

Grand Rounds

July 16, 2009

Introduction: Joel Sugar, MD (*Attending*)



This week's Comprehensive Grand Rounds is the first of the new academic year, and attempts to provide pertinent information both to new beginning ophthalmology residents as well as experienced practicing ophthalmologists.

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Traumatic Hyphema with Angle Recession: Roshni Vasaiwala, MD (*Resident*)



A 16-year-old boy presented to the Illinois Eye and Ear Infirmary with a history of blunt trauma to his right eye that had occurred approximately two hours prior to presentation. After hitting his eye with a metal object on his coat zipper, he noted immediate pain, photophobia, and loss of vision. Ocular examination was consistent with a hyphema in that eye. He was started on standard treatment for traumatic hyphema including limited activity, elevation of the head of the bed, shield over the eye, topical cycloplegic, topical steroid, and a pressure-lowering drop. Sickie prep testing was negative.

After five days, he developed persistent elevated intraocular pressure that was resistant to maximum medical therapy. He was therefore taken to the operating room for anterior chamber washout. Initially, his intraocular pressure came under control but quickly became elevated again. He underwent a second anterior chamber washout to remove a residual clot.

Over the next four months, the patient was noted to have mildly elevated intraocular pressure in the right eye compared to the left. Gonioscopy revealed angle recession for 270 degrees in the right eye. He was also noted to have increased cup-to-disc ratio in the right eye compared to the left that was not present on previous exams (images below). Ocular coherence tomography showed no thinning, while visual field testing showed inferonasal defects in the right eye on the total deviation plot but not the pattern deviation. The plan for the patient was to check intraocular pressure at two months and repeat visual field testing in six months before deciding whether or not to initiate medical treatment.

BACKGROUND

Angle recession occurs when there is splitting of the horizontal and longitudinal fibers of the ciliary body muscle due to trauma. While a large percentage of patients who sustain trauma have evidence of angle recession on gonioscopy, only approximately 4-9% of patients with greater than 180 degrees of angle recession actually develop glaucoma. It is important to perform gonioscopy at one month following the initial trauma in order to identify patients with angle recession who are at increased risk for developing glaucoma. These patients require periodic follow-up to monitor intraocular pressure, as patients can develop glaucoma up to 10 years following the initial trauma without any symptoms.

FIGURE 1 Fundus photograph of the right and left optic nerves 4 months after injury. The right cup measured approximately 0.55(V) x 0.55(H), while the left cup measured 0.3(V) x 0.3(H).



Persistent Corneal Epithelial Defect: Clement Chow, MD (*Resident*)

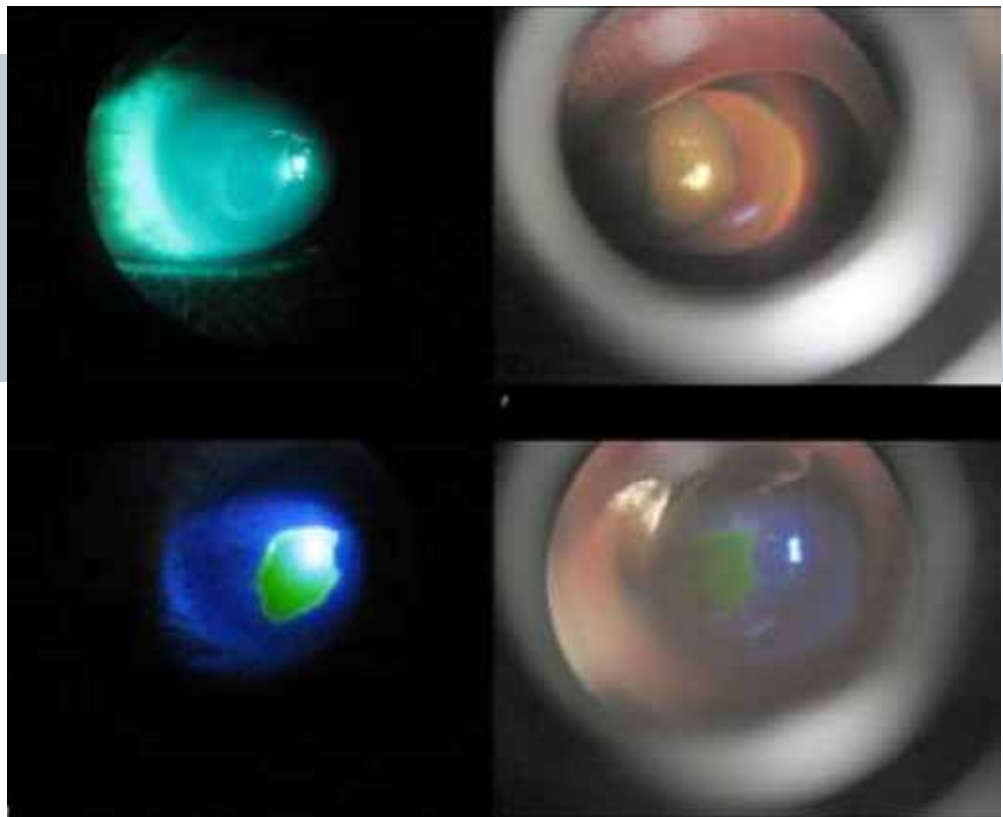


A 42 year-old female presented with a 2 week history of pain, redness, drainage, in the left eye. She was initially seen by an outside ophthalmologist and diagnosed with conjunctivitis and treated with Tobramycin drops every 3 hours for 10 days without improvement. Follow-up at the outside ophthalmologist revealed a corneal ulcer with large epithelial defect affecting visual axis measuring 4.2 mm x 3.9 mm (figure 1), vision 20/150. The patient was referred to the Illinois Eye and Ear Infirmary for examination. No infiltrate was seen, however cultures were obtained and she was started on fortified vancomycin and tobramycin drops every 1-2 hours empirically. She subjectively improved initially but the epithelial defect did not heal. Given that 2 cultures had been negative, her antibiotics were stopped to decrease medication toxicity. Her symptoms worsened with a persistent epithelial defect (3 weeks after symptoms began).

The past ocular history included a 20 year history of nonspecific conjunctivitis, and the past medical history included hypertension and high cholesterol. At this point, the differential diagnosis included herpetic corneal disease, acanthamoeba keratitis, medication toxicity, recurrent erosion, immune associated keratopathy, neurotrophic keratopathy, limbal stem cell deficiency, exposure keratopathy, etc. The patient was started on a trial of Brolene drops hourly for suspected acanthamoeba keratitis, however after 2 days there was no improvement. As we were discussing the use of a bandage contact lens with the patient, her daughter was concerned that the contacts would not stay in because her mother often slept with her eyes open. Further history revealed that she snored heavily and slept on her left side. A subsequent exam demonstrated laxity of her upper eyelids. They were easily everted and revealed a papillary conjunctivitis. The diagnosis of floppy eyelid syndrome was made and her epithelial defect healed within 2 days with a bandage contact lens.

FIGURE 1

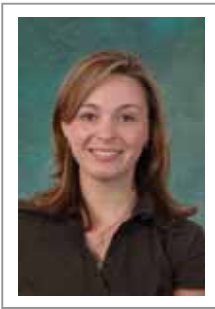
Slit lamp photo showing large epithelial defect near visual axis measuring 4.2 mm x 3.9 mm. There is corneal haze and edema but no frank infiltrate.



BACKGROUND

Floppy eyelid syndrome (FES) was first described by Culbertson and Ostler in 1981 (all initial patients were obese males). A subsequent larger series showed 37% of those with FES were women and only 29% were obese. Presenting symptoms are often non-specific, leading to misdiagnosis and delayed diagnosis. The most consistent finding on history was sleeping prone or on the affected side. The hallmarks of FES include elongated, lax upper eyelids that are easily everted, chronic papillary conjunctivitis and lash ptosis. Histopathology shows loss of elastin in tarsal plate stroma and ciliary root, leading to lash ptosis. These findings are thought to be a result of mechanical trauma from lid-to-pillow contact and possibly reoxygenation radical-induced damage of elastin (from obstructive sleep apnea). Conservative therapy consists of eyelid shielding/taping and aggressive lubrication. Surgical treatment focuses on horizontal shortening of the involved lid. It is also crucial that these patients have a sleep apnea evaluation.

Squamous Cell Carcinoma: Kimberly Truax, MD (*Resident*)



A 56 year old white female was referred to the Cornea Clinic at the University of Illinois by an outside ophthalmologist for evaluation of a possible conjunctival neoplasm. Approximately 3-4 years previously, the patient developed a chronic red right eye that initially responded well to an antibiotic/steroid combination. Six months prior to presentation, the redness returned but did not respond to similar therapy, and she was referred for ophthalmic evaluation.

On examination her best corrected visual acuity was 20/30 OD and 20/20 OS. Pupils, confrontational fields, extraocular movements, and intraocular pressure were within normal limits. Dilated fundoscopic exam was normal in both eyes. In the left eye, she had scarring of the inferior tarsal conjunctiva and a symblepharon nasally. In the right eye, she had a hyperkeratotic, gelatinous appearing lesion filling the inferior fornix involving the conjunctiva from approximately 3 to 7 o'clock, extending onto the cornea.

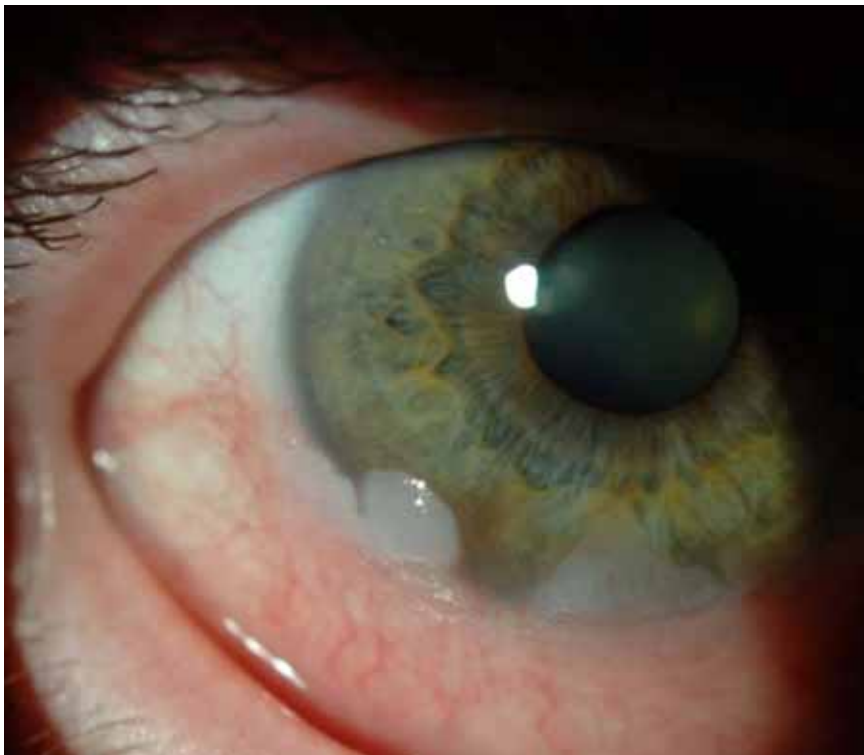
It was presumed that the lesion was squamous cell carcinoma. It was recommended that the patient undergo multiple map biopsies in the right eye. She was hesitant to undergo any surgical intervention. Finally she agreed to initiating topical therapy with topical Interferon alpha 2b 1 million IU/ml, four times a day in the right eye. She used the drops with difficulty for about 2 months. Finally, she agreed to biopsy. Tissue samples were sent for immunofluorescence studies to rule out pemphigoid, given the appearance of the conjunctiva of the left eye, which was negative. The biopsy was positive for squamous cell carcinoma. She was scheduled for excision with cryotherapy.

When the patient arrived for preoperative evaluation 4 days prior to her scheduled surgery, her lesion had regressed. Multiple biopsies were performed, and all were negative for malignancy.

BACKGROUND

Squamous cell carcinoma occurs in the limbal and bulbar conjunctiva of older individuals. UV radiation plays an important role in the pathogenesis. Growth is generally superficial, rarely penetrating the sclera, although when it does, it may behave quite aggressively. Treatment is generally wide local excision with cryotherapy to the margins.

Topical therapy offers the advantage of eradicating neoplastic cells over the entire conjunctiva. It is useful for the treatment of large lesions, as it preserves limbal stem cells. Mitomycin C, 5-fluorouracil, and interferon alpha 2b have been used. Interferon seems to have less surface toxicity than the other agents. The most commonly reported side effects with topical interferon are conjunctival injection and irritation. There are few reports of success in treating squamous cell carcinoma with topical interferon, however there are several studies regarding its use in conjunctival carcinoma-in-situ. Generally, the median time to resolution of lesions is about 2 months. The recurrence rate has been reported to be as low as 4%. A dosage of 1 million IU/ml has been found to be as effective as 3 million IU/ml, and offers the advantage of lower cost.



Figures 1 and 2: Slit lamp photograph of right eye with a hyperkeratotic, gelatinous mass involving the inferior bulbar conjunctiva from the 3 o'clock to 7 o'clock positions. The lesion is encroaching onto the cornea at 6 o'clock and 7 o'clock.

DISCUSSION

Blunt trauma with or without hyphema is often encountered by an ophthalmologist in clinic, or when consulted to the emergency room. After resolution of the hyphema, it is important to continue to follow the patient and monitor intraocular pressures, and perform gonioscopy. As seen in the patient presented, the development of angle recession can lead to elevated intraocular pressures, and requires careful follow-up. As noted in the presentation, even the development of large areas of angle recession leads infrequently to glaucoma.

A persistent epithelial defect can present challenges in diagnosis and treatment, as the differential diagnosis is wide and can range from infectious to neurologic to mechanical causes. However, it is important to remember that every epithelial defect has a cause and the etiology must be sought out in a patient with a non-healing defect.

The final case demonstrates that squamous cell carcinoma of the conjunctiva may respond to topical interferon alpha 2b therapy, although the response may be delayed as seen in our patient.

References

External Disease and Cornea, BCSC 2007-08.

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Holcombe et al. Topical interferon alpha 2b for treatment of recalcitrant ocular surface squamous neoplasia. *Am J Ophthalmol.* 2006 Oct. 142 (4): 568-71.

Boehm et al. Treatment of recurrent corneal and conjunctival intraepithelial neoplasia with topical interferon alpha 2b. *Ophthalmology.* 2004 Sept. 111 (9): 1755-61.

Schechter et al. Long-term follow up of conjunctival and corneal intraepithelial neoplasia treated with topical interferon alfa-2b. *Ophthalmology.* 2008 Aug. 115(8): 1291-6.



UPCOMING GRAND ROUNDS

Illinois Eye and Ear Infirmary Ophthalmology Grand Rounds are held Wednesdays at 5:00 pm on the UIC campus at 909 S. Wolcott in the College of Medicine Research Building. For a complete schedule go to www.uic.edu/com/eye and click on Grand Rounds under the Education drop down menu. Or, call 312-996-6590.

UPCOMING CME COURSES

March 13-19, 2010

Illinois Eye Review

April 4, 2010

Retina Symposium

April 16, 2010

Uveitis Symposium

May 21-22, 2010

Oculoplastics Symposium

June 25, 2010

34th Annual Alumni Day

September 25, 2010

Pediatric Ophthalmology/Adult Strabismus