.Visual Field changes an correlation with Eye disease

More common: Ischemic optic neuropathy, hemibranch retinal artery occlusion, retinal detachment *Less common:* Glaucoma, optic nerve or chiasmal lesion, optic nerve coloboma	Loss of all or part of the superior or inferior half of the visual field; does not cross the horizontal median	Altitudinal field defect
Damage to ganglion cells that feed into a particular part of the optic nerve head *More common:* Glaucoma *Less common:* Ischemic optic neuropathy (usually nonarteritic), optic disk drusen, high myopia	A small, bow-shaped (arcuate) visual field defect that follows the arcuate pattern of the retinal nerve fibers; does not cross the horizontal median	Arcuate scotoma
More common: Glaucoma, bitemporal retinal disease (eg, retinitis pigmentosa) *Rare:* Bilateral occipital disease, tumor or aneurysm compressing both optic nerves	Loss of all or part of the medial half of both visual fields; does not cross the vertical median	Binasal field defect (uncommon)
More common: Chiasmal lesion (eg, pituitary adenoma, meningioma, craniopharyngioma, aneurysm, glioma) *Less common:* Tilted optic disks *Rare:* Nasal retinitis pigmentosa	Loss of all or part of the lateral half of both visual fields; does not cross the vertical median	Bitemporal hemianopia
Papilledema, optic nerve drusen, optic nerve coloboma, myelinated nerve fibers at the optic disk, drugs, myopic disk with a crescent	Enlargement of the normal blind spot at the optic nerve head	Blind-spot enlargement
Macular disease, optic neuropathy (eg, ischemic or Leber hereditary neuropathy, optic neuritis-multiple sclerosis), optic atrophy (eg, due to tumor compressing the nerve or toxic-metabolic disorders) *Rare:* Occipital cortex lesion	A loss of visual function in the middle of the visual field	Central scotoma
Glaucoma, retinitis pigmentosa or another peripheral retinal disorder, chronic papilledema after panretinal photocoagulation, central retinal artery occlusion with cilioretinal artery sparing, bilateral occipital lobe infarction with macular sparing, nonphysiologic vision loss, carcinoma-associated retinopathy *Rare:* Drugs	Loss of the outer part of the entire visual field in one or both eyes	Constriction of the peripheral fields, leaving only a small residual central field
Optic tract or lateral geniculate body lesion; lesion in temporal, parietal, or occipital lobe (more commonly, stroke or tumor; less commonly, aneurysm or trauma); migraine (which may cause transient homonymous hemianopia)	Loss of part or all of the left half or right half of both visual fields; does not cross the vertical median	Homonymous hemianopia

Indirect ophthalmoscopy	Direct Ophthalmoscopy	
times when a +13D condensing lens is used 5	About 15 times	**Magnification**
Wider (about 37° in diameter)	Smaller (about 10° in diameter)	**Diameter of the field of observationview**
There is relatively greater brightness	There is relatively low brightness	**Brightness**
Peripheral retina seen *(by using a scleral depressor in addition to the indirect ophthalmoscopy itself)*	Central retina only	**Structures seen**
Real & inverted image	Virtual & erect image	**Image of the fundus that is seen**
Binocular indirect ophthalmoscopy provides better stereopsis	Image formed is not stereoscopic	**Stereopsis**
Seen better	Not well seen (seen with difficulty)	**Retina anterior to the equator**
Can be easily done in binocular indirect ophthalmoscopy	Difficult	**Scleral indentation**
Better	Poor	**Visualization in hazy media**

Differential diagnosis of Uveitis

Disease	Common Findings
Ankylosing Spondylitis or Reactive Arthritis (HLA-B27)	AAU that is typically unilateral, sudden onset, recurrent, and limited in duration (usually 6-8 weeks); responds well to topical steroids alone
Sarcoidosis	Variable (can be anterior, intermediate, or panuveitis), commonly bilateral but asymmetric, often with characteristic chorioretinal lesions and focal retinal periphlebitis
Intermediate Uveitis	Insidious onset, usually bilateral, diagnosed with dilated exam. Associated with MS.
Toxoplasmosis	Typically unilateral with significant vision loss. Most common identifiable, infectious cause of posterior uveitis in non-immunocompromised host
Herpetic	Unilateral, commonly recalcitrant chronic anterior with or without corneal involvement. Posterior form (acute retinal necrosis) is rare but can cause irreversible vision loss.
Juvenile Idiopathic Arthritis	Bilateral anterior uveitis, often minimally symptomatic. Classically with "white" eye and peripheral corneal calcification. Common with ANA+, RF-, pauciarticular disease in females with onset ages 2 to 8.
Psoriatic Arthritis	Variable but includes chronic, bilateral, anterior and/or intermediateuveitis,
Inflammatory Bowel Disease	Variable but includes chronic, bilateral, anterior and intermediate uveitis
Behcet Disease	Bilateral, often asymmetric, anterior, intermediate or panuveitis or retinal vasculitis (cotton wool spots, retinal hemorrhages,

Cataract **Surgery INDICATIONS**

As mentioned in the examination section, cataracts cause visualization challenges for both the patient and the ophthalmologist. For this reason, cataract surgery may be indicated in 2 general situations: trouble seeing out .or trouble seeing in

TROUBLE SEEING IN	***TROUBLE SEEING OUT***
Many ophthalmological disorders including diabetic retinopathy, glaucoma, and macular degeneration require the ophthalmologist to accurately visualize the retina or other structures of the eye posterior to the lens on a regular basis. A cataract may obscure the ophthalmologist's view and may hinder the appropriate monitoring of these degenerative problems. It is appropriate to have a cataract removed (Phacoemulsification) .so these conditions can be properly monitored	A patient may be referred for cataract surgery when the cataract decreases visual function such that it interferes with daily living activities or prevents the patient from meeting visual acuity standards for driving, work or other such activities. A systematic review of the cataract literature from Canada showed delaying surgery for more than 6 months increased falls, decreased quality of life and decreased visual acuity (Hodge 2007). Generally, Phacoemulsification should not be performed if glasses or contact lenses .can satisfy a patient's needs

?Rapid Q and A : Can a mature cataract cause a RAPD

The answer is NO. The presence of an RAPD with a Cataract means a poor outcome after surgery. It means that your patient has a total retinal detachment or optic neuropathy caused .by Glaucoma or an ischemic event like arteritic or non-arteritic ischemic optic neuropathy

Q & A for medical students Trauma

1. You have a contact lens wearer with a small corneal abrasion. He is in excruciating pain and requests that you pressure-patch his eye for comfort. Will this speed up healing?

Patching may speed healing by keeping the eye immobile and lubricated – but you should never patch an abrasion that might fester an infection. Thus, you don't patch contact lens wearers as you don't want a pseudomonas infection brewing under that patch! If you decide to patch a patient, you should really follow them daily to make sure they don't develop an ulcer.

2. What's the easiest way to see a corneal abrasion? How often do you need to follow simple, non-infected abrasions?

Abrasions are easiest seen with fluorescein under the slit-lamp microscope, though large abrasions can be detected with only a handlight as the edges of the abrasion creates a circular shadow on the iris underneath. You'll want to measure the epithelial defect and see them often (perhaps daily) until it heals to make sure they don't become infected.

3. What is the Seidel test?

This is a method to see if a laceration has penetrated completely through the cornea. Basically, you're using fluorescein to look for leaking aqueous fluid.

4. What findings would prompt you to take a patient with an orbital floor fracture to surgery?

If the patient has muscle entrapment or significant enophthalmos. Most patients have some degree of EOM restriction from soft-tissue swelling. Entrapment causing reflexive bradycardia would also push you toward surgery.

5. What portion of the eyelid do you worry about with lid lacerations?

If the laceration is medial (near the nose) it could involve the tear drainage pathway. These canalicular tears are more complicated to repair.

6. A patient accidentially splashes a large amount of bleach-based cleaner in her eye. What should she do?

Wash it out immediately – the faster, the better!!!! If an ambulance picks her up, have the EMTs irrigate in route, and alert the ER to irrigate her eyes as soon as she hits the door.

7. What is the best way to test the pressure in an eye with a likely open-globe injury: with slit-lamp applanation or with the hand-held tonopen?

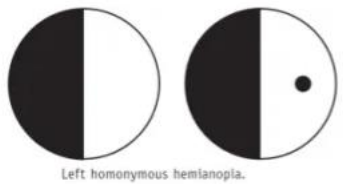
If you suspect open globe, you don't want to be mashing on the eye, so neither of these is correct. This is a trick question ...

8. How often should a patient with a hyphema be seen and why?

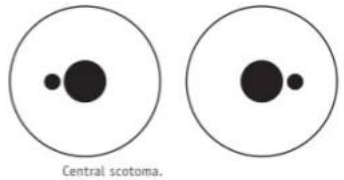
These patients need to be seen daily for the first week to check for pressure. This is especially important on post-trauma days 3 – 5 as this is when clots begin to retract and rebleed.

9. A black patient presents with hyphema after trauma. What additional workup might you consider? Are there any medications you would avoid?

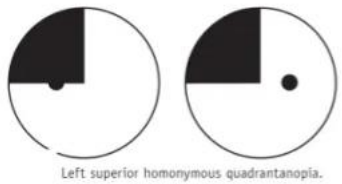
You may consider getting basic coagulation labs and a sickle prep. Avoid CAIs as these promote acidosis and can worsen sickling of blood in the anterior chamber and worsen glaucoma.



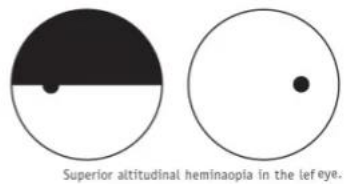
Left homonymous hemianopia.



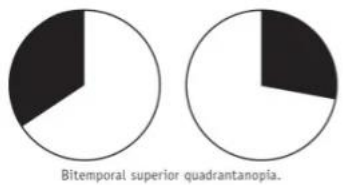
Central scotoma.



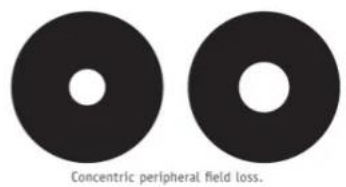
Left superior homonymous quadrantanopia.



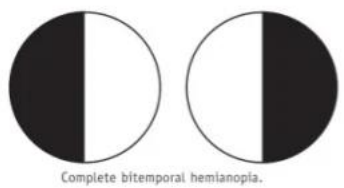
Superior altitudinal heminaopia in the lef eye.



Bitemporal superior quadrantanopia.



Concentric peripheral field loss.



Complete bitemporal hemianopia.

Notes	Typical lesions	Field defect	Blood supply	Locus of the visual pathway
	Optic neuritis Amaurosis fugax Optic atrophy Retrobulbar optic neuropathy Trauma	Ipsilateral monocular blindness	Ophthalmic artery	**Optic nerve**
	(Central chiasm) Pituitary adenoma Suprasellar aneurysm -———— Peripheral chiasm Internal carotid artery atheroma	Bitemporal hemianopia (central chiasm) -———— Ipsilateral monocular nasal hemianopia (peripheral chiasm)	:Branches from Internal carotid Posterior communicating artery Anterior cerebral artery Anterior communicating artery	**Optic chiasm**
	MCA Stroke	Contralateral homonymous hemianopia	Middle cerebral artery (MCA)	**Optic tract**
	MCA Stroke	Contralateral homonymous quadrantanopia	Middle cerebral artery (MCA)	**Optic radiation**
	PCA, Posterior communicating artery	Contralateral homonymous hemianopia **with macular sparing**	Mostly by the PCA. The MCA also helps supply the anterior portion, which .corresponds to the macula	**Calcarine sulcus**
	PCA, Posterior communicating artery	Contralateral homonymous hemianopia **with macular sparing**	Mostly by the PCA. The MCA also helps supply the anterior portion, which .corresponds to the macula	**Occipital cortex**

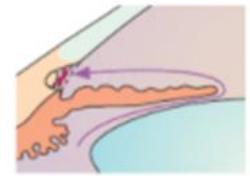
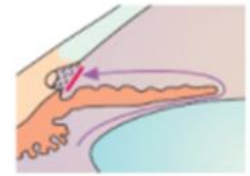
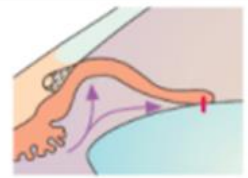
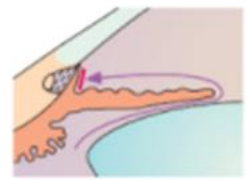
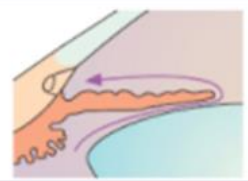
.This is very important for the Exam please read it well

Angle-closure glaucoma	Open-angle glaucoma	types of glaucoma
Asian descent Mydriasis (like atropine)	,Age > 40 years African descent Diabetes mellitus Myopia Family history of glaucoma	**Risk factors**
Sudden onset Unilateral red, hard, and severely painful eye Frontal headaches Vomiting, nausea blurred vision Dilated, nonreactive pupil	often asymptomatic Bilateral progressive visual field loss	**Clinical features**
Topical timolol apraclonidine and IV acetazolamide Curative treatment is laser peripheral iridotomy !No mydriatic drugs	Prostaglandin eye drops laser trabeculoplasty surgical trabeculectomy	**Treatment**
,very good if treated early can lead to central retinal artery or central retinal vein occlusion of left untreated	good if early diagnosed blinding occurs many years after if left untreated	**Prognosis**

Angle (anatomic)	Angle (gonioscopy)	Outflow impediment
Open	Completely open. Structures appear normal.	In the trabecular meshwork
Open	Completely open. Trabecular meshworks and secondary occluding cells visible.	Erythrocytes, pigment, and inflammatory cells occlude the trabecular meshwork.
Blocked	Occluded. No angle structures visible	Iris tissue occludes the trabecular meshwork.
Blocked	Occluded. No angle structures visible. Occluding structures visible.	Displacement of the trabecular meshwork produces anterior synechiae, scarring, and neovascularization (rubeosis iridis)
Undifferentiated	Open. Occluding embryonic tissue and lack of differentiation visible.	In the trabecular meshwork (which is not fully differentiated and/or is occluded by embryonic tissue)

Glaucoma drugs

	Decrease synthesis of aqueous humor
Blockage of sympathetic nerve fibers in the ciliary epithelium	Beta blocker, like Timolol , Carteolol
Via decrease in cAMP Additional conjunctival vasoconstriction	Alpha 1 agonist like Epinephrine
Via decrease in cAMP	Alpha 2 agonists like Apraclonidine, Brimonidine
Inhibits the action of carbonic anhydrase enzyme	Carbonic anhydrase inhibitors like Acetazolamide (oral)Methazolamide (oral)BrinzolamideDorzolamide
	Increase Aqueous humor **outflow**
Decreases resistance through uveoscleral flow	Prostaglandin analogues like Latanoprost, Travaprost, Bimatoprost

Form of glaucoma			Incidence
Open angle glaucoma	Primary		Over 90% of all glaucomas
	Secondary		2–4% of all glaucomas
Angle closure glaucoma	Primary (pupillary block glaucoma)		About 5% of all glaucomas
	Secondary		2–4% of all glaucomas
Juvenile glaucoma			1% of all glaucomas
Absolute glaucoma	This is not a separate form of glaucoma, rather it describes an often painful eye blinded by glaucoma		

Eyelid lesions

Table 1. When to suspect malignancy lesion

Exam	History
Ulceration, Induration, Irregular or 'pearly' borders, Destruction of eyelid margin, Loss of lashes (madarosis), Telangiectasia, Reduced sensation	Risk factors: prior skin cancer, fair skin, previous radiation, immunosuppression, Gradual enlargement, Painless

Q and A

?Sebaceous adenocarcinoma of the eye lids: which is false

.Is the third most common eyelid malignancy .1

.Is more common in women than in men .2

.Is more common on the upper eyelids .3

.Must be confirmed by full-thickness wedge biopsy .4

.Arises from the meibomian and Moll's glands .5

Q and A

? Squamous cell carcinoma of the eyelids: which is incorrect

.Is more aggressive than basal cell carcinoma .1

.Is more common in lightly pigmented individuals than in dark pigmented ones .2

.May be potentiated by immunodeficiency .3

.Does not arise from actinic lesions .4

.Often metastasizes along nerves .5

Q and A

?**Keratoacanthoma:** which is incorrect

Usually develops over a period of weeks -1

does not exhibit cellular atypia -2

may be associated with systemic malignancy -3

usually undergoes spontaneous involution -4

is usually umbilicated -5