8.5.1. Microbial and Parasitic Infections of the Eyelid Margin and Conjunctiva (I)

Bacterial conjunctivitis in neonates

- in order of decreasing prevalence
  - Chlamydia trachomatis
  - S viridans
  - S aureus
  - H influenzae
  - group D Streptococcus
  - Moraxella catarrhalis
  - E coli and other gram-negative rods
  - N gonorrhoeae (least common)
- Neonatal gonococcal conjunctivitis
  - rate
    - 2% in infected mothers
    - 1% in newborns
  - clinical presentation
    - bilateral conjunctival discharge
      - first several days: serosanguinous
      - later: purulent
      - 3–5 days after parturition
    - severe corneal complications
    - endophthalmitis
    - other localized gonococcal infections
      - rhinitis
      - proctitis
    - disseminated gonococcal infection
      - arthritis
      - meningitis
      - pneumonia
      - sepsis
      - death
      - rare
  - management
    - nondisseminated infections
      - single IM or IV ceftriaxone injection (first-line treatment)
      - single IM or IV cefotaxime injection
    - disseminated infection
      - based on infectious disease consultation
      - hourly saline irrigation of the conjunctiva
      - topical erythromycin or gentamicin ointment or topical fluoroquinolone
      - corneal involvement
        - topical cycloplegia
    - systemic treatment
      - infants born to mothers with active gonorrhea (even in the absence of conjunctivitis)
- Neonatal chlamydial conjunctivitis
  - differences with adults
    - no follicular response in newborns
    - mucopurulent discharge is greater in newborns
    - pseudomembranes can develop on tarsal conjunctiva in newborns
    - intracytoplasmic inclusions are seen in a greater percentage of Giemsa-stained conjunctival specimens in newborns
    - infection in newborns is more likely to respond to topical medications
  - other Chlamydia-associated infections can accompany conjunctivitis
    - pneumonitis
    - otitis media
  - Lab evaluation
    - both Gram and Giemsa stains of conjunctival scrapings are recommended in neonates
    - C trachomatis
    - N gonorrhoeae
  - Treatment
    - oral or IV
    - X 14 days
    - systemic erythromycin
    - conjunctivitis responds to topical erythromycin or sulfacetamide

Bacterial Conjunctivitis in Children and Adults

- Introduction
  - less common than viral conjunctivitis
  - sources of infection
    - 1 infected individual's secretions
    - 2 patient's own nasal and sinus mucosal organisms
      - 2.1 adult with unilateral bacterial conjunctivitis
        - 2.1.1 examine the nasolacrimal system!
          - 2.1.1.1 Nasolacrimal duct obstruction
          - 2.1.1.2 dacryocystitis
          - 2.1.1.3 canaliculitis
  - course
    - self-limited
    - occasionally severe and sight-threatening
      - N gonorrhoeae
      - S pyogenes
        - beta-hemolytic strep group A
- clinical findings
  - conjunctival inflammation
  - purulent discharge
  - clinical classification of bacterial conjunctivitis — see Table 5-3
  - Acute purulent conjunctivitis
    - <3 weeks' duration
    - pathogens
      - S pneumoniae
        - moderate purulent discharge
        - eyelid edema
        - chemosis
        - conjunctival hemorrhages
        - +- inflammatory membranes on the tarsal conjunctiva
        - corneal ulceration — rare
      - Streptococcus viridans
      - S aureus
        - less purulent
        - less severe
      - H influenzae
        - gram-negative coccobacilli
        - young children
        - adults
          - chronic colonization with H influenzae
            - smokers
            - chronic bronchopulmonary disease
        - H influenzae biotype III
          - resembles S pneumoniae conjunctivitis
            - no conjunctival membranes
            - peripheral corneal epithelial ulcers/stromal infiltrates more common
        - +- otitis media
        - preseptal cellulitis
        - Haemophilus meningitis — ≤20% have long-term neurologic sequelae
        - treatment
          - polymyxin B/trimethoprim combination drops
          - Haemophilus conjunctivitis in children requires oral antibiotic supplementation
    - ancillary testing
      - Gram-stained smears and culture
        - usually not necessary
        - indications
          - compromised hosts
            - neonates
            - debilitated or immunocompromised individuals
          - severe cases of purulent conjunctivitis
          - lack of response to initial therapy
        - definitive treatment should be based on the culture results
          - smear results may be inconclusive
        - cultures of the nose or throat
          - associated sinusitis or pharyngitis
          - relapsing conjunctivitis
    - treatment
      - severe purulent conjunctivitis
      - observation — until day 3 or 4
        - improving — continue observation
          - most cases resolve in 2 to 7 days without treatment
        - persistent or worsening — antibiotics
          - polymyxin B/trimethoprim combination drops
          - aminoglycoside drops
          - fluoroquinolone drops
          - bacitracin ointment
          - ciprofloxacin ointment
          - 4–6 times daily for approximately 5–7 days
      - Supplemental oral antibiotics
        - 1 acute purulent conjunctivitis associated with pharyngitis
        - 2 conjunctivitis-otitis syndrome
        - 3 Haemophilus conjunctivitis in children
  - Hyperacute gonococcal conjunctivitis
    - etiology
      - N gonorrhoeae
      - sexually transmitted disease
        - direct genital–eye transmission
        - genital–hand–ocular contact
        - vaginal delivery
    - clinical presentation
      - explosive onset — very rapid progression
      - massive purulent exudation
      - severe chemosis
      - eyelid edema
      - marked conjunctival hyperemia
      - keratitis
        - 15%–40%
        - diffuse epithelial haze
        - epithelial defects
        - marginal infiltrates
        - ulcerative keratitis
        - perforation
          -
            Figure 5-11 (© 2020 American Academy of Ophthalmology)
      - preauricular lymphadenopathy
        - one of the few bacterial diseases associated with preauricular LAP
          - also B hemolytic
          - also inclusion conjunctivitis
    - laboratory evaluation
      - culture
        - chocolate agar
        - thayer-martin media
    - management
      - systemic antibiotic therapy
        - ceftriaxone — highly effective against PRNG
          - with corneal ulceration
            - admit to the hospital
              - iv ceftriaxone (1 g IV every 12 hours) x 3 days
          - without corneal ulceration
            - outpatient — IM ceftriaxone (1 g) injection x 1
        - PCN allergy
          - spectinomycin (2 g im)
          - oral fluoroquinolones (ciprofloxacin 500 mg or ofloxacin 400 mg) orally twice daily x 5 days
      - topical ophthalmic antibiotics
        - erythromycin ointment
        - bacitracin ointment
        - gentamicin ointment
        - ciprofloxacin solution
      - conjunctival sac irrigation with normal saline — q 30-60 minutes
      - concurrent chlamydial venereal disease — ≤1.0
      - evaluation and treatment of sex partners

Ophthalmology Mind Maps/Arman Mashayekhi, MD