Anterior Segment Eye Disease:
A Comprehensive Approach to the Diagnosis and Treatment of Infection and Inflammation
Dr. Jack L. Schaeffer
Dr. Mark E. Schaeffer
Schaeffer Eye Center
Birmingham, Alabama

Join the Group
With over 50 charter members and a growing membership list that exceeds 225 Doctors OSSO continues to grow
OSSO is the “Voice of Optometry in Ocular Surface Disease”
Do you want to learn more about ocular surface disease?
Join Us?
membership@ossopt.com
www.ossopt.com

Dilation Vs Optomap
• The two together delivers a the highest level of Comprehensive Eye Care
• If you have to choose just one:
   DILATE, DILATE, DILATE

Lid Disease- Infection
Caniliculitis/ Dacryoadenitis

Allergic Dermatitis
- Elodil
- Mometeserone Crème
- Lotemax ung

Developing a Specialty Practice

Cornea Disease

Plaquenil Keratopathy

Vortex Keratopathy or Cornea Verticillata

Clinical features:
- Symptoms: the corneal changes are rarely of any visual significance.
- Signs:
  - Symmetric, bilateral, whorl-like pattern of powdery, white, yellow or brown corneal epithelial deposits
  - Appears in a vortex fashion in the interocentral cornea and swirls outwards sparing the limbus
- Occurs in Fabry's disease and in patients being treated with a variety of drugs including amiodarone, chloroquine, amodiaquine, meperidine, indomethacin, chlorpromazine and tamoxifen.

PKC / Staph. Hypersensitivity

- Non-infectious hypersensitivity
- Phlyctenules (phlyctena)
  - histiocytes, lymphocytes, plasma cells, neutrophils
- Microbial association
  - Staph. Aureus
  - Myco. Tuberculosis
  - Chlamydia trachomatis
  - Neisseria gonorhea
  - Coccidiodes immitis
  - Bacillus spp.
  - Herpes simplex virus
  - Leishmaniasis Ascaris lubricoides
  - Hymenlepsis nana
  - Candida spp.
Staphylococcus Hypersensitivity

- Si/Sx
  - Recurring episodes
  - Injection, sensitivity, fbs/pain, photophobia
  - Secondary to patient antibodies to Staph. Antigens
- Clinical
  - Blepharitis
  - SEIs or ulcers in peripheral cornea
  - +/- Staining
  - +/- Phlyctenule

Staph. Hypersensitivity

- Treatment
  - Warm compresses
  - Lid hygiene with commercial lid cleanser
  - Broad spectrum topical antibiotic
  - Antibiotic ointment
  - Topical steroid*
  - Oral tetracycline antibiotics if >10 y. o.

Staphylococcus Hypersensitivity

- 58 YOM
- Custom Toric Soft C/L
  - +4.00/-3.00
  - +3.00/-375
- Pain OS 4-5 days
- Presents wearing CL

Phylctenular Kerato-Conjunctivitis

Differential Diagnosis

- Staphylococcal keratitis with phlyctenule
- Microbial keratitis (Mycobacterium tuberculosis)
- Inflamed pterygium
- CIN (Conjunctival Intra-epithelial Neoplasia)
- Chronic FB

Phlyctenular Kerato-Conjunctivitis

- Tx: Pred Forte OD q2h x 2 d then qid, Gatifloxacin OD qid x 1 wk., warm compresses, lid hygiene.
- D/C topical allergy meds.
- Doxycycline 50mg bid x 2 mo.
- PPD (-)

THYGESSONS

Thygessons

- Diagnosis by exclusion
- Infiltrates
  - Coarse
  - Does not respond to conventional treatment
- Palliative
  - Steroid pulsed
  - Alrex
  - Artificial tears
  - Anyone tried restasis?

Bacte-viral Conjunctivitis?

- 66 y. o. b. m. c/o 3 d hx of “running, redness, soreness”, OS. AT no help.
- Bilat. Pseudophakia
- No meds., chronic sinusitis.
- 20/20 OD, 20/40 OS, IOP 16,22.
- (-) PAN

? Bacterial Conjunctivitis?

- Tx: Besivance OS qid
  Zithromax 250 mg 5 d dose pk
- 2 d F/U: 20/50 Va, dec. mucopurulent discharge, 2+ chemosis / injection, (+) PAN.
- Tx: Besivance qid, finish Zithromax

?Viral?

- 5 d F/U: OS “still swollen but not as sore”. Pt. thinks OD is “catching the infection”.
- OD 20/25, OS 20/40
- Mild follicles OU
- SEIs OU
EKC

- 7d: 20/30 OD, OS
- Resolving SEIs
- IOP: 20, 21
- 14d: 20/20, 20/25
- Mild SEI OS, OD clear
- IOP 16,17
- D/C Durezol OU

Take Home

- Follow your instincts.
- If it looks bacterial tx it as such.
- Treat aggressively.
- If clin. pic. changes, change with it.
- Patients can have two pathological conditions at the same time.

Epidemic Keratoconjunctivitis

Case

14 YO male
Football player (Son of evening news Sports anchor)
OS Uncomfortable for a few days
Peds gave Tobramycin

Differentials

- What Corneal layer
- History
- The Great Mimicker

HSV?

- 36 YOWF
- Contact lenses are bothering me
- Vision is blurred
- Started a few days ago
Adeno

Adenovirus are medium-sized (90-100nm), non-enveloped icosahedral viruses
- Double-stranded DNA
- 52 immunologically distinct types
- Stable to chemical and physical agents
- Adverse pH

Common Adeno Symptoms

- Colds
- Pharyngitis
- Bronchitis
- Pneumonia
- Diarrhea
- Conjunctivitis
- Fever
- Cystitis

HEKC

A new type of acute keratoconjunctivitis developed throughout Southeast Asia*
- Singapore in the summer of 1970.
- It was highly contagious and probably was transmitted from person to person by the hand to eye route.
- Sixteen cases, diagnosed by viral isolation or serologic study, or both.


Similar to EKC

- Adeno are non-enveloped, double-stranded DNA
- Non-enveloped enhances transmission by allowing prolonged survival after dissipation
- On dry surfaces, steel, viruses remain infective up to 5 weeks
- Penetrate normal barriers to infection
- Less than 5% of the US population have antibodies effective against any given serotype

Treatment EKC

- 1 lubricants
- 2 combo antimicrobial / steroid
- 3 Steroid
- 4 Betadine
- 5 Zirgan

- Contagious? How long

Zirgan™ (Ganciclovir Ophthalmic Gel) 0.15%
Product Background

Please see full prescribing information for Zirgan™ provided at this presentation.
Zirgan™ (ganciclovir ophthalmic gel) 0.15%

**Indication and Usage**

Zirgan is a topical ophthalmic antiviral that is indicated for the treatment of acute herpetic keratitis (dendritic ulcers).

**Important Risk Information**

Zirgan is indicated for topical ophthalmic use only.

Please see full prescribing information for Zirgan® provided at this presentation.

---

**Dosage and Administration**

- The recommended dosing regimen for Zirgan is 1 drop in the affected eye 5 times per day (approximately every 3 hours while awake) until the corneal ulcer heals, and then 1 drop 3 times per day for 7 days.

Please see full prescribing information for Zirgan® provided at this presentation.

---

**Zirgan**

- 1 drop 5x/day until ulcer “heals”
- Then 1 drop tid for 7 days
- 5 gram tube, available early 2010

---

**EKC treatment**

**Melton/ Thomas**

- Povidone- Iodine 5% (betadine)
  - Broad spectrum microbiocide
  - Indicated for "Irrigation of the ocular surface"
  - OFF LABEL USE
  - Anesthetize with proparacaine
  - Instil 1-2 drops NSAD
  - Instil several drops of betadine in eye (close eye)
  - Swap excess over lid margin
  - After one minute irrigate with saline
  - Instil 1-2 drops NSAD
  - Rx Lotemax or Zylet or Tobadex ST qid 4 days
  - Zirgan?
  - No reports of adverse reactions
  - Avoid if allergic to iodine
  - Betadine 5% ophthalmic prep soln (30 ml opaque)
  - 99070 supply code

---

**Contact lens peripheral Ulcer (CLPU)**

**Sterile Infiltrate (not!)**

**Corneal Ulcer**

**How to treat**

- When to culture
- When to refer and to whom

---

**Corneal Ulcer VS Infiltrate**
Ulcer VS infiltrate

- Central
- Multiple
- Contact lens patient
  - ( DW)
  - Poor Compliance

Si HY Lenses

- Infiltrates
- Conj splitting
- GPC
- Eyewotoxicity
- Microbial Keratitis

Recurrent Erosion

ABMD

Case 2

- 50 YOF
- Woke up with discomfort
- Feels like something is in my eye

Treatment / Follow up

Muro 128 Ung Pm
Azasite Bid
Preservative free ( PF) AT q 1 hr
RTC 2 days

Two unusual cases

- 1 ) 49 yo female
  - RCE 10 years ago OS , loss of 90% epithelium
  - Finger nail
  - 2008 OD ?? RCE vs ABMD
Case 2
– 2) 38 yo Female Pediatric Psychiatrist
• Enjoy the slides
• You make the choice
• RCE vs ABMD

• 78 YOF
• Hx
  – Glaucoma
  – Dry Eye
  – EBMD

Case 3
• My eye really hurts!!!

Treatment Strategy
• ABMD
• RCE

Recurrent Corneal Erosion
• NaCl Ung Pm
  – Muro 128
• PF AT
  – Q 1-2 hours

Recurrent Corneal Erosion
• Azasite
  – Bid 1 week
  – Qd 1 month
• Doxycycline
  – 50 mg bid 2 weeks
  – 20 mg qd 1-2 months
Recurrent Corneal Erosion Long Term Therapy

- Restasis  
  - Tid
- Fresh –Kote  
  - Qid
- Lacriserts ?

Recurrent Corneal Erosion

- Bandage Contact lenses?

THERAPEUTIC BANDAGE CONTACT LENSES

CLINICAL INDICATIONS


N = 47 EYES
PATCH vs BANDAGE LENS vs BANDAGE LENS & NSAID

- NO SIGNIFICANT DIFFERENCE IN HEALING TIME
- BANDAGE LENS GROUPS RETURNED TO NORMAL ACTIVITIES MORE QUICKLY
- SIGNIFICANT DECREASED PAIN IN BANDAGE LENS & NSAID GROUP

THERAPEUTIC BANDAGE CONTACT LENSES

CLINICAL INDICATIONS

RECURRENT CORNEAL EROSION


N = 104 PATIENTS with HISTORY OF RCE
36% MALE & 64% FEMALE
45% HISTORY OF TRAUMA
29% HISTORY OF EBMD
17% HISTORY OF TRAUMA & EBMD

- CONSERVATIVE TX 50% PATIENTS -> 6% RECUR
- STROMAL MICROPUNCTURE 36% PATIENTS -> 40% RECUR
- EPITHELIAL DEBRIDEMENT 10% PATIENTS -> 18% RECUR
- SUPERFICIAL KERATECTOMY 4% PATIENTS -> 25% RECUR

RCE

- Surgical  
  – Ant. Stromal Puncture
  – PTK

We will go into detail of treatment and understanding of these medications on thursday am

I will just mention the three next levels of treatment

**Restasis™**
- Ophthalmic emulsion of cyclosporine 0.05%
  - Unique emulsion technology provides effective drug delivery to ocular tissue at low cyclosporine concentrations
- Cyclosporine is a complex molecule with antiinflammatory and immunomodulatory properties.
  - Inhibits T-cell mediated inflammation and cytokine driven inflammatory cell chemotaxis
- In the eye:
  - Restasis™ increases production of natural tears
  - Increases goblet cell density

**AzaSite**
- 1% Azithromycin Ophthalmic solution
- Indication: bacterial conjunctivitis > age 1
  - 1 drop BID x 2 days
  - 1 drop QD x 5 days

**DOXYCYCLINE**
- A tetracycline antibiotic that inhibits bacterial protein synthesis by binding to ribosomes
- Bacteriostatic
- Broad Gram +/-
- Anti-inflammatory
  - Anticollagenase activity
  - IL-1 and MMP-9 inhibitor
  - Inhibits conversion of staph lipase to fatty acids
- MGD
- Acne rosacea
- RCE prevention
- Prevent stromal melt
- Staph marginal dx
- Ocular Chlamydia

**Treatment – AT’s**
- Blink Tears & Oasis Tears
- FreshKote
- Soothe XP or Systane Balance
- Soothe Alginate
- Optive
- Systane Ultra
- Blink Contacts
LACRISERT® (hydroxypropyl cellulose ophthalmic insert)

LACRISERT is indicated in patients with moderate to severe dry eye syndromes (DES), including keratoconjunctivitis sicca.

LACRISERT is indicated especially in patients who remain symptomatic after an adequate trial of therapy with artificial tear solutions.

LACRISERT is also indicated for patients with exposure keratitis, decreased corneal sensitivity, and recurrent corneal erosions.

Autologous Serum

Patients blood is drawn
Centrifuge serum away from RBC
Serum contains various growth factors including epithelial growth factor
Mix with artificial tears
Patients doses 6 x per day
Most Eyebanks are now offering this service

Nutritional Supplements:
   Essential fatty acids
     • Omega-3 fatty acids:
       • ALA- e.g. Flaxseed oil
       • EPA-DHA – e.g. Fish oils
       • GLA
         –Evening Primrose Oil
         –Black Currant Seed Oil etc.