Sometimes we just need to laugh about our failing eyesight and ability to know for sure what we're doing.
No parking violators will have their cataracts reinserted.
Hey, lady, eyes up here! Sheesh.
No! No! NO, Nurse!!!! I said "SLIP" off his SPECTACLES!!!!!
WHY ARE EYE DOCTORS SO SMART?

BECAUSE THEY WERE GOOD PUPILS.
Top Eye Emergencies

Jason Knight, MD

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I am going to let you in on a little secret

I was terrible at ophthalmology in medical school and residency

“Fake it and hopefully you will make it”

Maid of Honor in my wedding was an ophthalmologist so she kept me out of trouble

I always prayed that I did not get “Eye” cases
Once I became faculty – that didn’t work anymore

Studied, read, asked questions, spent some time with ophthalmology residents:

Two transformations occurred

Made a series of eye lectures

“I didn’t get it” so I decided to teach it a different way
ED Physician Ophthalmology Fears

- “The patient is going to lose their vision and it is going to be my fault”
- “I am going to miss something major and not recognize it
- “I don’t know where to start with EYE patients”
- “I have no idea what I am looking at…but I am glad it’s not my eye”
- “I can’t get a good view or image”
- “Will I cause damage to the eye if I do a physical exam?”
- “Do I need to wake up ophthalmology at 0300 to come in and see this?”
“Blurry Vision” Eye Disorders

- Keratitis
- Scleritis
- Uveitis/Iritis
- Optic Neuritis
- Amaurosis Fugax
- Retinal Detachment
- Vitreous Hemorrhage

- Corneal Ulcers
- Central Retinal Artery Occlusion
- Central Retinal Vein Occlusion
- Acute-Angle Closure Glaucoma
Problem with Ophthalmology
Vein

Artery

Optic Disc

Optic Cup

NORMAL LEFT EYE

Macula

OcularTimesCom
Case 1:

Do you give out your cell phone number to patients/ED Staff?

1. Yes – Almost always
2. Yes – Frequently >50%
3. Yes – Sometimes
   >10% and <50%
4. Very Rarely <10%
5. Never – are you nuts
Case 1

- 67 year old female (mom of one of my nurses) called my cell phone with a sudden onset painless loss of part of her vision in her eye
- She was shaving her legs in the shower and all of a sudden, she could not see one of her legs anymore
- She had no problem with the rest of her vision
- “Her eye looks normal”
What is the Diagnosis?

Did her symptoms go away?
Amaurosis Fugax

- Symptoms may last seconds to a few minutes
  - Sometimes up to a few hours
- Caused by a blockage or low blood flow state to the eye
  - Blood Clot, Plaque, fat, small piece of cholesterol
- Frightens patients then makes them feel dumb
- Patient may be asymptomatic when they come to you
Amaurosis Fugax

- Amaurosis Fugax is a warning sign of a Stroke!
  - Think TIA and/or CVA
  - Temporal Arteritis
- Work-Up – Head CT, Carotid US, ESR, MRI/MRA, Echocardiogram, EKG
  - +/-Angiogram
- Treatment depends on underlying cause
  - Carotid Endarterectomy
Central Retinal Artery Occlusion

- Pathophysiology: the retina will infarct, become pale, transparent, and edematous.

- “Cherry Red Spot”
  - Intact cordial circulation of the macula remains visible through the (newly) transparent retina creating a vascular spot or “cherry red spot”

- Causes/Risk Factors:
  - Embolus (carotid and cardiac), thrombosis, giant cell arteritis, vasculitis (lupus), sickle cell, trauma.

- Atrial Fibrillation is one of the most common causes.
Central Retinal Artery Occlusion

- Irreversible Damage in 90 minutes
- Concept behind treatment is to change the CRAO (central retinal artery occlusion) to a BRAO (branch retinal artery occlusion)
Central Retinal Artery Occlusion

- Treatment Goals: Dislodge the clot, lower IOP, Vasodilate
  - Ocular massage (15sec closed lid then quick release)
    - Repeat Several times
  - Topical B-Blocker (Timoptic 0.5%)
  - Acetazolamide 500 mg IV or PO
  - Patient to breathe into a paper bag for 5-10 min to increase Paco2
- None of these really work all that well
Case 2

- 67 M with a rash around his eye. He thinks that he has a “STAFF” infection. He has eye pain, photophobia, tearing, and light sensitivity. His eye is red and feels “scratchy”.

![Rash around eye](image)
What is the Diagnosis?

1. Impetigo
2. Dacrocystitis
3. Herpes Keratitis
4. Bacterial Conjunctivitis
5. Blepharitis

Pain, photophobia, red eye, decreased vision
Classic Finding on eye exam is “Dendrites”
Epithelial defect with fluorescein uptake and has a linear branching pattern with terminal bulbs
Herpes Keratititis

- Treatment Goal: minimize stromal damage and scaring
- Oral Acyclovir or Valacyclovir/Famcyclovir
- HSV without corneal involvement = Viroptic one drop five times a day
- HSV with corneal involvement = Viroptic one drop nine times a day
- Ophthalmology follow up in 1-3 days
- Erythromycin to prevent secondary bacterial infection
- Resolution in 2-3 weeks
Clinical Pearls

- **Response to topical therapy in 2-5 days**

- **Corneal toxicity is common with topical anti-viral agents so rapidly taper the drug after improvement (10-14 days)**

- **No Steroids – leave that to your ophthalmologist**
  - Indicated for Stromal Keratitis with Endotheliitis
This is my kind of study

- All patients with moderate to severe ocular disease had a “red eye” – 100% Sensitive
- Hutchinson’s sign is not predictive of clinically relevant eye disease

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**Abstract**

**OBJECTIVES:** The objective was to assess the predictive value of clinical signs and symptoms of herpes zoster ophthalmicus (HZO) for development of moderate to severe eye disease.

**METHODS:** This was a prospective cohort multicenter study of 54 patients referred to the ophthalmology service after presenting to the emergency department (ED) or primary care clinic with a zosteriform rash of less than 10 days' duration. Upon referral to ophthalmology, easily assessable clinical signs and symptoms were documented. A complete ocular exam was then performed. Patients were followed for 2 months.

**RESULTS:** Twenty-three patients (43%) developed moderate to severe disease as defined by corneal or intraocular involvement. Eye redness and rash in the supratrochlear nerve distribution had a statistically significant association with clinically relevant eye disease. All 23 patients who developed moderate to severe eye disease presented with a red eye. Hutchinson’s sign (nasociliary nerve involvement) was not predictive of clinically relevant eye disease.

**CONCLUSIONS:** Eye redness was 100% sensitive for predicting moderate to severe eye disease in this sample of patients and should necessitate immediate referral for ophthalmologic assessment. Patients lacking eye redness, even with a positive Hutchinson’s sign, may not require immediate specialist consultation. All patients not being referred require careful instructions to seek further care should they develop any concerning eye symptoms such as redness, pain, photophobia, or visual disturbance.
Case 3

- 67 M with HTN and DM complains of painless, monocular rapid loss of vision
What is the Diagnosis?

1. Central Retinal Artery Occlusion
2. Central Retinal Vein Occlusion
3. Vitreous Hemorrhage
4. Retinal Detachment
5. Episcleritis
Central Retinal Vein Occlusion

- “Blood and Thunder” appearance = optic disc edema with diffuse retinal hemorrhages
- “Cotton Wool Spots”
  - Puffy white spots on the retina
Central Retinal Vein Occlusion

- Contra-lateral optic nerve and fundus are usually normal
  - Distinguish from Papilledema
- Diffuse Retinal Hemorrhages help distinguish CRVO from Optic Neuritis
- Treatment: ASA 81-325mg PO QD and Ophthalmology follow up
- Complication is ischemia-induced neovascularization
Case 4

- 67 M with HTN and DM complains of painless, monocular rapid loss of vision
- Lifting boxes when it occurred
What is the Diagnosis?

1. Central Retinal Vein Occlusion
2. Central Retinal Artery Occlusion
3. Glaucoma
4. Vitreous Hemorrhage
5. I can’t see anything with my ophthalmoscope.
   This is my normal view
Darn that optometrist who sold me these new glasses

Now I see my floaters clearer
Vitreous Hemorrhage

- Patient Complaints: New multiple floaters, smoke, haze, looking into a fog, spiderweb, cobweb
- Variable loss of fundal detail on exam
- Most common in patients with HTN, DM, CAD, PVD
- Shaken Baby Syndrome
  - Classically described as retinal hemorrhages
- Coagulation Studies if clinically indicated
- Imaging?
Vitreous Hemorrhage
Vitreous Hemorrhage Treatment

- Emergent consultation is required if hemorrhage has resulted from trauma or abuse or if an acute retinal tear or detachment is suspected.
- Discharge instructions: limit physical activity and sleeping in an upright position.
- Anticoagulants and other anti-platelet agents may need to be stopped (weigh risks and benefits).
- Ophthalmologic consultation is mandatory in vitreous hemorrhage (1-2 days) Why? Complications?
  1) Corneal Staining  2) Glaucoma
Case 5

- 67 F woke up with severe eye pain, tearing, nausea, vomiting, headache, and vague abdominal pain.
- She is also seeing “Halos” around objects and has blurry vision in the affected eye.
What is the Diagnosis?

1. Iritis
2. Acute Angle Closure
   Glaucoma
3. Corneal Ulcer
4. Hyphema
5. Conjunctivitis
6. Cataract
Acute Angle Closure Glaucoma

- Acute angle-closure glaucoma is caused by a rapid or sudden increase in pressure inside the eye (IOP).
- The iris (colored part of the eye) is pushed or pulled up against the trabecular meshwork (drainage canals) at the angle of the anterior chamber of the eye.
- Aqueous humor drainage is blocked and IOP increases.
Glaucoma Physical Exam

- Poorly reactive pupil
- A shallow anterior chamber
- Corneal swelling/edema (cloudy)
- Redness around the iris
- Inflammatory changes
- Decreased Visual Acuity
Glaucoma Physical Exam

- Tonometry is a method used to measure the pressure inside the eye.
- Eye pressure is measured in millimeters of mercury (mm Hg).
- Normal eye pressure ranges from 10-21 mm Hg.
- In a case of acute angle-closure glaucoma, IOP may be as high as 40-80 mm Hg.
Angle Closure Glaucoma ED Treatment

- **Systemic Analgesics and Nausea Medication**
  - Acetazolamide should be given as a stat dose of 500 mg IV followed by 500 mg PO
    - Decreases Aqueous humor production

- **Topical beta-blocker (ie, carteolol, timolol)**
  - Decreases Aqueous humor production

- **Alpha-Adrenergic Agents**

- **Goal IOP < 40**

- **Pilocarpine, Pred-Forte, Laser Iridotomy**
Case 6

- 67 M was watching TV and noticed a dramatic increase in the number of floaters in his left eye and felt like a “curtain” was being pulled down over his vision.
- No Trauma, No other complaints
- Severe Myopia = Thick Glasses
What is the Diagnosis?

1. Central Retinal Artery Occlusion
2. Central Retinal Vein Occlusion
3. Retinal Detachment
4. Open Globe
5. Temporal Arteritis
Retinal Detachment

- **Pathophysiology**: the retina peels off from its underlying layer of support tissue.
- **Initial detachment** may be localized and small
- **Without rapid treatment**, the entire retina may detach leading to vision loss and blindness
- **Symptoms**: flashes of light and an increase in floaters, cobwebs, curtain pulled down over eye
- **Very difficult for the non-ophthalmologist to diagnose** smaller retinal detachments
Retinal Detachment

- Dilate the Eye and do thorough visual fields exam
- Ultrasound
- Management: Stat Ophthalmology Consult
  - Silicone Oil Injected into eye (not common now), Laser photocoagulation, cryotherapy, Scleral Buckle Surgery, Pneumatic Retinopexy, Vitrectomy
When to Make The Call

- Retinal Detachment
- CRVO
- CRAO
- Post Surgical Complications
- Corneal Ulcer
- Vitreous Hemorrhage
- Open Globe
- Intra-Ocular Foreign Body
- Rust Ring or FB that you can not remove easily (clinic)
- Iritis, Uveitis
- Glaucoma
- Medial Canthus Lacerations and most lid margin lacerations
- Entrapment
Questions to Ask and Document for Patients with Blurry Vision

- Does the patient have pain?
- Any recent eye surgery or trauma?
- Systemic Symptoms?
- Foreign Body Sensation?
- Contact Lens Use?
- Chemical Exposure?
- Systemic autoimmune disease? (inflammatory)
- Previous episodes? (Acute angle closure glaucoma)
Diagnostic Approach for a Patient with an Eye Complaint

- Check visual acuity
  - Eye Chart, Count Fingers, Light Perception
- Visual Fields
- Conjunctival discharge and/or redness
- Inspect cornea for opacities or irregularities
- Stain cornea with fluorescein
- Slit Lamp
- Tonopen
Board Buzzwords

- Cherry Red Spot = CRAO
- Blood and Thunder = CRVO
- Red Desaturation Test = Optic Neuritis
- Dendrites = Herpes Keratitis
- “Curtain pulled down” = Amaurosis Fugax = TIA or Retinal Detachment
- Cell and Flare = Iritis/Uveitis
- “Parachute” = Retinal Detachment
- Floaters, Fog, Spider Web = Vitreous Hemorrhage
Questions

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“Mr. Osborne, may I be excused? My brain is full.”