EM CASE OF THE WEEK.

BROWARD HEALTH MEDICAL CENTER
DEPARTMENT OF EMERGENCY MEDICINE

BROWARD HEALTH
Care Warriors

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Corneal Abrasion

A 35-year old male presents with a 5-hour history of acute onset left eye pain and photophobia. It began just after waking up this morning. He has a history of hypertension, controlled by Metoprolol, and diabetes, controlled by Metformin. He recently began wearing contact lenses about 3 months ago. On exam, the patient's left eye reveals mild conjunctival injection with no signs of a foreign body. Bilaterally, the patient has PERRLA with intact extra-ocular movements, unchanged visual acuity from baseline, and a normal funduscopic exam. A fluorescein exam is performed with a Wood's lamp and reveals a small linear enhancement over the lateral left sclera. **Which of the following is the most appropriate management for this patient?**

A. Topical corticosteroids

B. Analgesics and an eye patch for at least 1 week

C. Topical anesthesia as needed

D. Topical antibiotics

E. Immediate referral to an ophthalmologist

Corneal epithelial defect after application of fluorescein dye

Corneal abrasions, defined as defects in the corneal surface epithelium, accounts for about 10 percent of all eye presentations in the U.S.

They may be classified as traumatic or spontaneous.

Traumatic abrasions can be caused by a foreign body or contact lens use.

Spontaneous abrasions usually have an underlying corneal defect.

EM Case of the Week is a weekly "pop quiz" for ED staff.

The goal is to educate all ED personnel by sharing common pearls and pitfalls involving the care of ED patients. We intend on providing better patient care through better education for our nurses and staff.

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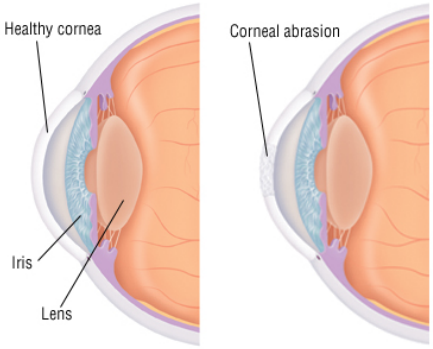
The correct answer is D, topical antibiotics. This patient has a corneal abrasion. Corticosteroids impair healing and increase the risk of superinfection. Eye patches should not be used in those suspected of abrasion secondary to contact lens use, and should also not be used for more than 24 hours. Repeated topical anesthesia can also impair healing, and should only be given by an ophthalmologist. Immediate referral to an ophthalmologist is not needed unless a corneal infiltrate or opacity is seen on exam.



Via: www.health.harvard.edu

Discussion

Patients with corneal abrasions typically present with severe eye pain, photophobia, a foreign body sensation, and reluctance to open the eye. Patients with abrasions caused by contact lenses usually report sleeping in their contacts and awakening with the symptoms, and they may also report poor lens hygiene.

The eye exam should be performed without topical anesthesia if the patient can tolerate it. The exam should consist of a penlight, visual acuity, extraocular movements, funduscopic, and fluorescein exams. Penetrating trauma to the globe, presence of a foreign body, corneal infiltrate (such as by HSV), corneal opacity, and hypopyon must be excluded. The pupil should be round and central, but may exhibit reactive miosis. Conjunctival injection may be present with no thick discharge. Visual acuity may vary depending on the location of the abrasion. Movement of the eye should not exhibit significantly increased pain or diplopia. The fluorescein exam should be the last test performed. Any defect will stain yellow with the naked eye or bright green under Wood's lamp. If a defect is present, the upper eyelid should be everted to confirm no retained foreign body.

Differential diagnoses include conjunctivitis, episcleritis, scleritis, foreign body, infectious keratitis, iritis, hyphema, hypopyon, and angle closure glaucoma.

Following treatment, follow-up is generally not needed if symptoms resolve. However, ophthalmology referral is recommended if the defect enlarges at 24 hours, purulent discharge is present, or if the abrasion has not healed within 5 days.

Treatment

Uncomplicated corneal abrasions can usually be treated in the primary care outpatient setting with no referral necessary. Most abrasions will heal within 1-5 days regardless of therapy. However, topical antibiotics (to prevent superinfection) and analgesics are recommended.

Traumatic abrasions, foreign body abrasions, or recurrent erosions should be treated with topical antibiotics, such as erythromycin 0.5% ointment, trimethoprim-polymyxin 0.1%-10,000 units/mL solution, or sulfacetamide 10% solution/ointment. Ointments are generally preferred over solutions. Antibiotics should be applied four times per day for 3-5 days. For analgesia, oral ibuprofen can be used with or without topical NSAIDs such as bromfenac 0.07-0.09% solution, diclofenac 0.1% solution, or ketorolac 0.4-0.5% solution.

Corneal abrasions caused by contact lenses have an increased risk of infectious keratitis and should be treated with topical antibiotics effective against Pseudomonas. Choices include ciprofloxacin 0.3% ointment/solution, ofloxacin 0.3% solution, or gentamicin 0.3% ointment/solution. They should also be used four times per day for 3-5 days. Due to the increased risk of infection, patients should have daily follow-up until the abrasion has healed.

Eye patching should generally not be used, and is contraindicated in those wearing contact lenses. Topical anesthetics and topical corticosteroids are also not recommended.

A flow-chart of the management of corneal abrasions can be seen on the following page.

For a list of educational lectures, grand rounds, workshops, and didactics please visit ***BrowardER.com*** and **click** on the ***"Conference"*** **link**.

All are welcome to attend!

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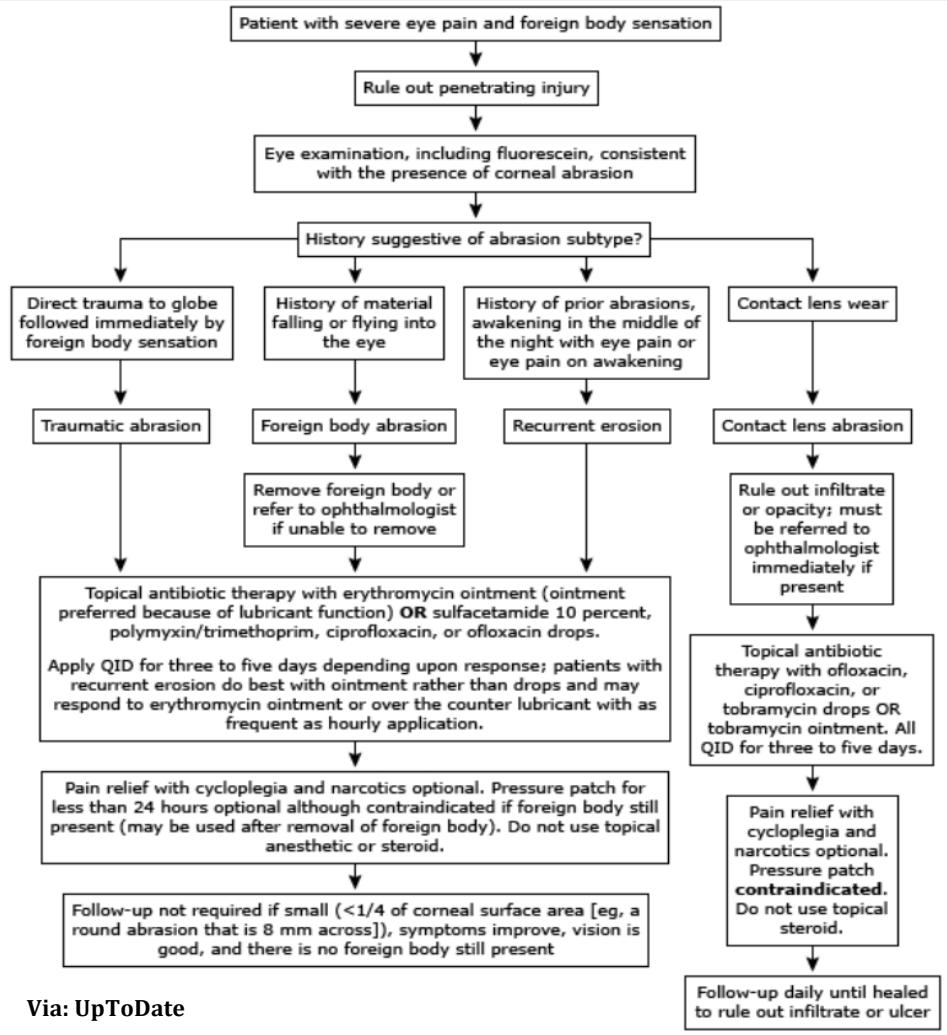
Management of Corneal Abrasions



Via: UpToDate

Take Home Points

- A corneal abrasion is any defect within the corneal surface epithelium.
- It can be spontaneous or caused by trauma, foreign body, or contact lens wear.
- Patients often present with severe eye pain, photophobia, a foreign body sensation, and reluctance to open the eye.
- Penlight, visual acuity, extraocular movements, funduscopic, and fluorescein exams should be performed initially.
- Penetrating trauma to the globe, presence of a foreign body, corneal infiltrate (such as by HSV), corneal opacity, and hypopyon must be excluded.
- Most uncomplicated corneal abrasions heal within 1-5 days.
- Standard therapy includes topical antibiotics and analgesics.
- Those with contact lenses should receive anti-Pseudomonals and daily follow-up.
- Patching, topical anesthetics, or topical corticosteroids are not recommended.

ABOUT THE AUTHOR

This month's case was written by Sean Zajac. Sean is a 4th year medical student from FIU HWCOM. He did his emergency medicine rotation at BHMC in November 2016. Sean plans on pursuing a career in Internal Medicine after graduation.

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