Eye Diseases
Opticians and Techs Should Know

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Shana Barrett Zeitlin, O.D.
HomeSight Eye Care
Rydal, PA

Vision Expo East 2025
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vision expo

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Financial disclosure

- Shana Barrett Zeitlin, O.D. has no financial interests to disclose.

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Rapid Fire Format

- Intended to be an introduction to many different ocular conditions you may encounter in a primary care setting
- Buzzwords/keywords/memory trigger
- "Take-home" in RED
- Further study on your own
  - We'll focus on frequently encountered conditions and those with greatest associated health/vision risk

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New onset floaters: EMERGENCY
Flashes of light: EMERGENCY
Longstanding floaters with changes: URGENCY
Longstanding floaters with no changes: Likely routine, but careful hx/exam indicated

Floaters and flashes

- Floaters most commonly indicate:
  - Posterior vitreous detachment
  - Intermediate uveitis
  - Posterior uveitis
  - Vitreous hemorrhage
  - Vitreous condensation/debris
- Flashes most commonly indicate:
  - Retinal break or detachment
  - Posterior vitreous detachment
  - Migraine
  - Rapid eye movements
- Ocular urgency or emergency?

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Posterior vitreous detachment

- Separation of posterior vitreous cortex and neurosensory retina
  - Vitreous is strongly attached to the retina at the vitreous base, optic disc margin, macula, main retinal vessels and some retinal lesions (lattice degeneration)
  - With time, vitreous liquefies and collapses anteriorly
  - Symptoms:
    - Floaters – vitreous opacities, condensation
    - Flashes – traction, physical stimulation of sensory retina
- Vitreous traction at sites of firm adhesion may result in a retinal tear with or without subsequent rhegmatogenous retinal detachment

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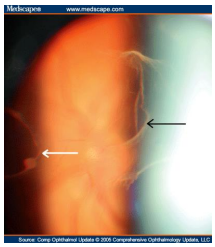

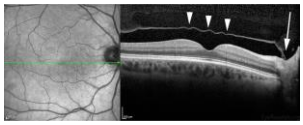

PVD patient still needs to be cautious regarding NEW flashes/floaters.
Should be rechecked 3-4 weeks later → Retinal tear is still a possibility.

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Retinal detachment

- Separation of neurosensory retina from RPE
  - Rhegmatogenous: breaks, tears, PVD, trauma
  - Tractional: proliferative membranes (DM, sickle cell)
  - Serous: inflammation, neoplasms

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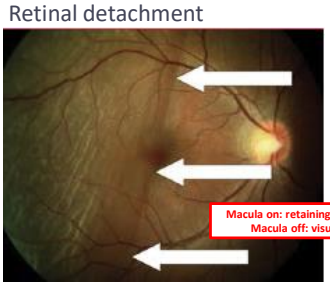
Retinal detachment



Macula on: retaining good vision will be likely if repaired in time
Macula off: visual prognosis already poor (90 minutes)

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Lattice degeneration

- Atrophy and thinning of peripheral retina
  - Lattice-shaped pattern
  - May have atrophic holes
- May develop tractional retinal tears at lesion margins
- Risk factor for retinal detachment
- More common in high myopia

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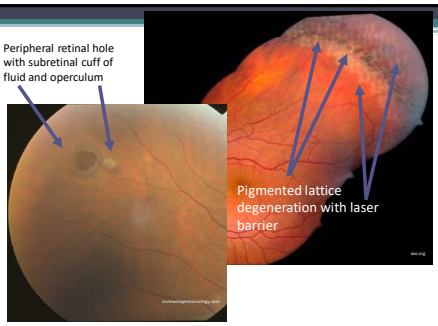

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Migraine is a diagnosis of exclusion for new, persistent headaches. Must investigate to rule out aneurysm, tumor, etc.

Migraine

- Throbbing headache, unilateral or bilateral, worse with movement
- Sensitive to light/sound/smells, nausea, vomiting
- More common in women
- Possibly due to changes in brain chemicals or blood flow
- Possible triggers:
  - Hormonal changes
  - Foods/additives: red wine, chocolate, MSG, artificial sweeteners, nitrates and nitrites
  - Stress, anxiety, lack of sleep
  - Environmental: perfume, light, temperature changes
- May or may not have aura before head pain
  - Zigzag lines, shimmering or colored lights, flashes of light
- Treatments include OTC analgesics, caffeine, Rx (Imitrex)

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Ophthalmic migraines must be differentiated from transient ischemic attacks (TIAs)

Ophthalmic migraine

- Visual symptoms of migraine without headache
  - Scintillating scotoma
  - Transient homonymous hemianopia
  - Peripheral visual field constriction progressing to tunnel vision or complete visual loss
  - Transient monocular visual loss
  - Episodic diplopia (usually vertical and accompanied by other neurologic symptoms)
- Symptoms typically last less than 60 minutes and tend to develop and remit progressively during that time

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A complete history for diabetics MUST include A1c

Diabetes and diabetic retinopathy

- Type 1 (insulin-dependent)
  - Onset usually before 30 years of age
  - 95% show some retinopathy after 15 years
    - 72% develop proliferative retinopathy
- Type 2 (non-insulin-dependent)
  - Adult-onset, usually after age 30
  - More common (90% of diabetics are type 2)
  - 60% have some retinopathy at time of diagnosis
  - 80% have some retinopathy after 15 years
- Risk factors for retinopathy: BSL control, A1C, length of diagnosis
- What are some systemic effects of DM?

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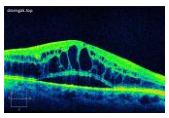
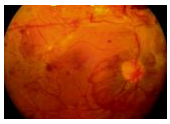
Diabetes and diabetic retinopathy

Non-proliferative

- Leaky blood vessels: blood, fluid
- Hard and soft exudates
- Dot and blot hemorrhages
- Induced myopia/hyperopia (lens changes)
- Macular edema

Proliferative

- Neovascularization of retina, disc, iris
- Pretinal and vitreous hemorrhages
- Fibrosis and tractional retinal detachment
- May develop neovascular glaucoma
- Usually asymmetric but eventually bilateral

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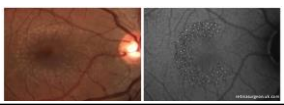
Myopic shift with poorly controlled diabetes
Earlier onset presbyopia in diabetics

DM and DR: Treatment

- BSL control most important for prevention
- PRP (panretinal photocoagulation)
- Anti-VEGF injections
- Macular grid photocoagulation
- PPV (pars plana vitrectomy)

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AO: Visual emergency! If elderly, must consider GCA

Vascular occlusions

Artery occlusions (CRAO, BRAO)

- Sudden, unilateral, painless, profound loss of vision (CF-LP)
- CRAO: Usually due to emboli or thrombus at lamina cribrosa
- BRAO: Emboli/thrombus at other sites
- Risk factors
  - Elderly
  - HTN, DM, carotid disease
- RAPD present on exam
- Cherry red spot in macula (CRAO)
- Retinal whitening in area of occlusion
- Retina edema

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VO: CRVO associated with neovascular glaucoma ("90-day glaucoma")

Vascular occlusions

Vein occlusions (CRVO, BRVO)

- Sudden, unilateral, painless visual field loss (partial or complete)
- CRVO: Usually due to emboli or thrombus at lamina cribrosa
- BRVO: Thrombus at A/V crossings
  - Artery compresses underlying venous wall
- Risk factors
  - Elderly
  - HTN, DM, carotid disease
- Dilated, tortuous veins with superficial hemorrhages
- Macular edema

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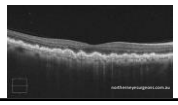
Age-related macular degeneration

Dry

- Gradual breakdown of the retinal pigment epithelium (RPE)
- Accumulation of drusen deposits
- Loss of function of the overlying photoreceptors
- Gradual, progressive loss of central visual function
- Most evident with near tasks (reading, needlepoint)
- Geographic atrophy



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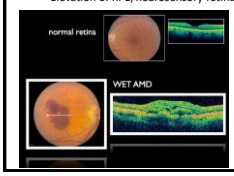
Age-related macular degeneration

Wet

- 90% of AMD patients with severe vision loss
- Choroidal neovascularization
- Serous or hemorrhagic leakage
- Elevation of RPE/neurosensory retina



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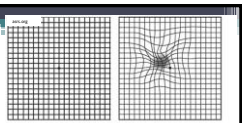
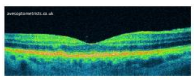
AMD px who calls with VA change is an ocular urgency
Should be seen within 1 day

AMD

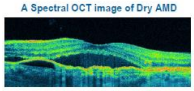
- Patient symptoms
  - Early: difficulty with fine print, metamorphopsia
  - Late: central blur, eccentric fixation
- Amsler testing
- OCT findings
  - iWellness (Optovue)
  - Wet vs. dry
- Treatments/progression
  - Dry: AREDS2 formulations (Ocuvite, PreserVision)
    - New GA treatments?
  - Wet: Anti-VEGF injections (Avastin, Lucentis, Eylea)



Amsler grid viewed with normal vision and with wet AMD



A Spectral OCT image of Dry AMD



A Spectral OCT image of Wet AMD

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Choroidal nevus vs. choroidal melanoma

Choroidal nevus

- Flat, benign, typically pigmented lesion of the choroid
- Disappears under red-free (green) filter

Choroidal melanoma

- Most common primary malignant intraocular tumor
- Second most common type of primary malignant melanoma in the body
- Asymptomatic for prolonged periods of time; may be incidental finding
- Rare, typically whites of N. European descent

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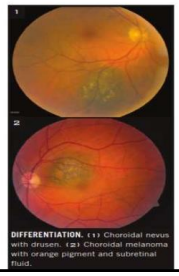
Nevus to melanoma

"To Find Small Ocular Melanoma Using Helpful Hints Daily"(TFSOM-UHHD)

T → *thickness greater than 2* mm,
F → *fluid subretinally*
S → *symptoms*
O → *Orange* pigment present,
M → *margin with in 3 mm* of the optic disc
UH → *USG hollowness* (versus solid/flat)
H → *halo*
D → *drusen absent*



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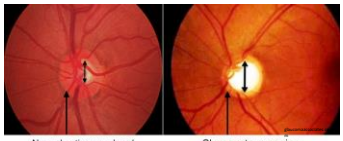
Glaucoma

- Progressive optic neuropathy
  - "Glaucomatous cupping"
- Loss of ganglion cells and their axons
- Progressive visual field loss
- Types
  - Open angle
  - Pseudoexfoliation
  - Angle closure
  - Normal tension
  - Congenital



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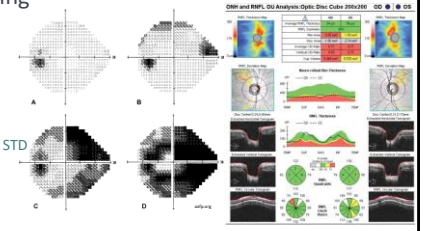
Glaucoma testing

- IOP (Goldmann)
- Gonioscopy
- Pachymetry
- OCT
- Visual field
  - Typically 24-2 SITA STD
- Fundus photos
- ERG



Become familiar with classic glaucomatous VF defects: VF defects should correlate with OCT findings

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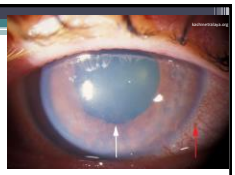
Angle closure glaucoma



- Occlusion of trabecular meshwork by peripheral iris
  - Obstructs aqueous outflow
  - Pupillary block vs. non-pupillary block
- Acute presentation
  - Ocular pain, headache, red eye, decreased VA, GI distress
  - Corneal edema, IOP very high (40+mmHg), mid-dilated pupil, ciliary
  - Fellow eye may show narrow angle at risk of closure
- Treatment
  - Apraclonidine, timolol, prednisolone, oral acetazolamide
  - Peripheral iridotomy

Become proficient at Van Herick classification to assess safety of dilation

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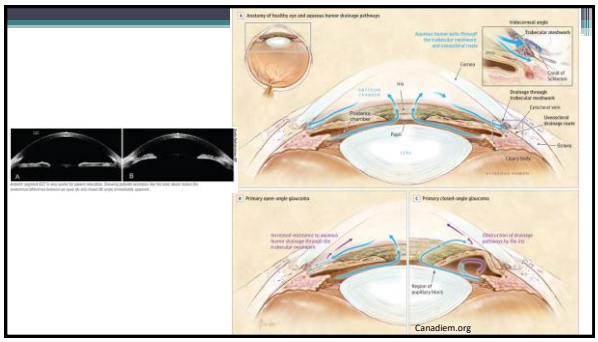

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Glaucoma treatments

Compliance with medication is key part of history
"How many times per week do you miss your drops?"
Is the patient a reliable historian?

- IOP-lowering eye drops
  - Most common first-line: prostaglandins
- SLT/ALT: laser treatment of trabecular meshwork
  - Often initial first-line treatment
  - Consider with gtt noncompliance
- Trabeculectomy
- MIGS (minimally-invasive glaucoma surgery)

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Some ophthalmic medications by cap color

Drug class	Cap color	Some possible drug names
Adrenergic agonist	Purple	Alphagan (brimonidine), apraclonidine
Adrenergic agonist combo	Light green	Simbrinza
Beta blocker	Yellow	Timoptic (timolol), -olol drugs
Beta blocker combo	Dark blue	Combigan (brim/tim), Cosopt (dorz/tim)
Carbonic anhydrase inhibitor	Orange	Azopt (brinzolamide), dorzolamide
Miotics	Dark green	Pilocarpine
Prostaglandin analogues	Teal	Xalatan (latanoprost), Travatan, Lumigan
Anti-infective	Tan, clear	-mycin (Azasite), -floxacin (Vigamox), Polytrim
Anti-inflammatory – NSAID	Gray	Prolensa, Ilevro, ketorolac, diclofenac
Anti-inflammatory – steroid	Pink, white	Prednisolone, loteprednol
Cycloplegic/Mydriatic	Red	Cycopentalate, homatropine, tropicamide
Anti-allergy*	White*	Pataday, Lastacaft

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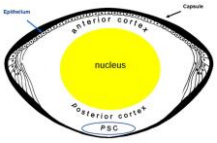
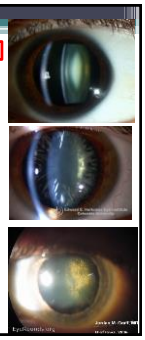
PSC: difficult on retinoscopy, difficult biometry readings

Cataract: Age-related

- Lens metabolism changes with age
- UV light
- Blurred vision, glare, impaired night driving, need for increased lighting
- Lens anatomy
  - Nuclear sclerosis (NS)
  - Cortical (spoking, sheets)
    - DM/metabolic disease related
    - Cause more glare complaints
  - Posterior subcapsular (PSC)
    - Reading issues
    - More rapid development
    - More symptomatic
- Medication-related
  - Steroids – Commonly cause PSC
  - Anti-psychotic





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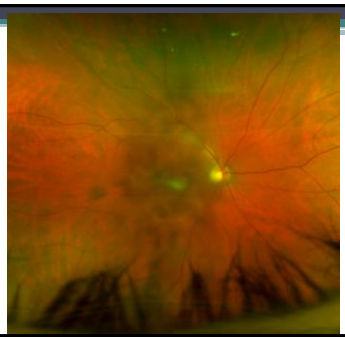

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Discuss with patient how decreased VA is affecting ADL

Cataract management

- Non-surgical
  - Increased lighting, especially when reading
  - Anti-glare coatings on spectacles
  - Sun protection, UV coatings
  - Patient education is paramount
    - Reasonable expectations from non-surgical correction
  - Eye drops? Still need more research
- Surgical (extraction and replacement with IOL)
  - Considered when:
    - Visual symptoms interfere with daily activities and patient desires improved visual function
    - Cataract prevents treatment of another condition (AMD, diabetic retinopathy)
    - Cataract causes other diseases (glaucoma, uveitis)

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Dry eyes

- Common symptoms include:
  - Burning
  - Sharp, shooting pain
  - Foreign body sensation ("sandy, gritty")
  - Redness
  - Complaints of variable VA
  - Chronic tearing*
- Epidemiologically more common in women, older adults
- Medication-induced
  - Antihistamines
  - Antidepressants
  - Oral contraceptives?

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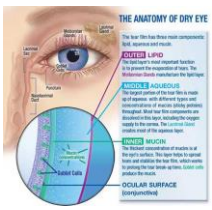
Dry eye and tearing



- Tear film has multiple layers: mucin, aqueous, lipid
  - Mucin: adherence of tears
  - Aqueous: "reflex tears", quickly produced
  - Lipid: prevent evaporation
- Most tearing from dry eye is the aqueous layer only
  - "Quick fix" to soothe ocular surface disease

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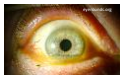
Conjunctivochalasis: Patients are still unhappy with conventional tx/gtts

Epiphora: Overproduction or underdrainage

Overproduction
- Dry eye syndrome
- Lacrimal system disease
- Allergy
- Trichiasis
- Keratitis
- Conjunctival/corneal foreign body
- Blepharitis



Underdrainage
- Ectropion
- Nasolacrimal duct obstruction
- Dacryocystitis

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Initial treatment of ocular surface with steroid (Lotemax) = better adaptation to Restasis, Xiidra

Dry eye: management

- Stage 1 (mild symptoms)
  - Lubrication (Artificial tears, ointments)
  - Nutritional supplements (omega-3)
  - Eyelid hygiene
- Stage 2 (moderate symptoms)
  - Topical steroids
  - Restasis, Xiidra
  - Miebo
  - Punctal plugs
  - Moisture chamber goggles
- Stage 3 (severe symptoms)
  - Permanent punctal occlusion
  - Bandage CL
  - Autologous serum drops
- Stage 4 (extremely severe symptoms)
  - Systemic anti-inflammatory
  - Acetylcystine
  - Surgical treatments
    - Tarsorrhaphy
    - Amniotic membrane transplant

There is no single, universal, "best" treatment for dry eye.
Must determine underlying cause for best treatment.

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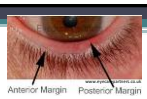
Blepharitis



- Inflammation of the eyelid margins
  - Infection, seborrhea, atopic [illegible], demodex
  - Anterior vs. posterior
- Symptoms
  - Itching, red eye, burning, te[illegible]n
  - Fluctuating or "filmy" vision
  - Eyelids "stuck together" on
- Management
  - Lid hygiene, warm compresses, antibiotic ointment
  - Demodex: lolitaner (Xdemvy)
  - Oral antibiotic (doxycycline) as an anti-inflammatory
  - IPL, RF, LLLT

ROSACEA: T-zone redness, telangectasia

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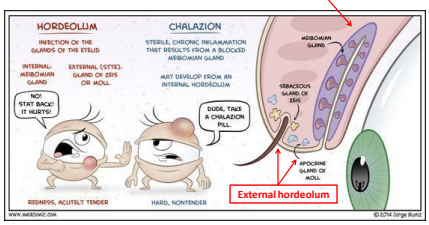
Hordeolum vs. chalazion

Chalazion
Internal hordeolum



External hordeolum

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Hordeolum vs. chalazion

Hordeolum
- Acute bacterial infection of sebaceous eyelid gland
  - Meibomian gland (internal)
  - Gland of Zeis or Moll (external)
- Painful, hot, swollen, red bump on the eyelid
- Commonly referred to as a "stye"
- May have visible drainage site on exam

Chalazion
- Obstruction and inflammation of meibomian gland with leakage of sebum into surrounding tissue
- Eventual lipogranuloma formation
- Can evolve from an internal hordeolum
- If chronic, typically becomes nontender

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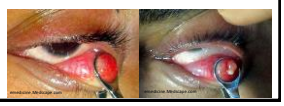
Hordeolum vs. chalazion: treatments

Hordeolum
- Warm compresses
- Topical antibiotic ointment (if lesion is actively draining)
- Oral antibiotics (if severe, may develop cellulitis)

Acute presentation: NO incision/curettage

Chalazion
- Warm compresses
- Topical antibiotics (if lesion is actively draining)
- Oral antibiotics (especially if recurrent)
- Incision and curettage
- Steroid injection
- LLLT/IPL



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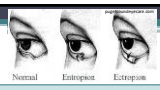
Ectropion vs. entropion



Ectropion

- Outward turning of the eyelid margin, conjunctival erythema, exposure keratitis
- Involutional (most common, aging and relaxation of tissue)
- Cicatrical (burns, trauma, inflammation)
- Inflammatory (chronic inflammation, HSV, rosacea, atopic dermatitis)
- Paralytic (Bell's palsy)

Entropion

- Inward turning of the eyelid margin, irritation of cornea/conjunctiva by eyelashes
- Involutional (most common, older patients, disinserted or atrophic lid retractor muscles)
- Cicatrical (tarsus and conjunctiva shortening with lid inversion)
- Congenital (structural defects)
- Spastic (inflammation, irritation, often s/p surgery if underlying structural changes are present)

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Ectropion vs. entropion: Management

Ectropion

- Artificial tears and ointments
  - Exposure keratitis
- Lid taping
- Paralytic
  - Typically resolves within 6m if Bell's
- Inflammatory
  - Treat underlying dermatologic condition
- Surgical

Entropion

- Artificial tears and ointments
  - Mechanical damage, irritation
- Topical antibiotic ointment
- Lid taping (spastic)
- Surgical
  - Horizontal lid tightening
  - Lid retractor repair
  - Excision of scar tissue (cicatrical)

Definitive tx: horizontal lid tightening
Cicatricial = always a graft for scar tissue

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Floppy eyelid syndrome

- Loose, "floppy" eyelids; poor apposition to globe
- Nocturnal lid eversion with rubbing of tarsal conjunctiva against bedding
  - Chronic papillary conjunctivitis
- Associated with sleep apnea
  - Patient (or partner) may complain of snoring
  - "Apnea" = "Pause"
    - Blocked airway
    - Patient stops breathing for a period in their sleep, then is awakened roughly by biomechanisms (reflex breathing)
- Risk factor for glaucoma?
- Management
  - Lubrication
  - Eye shield qhs
  - Send patient for sleep study

Definitive treatment = Eye shield while sleeping

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Floppy eyelid syndrome

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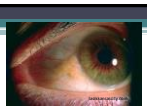
Pinguecula vs. pterygium



Pinguecula

- UV damage on bulbar conjunctiva
- Fibrovascular proliferation of abnormal collagen
- Often asymptomatic, may have foreign body sensation
- If inflamed, = pingueculitis
  - Treated with short course of steroid

Always recommend UV protection/sunglasses

Pterygium

- UV damage extending to cornea
- Induces irregular astigmatism
- Possible CL intolerance
- Excision and recurrence (1/3)

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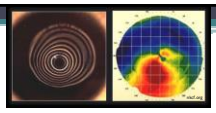
Keratoconus



- Bilateral, asymmetric, cone-shaped deformity of the cornea due to progressive central or paracentral corneal thinning
- Irregular astigmatism
- Scarring, may become painful if hydrops occurs
- Associated with atopy and eye rubbing
- Generally presents in teens or early 20's

A difficult refraction may indicate KCN
Distorted mires on autorefraction
Scissor reflex on retinoscopy
High astigmatism

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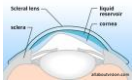
Keratoconus treatments

- Glasses (mild cases)
- Contact lenses
  - RGP (rigid gas permeable) lenses
    - Rest on the tear film
  - Scleral lenses
    - Vault the cornea
- Intacs – implantable corneal ring segments
- Corneal crosslinking
  - Strengthen cornea
  - Riboflavin activated with UV light
  - FDA-approved April 2016
- Keratoplasty

Scleral lenses are typically very comfortable.
Consider a refit for patients who have difficulty with RGPs.



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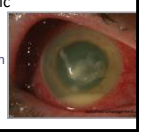
Contact lens induced disorders

- CLARE
- Neovascularization
- GPC: Commonly associated with SiHy
- Peripheral infiltrates: sterile or non-sterile
- CL deposits
  - Patients reporting FBS, variable VA, CL intolerance midday
- Central ulcers: If possible culture prior to therapy/antibiotic
  - May change therapy when culture IDs organism
  - Choose antibiotics based on history
    - Nursing home or hospital patient: *MRSA* – polytrim, vancomycin



CL wearers with red eye: suspect *Pseudomonas* keratitis
Can cause severe, rapid, permanent visual loss

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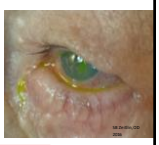
Epithelial basement membrane dystrophy & Recurrent corneal erosion

EBMD (ABMD/map-dot-fingerprint)	RCE

• Most asymptomatic, esp. early
• May develop scarring and decreased vision
• Named for corneal appearance
• Can progress to RCE (10%)
• Treatments (if symptomatic):
  ◦ Artificial tears
  ◦ Muro 128
	• Spontaneous FBS/extreme pain on waking
	• EBMD, irregular abrasion, poorly healed abrasion
	• Injection on conjunctiva
	• Treatments:
	  ◦ Artificial tears/gel
	  ◦ Antibiotic cover
	  ◦ Bandage CL
	  ◦ Stromal puncture
	  ◦ Muro 128
	  ◦ Amniotic membrane



RECURRENT: patients often stop tx or miss doses as they feel less symptomatic
Emphasize the need for ongoing treatment

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Herpes Simplex Virus keratitis

Do NOT use Fluress/proparacaine if HSV suspected

- Most common cause of central infectious keratitis
- NaFl staining patterns
  - Classic: ulcerated dendrite with terminal bulbs
  - Early: may appear as punctate keratitis
- Decreased corneal sensation
  - Benoxinate (anesthetic)
    - Proparacaine, tetracaine
  - Use NaFl strip instead

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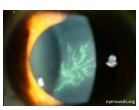
HSV vs. VZV (shingles)

HSV → Keratitis
VZV → Uveitis

HSV (Herpes simplex virus)	VZV (Varicella zoster virus)

• Ulcerated dendrite with terminal end-bulbs
• Treatment
  ◦ Oral antivirals
  ◦ Artificial tears
	• Heaped epithelium, pseudodendrite
	• Pre-lesion neuralgia
	• Lesions on scalp, unilateral
	• Caution with pregnancy
	• Treatment
	  ◦ Oral antivirals
	  ◦ Artificial tears
	  ◦ Ointment for skin lesions



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Uveitis

Red eye differential: ALWAYS look for cells/flare
IOP may be lower in acute uveitis due to ciliary body inflammation

- Anterior (iris, ciliary body)
  - Photophobia, red eye, pain, blurred vision
  - Anterior chamber cell (WBC) and flare (protein)
    - Breakdown of blood-aqueous barrier
    - Increased vascular permeability
  - Infectious: HSV/HZO, Lyme, syphilis, TB
  - Noninfectious: autoimmune/inflammatory, idiopathic
  - Workup
    - Bloodwork: CBC-diff, ANA, ESR, RPR, FTA-ABS, Lyme titer, HLA-B27
    - Other testing: CXR, PPD, HIV, urinalysis

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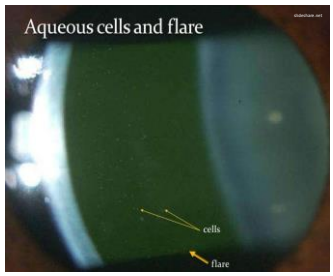

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Uveitis

- Intermediate (pars plana)
  - Decreased vision, floaters, NO red eye, pain, photophobia
  - Typically idiopathic and bilateral, some association with MS, sarcoidosis, young adults
- Posterior (retina, choroid)
  - Vision loss, pain, field loss
  - Infectious, inflammatory

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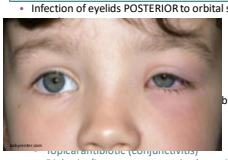
If untreated, orbital cellulitis can lead to DEATH. Spreads through thin bones of the orbital walls, venous channels, foramina, and dehiscences.

Preseptal cellulitis vs. orbital cellulitis

Preseptal cellulitis
- Infection of eyelids ANTERIOR to orbital septum
- Signs/sy
  - Eyeli
  - VA n
  - Conj
- Localize
- Treatme
  - Oral
  - IV an

Orbital cellulitis
- Infection of eyelids POSTERIOR to orbital septum



bital

- Topical antibiotic (conjunctivitis)
- Diabetics/immunocompromised: possibility for mucormycosis (fungal)

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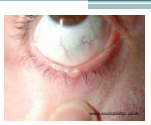
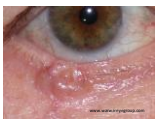
Eyelid neoplasms





- Basal cell carcinoma
  - Nodular
    - Firm, painless nodule with distinct pearly margins
    - Superficial telangiectasia
    - May be ulcerated
    - Less invasive
  - Sclerosing
    - Flat, indurated plaque
    - Lacks distinct margins
    - More invasive, low metastatic rate

Periocular tumors most commonly involve:
Lower eyelid: 48.9-72.1%
Medial canthus: 25-30%
Upper eyelid: 15%
Lateral canthus: 5%

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SCC can masquerade as long-term, persistent chalazion

Eyelid neoplasms

- Actinic keratosis
  - Round, scaly, flat, or papillary keratotic growth
  - Surrounding erythema
  - Sun-exposed areas, older patients
  - Most common precancerous skin lesion

- Squamous cell carcinoma
  - Scaly, ulcerated, erythematous plaque
  - Non-healing lesion/scab
  - May arise from actinic keratosis
  - Locally invasive, faster growth than BCC, low metastatic rate

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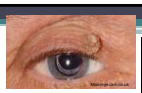
Melanomas may be small– look carefully!



Eyelid neoplasms

- Melanoma
  - Tan, black or gray nodule or plaque
  - Irregular, notched borders
  - Often rapidly growing with color changes
  - Most lethal primary skin tumor, but rare
    - <1% of eyelid malignancies
- Papilloma
  - Most common benign eyelid growth
  - Children: Viral papillomas typically found in groups
  - Older adults: individual or widely spaced, not usually viral
    - Benign hyperplasia of squamous epithelium

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Ptosis is EMERGENT if pupil is involved

Ptosis

- Mechanical
  - Levator dehiscence, senescence
- Neurogenic
  - CN III palsy
    - Most commonly associated with vascular disease (DM, HTN)
    - Unilateral "down and out" appearance of globe
    - If pupil involved (dilated) may signal aneurysmal compression
  - Bell's palsy – diagnosis of exclusion
  - Horner's – mild ptosis (1-2mm), miosis, anhydrosis, anisocoria greater in dark (affected pupil fails to dilate)
    - Associated with lung tumor (Pancoast's), especially in smokers
  - Myasthenia gravis – usually bilateral, more prominent with fatigue
    - Associated with respiratory failure
- Congenital

Congenital ptosis can cause deprivational amblyopia in kids

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Lid retraction and lid lag are the earliest signs of TED

Lid retraction

- Thyroid eye disease (TED)
  - Antibody-mediated reaction against the thyroid-stimulating hormone receptor
    - Causes infiltration and tissue edema in the extraocular muscles
  - Lid retraction: from sympathetic innervation to both upper and lower eyelids
  - Lid lag: on downgaze, eyelid lags behind globe
  - Proptosis, restriction on EOM movement
    - Most commonly superior gaze (inferior rectus dysfunction)
  - Compressive optic neuropathy
- Aberrant regeneration CNIII
  - CN III innervates SR, IR, MR, IO, levator, iris sphincter, ciliary muscle
  - Following trauma or compression, fibers attempt to regenerate

Aberrant regeneration of CNIII can be evidence of a previously undetected stroke or aneurysm
Ask about past episodes of intermittent double vision or ptosis

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THANK YOU!

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