# Anterior Segment Grand Rounds

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## Herpes Zoster Ophthalmicus

- Reactivation of the Varicella Zoster (Chickenpox) Virus
  - Contagious to those who have not had chickenpox
- Contributing factors
  - Increasing age
  - Immunocompromised
    - Disease
    - Medication/chemo or radiation treatment
    - Stress
    - Spinal surgery
- 10-20% of the population develop some form of Zoster throughout life
  - Ophthalmicus represents 10-25% of all cases of Zoster
- No difference in gender or race
- Ophthalmic Division of the Trigeminal Nerve
  - Lachrymal nerve
    - Innervates lacrimal gland, conjunctiva and upper eyelid
  - Frontal nerve
    - Supra-trochlear nerve
    - Supra-orbital nerve
  - Nasal nerve
    - Infra-trochlear nerve
    - Ciliary nerve
      - Hutchinson's sign
    - Ganglionic nerve
- Painful rash in a dermatomal distribution
  - Diffuse neuralgia along nerve distribution
  - Unilateral and typically does not cross midline
  - Irregularly sized vesicles on an erythematous base
    - Progress from macules – papules – vesicles – pustules – crust
- Fever and malaise

- Ocular presentations
    - Pain on eye movement
    - Blepharoconjunctivitis
    - Episcleritis/scleritis
    - Keratitis
        - Epitheliopathy PEK
        - Pseudodendrites
        - Sub-epithelial/Anterior stromal keratitis
            - Reticular and nummular
        - Deep stromal keratitis
            - neovascularization
        - Keratic precipitates
        - Neurotrophic keratopathy
    - Uveitis
    - Retinal necrosis
    - Optic neuropathy
    - Cranial nerve palsies
        - Ophthalmoplegia
- Treatment
    - Oral anti-virals most effective within 72 hours of presenting rash
        - Acyclovir (Zovirax) 800 mg 5xday
        - Valaciclovir (Valtrex) 1000mg TID most widely preferred
        - Famciclovir (Famvir) 500 mg TID
    - Oral steroids may have some benefit
    - Topical steroids
        - Monitor IOP
    - Topical anti-virals not effective
    - Artificial tears
    - Cycloplegia
    - Post Herpetic Neuralgia
        - Gabapentin (Neurontin)
        - Tricyclic antidepressants (Amitriptyline)
- Prevention
    - Varicella vaccine (Zostavax) recommended 60 years of age and older

**<u>Louse Infestation</u>**

- Causative organism: Crab louse family, Pediculidae, has two genera
    - Pediculus humanis (head louse)
    - Phthiriasis pubis (pubic louse)
        - Phthiriasis pubis palpebrarum (eyelash infection)
        - Predilection for pubic hair and eyelashes due to spacing between cilia.
    - Organism has broad, oval abdomen with large crab-like claws
    - Transmission is through hand contact with genitals or following oral-genital contact
    - They do not jump, fly or transmit disease

Ocular Manifestations:

- Pruritic lid margins
- Blepharoconjunctivitis
- Follicular conjunctivitis
- Lid irritation and itching

Diagnosis and Management:

- Ocular involvement is diagnosed through direct biomicroscopic observation of organism, blood tinged deposits along lid margins, reddish brown fecal matter, or oval deposits (nits) in the lashes.
- Nits represent unhatched organisms and are resistant to treatment.
- Physical removal with biomicroscope and forceps
- Adults killed with alcohol after removal from cilia
- Will not typically totally eradicate organism
- Bland ointment or antibiotic ointment smeared into lashes
- Will smother adult organisms
- Must be continued for two weeks in order to kill nits
- Physostigmine 0.25% ointment (Eserine) smeared into lashes
- Anticholinesterases will inhibit organism respiration
- 2 applications 1 week apart
- Yellow mercuric oxide 1%
- 20% Fluoresceine
- Lotion and Shampoo treatment
- Pyrethrin (Rid, A-200, Pronto) - OTC
- Permethrin (NIX) - OTC
- Toxicity prevents shampoos from being used on eyelid infestation.
- Use with extreme care in children and pregnancy
- Malathion (Ovide)
- Pediculicidal and partially ovicidal

**<u>Glaucomatocyclitic Crisis</u>**

- Possner-Schlossman Syndrome
  - Idiopathic and idiosyncratic
  - Occurs mostly between ages of 20 and 60 years, and is rare over age 60
  - Unilateral and recurrent
  - Intervals of months to years
  - Mild symptoms, or may be asymptomatic
  - Blurred vision secondary to corneal edema common
  - Mild anterior chamber reaction
  - Keratic precipitates are often the only sign of inflammation, and may not even be present
  - Flat, round, and non-pigmented

- Concentrated over inferior endothelium
- The conjunctiva may be white and quiet, or mildly injected
- Anterior chamber angle is open and normally pigmented
- Pupil may be mid-dilated
- Iris hypochromia may occur, but is uncommon
- High IOP (30mm hg-60mm hg is typical, but 90 mm hg has been reported)
- IOP elevation can precede inflammation signs
- IOP level is disproportional to amount of inflammation
- Self limiting
- Duration: hours to weeks- typically will last for several days, but can persist for months
- Normal fields and discs
- There is a strong association with POAG in these patients
- All findings normal between attacks

Glaucomatocyclitic Crisis: Pathophysiology

- An obscure etiology.
- Decreased outflow suggests a trabeculitis as the causative mechanism.
- Prostaglandin E (causing a breakdown of the blood-aqueous barrier) found in high concentrations, which may increase the blood-aqueous barrier permeability and lead to increased aqueous production.
- Also, prostaglandins will lead to an increase in cells and proteins in the AC due to the barrier breakdown.
- Prostaglandin E has been found in high levels during acute attacks and normal levels have been found in the same patients during normal times.
- There has been evidence of the herpes virus in the anterior chambers of patients with glaucomatocyclitic crisis
- There is something unique about the herpes virus that causes trabeculitis

Glaucomatocyclitic Crisis: Treatment

- This is self-limiting and will spontaneously resolve. Direct treatment at the inflammation first and the ocular hypertension secondarily. Avoid miotics and prostaglandin analogs. Cease treatment between attacks, but monitor closely between attacks as there is a high incidence of concomitant POAG in these patients. These patients may develop POAG or they may spend more time in attacks than normal and this will lead to permanent damage.
- Corticosteroids are treatment of choice
- Cycloplegics/mydriatics are generally unnecessary
- Beta blockers, alpha adrenergic agonists, CAI's

**<u>Chlamydial Inclusion Conjunctivitis</u>**

- Chlamydia trachomatis
    - Obligate intracellular bacterial parasite
    - 3 forms
        - Adult Inclusion Conjunctivitis
        - Neonatal Inclusion Conjunctivitis

        - Trachoma
- Clinical and microscopic features resemble both viral and bacterial
- #1 STD in the US after HPV
    - Teenagers and young adults
        - Sexually active 15-19 year-olds highest risk
        - 20-24 year-olds next highest risk
    - Systemically asymptomatic in most women and many men
        - Approximately 50% of men are symptomatic
        - Urethritis in men, vaginitis or UTI in women
    - It is a reportable disease to public health authorities
- Chronic Follicular conjunctivitis
- Papillary hypertrophy
- Typically presents unilateral red eye
- May last many months
- Typically non-resolving with topical antibiotic therapy
- Ropy mucopurulent discharge
- Itching often present
- PAN
- Keratitis may develop after the second week
    - Punctate Keratitis
    - Small marginal infiltrates
        - EKC resembling infiltrates
    - Limbal swelling with Superior limbal pannus
- Treatment
    - Oral Azithromycin 1g/day x 1 day
        - Topical Azasite ?
    - Doxycycline 100 mg BID x 1 week 100 mg QD x 2 weeks
    - Erythromycin second line

**Herpes Simplex Stromal Disease: Disciform Keratitis**

- Discrete disc shaped areas of focal stromal edema
- Central or peripheral
- Typically mild
- Epithelium intact
- Avascular
- May be severe with corneal melting (rare)
- Delayed hypersensitivity reaction to viral byproducts of HSV
- No live virus present
- Not specific to HSV
- Self limiting
- Manage conservatively
- Cycloplegia and lubrication
- If severe or vision involved: topical steroids
- Use lowest concentration that will control inflammation

- Prophylactic topical antivirals if steroids are used
- Oral antivirals may be not helpful therapeutically