CORNEAL GRAND ROUNDS

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Paul M. Karpecki, OD, FAAO Financial Disclosures:
- AcuFocus
- AMO
- Alcon Labs
- Allergan Inc
- Akorn
- Arctic Dx
- Bausch & Lomb Inc
- BioTissue
- Bruder Healthcare
- Ocusoft
- Essilor
- ECR Vault
- Focus Laboratories
- Nicox
- Rigel Pharma
- Eleven BioTherapeutics

Affiliations

- Clinical Director, OSD Clinic and Research, Kofler Vision Group
- Chief Clinical Editor, Review of Optometry
- Director Clinical Content, Jobson Medical Information
- Educational Advisor:
- PECAA
- Optometric Medical Solutions
- TLC Vision
- Manager of Blogs and Papers, Vision Care Inventing
- Board member, Optometry Giving Sight Charity

Case History

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

• SLEx finding
  • Conjunctivochalasis
  • Trichiasis
  • Foreign body etc
  • Nasolacrimal sac obstruction
  • Lid Laxity conditions- ectropion
  • Dry Eye

Anterior Membrane Dystrophy (EBMD)
Diagnosis:

- Recurrent Erosion Syndrome
- EBMD

87% of all RCE occurs in what part of the cornea?

- Inferior cornea

Initial Treatments:

- Hyperosmotic agents
  - Muro 128 ung & gtts
- Bandage contact lens
  - Non-Ionic vs. silicone hydrogel
Treatment:

• Daytime meds?
• What about hyperosmotic drops?
• FreshKote gtts up to QID (Rx only)

Treatment:

• What medications should be avoided?
• Bland Artificial Tear Ointments

Effective Treatments:

• 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


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. 1-2 weeks
- B. 6 weeks minimum
- C. 1 month
- D. Until the first sign of resolution of symptoms

New Treatment for Recalcitrant RCE:

- Muro 128 ung x 2 mo
- FreshKote drops tid x 2 mo
- Lotemax qid x 2 weeks then bid x 6 weeks
- Doxy 20 mg PO BID x 2 mo

Long Term or other options?

- Restasis
- Nutritional Supplements
  - EPA/DHA + GLA
- AzaSite

- All shown to inhibit MMP-9

Other Options for Recalcitrant Cases:

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

- Amniotic membrane is the innermost lining of the placenta (amnion) and shares the same cell origin as the fetus
- Contains cytokines and growth factors
  - Anti-Inflammatory (protease inhibitors)
  - Anti-Angiogenic
  - Anti-Scarring
- Aids in rapid wound healing and re-epithelialization

PROKERA®

- PROKERA® utilizes the proprietary CryoTek™ cryopreservation process that maintains the active extracellular matrix of the amniotic membrane which uniquely allows for regenerative healing
- PROKERA® is the only FDA-cleared therapeutic device that both reduces inflammation and promotes scarless healing
- PROKERA® can be used for a wide number of ocular surface diseases with severity ranging from mild, moderate, to severe
- PROKERA® when used early reduces inflammation and minimizes scarring to prevent sight-threatening complications

PROKERA® SLIM

Incorporates New ComfortRING™ Technology for an optimal patient experience

- Slim profile designed to contour to the ocular surface
- Elegantly designed to move with the eye
- Maximizes amniotic membrane contact with the cornea, limbus, and limbal stem cells

PROKERA® PLUS

For severe cases such as Stevens Johnson Syndrome and chemical burns

- The Classic Ring – acts as a symblepharon ring to maintain the orbital space
- Multiple layers of tissue – results in additional therapeutic function by staying on the eye longer to maintain biologic action and durability to reduce inflammation and promote healing and longer biologic action on the ocular surface
Case: History

43 y.o. Caucasian Male
Referred for drop in VA and irregular corneal topography
20/30+ VA OD vs. 20/15 OS

Case: History

Chalazion noted on eye exam
Patient stated this is a recurrence in the last year after surgical removal
Same location LUL

Recurring Chalazion

???
Sebaceous Cell Carcinomas

- Rare entity
- Usually originates from meibomian glands
- Can be highly malignant, infiltrative and metastasize
- Mortality may reach 30%
- May masquerade as a Chalazion
Three most common locations for a basal cell carcinoma?

- Eyelid margins
- Inner nose lesion (i.e. where spectacle nosepads would be)
- Behind the ears (i.e. where the earpiece of the frame sits)

CASE S.P. History

- 26 y.o. Caucasian male
- Cc: “Foreign body sensation” with moderate pain, “light sensitivity” and “eye is red”
- Longstanding contact lens wearer
- Began this morning
- Appears to be a relatively non-compliant patient
- + tobacco use

Examination:

- 2+/3- conjunctival injection
- Slight lid edema
- Pupils normal
- Cornea –small peripheral infiltrate, slight SPK over infiltrate
- AC grade 2 cell and flare
What appears to be a sterile infiltrate but has an AC reaction...

Begin treatment with topical antibiotic alone.
Follow-up in one day

Bacterial Keratitis

Symptoms

• Acute onset
• Pain
• Photophobia
• Discharge - mucopurulent
• Decreased vision

• Excessive tearing, lid edema, blepharospasm
Signs

• Lid edema
• Significant and often 360 degrees of conjunctival hyperemia and ciliary flush
• Tear film debris - thick & cells present
• Epithelial defect
• Underlying grayish-white stromal infiltrate
• AC reaction
• from few cells to hypopyon

When to Culture?

• 1,2,3 Rule:
  • 1 mm from visual axis
  • 2 infiltrates (or more)
  • 3 mm or greater in size
  • Nosocomial infections
  • Immuno-compromised patient
  • Post-surgical

Mini-tip Culturette
Therapeutic Treatment

- Fluoroquinolones
- Loading dose q 15 min x 2 hours
- Q1h while awake
- Q2h overnight night for 1st 24 hours then
- Antibiotic Ung Qhs

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

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

Pain Management

- Cycloplege  
- Homatropine 5% BID  
- Cyclopentolate 1% BID
Fortified Antibiotics

- Pseudomonas:
  - Tobramycin 13 mg/ml topical (40mg sci)

- Staphylococcus:
  - Cefazolin 133 mg/ml or Bacitracin 10,000 units/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

Therapeutic Treatment

- Other medications for severe keratitis:
  - Systemic tetracycline
  - Co-manage with a cornea specialist

2009 ARMOR Surveillance
All S. aureus (n= 200)

<table>
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<th>Antibiotic</th>
<th>MIC Range</th>
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<th>MIC&lt;sub&gt;90&lt;/sub&gt;</th>
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<td>Besifloxacin</td>
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<tr>
<td>Azithromycin</td>
<td>≤0.25– &gt;512</td>
<td>128</td>
<td>&gt;512</td>
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</table>

- 39% of ocular S. aureus isolates were MRSA
- 38% of ocular S. aureus isolates were FQ-resistant
Case MEB

- 5 year old patient
- Significant mucopurulent discharge and red eye
- Significant mattering in the morning
- Began 2 days ago and not improving
- Parents are concerned

Presentation

Childhood Conjunctivitis Management?

- Antibiotic drops qid x 5 – 7 days
- Are you finished?
Most common cause of bacterial conjunctivitis in children?

A. Pseudomonas  B. Staphylococcus  
C. Strep Pneumo  D. Haemophilus influenza

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:
  • Haemophilus influenzae, Streptococcus pneumoniae, Moraxella catarrhalis and adenovirus

How to effectively manage childhood conjunctivitis:

• Rule out trauma
• It can alter the management plan
  • i.e. involve a pediatrician
• Increased risk for gram-positive infection, such as MRSA or Streptococcal cellulitis
How to effectively manage childhood conjunctivitis:

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

When to Refer to a Pediatrician

- Fever or general malaise
- 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
- Significant purulent rhinorrhea or an upper respiratory infection associated with any fussiness or sleeplessness

Patient RSJ

- 31 y.o. African American Male
- Presents after having seen 2 previous doctors with some improvement but no resolution of red eye
- Has been going on for 3-4 months

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- Previous doctors diagnosed corneal infiltrates related to contact lens wear and tried antibiotics combination agents with little response.
- Showed improvement but the condition returned after discontinuation even with a slow taper.

Clinical Findings

Small peripheral infiltrates

Follicular conjunctivitis
What is your treatment of choice?

A. 1000mg Azithromycin once
B. 5 Day Z-Pack
C. 100 mg doxycycline x 3 weeks
D. Topical AzaSite

Key Findings of AIC

- Subepithelial infiltrates
- Neovascularization or micropannus
- Follicular conjunctivitis
- Preauricular lymph node on ipsilateral side
- Starts unilateral, if goes long enough could become bilateral

Psittacosis:

- Transmitted via the respiratory route from many avian species including Parakeets and Parrots, chickens etc.
- Follicular conjunctivitis
- Fever, dry cough
- Tx: Doxycycline 100mg BID x 3 weeks

THANK YOU

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