Anterior Segment Misadventures

Joe DeLoach, OD, FAAO
Clinical Professor, UHCO
CEO, Optometric Business Solutions

DISCLAIMER

I have no financial interest in any product, procedure, or technology mentioned in this presentation. I speak routinely for various companies including Alcon, Zeiss-Meditec, & OPTOS. I direct Optometric Business Solutions, a practice management, consulting company but have no financial interest in the company.

Options

OPTION ONE
Let's have the four thousandth lecture you've heard on dry eyes and/or allergic conjunctivitis and I'll try to convince you my favorite drop is better than the rest, blah, blah....

- or -

OPTION TWO
Let's look at some things that really happen that are often misdiagnosed and/or mismanaged
Soup du Jour

1. CIN (conjunctival intraepithelial neoplasm)
2. RCE (recurrent corneal erosion)
3. AIC (adult inclusion conjunctivitis)
4. HSK – The Great Masquerader
5. “IARIIIYC” (it ain’t rare if it’s in your chair)

NUMBER ONE

Conjunctival Intraepithelial Neoplasm (CIN)

Conjunctival Intraepithelial Neoplasm

- Uncommon? Actually THE most common conjunctival malignancy in the United States
- Histologically similar to cervical intraepithelial neoplasm...also called CIN
- 90+% Unilateral
- Characteristically fair skinned individuals - but not always!
- More common > 60 y/o. Suspect immuno-compromise in youngsters (maybe < 30ish)
- The problem? Precursor to squamous cell carcinoma
Conjunctival Intraepithelial Neoplasm

Etiology
1. Known: UV induced dysplasia in already "at risk" individuals/tissue (lighter skinned; high exposure to UV; family or personal history of skin cancers)
2. Recently Proposed: Dysplasia secondary to tissue compromise from viral infection – esp. Herpes ("at risk")

The Presentation - Four Classic Signs
1. Raised, gelatinous mass on conjunctiva
2. Leukoplakia or plaque – typically limbal (initial area of cellular dysplasia – least common EARLY sign)
3. Suspicious vascularization
4. Pagetoid or frosted spread onto cornea

Diagnostic Hints
1. CIN moves freely on palpation - when it stops moving the patient is in trouble!
2. Stains with Rose Bengal

Classic mid-advanced appearance
Early Classics
(doesn't get any better than these)

Slightly less classic
(everything is a snapshot in time!)

Watch that vasculature

This was NOT a corneal infiltrate

REALLY watch those blood vessels!
If you were photo and monitoring, time to stop!
This is squamous cell!

Time ran out – a while ago!
This also biopsied squamous cell

CIN – Treatment Options

• If only suspect, photo and monitor…but watch at least every 4-6 months (very unpredictable growth rate)

• Surgical excision with intraoperative topical chemotherapeutic agents - mostly 5-FU and mitomycin-C. Need good hands - recurrence >90% if incomplete excision

• COMING SOON TO A THEATER NEAR YOU…topical INF 2b (compounded interferon). Intrinsic antiviral and antiproliferation properties. Highly effective, almost no side effects, even though mechanism not well understood!
NUMBER TWO
Recurrent Corneal Erosion

Recurrent Corneal Erosion
Without a doubt, one of the most misdiagnosed and mismanaged anterior segment problems!

Often can diagnose by history alone
- Prior insult (typically organic) - weeks to years
- AM pain - intense, sharp, over pretty quick
- Typical increasing incidence & severity
- Intolerance to NON-contact lens wear
- History of a “scratch” that has been a problem ever since
- History of prior care for similar symptoms

Confirm by clinical signs
- Visible basement membrane defects (often difficult - look carefully with “suspect eye”)
- Characteristic negative staining but only if “inactive”! Staining patterns vary - if inactive, often negative staining, if active, can show positive and/or negative staining

What causes RCE?
Surgery: “Trauma by appointment”
In my opinion, THE most common cause – improper wound management

Travesty of care...

16 y/o CM. Initial injury was a fingernail scratch during basketball game. Upon presentation to me, eye had been patched for five days by PA at CareNow. Note complete blurring of iris detail – due to +3 cells in A/C

Classic – pressure patched by one doctor for three days, BCL by another for two weeks – but wound never cleaned. This is technically classified as a non-healing epithelial defect at this point– a guaranteed future RCE Syndrome
You wouldn’t treat an injury to your arm this way!

Loose epithelial tags
“Rolled” epithelial edges
Debris on basement membrane
Edema

How INACTIVE RCE may present

How ACTIVE RCE may present
RCE Treatment

What Doesn’t Work
 Hypertonics (do NOT fix the problem – opinion, a TOTAL waste of time)
 Debridement (very rarely fixes problem, only resets time for next recurrence)
 Anterior stromal puncture (barbaric and only scars over the problem, despite claims)

What Can Work
 LONG DURATION bandage CL + tetracycline +/- topical steroids
 Superficial keratectomy
 PTK

My Recipe for Medical Treatment
• If applicable (often is), clean the wound
• CIBA NightDay bandage lens – replace no more than every two weeks. Leave on minimum of 4-6 weeks past epithelial cover (consider longer!!)
• If contact lens patient – Moxeza, etc. tid; if not – Polytrim bid (as long as BCL on eye)
• Doxycycline or minocycline – 50mg qd-bid for at least 30 days
• Non-preserved artificial tears
• Steroids?

If treated aggressively, 50-75% cure rate!

My Recipe for Surgical Treatment
Superficial Keratectomy

A Jackhammer

Vs.

A Dremel Tool
Topical Anesthesia for the patient (tetracaine best!)

“Calm hands” medicine for the Doctor

“Attempt” to identify area of BM defect

Use surgical spear to define limits of defective epithelial attachment – be ready for a surprise!
Diamond burr to remove defective epithelium and create contoured healing edge

DON'T WIMP OUT HERE!!!

Heals poorly in 3-7 days
Heals perfectly in 1-2 days

Must keep rotation of burr moving from edge to center of defective epithelium to achieve a smooth transition edge

FINAL STEP – MOST IMPORTANT

Polish the basement membrane

If performed correctly, treatment is near 100% effective
Post-Operative Care
Superficial Keratectomy

- Bandage contact lens 1-2 months (prefer NightDay)
- Prophylactic topical antibiotic (prefer Polytrim)
- Pain control - pain will increase with increase chronicity and size of defective area. Typically requires narcotic pain meds (don’t ask your patient to be a tough guy on this one)!
- Progress every few days till epithelial cover. Then don’t be too quick to remove the BCL (rarely less than two weeks)

Final Points

- Both surgical options best performed on a stabilized, quiet eye
- PTK is a fine option, especially if there is also some myopia standing in the way of perfect vision!!

NUMBER THREE
Adult Inclusion Conjunctivitis
Inclusion Conjunctivitis
Possibly Staggering Epidemiology

*Chlamydia is the most common STD in US*

- Effects 3.9% of all females 14-19 y/o (Gottlieb – Pediatrics 12/2009)
- 1.5 million new cases per year in same group (14-19 y/o). Overall, 3 million new cases per year in US – likely WAY off due to lack of reporting and misdiagnosis
- During 2012, 43 cases treated at CSEC

THE most common chronic, follicular conjunctivitis

**Characteristics**

- *C. trachomatis*, serotypes D-K and L1-L3
- CHARACTERISTIC initial significant mucopurulent (but follicular) conjunctivitis followed by less significant recurrences. RARE Dx on initial presentation.
- Unilateral common, some asymmetric bilateral presentations
- Superior conj staining +/- corneal pannus
- CHARACTERISTIC non-tender +PAN
- CHARACTERISTIC follicles inferior AND superior (superior is DIAGNOSTIC!)
- <50% have genital symptoms (esp. males)

20 year old HF presents asking for a "refraction so she can get a pair of glasses because my CLs hurt". She reports a one year history of recurrent "eye infections" treated with multiple eye drops. First infection was really bad but "responded to drops" – but ever since keeps coming back every few months. She saw a doctor two weeks ago who said she had a "rejection to her contact lenses". She was prescribed Lotemax and Zaditor but she says it really isn’t getting much better!
These critters are DIAGNOSTIC

These jewels are DIAGNOSTIC

THIS is a huge problem

Treatment

• Treatment of choice – oral azithromycin, at least 1 gram single dose
• Alternates: doxycycline 100mg BID or erythromycin 500mg TID, either med for three weeks
• Adjunctive topical therapy debated (steroids mask the disease but totally OK for use as long as you have the real problem covered!)
• Refer to urologist / OB-GYN (WHY?)
Herpes Simplex Keratitis

**Basic Stuff**
- Herpes is the most common virus found in the human body
- Almost ALWAYS a secondary activation of prior infection (even if congenital) - stress, fever, trauma, UV exposure
- Multiple tissue specific serotypes... or they used to be!!
- 50,000 new or recurrent cases in US annually
- Likely WAY more common than thought as many INITIAL epithelial presentations are self-limiting (rarely taught truth)

**HSK - “The Great Masquerader”**
- Classic symptoms of pain, tearing, photophobia, blurred vision (depending), variable corneal hypoesthesia - OFTEN followed by typical to atypical dendritic corneal exophytic lesions with terminal end bulbs
- Severity of symptoms HIGHLY variable... early in process, symptoms often out of line with clinical signs (more OR less severe)
- Typically unilateral
- Common history of similar presentation
- Epithelial vs. Stromal
Where it all starts!

Typical Presentation
BUT...

And stromal...
Treatment

• One of the more debated concepts in anterior segment disease...but really shouldn’t be
• Although room for individual clinical decision making, the answers can mostly be found in the HEDS Study (Herpes Eye Disease Study)

HEDS Summary

• Epithelial disease does not always make future recurrences more likely, but stromal disease definitely does (8-10X more likely recurrence)
• Stromal disease can occur in the absence of previous epithelial lesions
• And oral antivirals…
  * 45% decrease in the rate of recurrence for all forms of ocular complications BUT ONLY WITH PRIOR STROMAL DISEASE, NOT EPITHELIAL
  * Oral Acyclovir did not improve the ultimate outcomes in cases of epithelial or stromal keratitis
  * Treatment of patients with epithelial dendrites with oral Acyclovir does not reduce the rate of stromal disease or iritis.

And steroids?? Are they REALLY the ultimate contraindication as taught?

• Steroids were very effective, if not essential in managing stromal infections and did not increase the rate of recurrence
• Not a part of HEDS, but many publications advocate for steroid use in EPITHELIAL disease used in conjunction with antiviral treatment

NOTE: There are many myths associated with steroid use!
Current recommendations

EPITHELIAL

• Viroptic (trifluridine) q2h, taper to qid in a week, tid for additional week once dendrites resolved...OR, better...Zirgan (ganciclovir) q3h then tid for a week once dendrites resolved (MUCH better choice!!! And why??)
• Consider cycloplegia
• Consider steroids
• Consider orals (rarely, my opinion - unless chronic recurrence)

Current recommendations

STROMAL

• Topical steroids – dosage debated from aggressive use (q1-2h) to “lowest dose possible to control inflammation, usually q1-2h” (geez)
• Consider topical antiviral prophylaxis (Zirgan qd to bid great choice, but...)
• Consider orals – definitely if history of recurrence (often is)

NUMBER FOUR
Pigs do fly!
Unusual – But S__ __ Happens

- Surgical misadventures
- Traumatic misadventures
- Contact lens misadventures
- “Growth” misadventures
- Life misadventures

Case One: Surgical Misadventures

75 y/o CF presents with a two year history of chronic discomfort and foreign body sensations. These all started after what her cataract surgeon called an “uneventful cataract surgery”.
Vision is 20/25 and most findings normal except......
DIAGNOSIS
Uveal prolapse after not-so-uneventful cataract surgery
And of course the ultimate question what surgeon didn’t fix this to begin with?

TREATMENT
- Recommended surgical repair – patient refused
- Rx Nevanac TID – patient’s discomfort diminished and she felt she could live with the foreign body sensation. Followed for the next three years when patient lost her life in a shoot out during an attempted robbery of her home (she took out four intruders with a .357 SW before they got her! – at 78).

Case Two: Trauma Misadventures

23 y/o CM presents with acute vision decrease and ocular pain following a handball injury to the eye two days prior. He wears extended wear SCL and reports replacing his lenses every 3-4 months. Prior to the injury his ocular and medical history were reported as unremarkable.
DIAGNOSIS
Traumatic iritis with intraconeal hemorrhage from prior CL abuse induced neovascularization

TREATMENT
Rx Pred Forte q2h and homatropine bid.
Thorough DFE. The rest is out of anyone’s hands.

Case Three:
Contact Lens Misadventures

39 y/o CM presents for a routine RGP contact lens evaluation. His history is unremarkable except he reports 10 years ago he lost a contact lens. He has reported mild irritation under his lid (can show you exactly where) ever since but three doctors have told him everything is fine.

Guess we don’t need to talk about diagnosis and treatment. Take home message – listening often works better than looking!!!
Case Four
Growth Misadventures

55 year old black male presents C/O “growth” in the corners of his eyes. They have been present for long time but seem to be increasing in size. His ocular and medical history are completely unremarkable and other than the single external finding, his examination was completely unremarkable.

Right eye looks exactly the same!

DIAGNOSIS
Demolipoma

TREATMENT
For the most part, unfortunately nothing. Surgical removal typically requires extensive tissue removal resulting in scarring, scleral thinning and significant secondary complications.
Case Four: Life Misadventures

46 y/o AF presents for routine examination. She reports decreased near vision but no remarkable ocular or medical history. She had an eye examination six months ago and was told everything was fine but she needed bifocals and she couldn’t afford them at the time. 20/20 distance VA OU and normal presentation, except.....
The sad definitive

**DIAGNOSIS**
Ciliary body melanoma
Incidence 1:2,230,000

**TREATMENT**
Enucleation
90% mortality at one year

**CASE FOUR SEQUELAE**
B-scan was taken 42 months ago. Eye was enucleated. October 2013 no systemic malignancy detected. Optometrists DO save lives!
My Last Misadventure - kinda

68 y/o HF presents - extern comes and gets me to help remove a conjunctival foreign body. On the way down the stairs I am told the lady has cataracts but otherwise no problems. The lady was only mildly symptomatic but the extern for sure thought the piece of plastic should be removed. HINT (and excuse): We are two hours behind schedule already!

Wish I had a picture of it before I pulled on it, but this is what it looked like after I cut off the inch long "foreign body" that zipped right out of her conjunctiva.

Remind myself......
DIAGNOSIS
Primary Diagnosis – extruded scleral buckle
Secondary Diagnosis – oh sh…….

TREATMENT
1. Should have pulled harder!
2. Actually don’t panic – either pull the rest out (after thorough retinal evaluation) or cut off exposed end, place patient on Mozexa QID and send off to surgeon to pull out the rest and suture closed if needed
3. Severely beat the extern who failed to report the RD repair eight years ago

Live long and prosper!