Conjunctivitis
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Learning objectives:
1. Differentiate conjunctivitis from other causes of red eye
2. Differentiate between the various forms of conjunctivitis
3. Discuss the management and therapeutic aspects of different types of infective conjunctivitis

Suggested reading:
Clinical ophthalmology: a systematic approach. Jack Kanski. Chapter 4
The wills eye manual. Chapter 5

History
Duration, discharge type, discomfort.
Recent “flu”, affected contacts, history of allergy

Differential diagnosis
Infective: bacterial, viral, chlamydial, parinauds oculoglandular syndrome
Non-Infective: allergic, giant papillary, cicatricial

Useful signs
Discharge
- purulent = bacterial
- mucopurulent = chlamydial
- mucoid/watery = allergic
- watery = viral

Follicles (hyperplastic conjunctival lymphoid tissue)
- viral, chlamydial, parinauds oculoglandular syndrome

Papillae (hyperplastic conjunctival epithelium)
- bacterial, allergic, contact lens wearers

Bacterial conjunctivitis
Bacteria:
- Gram positive cocci e.g. staph aureus, staph epidermidis, strep pneumoniae, strep, pyogenes
- Gram negative cocci e.g. moraxella, neisseria gonorrhoea
- Gram positive rods e.g. corynebacterium
- Gram negative rods e.g. pseudomonas

Signs:
- Usually unilateral
- Copious thick, purulent discharge
- Papillae
- Potentially serious if patient has had recent cataract surgery or previous trabeculectomy.

Investigations:
- May consider conjunctival swab to microbiology for microscopy, culture and sensitivity (MC&S)

Management:
- First choice is chloramphenicol: broad spectrum of activity but pseudomonas often resistant.
- Second choice is fucithalmic: main action against gram positives
- Alternatives include tobramycin, neomycin, sulphonamides

Viral conjunctivitis
Viruses:
- Adenovirus is the commonest
- Enterovirus, coxsackie virus
- Herpes simplex, herpes zoster

Signs:
- Usually bilateral, sequential
• Itchy with watery discharge
• Follicles
• May have subconjunctival haemorrhage or pseudomembrane.
• May go on to develop viral keratitis

Investigations:
• Not required: a clinical diagnosis

Management:
• Warn patient of infectious nature of viral conjunctivitis
• Cool compress and lubricants for any discomfort
• Usually self-limiting, resolving over 2-4 weeks

Chlamydia conjunctivitis

Cause:
• *Chlamydia Trachomatis* subtypes D-K

Signs:
• Initial genitourinary infection (may be asymptomatic)
• Usually unilateral
• Mucopurulent discharge
• Chronic follicular conjunctivitis
• Pre-auricular lymphadenopathy
• May develop corneal punctuate keratopathy, subepithelial infiltrates or pannus.

Investigations:
• Conjunctival scrape: giemsa stain, PCR

Management:
• Erythromycin eye drops and oral tetracycline
• Refer to sexually transmitted disease clinic

Trachoma

Cause:
• *Chlamydia Trachomatis* Subtypes A-C

Symptoms and signs:
• Chronic follicular conjunctivitis
• Inflamed thickened tarsal conjunctiva
• Conjunctival scarring (Arlt's lines)
• Trichiasis, corneal scarring.

Investigations:
• Conjunctival scrape- giemsa stain, PCR

Management:
• Oral Azithromycin if active infection
• Improve hygiene
• Eyelid surgery

Treatments

Considerations:
• Organism – bacterial, viral etc
• Organism sensitivity
• Most appropriate dosage form
• Correct dosage regime

Appropriate dosage form
1. Drops
   • Rapid action, high peak, short ½ life
2. Ointments
Slower onset, longer ½ life, greasy/vision

3. **Subconjunctival injection**
   Limited role e.g. post-op

4. **Systemic tablets/injections**
   Rarely used in corneal/external infections

**Appropriate Dosage Regimen**
- Four times per day to hourly application
- Nocturnal coverage

**Commonly used antibacterials**
1. Chloramphenicol
2. Fusidic acid
3. Aminoglycosides
4. Sulphonamides
5. Cephalosporins
6. Fluoroquinolones
7. Miscellaneous

**Chloramphenicol**
- Most commonly used agent
- Bacteriostatic: inhibits protein synthesis
- Activity – bacteria, chlamydia, rickettsia
- Useful against ocular streptococci, haemophilus, corynebacterium etc.
- Most pseudomonas are resistant
- Resistance via - acetyltransferase
- **Pros**
  - Available as 0.5% drops & 1% ointment
  - Reasonable spectrum of activity
  - Low topical toxicity
  - Limited resistance
- **Cons**
  - Theoretical risk of aplastic anaemia

**Fusidic acid (Fucithalmic)**
- 2nd line after Chloramphenicol for bacterial conjunctivitis
- Both bacteriostatic & bactericidal
- Effective against Gram positive bacteria
- Most Gram negative bacteria resistant
- Inhibits protein synthesis
- **Pros**
  - Available as a viscous drop/gel
  - Only twice daily application
  - Good compliance
  - Bacterial conjunctivitis and blepharitis
- **Cons**
  - Resistant strains develop quickly
  - Ineffective against Gram negative

**Tobramycin**
- Superior antibacterial to gentamicin
- Active against
  - Spectrum of Gram +ve & Gram -ve
  - Pseudomonas Aeruginosa
  - Most ocular staphylococci sp.
- **Pros**
  - First line in USA
  - Topical toxicity with intensive regimens

**Neomycin (Neosporin)**
• Bactericidal against Gram +ve & Gram -ve
• Ineffective against pseudomonas
• 10% develop allergic keratoconjunctivitis