

Ophthalmology

<p align="center"><u>Anatomy</u></p> <p>Blood supply – central retinal artery from ophthalmic artery from internal carotid artery</p> <p>Conjunctiva – bulbar covers sclera, palpebral covers posterior surface of the lids</p> <p>Extraocular muscles: 4 rectus, 2 oblique CN 6 – lateral muscles (abduct) CN 4 – superior oblique (down & medial) CN 3 – everything else (medial, inferior, superior, inferior oblique)</p> <p>Eyelids open with CN 3, close with CN 7</p> <p>Hyperopia (farsightedness) – can't see near</p> <p>Myopia (nearsightedness) – can't see far</p> <p>Entropion- inward turning of the lower lid Tx: surgery +/- Botox injections</p> <p>Ectropion- outward turning of lid Tx: surgery</p> <p>Bitemporal hemianopia - chiasmal lesion (pituitary tumor)</p>	<p align="center"><u>Glaucoma</u></p> <p>Acute Angle-Closure Glaucoma – <u>rapid onset of severe pain & profound visual loss with "halos around lights"</u> E: pupillary dilation/mydriasis gtts, atropine, anticholinergics, sympatho agents, antidepressants. Sx: red eye, <u>steamy cornea, moderate dilated pupil, nonreactive to light, high pressure in eye.</u> Tx: IV acetazolamide, laser therapy (iridoplasty) to prevent visual loss.</p> <p>Chronic Glaucoma – <u>gradual</u> bilateral loss of peripheral vision leading to tunnel vision with usually elevated intraocular pressure. Tx: gtts: (prostaglandin analogs, B-blockers, topical carbonic anhydrase inhibitors), Laser therapy</p>	<p align="center"><u>History & Physical Exam</u></p> <p>PE: Vision(Snellen/wall chart) → Inspection → light response (direct/consensual = PERRLA)→ Eye alignment (Light or Cover test)→ EOM → tonometry(pressures)→ direct ophthalmoscopy (red reflex, fundus exam)→ lid eversion</p> <p align="center"><u>Pearls</u></p> <p>Proptosis - Grave's Disease (Hyperthyroidism)</p> <p>Small pupil - Horner Syndrome(meiosis, ptosis, anhydrosis), neurosyphilis</p> <p>Marcus Gunn pupil – weak direct light response but stronger consensual light response (opposite of normal) due to optic nerve lesion</p> <p>Keratoconjunctivitis Sicca– dry eyes ?Sjögren's</p> <p>Rhabdomyosarcoma – most common primary malignant tumor</p>
<p align="center"><u>Clinical Medicine</u></p> <p>Pterygium – <u>growing</u> fleshy triangular tissue growth associated with exposure to wind, sun, sand & dust. Tx: excision if vision threatened</p> <p>Pinguecula – yellow elevated conjunctival nodule mostly on nasal side, rarely grow. Tx: none +/- artificial tears.</p> <p>Diabetic Retinopathy – 40% DM patients, leading cause of new blindness. Nonproliferative- retinal hemorrhages, edema hard exudates, Background-mild abnormalities, Proliferative(Maculopathy)- <u>neovascularization</u>, retinal hemorrhages, edema, <u>exudates</u> or ischemia of macula. Tx: optimize blood glucose, laser photocoagulation</p> <p>Hypertensive Retinopathy – changes due to HTN. E: pheochromocytoma, preeclampsia. Sx: <u>cotton wool spots, silver/copper-wiring, AV nicking, flame-shaped hemorrhages</u>, retinal edema Tx: lower BP</p> <p>Central Vein Occlusions – acute painless visual loss. RF: DM, HTN, glaucoma, ↑lipids, clotting disorders. Sx: often first noticed upon waking, retinal venous dilation, widespread hemorrhages, cotton-wool spots & optic disk swelling. Tx: laser photocoagulation, exclude chronic glaucoma</p> <p>Central Artery Occlusions – acute painless visual loss. ? TIA/amaurosis fugax. RF: <u>Giant cell arteritis</u>, other emboli, migraine, OC, DM, Carotid dissection(if neck pain). Sx: ↓ vision, <u>cherry-red spot</u> at the fovea, +/- emboli, retinal swelling. Lab: ESR, CRP. Dx: US of carotids Tx: keep pt flat, ↑ flow O2, IV acetazolamide, +/- thrombolysis, steroids if Giant cell arteritis.</p>	<p align="center"><u>Clinical Medicine</u></p> <p>Corneal Ulceration – central ulcers often with hypopyon (inflam cells) in anterior chamber.</p> <p>Bacterial keratitis – Staph aureus, Strep pneumoniae, pseudomonas</p> <p>Fungal Keratitis – candida, aspergillus often secondary to steroids</p> <p>Viral Keratitis – Herpes Simplex is the most common cause of blindness in the US. HSV 1 > HSV 2. Sx: irritation, photophobia & tearing. +/- reduction of vision. +/- fever blisters, dendritic ulcer Tx: topical antivirals, oral if severe. NO STEROIDS.</p> <p>Chlamydial Keratitis – Tx: systemic antibiotics</p> <p>Uveitis – intraocular inflammation. Anterior uveitis – <u>pain, redness, photophobia and visual loss</u>. Posterior uveitis: gradual loss of vision in a quite eye. RF: immunologic (<u>HLA-B27</u>, psoriasis, U. colitis, Crohn dz, Behçet's, sarcoid) or infectious (herpes, syphilis"salt-n-pepper fundus", TB, toxoplasmosis) Sx: inflam cells (hypopyon) and flare within the aqueous. Tx: anterior– topical steroids, dilation of pupil, posterior– systemic steroids</p> <p>Optic Neuritis – inflam of optic nerve E: inflam or vascular, multiple sclerosis (diplopia, nystagmus, motor weakness), postviral, herpes, syphilis, CMV, Sx: <u>painful eye, worse with movement & subacute loss of vision over 2-7 days</u>, color vision impairment LAB: ↑CSF gamma globulin Tx: <u>IV Steroid therapy</u></p>	
<p align="center"><u>Infectious Disease</u></p> <p>Hordeolum(Sty) – eyelid abscess. E: Staph aureus. Sx: pain, redness, swelling. Tx: warm compresses qid, antibiotic ointment +/- I/D</p> <p>Chalazion – granulomatous inflammation of meibomian gland, Sx: hard, nontender swelling with redness. Tx: I/D or steroid injection</p> <p>Blepharitis – inflam condition of lid margins due to staph or seborrheic. Sx: irritation, burning, itching, +/- scales. Tx: clean lid margins frequently, +/- antibiotic ointment</p> <p>Dacryocystitis – inflam of lacrimal sac due to obstruction. E: Staph aureus & B-hem Strep. Tx: systemic antibiotics +/- Surgery</p> <p>Orbital cellulitis – preseptal cellulitis, most common cause of proptosis in children, E: Haemophilus influenzae & Strep pneumoniae Sx: edema, erythema, hyperemia, pain Tx: must treat quickly with IV antibiotics Dx: MRI to rule out abscess</p>	<p align="center"><u>Conjunctivitis</u></p> <p>Hyperemia, tearing, exudation, chemosis</p> <p>Bacterial – purulent = Neisseria gonorrhoeae, Tx: topical antibiotics</p> <p>Chlamydial – blinding trachoma, Tx: <u>oral abx</u></p> <p>Viral – follicular conjunctivitis with fever, sore throat and preauricular adenopathy. No Tx</p> <p>Allergic – itching, tearing, red eyes, Tx: cold compresses, topical or oral antihistamines</p> <p align="center"><u>Geriatrics</u></p> <p>Cataract – <u>lens opacity</u>, leading cause of blindness, Sx: progressive blurred vision, NO pain or redness usually bilateral, senile most common. RF: smoking Tx: surgery</p> <p>Macular degeneration – leading cause of permanent visual loss in elderly. RF: white, F>M, FamHx, smoking. Precursor is <u>retinal drusen</u> (yellow deposits). Tx: oral vitamins, antioxidants</p>	<p align="center"><u>Emergencies</u></p> <p>Foreign body – use local anesthetic & fluorescein. Tx: Remove with wet cotton applicator, do not patch eye. Metal FB needs rust ring removed.</p> <p>Corneal abrasion – eye scratch Sx: severe pain & photophobia Tx: analgesics, polymyxin-bacitracin ointment</p> <p>HypHEMA – hemorrhage in anterior chamber, worry about pressure increases & permanent visual loss. Avoid blood thinners.</p> <p>Retinal detachment- acute eye loss of vision or curtain spreading across field. E: retinal tear RF: myopia, cataract extraction, blunt trauma Tx: surgery to reattach retina</p> <p>Blowout fracture – facial trauma causing herniation of orbital contents into the maxillary antrum. Sx: Diplopia, inability to look up fully. Dx: X-Ray, CT scan. Tx: Surgery</p> <p align="right">© 2010 Certified Medical Educators</p>