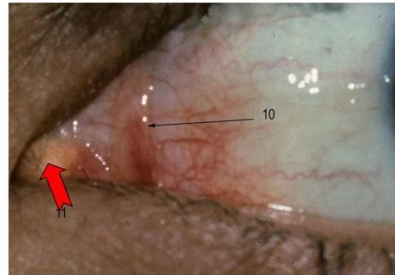
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plica semilunaris is a Crescentic fold of the conjunctiva at the inner canthus

The Conjunctiva

Caruncle:

- **Vascular fleshy elevation**
- **at inner canthus**



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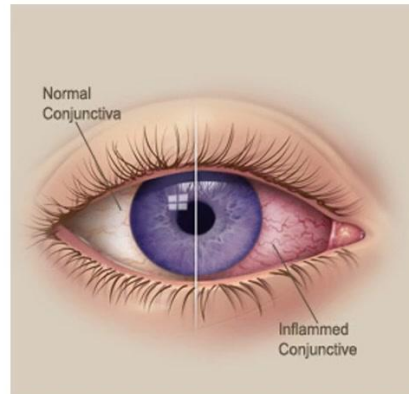


The caruncle is a vascular fleshy elevation at the inner canthus, It is part of the skin and .remnants of the rudimentary third eyelid in the human

Conjunctivitis

Definition:

- Inflammation of
- Conjunctiva
- Characterized by
 1. Hyperemia &
 2. Discharge



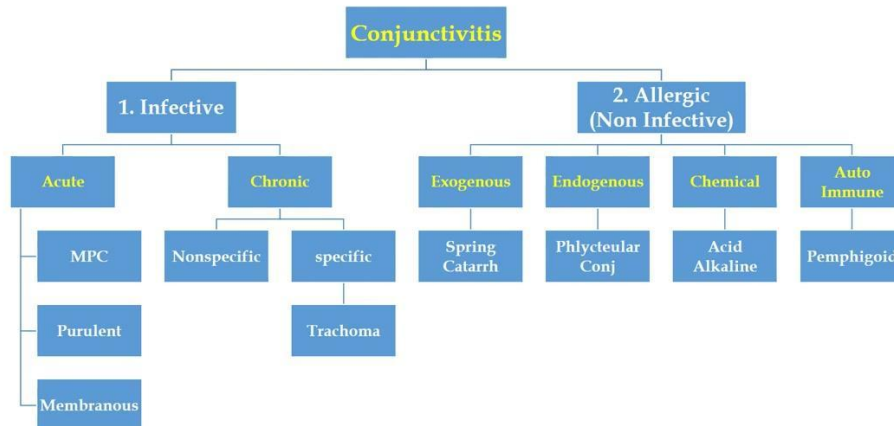
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conjunctivitis means inflammation of the conjunctiva it is usually characterized by hyperemia and discharge, the discharge is different in type according to the causative etiology of .conjunctivitis

Conjunctivitis



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conjunctivitis in general is either infective or non infective or allergic the infective can be acute or chronic and each type can be subdivided into different categories. The allergic one can be due to exogenous causes endogenous causes, or due to chemical reaction and finally, it can also be a response of auto immune disease

1) Infective Conjunctivitis

1.1 Muco Purulent Conjunctivitis

1.2 Purulent Conjunctivitis

1.3 Ophthalmia Neonatorum

1.4 Membranous Conjunctivitis

1.5 Viral Conjunctivitis

1.6 Trachoma

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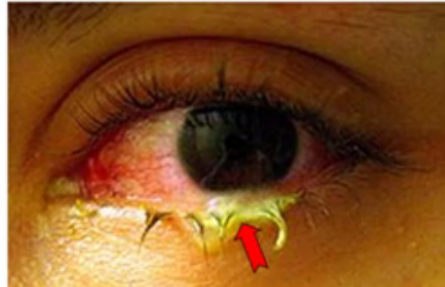
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infective conjunctivitis is mainly classified into main six categories mucopurulent, purulent, ophthalmia neonatorum, which is a type of purulent conjunctivitis happening in infants in the first couple of weeks. membranous conjunctivitis, viral conjunctivitis and Trachoma

1.1 Muco- Purulent Conjunctivitis

Definition:

- Acute Infective conjunctivitis
- Characterized by
 1. Hyperemia
 2. Muco – purulent discharge



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muco-purulent conjunctivitis is acute infective conjunctivitis characterized by hyperemia and mucous discharge

1.1 Muco- Purulent Conjunctivitis

Etiology:

- Predisposing factors
 1. Bad hygiene
 2. Flies
 3. Dirty towels
- Organism
 1. Koch – week's bacillus
 - (Haemophilus Egypticus)
 - 80% of cases in winter
 2. Staph.
 3. Strept.
 4. Pneumococci



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It can be predisposed for by bad hygiene of the eyes and the body in general, flies and dirty towels. The organism in our area is mainly caused by Koch bacillus, which is called haemophilus egyptius and it is responsible of 80% of cases of an MPC that happens in winter. Staph, strep or pneumococcal can also be causative agents

1.1 Muco- Purulent Conjunctivitis

Clinical Picture:

- Symptoms:
 1. Discomfort
 2. Discharge
 3. Hotness
 4. F.B sensation
 5. Coloured Haloes



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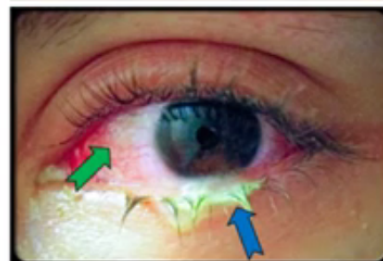
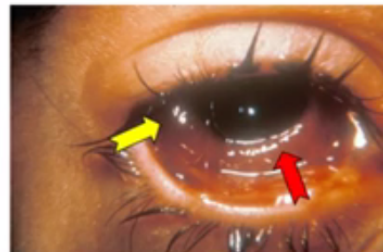
Clinically the patient complains of discomfort discharge, which is mucus gluing the lashes together. There's also hotness, sensation of foreign body and colored halos around lights

1.1 Muco- Purulent Conjunctivitis

Clinical Picture:

Signs:

- Local
 1. Lid Edema
 2. Injection
 - Conjunctival hyperemia
 3. Conj oedema
 - Chemosis
 4. Hge in few cases
 5. Lashes glued together
 - by the discharge
- General :
 - Pre auricular lymphadenopathy



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On examination, we can find lid edema, conjunctival redness and injection, conjunctival edema and if severe, it leads to chemosis. we can see hemorrhage in few cases and the lashes are glued together by the mucoïd discharge. Generally there can be pre auricular lymph adenopathy

1.1 Muco- Purulent Conjunctivitis

Complications:

1. Chronic conjunctivitis
2. Corneal ulcer
 - (Marginal)
3. Iritis:
 - Only in cases with
 - Pneumococci



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mucopurulent conjunctivitis can become chronic, and it can also lead to corneal ulcer which usually marginal it can also cause Iritis or iridocyclitis, especially if the pneumococci is the causative organism

1.1 Muco- Purulent Conjunctivitis

Treatment:

- **A- prophylactic ttt:**
- **B-Curative ttt:**
 - I- General Systemic
 - II- Local
 1. **Antiseptic lotions**
 2. **Antibiotic drops**
 3. **AB Ointment**
 4. **Hot Fomentation**
 5. **Dark Glasses**

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Treatment is mainly prophylactic with eye hygiene and preventing spread of infection. However, curative measures include general systemic ones if needed. The most important is the local hygiene with antiseptic lotions, antibiotic drops or ointment, hot fomentation and dark glasses if the patient complains of photophobia

1.1 Muco- Purulent Conjunctivitis

N.B.:

Bandage is contra indicated

1. Retention of discharge
 - (Toxins)
2. ^ Temperature of Conj. Sac
 - Promoting growth of
 - invading organism

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Note that bandage enclosing the eye is contraindicated in conjunctivitis because it causes retention of the discharge With the toxin involved, and also increases the temperature of the .conjunctiva sac which promotes further growth of the invading organism

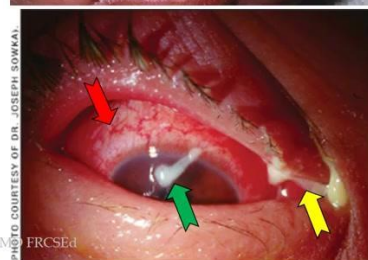
1.2 Purulent Conjunctivitis

• **Definition:**

- Acute, infective conjunctivitis
- Characterized by
 1. Hyperemia
 2. Purulent Discharge
 3. Corneal involvement
 4. General S. & S

• **Etiology:**

- 80% Gonococci
 - Gonococcal ophthalmia
- 20% Staph, Strep etc.



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purulent conjunctivitis is acute severe infective conjunctivitis characterized by hyperemia and pus discharge there are usually corneal involvement as well as systemic involvement. 80% that's caused by Gonococci as a gonococcal ophthalmia, and 20% staph, strep and other organisms

1.2 Purulent Conjunctivitis

Types:

1. Epidemic :
 - Infection is transmitted
 - from one eye to another
2. Genital :
 - Infection is transmitted
 - from genital tract to eye
 - by:
 - Contaminated Hands
 - Autogenous infection
 - Infected discharge
 - in maternal passages
 - during labour
 - → Ophthalmia Neonatorum



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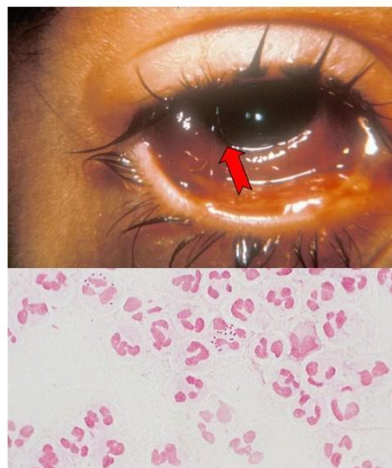
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it can be either of two types, the epidemic purulent conjunctivitis where infections transmitted from one eye to another between one patient and the other, or genital and that's acquired during labor from the birth canal from the mother genital tract either by contaminated hands or by the infected discharge during labor

1.2 Purulent Conjunctivitis

Complications:

- Corneal ulceration:
 - Mechanism:
 1. Chemosis
 - form a gutter
 - around limbus
 - → marginal ulcer
 2. Gonococci
 - can invade
 - intact epithelium



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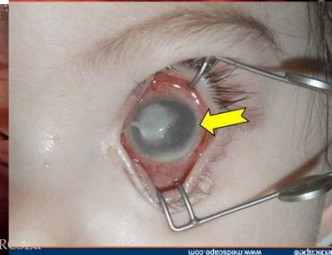
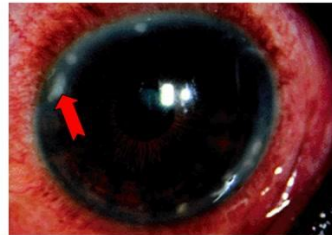
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It can lead to severe corneal ulcer which happens because either the chemosis forming a gutter where the toxins accumulate and causing marginal ulcer or if the causative organism is Gonococci, it can directly invade the healthy epithelium, the intact epithelium, and here in the bottom we can see the diplococci gonorrhea

1.2 Purulent Conjunctivitis

Complications:

- Corneal ulceration:
 - Types
 1. Marginal ulcer
 2. Ring ulcer
 3. Central ulcer



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corneal ulcer might be marginal due to the gutter formation, it can be ring ulcer in severe cases or it can be central ulcer, especially with pneumococci ,Gonococci,And that can lead to hypopyon which means presence of pus in anterior chamber and this is the most severe type

1.2 Purulent Conjunctivitis

Treatment

- Prophylactic
- Curative
 - General
 1. Antibiotics
 - Local
 1. Eye lotion
 2. Antibiotic drops
 3. AB Eye ointment
 4. Hot compresses

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Treatment is usually prophylactic preventing the infection from the start, however, definitive treatment including systemic antibiotics, as well as eye hygiene, lotions, antibiotics and hot compresses

1.2 Purulent Conjunctivitis

Prophylactic ttt:

1. Treat mother
2. Avoid infection of other eye
 1. (Antibiotic drops)
3. Avoid infection of doctor
 1. Gloves
 2. Protective goggles
4. Avoid infection of others
 1. Health education
 2. Combat flies

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Don't forget that you need to treat the mother before labor and to avoid the infection of . the other eye by using antibiotic drops. Avoid infecting the doctor by using proper dressing gloves and protective goggles and to avoid infection of others, like health education and combating flies

1.3 Ophthalmia Neonatorum

Definition:

- Acute conjunctivitis
- Newly born
- 1st 2 weeks of life



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ophthalmia neonatorum is a severe type of purulent conjunctivitis which happens in the .newborn usually in the first two weeks of life

1.3 Ophthalmia Neonatorum

Etiology:

- Infection from maternal passages:
 1. Gonococci
 2. Inclusion virus
 3. H.I.V
 4. Chlamydia occulo genitalis
- Infection from contaminated towels or instrument:
 1. Gonococci
 2. Staph
 3. Strep



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The infection as we said earlier, get gained from the maternal passages usually it can be gonococci. However, inclusion virus HIV or chlamydia ocular genitalis can also be a causative agent. Infection from contaminated towels or instruments involve: gonococci, Staph and Strep.

1.3 Ophthalmia Neonatorum

- **Clinical picture & complications:**
 - as Purulent conjunctivitis
- **DD:**
 - Congenital dacryocystitis
 - (-ve regurge)



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Clinically it is the same like in severe purulent conjunctivitis and we have to differentiate it from congenital dacryocystitis by negative regurge test in the ophthalmia neonatorum.
• Positive one in the dacryocystitis

1.3 Ophthalmia Neonatorum

- **Prophylactic ttt**
 1. **Proper ttt of mother**
 - **before labor**
 2. **Wash infant**
 - **with head up**
 3. **Crede's method!**



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The prophylactic treatment includes as we said earlier, proper treatment of the mother before the labor when washing the infant The head should be up and out of the water and ,using crede's method on the delivery room to sterilize the conjunctiva

1.3 Ophthalmia Neonatorum

N.B. :

- **No tears secretion**
 - **in first 2 months**
- **so**
- **Any secretion**
 - **is infection**

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note that the young infants in the first two months does not cry with tears they don't produce tears when crying so any discharge is supposed to be infection till proved otherwise

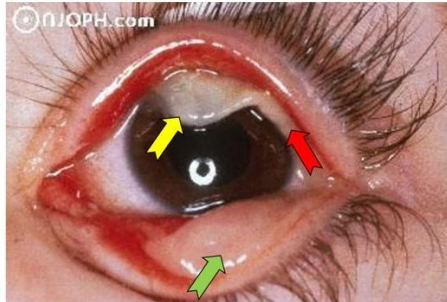
1.4 Membranous Conjunctivitis

Definition:

- **Acute, infective conjunctivitis**

- **Characterized by:**

1. **Hyperemia**
2. **Purulent discharge**
3. **Membrane formation**
4. **Corneal involvement**
5. **General S. & S. (severe)**



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membranous conjunctivitis is acute, severe infective conjunctivitis characterized by . hyperemia purulent discharge, membrane formation especially on the back of the eyelids. Usually there is a corneal involvement as well as severe general signs, symptoms, fever, .malaise and weakness

1.4 Membranous Conjunctivitis

- **Etiology:**

- **Infection**
- **Diphtheria Bacillus!**

- **Age**

- **2-5 years**

- **Season:**

- **Common in winter**



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The infection used to be diphtheria bacillus in the typical cases however now because of the DPT vaccination, This is rarely seen. Usually its young children two to five years and common .in winter

1.4 Membranous Conjunctivitis

Complications:

- General:
 1. Toxic myocarditis
 2. Toxic glomerulonephritis
 1. Albuminuria
 3. Toxic neuritis

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There are general complications due to toxins produced by the diphtheria that can cause myocarditis, glomerular nephritis with albuminuria or toxic neuritis

1.4 Membranous Conjunctivitis

Treatment:

- Prophylactic ttt:
 1. Immunization
 1. (D.P.T vaccine)
 2. Isolation of pt. &
 3. Notification of health authorities

Treatment is usually prophylactic by having the DPT vaccine, by isolating the patients. And it is a notifiable disease, the Health Authority have to be notified of each case

1.5 Viral Conjunctivitis

- Aetiology

- Most commonly adenoviral
 1. Pharyngoconjunctival fever (PCF)
 2. Epidemic keratoconjunctivitis (EKC)



Viral conjunctivitis can come in widespread epidemics, which usually involve adenovirus which can affect 10s or hundreds of 1000s of citizens in the same locality. Two types .pharyngealconjunctiva fever PCF or Epidemic Keratorconjunctivitis EKC

1.5 Viral Conjunctivitis

- Conjunctiva

1. Intensely hyperaemic
2. May be associated:
 1. Follicles
 2. Haemorrhages
 3. Inflammatory membranes
 4. Lymphadenopathy (preauricular node)

- **Keratitis** occurs on

1. 80% with EKC and
2. 30% PCF



On examination, the conjunctiva is Tensely hyperemic. It may show follicles, hemorrhages, inflammatory membranes, and usually there is associated lymph adenopathy. keratitis and involving of the Cornea occurs in 80% of cases of epidemic Keratoconjunctivitis, and 30% of cases of pharyngeal conjunctival fever

1.5 Viral Conjunctivitis

- Treatment:
 - No specific therapy,
 - Self resolving,
 - Up to two weeks
 - Advice (very contagious)



there is no specific therapy for viral conjunctivitis, it is self resolving, it takes up to two or even three weeks. However, there should be great care in examining in handling and isolation of the patient and his utensils because it is very contagious. In few cases, especially if there is a severe sensation of foreign body or if there is photophobia or corneal involvement, we might use weak steroids. in other cases, it's good to use lubricants, used to cold compresses and antihistaminic to soothe hives

Thank you