Corneal Ulcers Z to A (Zoster to Acanthamoeba)

1 hour

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Description

Patients with infectious keratitis in your office require both the correct diagnosis and prompt treatment to prevent corneal scarring and significant vision loss. This lecture will discuss the case history clues, slit lamp signs, and demonstrate how to properly culture the corneal ulcer to avoid misdiagnosis. Correct diagnosis is only fifty percent of the battle, this lecture will also use evidence-based research to cover current and emerging treatment approaches to infectious keratitis.

Learning Objectives

- Define a corneal ulcer and discuss the risk factors for developing an ulcer.
- Review diagnostic clues and treatment approaches for viral keratitis.
- Discuss fungal corneal ulcers with specific attention to the mycotic ulcer treatment trial (MUTT).
- Review diagnostic clues and treatments for bacterial ulcers including a review bacterial resistance.
- Explain the nuances of Acanthamoeba keratitis with a case based approach

Outline

I. **Defining and diagnosing corneal ulcers**
   a. What is it?
      i. Corneal infiltrate with overlying epithelial defect/breakdown. Differences between abrasions/epi-defects and stand-alone infiltrates.
      ii. Sterile versus infectious infiltrates and their etiologies.
   b. Risk factors and epidemiology of corneal ulcers
      i. Trauma, age, neurotrophic status with loss of corneal sensitivity (diabetes, long-term rigid lens wear, etc.)
      ii. Soft contact lenses (CL's)
         1. Statistics on corneal ulcers with contact lens wear.
         2. Data on increased risk with extended wear CL's.
   c. Diagnostic tools
      i. Case history hints. ie- vegetative trauma, contact lens wear in water, subjective pain.
      ii. Slit lamp tools

        1. One or multiple infiltrates. Infiltrate location.
        2. Borders and staining
        3. Presence of a hypopyon
    iii. Culturing
        1. 2-2-2 rule. Culture if infiltrate is greater than 2mm, culture if 2 or more infiltrates, culture if any infiltrate is within 2 mm of the visual axis.
        2. Culture if non-responsive to first treatment approach.
        3. Culture mediums: Chocolate (*Haemophilus and Neisseria)*, blood (Streptococcus), thioglycolate broth (Anaerobic bacteria), Sabroud's agar/medium (Fungus). Cover EZ quick culture
        4. Video: how to take a good culture.

II. Herpes zoster virus (HZV) Ulcer/Herpes simplex (HSV)

a. What is it? **Photo with case**
    i. Case history tricks for HZV/HSV.
        1. Recent shingles outbreak? Recent cold sores?
    ii. Slit lamp: Look for branching lesion. Discuss non-textbook appearances. Nafl staining to see dendrite lesions.
        1. Differentiating HSV and HZV with Rose Bengal looking for terminal bulbs on dendrites.
        2. Often non-hypopyon ulcer. Infiltrate is non-consolidated
b. Treatment
    i. Discuss the topical and oral anti-viral treatments with dosages.
    ii. Steroid vs. no steroid? Steroid needed if stromal/endothelial edema.
    iii. Review : *Herpes Eye Disease Study (HEDS).* Relating to clinical practice.

III. Fungal Ulcer

a. What is it? **Photo with case**
    i. Case history pearls: vegetative trauma. Slower onset. Contact lens wear, lens case. Worsened with steroid.
    ii. Slit lamp
        1. Feathery borders with satellite infiltrates
        2. Endothelial plaque
        3. Hypopyon
b. Treatment
    i. Topical anti-fungals.
        1. Commercially available
        2. natacyn vs. other compounded anti-fungals
    ii. Oral anti-fungals
        1. in non-resolving caseW

            2. consider anterior chamber injection of fortified anti-fungal
            3. *Review topical versus oral treatment. The Mycotic Ulcer Treatment Trial (MUTT)*
        iii. Review the study on Fusarium increase in ulcers due to CL cases.

IV. Bacterial Ulcer

a. What is it? **Photo with case**
    i. Case history: CL wear, trauma.
    ii. Slit lamp
        1. Circular single infiltrate.
        2. Hypopyon only in severe cases.
b. Different characteristics of bacterial ulcers
    i. Aerobic vs. Anaerobic.
    ii. Pseudomonas ulcers
        1. Class ring infiltrate
        2. Strong association with corneal thinning and perforation.
c. Treatment
    i. Fluoroquinolone Class
        1. Besifloxacin
        2. Gatifloxacin
        3. Moxifloxacin
        4. Ofloxacin
    ii. Fortified Antibiotics.
        1. Fluoroquinolone and Fortified Antibiotics for Treating Bacterial Corneal Ulcers. *Gangopadhyay N, Daiell M, Weih L, et al. Br J Ophthalmology.*
        2. Review the ARMOR study and TRUST study for antibiotic resistance.
    iii. Steroid. *Review the Steroids for Corneal Ulcers Trial (SCUT)*
    iv. Amniotic Membrane Grafts?

V. Acanthamoeba Ulcer

a. What is it? **Photo with case**
    i. Case History
        1. Contact lens wear in water
        2. Poor CL hygiene
        3. Slow developing ulcer
        4. Extreme pain
    ii. Slit Lamp
        1. Ring infiltrate

            a. with surrounding necrotic and irregular epithelium
            b. Can start small and grow dense
        2. Hypopyon common
        3. Extreme photophobia at slit lamp.
        4. Insert examples
    iii. Treatment
        1. Chlorhexidine and PHMB
        2. Corneal collagen cross-linking (Off-label.)
        3. Therapeutic PKP.
            a. End Talk with letter.

VI. Q&A / Discussion