"Help, I Can't See"

Rebecca B. Bloch, MD
Medical Director
Maine Medical Center Urgent Care Plus
Assistant Medical Director
Maine Medical Center's Emergency Services
Portland, ME

CONTINUING EDUCATION COMPANY

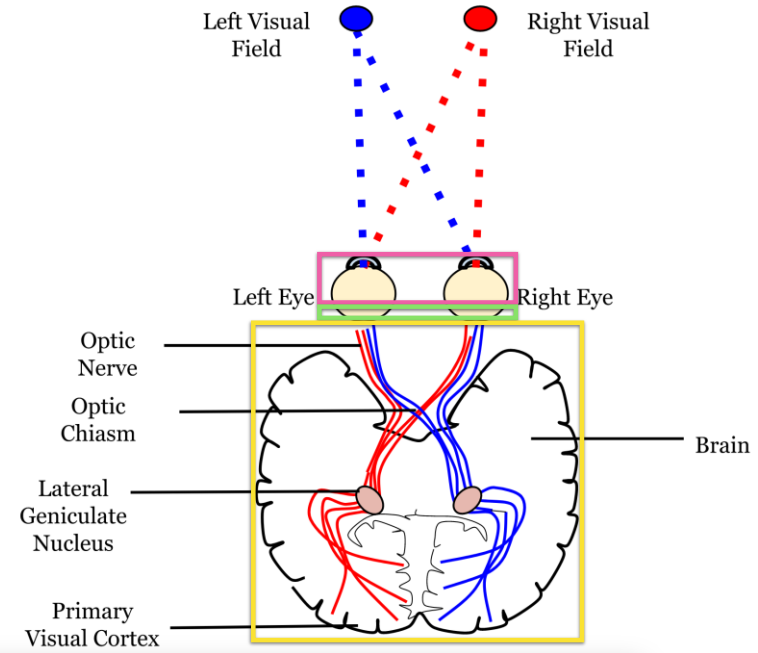
1

Disclosure

I have no financial interests or relationships to disclose.

CONTINUING EDUCATION COMPANY

2



3

History

- Vascular disease? DM, HTN
- Hypercoagulable/anticoagulated
- Baseline visual acuity
  - Contact lenses, recent eye surgery
- Medications affecting vision

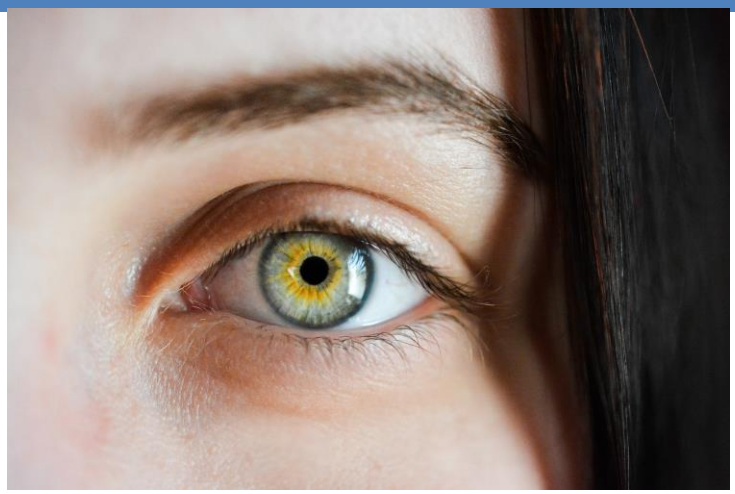
4

History

- Transient vs Continuous
- Monocular vs Binocular
- Painful vs Painless
- Partial vs Complete
- Central vs Peripheral
- Other Associated Symptoms

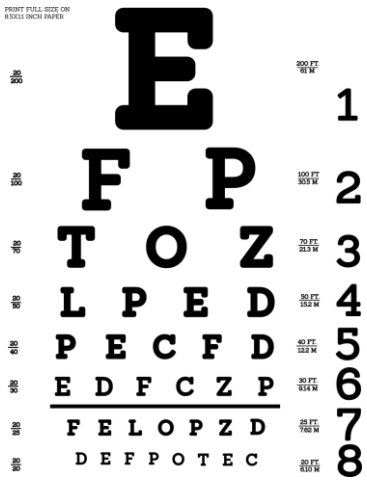
5

General Inspection



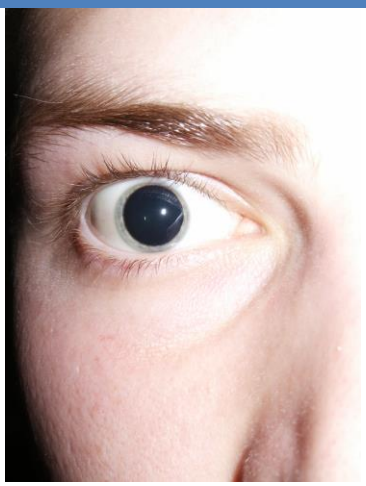
6

Visual Acuity



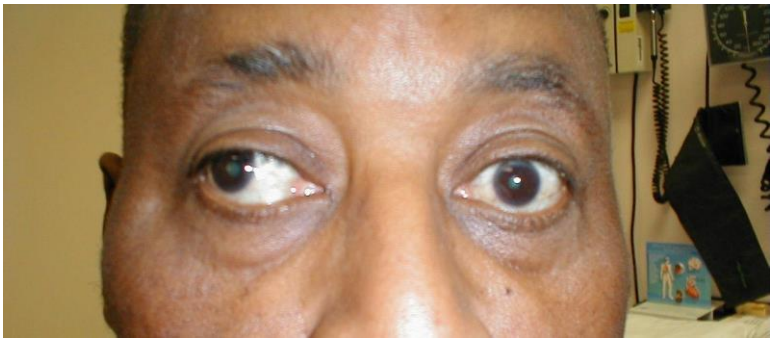
7

Pupils



8

Extraocular Movements



9

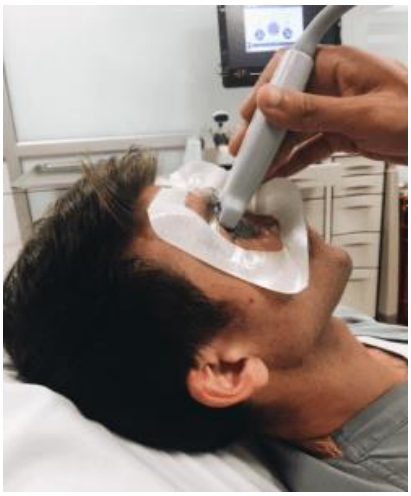
Visual Fields

10

Fundoscopy

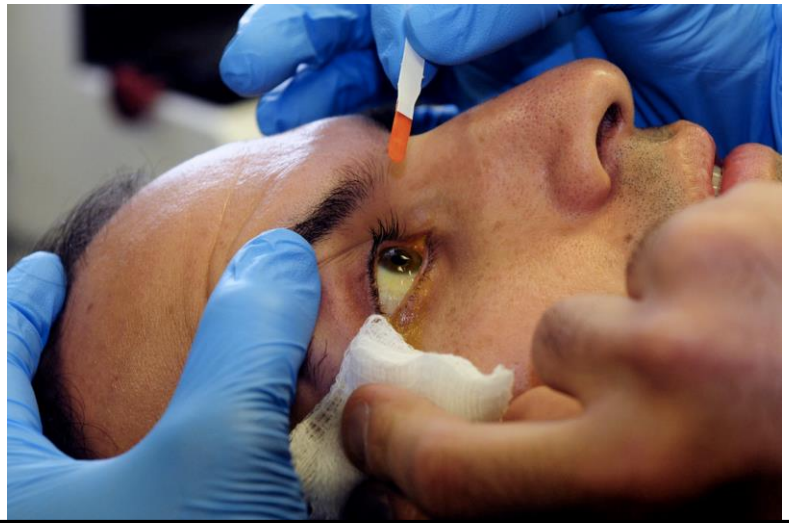
11

Ocular Ultrasound



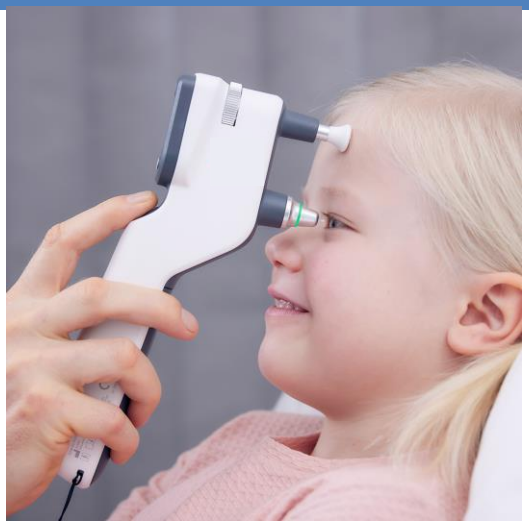
12

Fluorescein



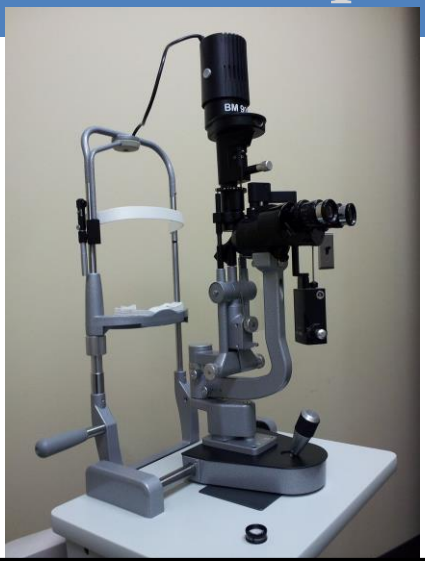
13

Intraocular Pressure



14

Slit Lamp



15

Neurologic Exam

16

Case 1

- 35 yo female
- R eye visual changes
- Dark gray spot in central vision
- Pain “behind eye”, worse with EOM

17

Our Patient

- Transient vs Continuous
- Monocular vs Binocular
- Painful vs Painless
- Partial vs Complete
- Central vs Peripheral
- Other Associated Symptoms

18

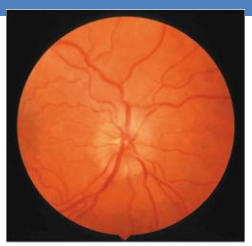
Optic Neuritis

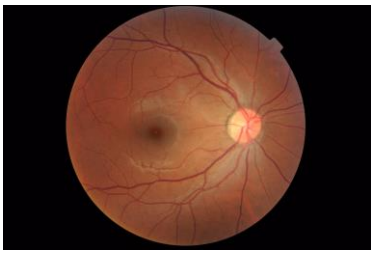
- Demyelinating disorder of optic nerve
- Often age <50
- Progressively worse over days
- Central vision loss, peripheral vision maintained- big clue!
- Classic association with multiple sclerosis

19

Optic Neuritis- Exam

- Classic finding- optic disc pallor
- Loss of central vision
- Afferent pupillary defect
- Red desaturation test

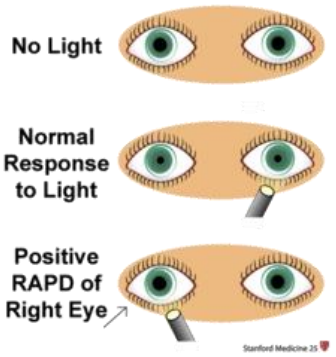




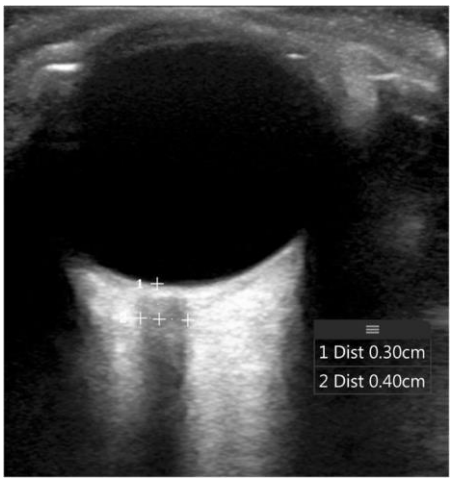
20

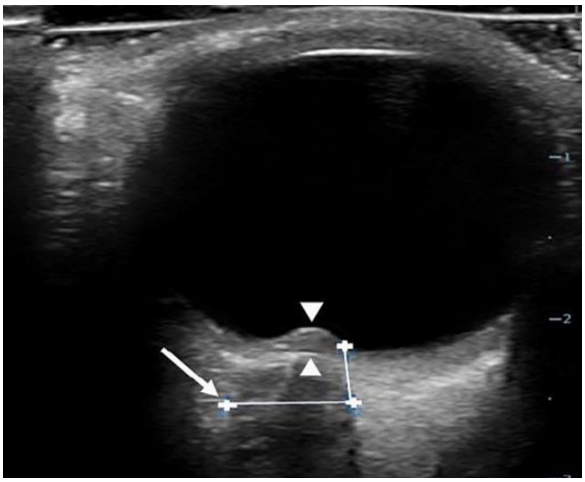
Afferent Pupillary Defect

- Swinging flashlight test
- Means that an optic nerve lesion is present on side of the dilating pupil (light is not stimulating the optic nerve on that side)



21





22

Optic Neuritis-Treatment

- Steroids
  - IV methylprednisolone
  - Discuss with Ophthalmology and Neurology

23

Causes for Optic Neuritis

- Idiopathic
- Immune disorders- Classically multiple sclerosis
- Infectious etiologies- Syphilis, measles, TB

24

Case 2

- 75 yo female
- Headache- worsened by chewing
- L eye vision loss
- Myalgias and fatigue
  - Proximal muscle weakness

25

Our Patient

- Transient vs Continuous
- Monocular vs Binocular
- Painful vs Painless
- Partial vs Complete
- Central vs Peripheral
- Other Associated Symptoms

26

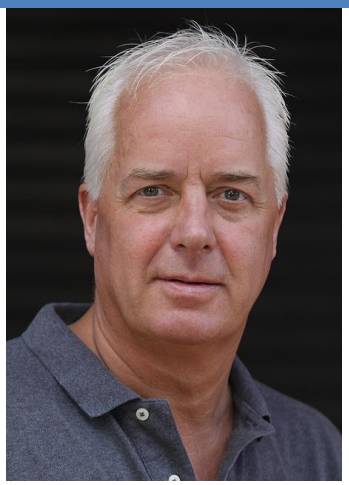
Giant Cell Arteritis

- Get ESR- >50 suspicious for diagnosis
- Tx- steroids
  - Vision loss- IV 500-1000 mg methylprednisolone, admit
  - No vision loss- prednisone 1mg/kg PO, outpatient
- Confirmation- temporal artery biopsy

27

Case 3

- 60 yo male
- Intermittent flashes R eye x 1 week
- Now lateral visual appears dark



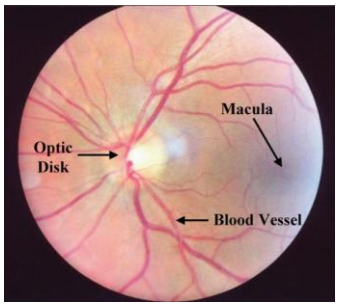
28

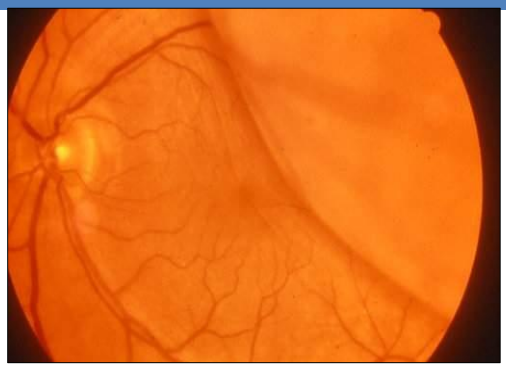
Our Patient

- Transient vs Continuous
- Monocular vs Binocular
- Painful vs Painless
- Partial vs Complete
- Central vs Peripheral
- Other Associated Symptoms

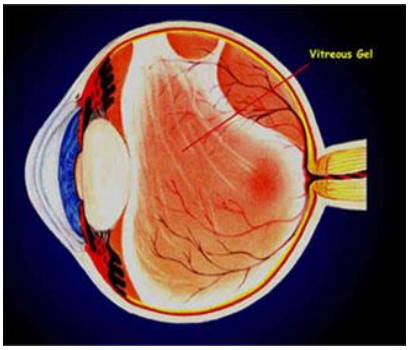
29

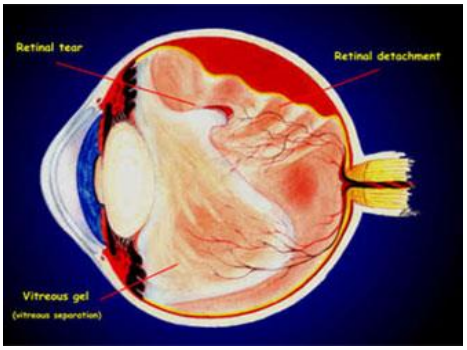
Retinal Detachment





30

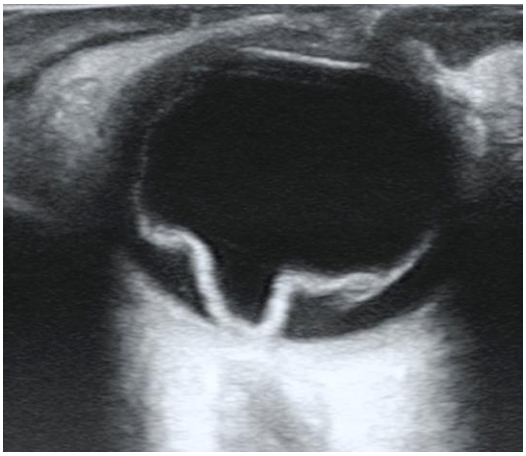




31

Ocular US

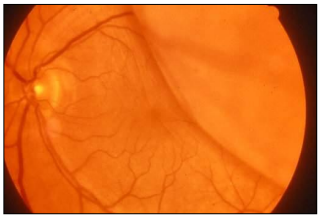
- Eye/vitreous is great US medium
- Retinal detachment is shown here



32

Treatment

- Urgent surgical repair
- Emergent if fovea/macula threatened
- Laser to adhere retina and seal tear



33

Case 4

- 80 yo male
- Hx DM, HTN, PVD
- Stuttering loss of vision in L eye, now continuous

34

Our Patient

- Transient vs Continuous
- Monocular vs Binocular
- Painful vs Painless
- Partial vs Complete
- Central vs Peripheral
- Other Associated Symptoms

35

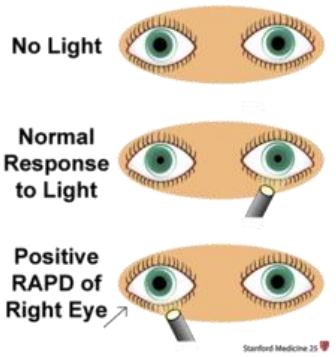
CRAO/CRVO

- Older patients
- DM
- Vascular disease
- Harder to diagnose, because also at risk for CVA
  - Fundoscopy important!
  - Can also look for afferent pupillary defect

36

Afferent Pupillary Defect

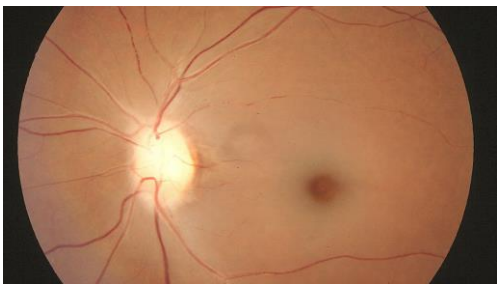
- Swinging flashlight test
- Means that an optic nerve lesion is present on side of the dilating pupil (light is not stimulating the optic nerve on that side)



37

Central Retinal Artery Occlusion

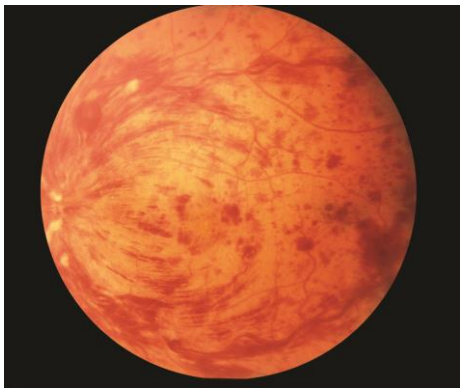
- Artery to retina occluded
- Ischemia to the retina
- Sudden onset monocular vision loss
  - Can be stuttering or continuous
- Fundoscopy- pale retina, cherry red macula (separate blood supply)



38

Central Retinal Vein Occlusion

- Veins from retina occluded
  - More gradual in onset
- Vascular congestion
  - Retinal hemorrhages, tortuous veins



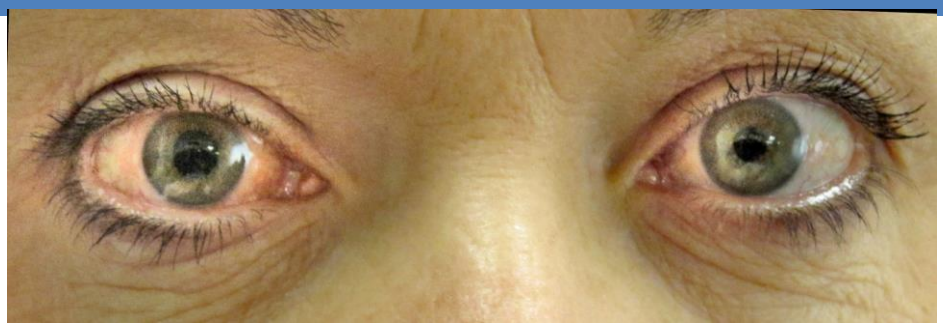
39

CRAO/CRVO

- Treatment
  - Consult Ophthalmology/Neurology
  - Ocular massage may dislodge clot in CRAO
    - Worth a try while waiting for specialist
  - Aspirin
  - Intra-arterial TPA
  - Poor evidence for any treatments in ED

40

Case 5



- 55 yo female
- Acute onset headache, nausea, blurred vision R eye

41

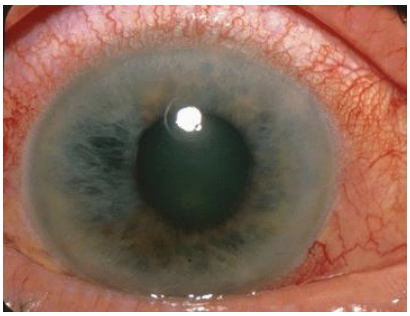
Our Patient

- Transient vs Continuous
- Monocular vs Binocular
- Painful vs Painless
- Partial vs Complete
- Central vs Peripheral
- Other Associated Symptoms

42

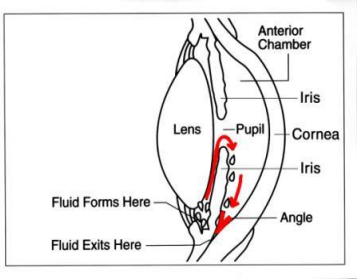
Acute Glaucoma

- Normal IOP 10-20 mmHg
- Treatment needs to be started immediately in ED



43

Acute Angle Closure Glaucoma



- Classic
  - Movie theater
  - New B-agonist

↓

Mydriasis

↓

Iris blocks flow of aqueous humor

44

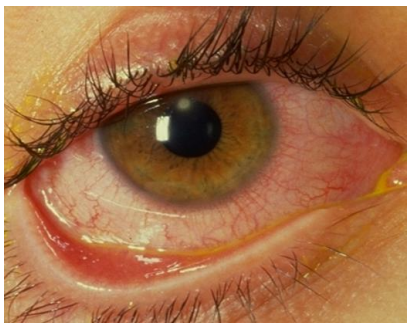
Emergent Ophthalmology Consult

- Optic nerve ischemia can result in permanent vision loss
- Initiate multi-drug therapy to lower IOP
- Definitive treatment is iridotomy
  - Laser created passageway for fluid

45

Case 6

- 30 yo male
- Blurred vision, tearing, pain R eye
- Injected conjunctiva on exam
- Wears contact lenses



46

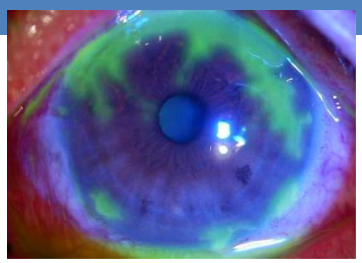
Our Patient

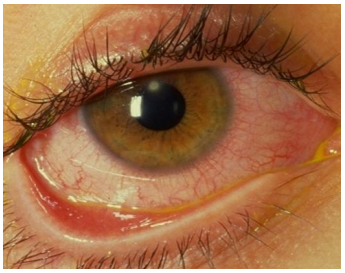
- Transient vs Continuous
- Monocular vs Binocular
- Painful vs Painless
- Partial vs Complete- **BLURRED**
- Central vs Peripheral
- Other Associated Symptoms

47

Keratitis

- Inflammation of the cornea
  - Bacterial
  - Viral
  - UV exposure
- Fluorescein stain can help with differential





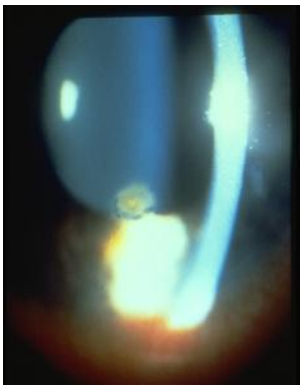
48

Keratitis

- Fluorescein is diagnostic
- Tetracaine will improve pain
  - Dendritic- Herpes Simplex/Zoster- viral
  - Diffuse pinpoint- UV keratitis- environmental
  - Milky round lesion- corneal ulcer- bacterial

49

Corneal Ulcer

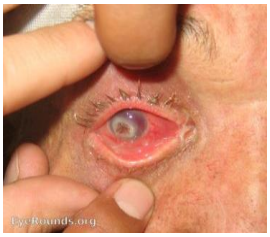


- RF
  - DM
  - Contact lens use
- Disruption of corneal epithelium
  - Fluid enters cornea
  - Corneal ulcer appears cloudy/white

50

Treatment

- Fluoroquinolone drops
- Pain management
- Keep contacts out
- Daily follow up!
  - Complications can lead to scarring, blindness, corneal rupture!



51

Case 7

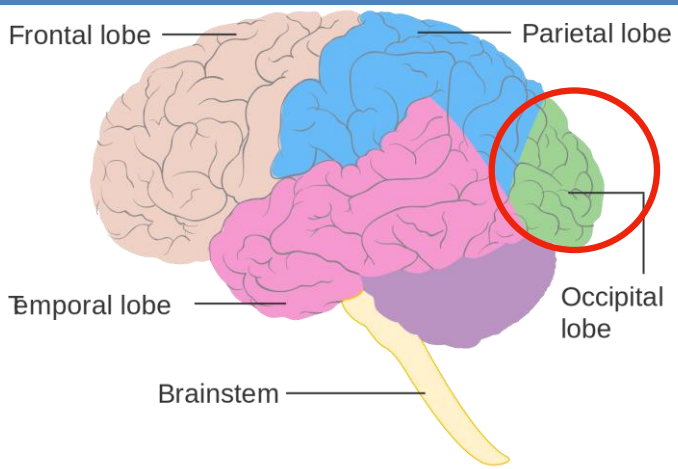
- 82 yo female
- Hx HTN, DM II
- Awoke with painless visual loss
- When you perform neurologic exam you note L-sided homonymous hemianopsia
- Where is the lesion?

52

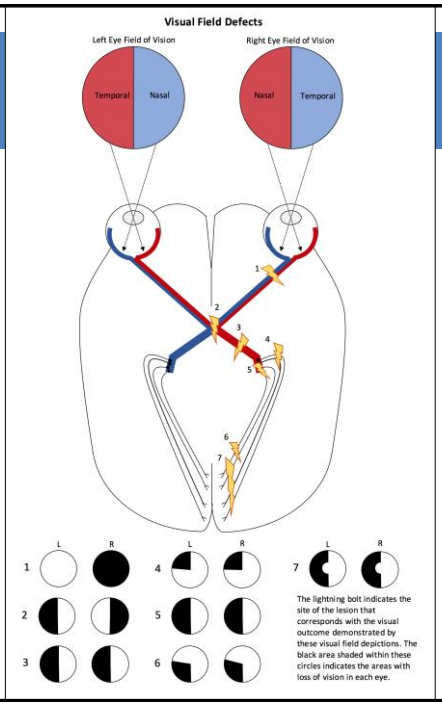
Our Patient

- Transient vs Continuous
- Monocular vs Binocular
- Painful vs Painless
- Partial vs Complete
- Central vs Peripheral
- Other Associated Symptoms

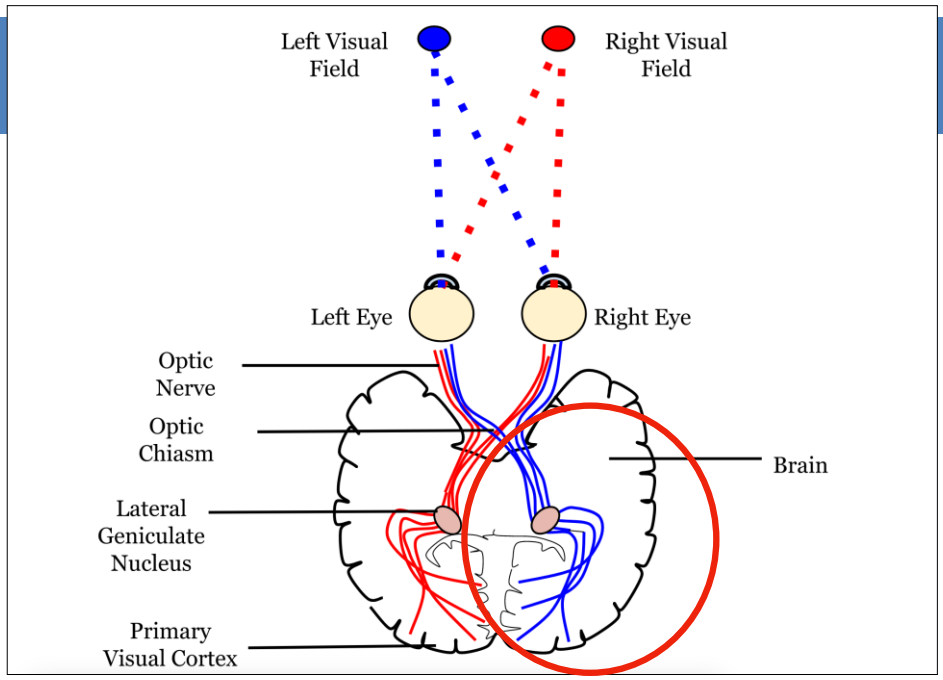
53



54


Visual Field Defects
Left Eye Field of Vision
Right Eye Field of Vision
Temporal
Nasal
Nasal
Temporal
1
2
3
4
5
6
7
L
R
The lightning bolt indicates the site of the lesion that corresponds with the visual outcome demonstrated by these visual field depictions. The black area shaded within these circles indicates the areas with loss of vision in each eye.

55


Left Visual Field
Right Visual Field
Left Eye
Right Eye
Optic Nerve
Optic Chiasm
Lateral Geniculate Nucleus
Primary Visual Cortex
Brain

56

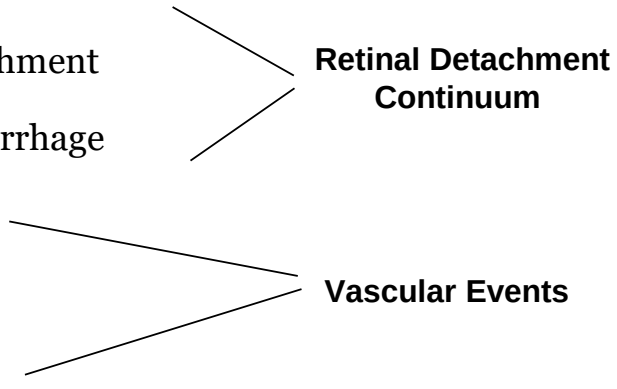
Psychogenic Blindness/Conversion Disorder

- Diagnosis of exclusion!
- Careful history
- Full ophthalmologic and neurologic exam
- Many vision-threatening diagnoses to exclude!

57

Painless Visual Loss

- Retinal detachment
- Vitreous detachment
- Vitreous hemorrhage
- CRAO
- CRVO
- Stroke



58

Painful Visual Loss

- Acute Glaucoma (tonometry)
- Optic Neuritis
- Giant Cell Arteritis (AKA Temporal Arteritis)
- Keratitis (fluorescein)

59

What Is the Chance that a Patient Who Presents with Optic Neuritis Will Develop Multiple Sclerosis?

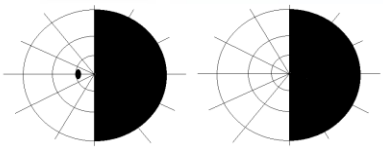
A. 10%
B. 33%
C. 50%
D. 75%

60

Exam Findings in Acute Angle Closure Glaucoma Do NOT Include:

A. Injected conjunctiva
B. Sluggish pupil
C. Peri-orbital edema
D. Corneal edema

What Type of Ischemic Stroke Can Result in a Homonymous Hemianopsia Pattern of Visual Loss?



A. Posterior Cerebral Artery
B. Middle Cerebral Artery
C. Neither PCA or MCA
D. Both PCA and MCA