

Blepharitis



Fluorescein

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Allergic Conjuncti...

Glaucoma



Lens Fragment



Pigment Dispersi...



Meibomian Gland...

Viral Conjunctivitis

mage

Keratitis



Conjunctivitis High vield

MGD

Corneal Abraision



Fungal Keratitis



IOL



inspissation

Hyphema



Endophthalmitis



Examples of classic pathology to help differentiate common or important diagnoses

All clinical photographs were captured by ophthalmology residents in the emergency eye clinic using digital slit lamps!





Corneal Abrasion vs. Corneal Ulcer



Corneal Abrasion

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Clear cornea at the site of injury

Mechanism of injurymechanical damage (lashes due to entropion)



With fluorescein dye under cobalt blue light, area of abrasion "lights up"





Larger abrasion from a fingernail injury under cobalt blue light



Corneal ulcer

ALL ALL AND AND A CARLES AND A



Hypopyon often associated with large ulcers

Cornea is **white** or opacified under the epithelial defect



Other less obvious ulcers





Cornea is **white** or opacified under the epithelial defect



Cornea is **white** or opacified under the epithelial defect (even with the "naked" eye)

Key take home points

- Ulcers have a "white" cornea under the epithelial defect, abrasions are clear
- The distinction between ulcer and abrasion is very important (vastly different treatment, triage), and the terms are not interchangeable
- Ulcers can be of any size, shape, and from a number of etiologies but need to be assessed same day
 - Particular caution in contact lens wearers
 - Other causes: staph marginal keratitis, fungal, bacterial, viral keratitis, vernal keratoconjunctivitis

Other "spot" diagnoses

Dendrites!

- Indicative of either HSV or VZV keratitis
- Can be "positively" or "negatively" stained by fluorescein (pick up the stain and glow yellow, or are blue in a background of dye)
- Look like branches, may or may not have end bulbs
- Can be small or large (geographic dendrites)



Pterygium

1 10 M



Looks like a membrane **with vessels**, may be flat or slightly raised

A pterygium grows over the cornea, **usually nasal**, may be mildly inflamed

Chalazion

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A **chalazion** may be on the upper or lower lid, will often be painful, red, and raised. Can cause ptosis, may have discharge



A few key points re. chalazia

- The natural course of a chalazion is to last for weeks, if not months
- May see a white area on the palpebral conjunctiva if you flip the lid
- The best treatment is frequent warm compresses with gentle vertical massage (minimum 4X/day)
- It will often become **acutely "worse"** (red, painful, with white/yellow pus drainage), as it resolves, this is normal
- May need I and D by oculoplastics if:
 - Acutely causing visual field defect due to mechanical ptosis
 - Non-urgently if persistent X months and bothersome to patient

Beware of chalazion mimickers: Basal cell carcinoma, sebaceous cell



Pyogenic Granuloma



A **pyogenic granuloma** often forms in the area of a previous chalazion. Resembles a fleshy pink mass, often with a small "stalk" attached to the conjunctiva



What's in the AC (anterior chamber)?



Hyphema-blood



A hyphema may be large (up to entire AC or 8 ball) or small as depicted here and clotted. An accurate IOP measurement is imperative, and prompt referral



Lens Material-Post op

Pieces of lens can be left in the eye following cataract surgery, this can cause edema (haziness) of the cornea, particularly inferiorly

The big, bad and the ugly



Why is this eye suspicious for **globe rupture?**



360-degree bullous subconjunctival hemorrhage

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Other signs of globe rupture

Shallow or deep anterior chamber (compare to other eye)

Uveal prolapse

Peaked pupil



All suspected globe ruptures are an ophthalmologic emergency



Common causes of a red eye



Viral conjunctivitis

Conjunctival injection, ++tearing, clear cornea

On history:

Red, sore eye with ++tearing. Often in one eye, and then spreads to the other. Usually a family member or close contact with pink eye. Often URTI.



Blepharitis

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Mildly inflamed lids (pink, thickened, edematous)

"Crusting" at lid margin

Conjunctival injection



Thick "toothpaste" like secretions from meibomian glands!



Take home points re. blepharitis

- Blepharitis creates an inflammatory environment, patients note dry eye symptoms, burning sensation as the day goes on, crusting of their lids (especially in the am), red eyes, tearing
- Often worse in the winter, can "flare" and resolve throughout the year
- Standard **conservative treatment** is:
 - Artificial tears QID + prn
 - Warm compresses BID X 7-8mins over both eyes
 - Lid hygiene (wipe lids after WC with dilute baby shampoo or lid care wipes)

Uveitis

- Usually a red painful eye, with photophobia
- Often a history of uveitis
- May have significant blurring of vision

Conjunctival injection, usually around the limbus (ciliary flush) KP: keratic precipitates, white dots on the endothelium, usually inferior half of the corne

Tips for seeing AC cell!

- Highest magnification
- Highest illumination
- Small square
 1mmX1mm of light
- Aim "off axis" or diagonally
- Use joystick to pan from where the iris is in detail to where the cornea is in focus
- Use the dark pupil as a background
- Turn off all room lights





Flashes and floaters



Posterior Vitreous detachment

- Occurs in ~70% of 70 year olds will happen in all eyes eventually
- Separation of the posterior vitreous from the retina
- Caused by vitreous liquefaction
- Traction on the retina causes flashes and vitreous opacities result in floaters (ie. aggregated collagen fibers)
- Does not typically cause vision loss
- Should be assessed by ophthalmology usually within 72 hours for posterior exam





Retinal Tear

- May occur due to traction from vitreous attachments on the retina
- May result in a "shower" of new floaters
- Examination of all patients with new onset flashes and floaters by ophthalmology is primarily to rule out retinal tears and detachment
- Need specialized lenses and equipment to properly examine the entire retina



Retinal Detachment Fluid trac

Fluid tracks in through retinal tears/breaks





- Key finding is a confrontational visual field defect in the periphery ("curtain defect")
- Patient may or may not notice the visual field defect
- If the macula is involved then central visual acuity decreases

Corrugated retina, fluid underneath causes wrinkling



Take home points re. Flashes and floaters

- Flashes and floaters are non-specific symptoms
- A PVD may be symptomatic, asymptomatic, uncomplicated, or result in a retinal tear or retinal detachment
- Flashes and floaters without vision loss or a visual field defect should still be seen by ophthalmology, but usually within a few days
- Flashes and floaters with vision loss, and/or a CVF or subjective visual field defect should be seen urgently



Intraocular Pressure Measurement





High IOP

- Can be due to many causes
- Always take the intraocular pressure in **both eyes** and compare
- Unilateral causes of high IOP include acute angle closure, which often presents with nausea, significant pain, a mid-dilated pupil, conjunctival injection and a "foggy" cornea
- Measure using a **Tonopen** or **iCare** device





Tonopen tips

- Holding lids, breath holding, tight neck ties, and valsalva maneuvers can transiently elevate the IOP
- Try **not to put any pressure** on the lids, globe or periocular soft tissue while measuring
- Always measure both eyes to compare between the two
- The tonopen tip should be gently tapped on the cornea- **do not indent**





When not to use the tonopen!

- An IOP measurement should not be taken in the case of a suspected globe rupture!
- Any pressure on the globe may cause **content extrusion**
- Remember to place a hard shield on the eye and call ophthalmology!



END

Thank you for your attention!

