Corneal Grand Rounds

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Case I

• 58 y.o. Caucasian female
• CC: F.B. sensation
• Slight blur (20/20 -2)
• Epiphora

Epiphora

• ______
• ______
• ______
• ______
• ______

Additional testing:

• Weck cell sponge test (Merocil spear)

87% of all recurrent erosion occurs in what region of the cornea?

• A. Superior Cornea
• B. Central Cornea
• C. Inferior Cornea
• D. Exposure areas of 3:00 and 9:00
Diagnosis:
- Hyperosmotic agents
- Muro 128 ung & gtts
- Bandage contact lens
- Non-Ionic vs. silicone hydrogel

Initial Treatments:
- Daytime meds?
- What about hyperosmotic drops?
- ___________ gtts up to QID (Rx only)

Treatment:
- Steroids such as Lotemax
- Q.I.D. x 2 wks then BID x 6 wks
- P.O. Tetracycline
- Doxycycline 50 or 20 mg bid x 2 months

Which of the following should be avoided in the treatment of RCE?
- A. Steroid drops
- B. Antibiotic drops
- C. Oral tetracycline
- D. Lubricating ointments

Cause of Sliding Epithelium?
- Metalloproteinases which cleave Bowman’s layer below the anchoring system (Hemidesmiones)
- Develop through the production of Leukotrienes
For how long should RCE therapy be maintained to obtain a clinical cure?

- A. 1 week
- B. 6 weeks
- C. 2-4 weeks
- D. Until the first symptoms resolve

New Treatment for Recalcitrant RCE:

- _________ ung x 2 mo
- _________ drops tid x 2 mo
- _________ qid x 2 weeks then bid x 6 weeks
- _________ 20 mg PO BID x 2 mo

Other Options for RCE management:

- AzaSite qhs
- Especially in the presence of lid margin disease

Other Options for Recalcitrant Cases:

- Bandage Contact Lens
- Stromal Puncture
- Phototherapeutic Keratectomy (PTK)
- Autologous serum
- Amniotic membrane transfer (ProKera)

46% of all patients in this study had EBMD

- The remainder had trauma induced causes
- Fingernail
- Paper cut etc.

Anterior Seg case 2

- 38 y.o. African American Female
- Complaint of decreased vision for about 1 week
- Longstanding contact lens wearer
- Vision seems to be getting worse over last few days
- No significant pain
- No corneal staining
What test would you perform?

- A. Jones Test
- B. RPS Adenodetector
- C. Culture
- D. Corneal sensitivity

Testing??

Diagnosis??

Infectious Epithelial Keratitis: Cornea Vesicles

- Cystic lesion of the epithelium
- Contains active virus
- No epithelial defect
  - Negative staining early
  - Late staining
Infectious Epithelial Keratitis: Dendritic Ulcer

- Branching linear ulceration
- Swollen epithelial borders
- Contain active virus
- Most common presentation for HSK

Infectious Epithelial Keratitis: Geographic Ulcer

- Enlarged dendritic ulcer
- Scalloped borders
- Contains active virus

Infectious Epithelial Keratitis: Marginal Ulcer

- Begins as ulcer
- Stromal infiltrate rapidly develops
- Dilated limbal vessels
- Peripheral corneal NV

HSV Neurotrophic Keratopathy

Clinical Appearance

- Punctate epithelial erosions
- Ulcer
- Dendritic epitheliopathy

Immune Stromal Keratitis (Interstitial Keratitis)

Clinical Findings

- Stromal haze or infiltrate
- Neovascularization
- Immune ring
- Intact epithelium
Disciform Endotheliitis

- Most common form
- Central or paracentral disc-shaped area of edema
- KP corresponding to edema
- Iritis
- Elevated IOP

Treatment: Epithelial Involvement

- In the past: trifluoridine - Viroptic q2h
- New replacement: Zirgan 5 x per day until ulcer disappears then TID x 1 week
- PO Valtrex 500mg TID
- PF artificial tears
- Follow-up (next day), day 3-4, day 7-10

Treatment: Stromal keratitis or Endotheliitis

- Durezol QID
- Pred Forte QID
- Cover with PO Acyclovir (400 mg bid) or Valtrex (1000mg QD) or topical (Zirgan TID)

When to use Oral Therapy

- Toxicity of Viroptic requires lower dosing
- Patient with stromal keratitis
- Prevention of HSV stromal keratitis
- Children -primary HSV
- Prior to surgery
- In all cases?
  - Trigeminal ganglion suppression

CASE 3: Patient S.P.

History

- 26 y.o. Caucasian male
- “Foreign body sensation” “light sensitivity” and “eye is red”
- Longstanding contact lens wearer
- Began this morning
Examination:

- 2+/3- conjunctival injection
- Slight lid edema
- Pupils normal
- Cornea – small peripheral infiltrate, SPK over infiltrate
- AC grade 2 cell and flare

What appears to be a sterile infiltrate but has an AC reaction...

- Begin treatment with ____________ & follow-up in one day

Symptoms

- _______________
- _______________
- _______________
- _______________
- _______________
- _______________
- _______________

Signs

- Conjunctival hyperemia and ciliary flush
- Lid edema
- Tear film debris - thick & cells present
- Epithelial defect
- Grayish-white stromal infiltrate
- AC reaction
- from few cells to hypopyon

When to culture?

- 1,2,3 Rule:
  - 1 mm from __________ (or more)
  - 2 __________ (or more)
  - 3 mm or greater in __________
  - Nosocomial infections
  - Immuno-compromised patient
  - Post-surgical

Mini-tip Culturette


Sensitivity = 83.3%. - Specificity = 100%.
Therapeutic Treatment

- Fluoroquinolones
  - Zymaxid, Vigamox or Moxeza
  - Besivance - first chlorinated FQ
- Loading dose q 15 min x 2 hours
- Q1h while awake
- Q 2h while at night or
- Ung – bacitracin or tobramycin

What is the best form of pain management for a keratitis?

- A. Cycloplegia
- B. Steroids
- C. Topical NSAIDs
- D. Oral NSAID’s

Pain Management

- Cycloplegic
  - Homatropine 5%  BID
  - Cyclopentolate 1%  BID

Fortified Antibiotics

- Pseudomonas:
  - Tobramycin 13 mg/ml topical (40mg sci)
- Staphylococcus:
  - Cefazolin 133 mg/ml or Bacitracin 10,000units/ml or Vancomycin 50mg/ml

Therapeutic Treatment

- When culture positive result is present:
  - Decrease meds to only 1 antibiotic
  - Use medication where sensitivity is shown

Other medications for severe keratitis:

- Systemic tetracycline
- Co-manage with a cornea specialist

Therapeutic Treatment
**Case MEB**

- 5 year old patient
- Significant mucopurulent discharge and red eye
- Began 2 days ago not improving

**Childhood Conjunctivitis Management?**

- Antibiotic drops qid x 5 – 7 days
- Are you done?

**Most common cause of bacterial keratitis/conjunctivitis in children?**

- A. Pseudomonas
- B. Staphylococcus
- C. Strep Pneumo
- D. Haemophilus influenzae

**Childhood Conjunctivitis**

- Most common eye disorder in young children
- Adult conjunctivitis is typically caused by gram-positive organisms
- Staphylococcus aureus and Staphylococcus epidermidis
- Conjunctivitis in children is caused by:
  - nontypeable forms of Haemophilus influenzae,
  - Streptococcus pneumoniae,
  - Moraxella catarrhalis and adenovirus

**H. Flu Vaccine effects?**

- Haemophilus flu bacteria that causes conjunctivitis is the nontypeable form, which is not accounted for by the vaccine.7

**Rule out ____________**

- It can alter the management plan
- i.e. involve a pediatrician
- Increased risk for gram-positive infection, such as MRSA or Streptococcal cellulitis.8

**How to effectively manage childhood conjunctivitis:**
What's your diagnosis?

How to effectively manage childhood conjunctivitis:

- One of the most common complications associated with acute bacterial conjunctivitis is ________ ________
- Examine skin and adnexa around the orbit for a discrete reddish ________
- Patients with a preseptal cellulitis often have ethmoidal or maxillary sinus involvement, which results in orbital tenderness.9

When to Refer to a Pediatrician/Pediatric Ophthalmologist:

- Fever or general malaise
- Purchase a tympanic or forehead thermometer
- Acute earache or ear infection
- Approximately one-third of all childhood cases are otitis-conjunctivitis syndrome
- A notable red sheen around the eyelids
- Preseptal cellulitis or cellulitis
- Significant purulent rhinorrhea or an upper respiratory infection associated with any fussiness or sleeplessness