Corneal Abrasions
Concepts, Myths, Cases

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Financial Disclosure

I am an employee of Chenega Global Corporation and JDC Eye-care Partners

I am now or recently have been a speaker or advisory board member for Alcon, Allergan, AMO, Bausch & Lomb and Essilor Lenses. Medications & products from the above companies are sited in this presentation.

I am not receiving a fee or travel support from any company.
Yes… I stand between you and lunch…
Which was most painful?

1. Paper cuts
2. Cigarette Burn
3. Metallic FB Post Lasik
4.
5.
6.
Paper cuts
Just the Facts...

- **ER – Eye visits:** 6 - 8%
- **3% all ER visits:** Abrasions
- **Facial occupational eye injuries – 60%**

U.S. Department of Health & Human Services
Centers for Disease Control and Prevention
United States Department of Labor Bureau of Labor Statistics
Just the Facts...

- **ER – Eye visits:** 6 - 8%
- **3% all ER visits:** Abrasions
- **Facial occupational eye injuries:** 60%
- **Days off – Average:** 2.2 - 2.8
- **87% industrial eye injuries**
- **Common Gen Anesth Complication**
- **Males, Preventable, Younger**

__References__

Optometry: 2010 Feb; 81 (2) 83-5


Just the Military Facts

• Superficial injury: Abrasions & FB’s
  133,274  (12,164 yr)

• 70% missed work / Avg 2.8 days
• Superficial injury: Abrasions & FB’s
  133,274 (12,164 yr)

• 70% missed work / Avg 2.8 days

• 5.5% > 8 days off work

• $344 Tx costs

Costs of Military Eye Injury, Frick, Kevin JHU PH NAEVR
Injury Reduction: Critical & Cost Effective

- 90% Ocular Trauma Preventable
- 2003–2006: 3276 Casualties
- 17% wearing Eye Pro
  - Intense Eye Pro program – incidence and severity dropped dramatically

J Trauma, 2009 Apr 66(9):100–103, Mcmanus et.al., Ocular injury reduction from ocular protection in current combat operations

Our Goal as the result of Explosive Facial Injury
“Diagnosis before Treatment”
Never… *Just another Abrasion*
“Diagnosis before Treatment”

Never... *Just another Abrasion*

Did you really examine the eye?

★ Image courtesy U Iowa Hospitals
Cornea Cross Section

One Human Hair = 50u
Myth-busters

- **Limited Anesthetics**: 7.7 to 3.9 vs Placebo
- **Un-supervised anesthetic Drop**: 14 days of use, 100% Epi Defect
- **NSAID’s short term** – no corneal melts < 72 hrs
- **Topical NSAID’s reduce pain scores**:

Patch/ BSCL/ Ointment or None?

- **Same healing time** – < 3 mm
- **Unknown in** > 3 mm
- **Tobacco** - 1 day longer to closure

Ophthalmic Research: 2013, 50 (1) May 3
Ocular toxicity - 2013 Sept , 32 (3)
Cornea: 2014, May, 33 (5)
Pain Management

- **Expectation Management:**
  - Time frame to healing & better/worse vision

- **NSAID’s** - Numerous studies

- **Cold packs, cool PF AT’s**


Pain Management

- **Expectation Management:**
  Time frame to healing & better/worse vision

- **NSAID’s** - Numerous studies

- **Cold packs, cool PF AT’s**

- **Orals – OTC and RX**
  + T-3, Percocet, Advil, Benadryl

- **Cycloplege - Homatropine**

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**Nature:**
Eye (1997) 11, 79-83 1997 THE EFFECTIVENESS OF TOPICAL DICLOFENAC IN CORNEAL ABRASIONS

Non/Slow Healing Epithelium

- Tobacco Users *
- Diabetics or Pre-diabetics **
- Non – compliant, “won’t rest”
- EBMD prior diagnosis
- HSV – secondary to TX

* Cornea: 2014, May, 33 (5)
** Nature:
Non Healers: Case # 1

Post PRK:

• 37 y.o. black male, compliant
• 7 Days P.O. – 4 mm epi os, no FML
• 12 days – ragged edges, non-closure
• 14 days – Less pain, non-closure

- U.S. Department of Health & Human Services
- Centers for Disease Control and Prevention
- United States Department of Labor Bureau of Labor Statistics
DDX and Treatment

- Medica-mentosa
- Bacterial / Fungal infection
- HSV
  - Decrease in Pain
  - Haze vs Stromal / Epithelial
Treatment

- **Switch to Polytrim – Q 3 – 4 hrs**
- **Begin Valtrex – 1000 MG TID x 48 Hrs, then QD x 5-7 days $\$ (Acyclovir $)$**
- **Zirgan Ung: Gancyclovir 5 x day x 48 hr, TID $$$$$$$**
- **Follow Up: 1, 3, 5 days**
Pathogenesis

- Resident in Tri-geminal ganglion
- Re-activation
- Steroids +/-
Pathogenesis

- Resident in Tri-geminal ganglion
- Re-activation
- Steroids +/-
- PCR DX
- Masquerader
- Prophylaxis
Non Healers: Case # 2

Tree Branch Abrasion:
Hiking on the Appalachian Trail
2 x 6 mm abrasion/ VA 20/70
Cleaned the edges – Vegetative
Vigamox, Ketorolac, UNG

- U.S. Department of Health & Human Services
- Centers for Disease Control and Prevention
- United States Department of Labor Bureau of Labor Statistics
Re-consider DX?

Ciprofloxacin x 14 days
Non Healers: Case # 2

Tree Branch Abrasion:
Entering VA – 20/60
4 x 6 mm abrasion
Ciloxan, PF AT’s, Ketorolac
Failed to close x 7 days
One Month Later?
Abrasion: “Stopped Healing”

Strategies:

1. D/C any steroids
2. Remove BSCL
3. CTR – ALT – DELETE – Scrape edges
4. Ointment and see in 24 hrs
Corneal Foreign Body

3 mm
12 y.o. with Cigarette Corneal Burn

- VA: 20/40
- Minimal pain and FBS
- Anesthetized O.U.
- Saline rinse /evert/ swab
- NSAID 1 gtt
12 y.o. with Cigarette Corneal Burn

- Debride Epi – Defect + 1 mm
- Vigamox QID
- Cylcoplege
- BSCL
- Sunglasses
- RTC 24 hrs PM
- “Will heal in 48-72 hrs”
Take Home

- Abrasions are common but never routine
- If delayed healing…reconsider
- CRS Post Abrasion is different
- This is primary care
Lets Have Lunch