Recurrent Corneal Erosions

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Dr. Sorkin Industry Disclosures

- B&L Specialty Vision Products
- Blanchard Labs
- Boston Sight
- Shire
- Visioneering Technologies Inc.
- Medical Advisory Board: International Keratoconus Academy
Pathophysiology of RCE

- Trauma 45-64% of cases - most common etiology
- EBMD- 19-29% of cases
- Dystrophy associated RCE - stromal dystrophies - lattice/granular dystrophy
- Thorough History is necessary
- Must examine contralateral eye
History

- Trauma
- Concomitant Ocular Surface Disease
- Dry eye
- MGD/ rosacea
- Floppy Lid Syndrome
- Nocturnal Lagophthalmos
- Ocular Surgery- refractive surgery
- CL use
- DM
Pathophysiology of RCE

- Epithelium 5-7 cells in thickness
- 50 microns thick
- Mature superficial layer
  - Wing cell layer
  - Basal cell layer- miotic monolayer

Joined below to the basement membrane, Bowman’s layer and anterior stroma by adhesion complex- hemidesmosomes and type VII collagen-anchoring fibrils
Timeline of RCE repair

- Healing in 5-7 days if there is an intact basement membrane
- If basement membrane is damaged/removed during RCE, healing takes 6-8 weeks
- Reattachment of epithelium is faulty following abrasion
Recurrent Erosion Syndrome

- Equal distribution between male/female
- Majority occur in the lower half of the cornea
- Pain, watery eyes and blurred vision are the most common symptoms
EBMD

- AKA AMBD, Map-Dot Fingerprint Dystrophy, Cogan’s
- Autosomal Dominant
- Prevalence increases with age
- Vital to evaluate contralateral eye
Clinical findings in EBMD

- Gray chalky patches
- Intraepithelial microcysts
- Combination of maps, dots and/or fingerprints
- Patient complaints of blurry VA
- Irregular astigmatism? Topography
- Negative staining with slit lamp evaluation
- 10% of EBMD patients experience RCE
- Weck cel sponge- check for loose epithelium
RCE

- Microform erosions - minor episodes that last 30 min.
  + intact epithelium

- Macroform erosions - more severe episodes
  + epithelial defects/poorly adherent, edematous epithelium

- May last for several days
RCE Treatment

Two goals:

1) Facilitate re-epithelialization
2) Relieve pain

Prevent further RCE occurrences
Medical treatment of RCE

- Artificial tears (AT)
- Non preserved AT
- Gels/ ointments
- Reduces friction and optimizes tear film
Medical Treatment of RCE

- Fresh Kote
- Focus Laboratories
- High oncotic pressure
Medical Treatment

- Topical NSAIDS
- May reduce pain
- Long term use may delay epithelial healing
- Watch use of thick gel NSAIDS (Prolensa and Illevro)
Medical treatment

- Inhibition of MMP-9
- Topical steroids - watch IOP
- Doxycycline - helpful in treating concurrent MGD
- Azasite - anti-inflammatory? Cost / Insurance coverage -
- MGD - treat aggressively
Medical treatment - Hyperosmotics

- Muro 128 - NaCl
- Drops/ointments may sting
- Nighttime lubrication/protection of lid/cornea interaction upon awakening
- Minimizes epithelial edema
Medical treatment

- Bandage Contact Lenses
- Pain relief
- Protects ocular surface from lid interaction
- CPT code 92071
- 3 FDA approved BCLs
  - B+L PureVision
  - J+J Acuvue Oasys
  - Alcon Night+Day
Medical treatment

- Bandage Contact Lenses protects ocular surface from shearing forces of lids and provides pain relief

- Antibiotic prophylaxis: avoid thick drops (Moxeza and Besivance) - ASCRS white paper

- Can use BCL during acute phase or consider continuous EW for 6-12 weeks.
Medical treatment

- Pain relief
- Cycloplegia - reduces secondary inflammation
- Homatropine 5%
- Non narcotic - alternate Ibuprofen/ acetaminophen
- Narcotics - Ultram, Tylenol #3 or Vicodin
Dry Eye Treatment

- Autologous serum
- Non preserved. Limited shelf life
- Limited availability of labs to process
- Utilizes the patient’s own blood serum
- Cost is typically $200-300 per 3 months
Amniotic Membranes

- Dehydrated vs. Cryopreserved
- Anti inflammatory
- Anti scarring
- Promotes healing
- Cost
- Insurance coverage
- CPT 65778
  - zero day global period
  - includes supply of AMG
Amniotic Membrane

- Dehydrated
- Multiple companies
- Sheet or pre cut
- May need to orient corneal side
- Use of lid speculum
- Must use BCL - can place inside BCL for application or apply to dried corneal surface
- Cost for dehydrated AMG is less than cryopreserved
Amniotic Membranes

- Cryopreserved - Prokera
- Biotissue (only manufacturer)
- May need lid speculum
- Requires refrigeration
- Must rinse off Prokera prior to insertion (storage media has fluoroquinolone and amphotericin B)
Amniotic Membranes

- Cryopreserved-Prokera
- PMMA ring
- 3 versions- Prokera, Slim, Plus
- Tape tarsorrhaphy
- Pt education/expectations
- Can instill drops with Prokera in place
- Must remove ring after amniotic membrane dissolves
Surgical Treatment of RCE

- Epithelial Debridement
- Use weck cel sponge or spud
- Remove loose epithelium at edges with jeweler’s forceps-work towards center of cornea
- Followed by BCL or AMG
- Diamond burr polishing of Bowman’s membrane
- CPT 65435
Surgical treatment of RCE

- Anterior Stromal Puncture
- Performed at the slit lamp 23 or 25 g needle
- Topical anesthesia
- +/- Debridement
- Can perform in conjunction with PTK
- Punctures placed 0.5-1 mm apart and should extent 1-2 mm outside erosion area
- Treatment in visual axis is controversial
- Post treatment similar to corneal abrasions - BCL/antibiotics/pain meds/cycloplegia
- Studies show ASP effectiveness 65-80%
- CPT 65600
Surgical treatment of RCE

- PTK-excimer laser
- Epithelial debridement- alcohol brush or manually
- Transepithelial PTK
- Success rate is variable
- May cause hyperopic shift in Rx
- May be combined with PRK
- Risk of post operative haze
MMP 9

- Family of enzymes that play a role in remodeling of the epithelial basement membrane
- Doxycycline
- Category D - do not use in pregnancy or children
- Treatment of MGD
Ocular surface disease

- Preservative free artificial tears
- Nighttime ointments
- Punctal plugs
- Restasis/ Xiidra
- Topical steroids
- Autologous serum
- Heat masks/ Lipiflow/ meiboflow
- Hypochlorous acid lid scrubs- Avenova/ Hypochlor
In summary...

- Very common clinical entity in optometric practice
- Many options in treating RCE
- Combination treatments