OPTHALMOLOGY CLUSTER

12 weeks clinical course

ARIMGSAS

23rd August 2022
Dr John R.

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Case 1

A 60 year old male presents to the GP clinic, complaining of problems with vision and difficulty reading newspaper since the last 6 months.

Tasks:

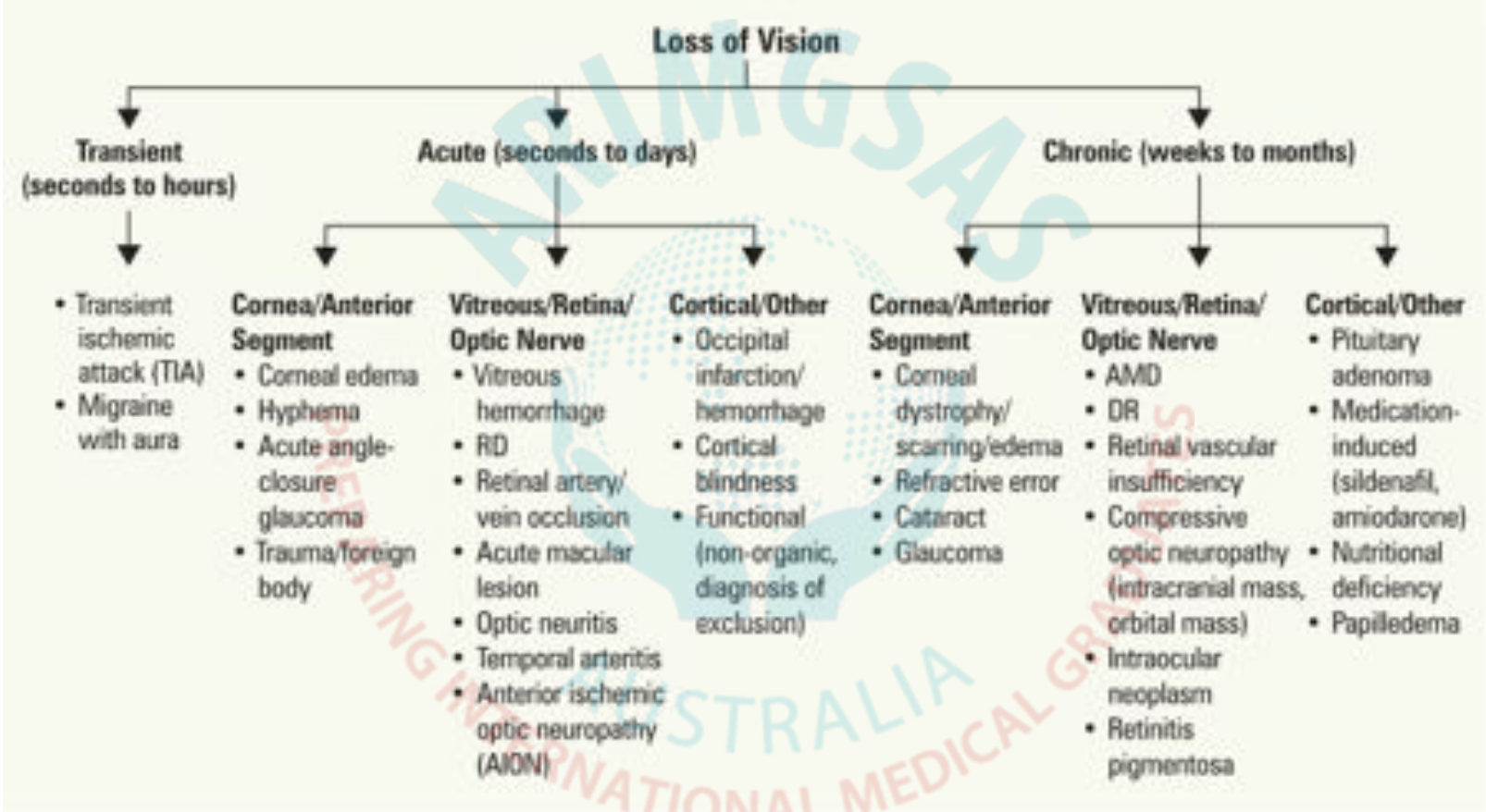
1. Take relevant history
2. Ask for PEFE
3. Explain management

Differential diagnosis

- Refractive errors
- Glaucoma
- Cataract
- Macular degeneration
- Hypertensive or diabetic retinopathy
- Retinal detachment
- Optic neuritis
- Retinitis pigmentosa
- Temporal arteritis
- Migraine
- Raised intracranial pressure
- Cardiovascular: amaurosis fugax (TIA), central retinal artery or vein occlusion (CRAO, CRVO)
- Thyroid disorders: ophthalmoplegia and exophthalmos
- Infections
- Trauma/foreign body
- Malignancy (pituitary adenoma, intraocular malignancy)
- Medication induced
- Nutritional deficiency (vitamin B1, B12, folate)
- Functional (non-organic)

History vision problems

- HOPC: start with open questions (remember SIQORRA1)
  - Can you tell me more about it? What is your main concern?
  - Is it in **one eye or both eyes**?
  - When did it start? Did it happen suddenly or gradually?
  - Is it getting worse since then? Is there anything that makes it better or worse?
  - Is it the first time?
  - How does it affect your daily life / daily activities? Do you normally wear any glasses or lenses?
- Associated symptoms:
  - Any change in vision in daytime or night time? Any redness? Any discharge? Any pain? Any headache? Any weakness or numbness or tingling in any part of the body?
- Differential diagnosis questions
- SADMA (smoking, alcohol, drugs, medications, allergies)
- MeSu SoFa (past Medical and Surgical history, Social and Family history)
  - Mainly hypertension, diabetes, refractive errors, multiple sclerosis, glaucoma


Loss of Vision
Transient (seconds to hours)
Acute (seconds to days)
Chronic (weeks to months)
• Transient ischemic attack (TIA)
• Migraine with aura
Cornea/Anterior Segment
• Corneal edema
• Hyphema
• Acute angle-closure glaucoma
• Trauma/foreign body
Vitreous/Retina/Optic Nerve
• Vitreous hemorrhage
• RD
• Retinal artery/vein occlusion
• Acute macular lesion
• Optic neuritis
• Temporal arteritis
• Anterior ischemic optic neuropathy (AION)
Cortical/Other
• Occipital infarction/hemorrhage
• Cortical blindness
• Functional (non-organic, diagnosis of exclusion)
Cornea/Anterior Segment
• Corneal dystrophy/scarring/edema
• Refractive error
• Cataract
• Glaucoma
Vitreous/Retina/Optic Nerve
• AMD
• DR
• Retinal vascular insufficiency
• Compressive optic neuropathy (intracranial mass, orbital mass)
• Intraocular neoplasm
• Retinitis pigmentosa
Cortical/Other
• Pituitary adenoma
• Medication-induced (sildenafil, amiodarone)
• Nutritional deficiency
• Papilledema

Differential diagnosis questions

- Refractive errors:
  - Do you have difficulty seeing near or far objects?
  - Do you wear glasses or contact lenses? Do you have to change them frequently?
  - When was the last time you visited an optometrist?
- Glaucoma (peripheral loss of vision)
  - Do you bump into other people's shoulders while walking? (tunnelling of vision)
  - While driving, do you have to turn your head to see the road signs?
  - Acute glaucoma can give a feeling of fullness or tenseness in the eyes + pain
  - Family history
- Cataract:
  - Any blurring of the vision?
  - Is it in the middle or more on the sides (usually starts centrally, can go peripheral)
  - Do you see better in the morning or evening? (worse **at night**
  - Do you see any haloes? (a bright rim of light around **lights**)

Differential diagnosis questions

- Macular degeneration
  - Do you see any black spots in the centre or in front of your eyes?
  - Do you have any difficulty recognizing faces or fine prints?
  - Do you have any distortion of vision? Do objects appear wavy to you? (diagnosis: Amsler grid)
- Retinopathy
  - Hypertensive: known history of hypertension or cardiovascular risk factors
  - Diabetic: Do you have to pass urine more often? Do you often feel thirsty? Have you been diagnosed with diabetes? If yes, when was last check with specialist?
- Retinal detachment
  - Any curtain like appearance coming down in front of your eyes?
  - Any flashes or floaters?
- Optic neuritis (multiple sclerosis)
  - Any similar episodes in the past?
  - Do you feel any pins and needles anywhere? Any weakness anywhere?

Differential diagnosis questions

- Retinitis pigmentosa - family history of blindness
- Temporal arteritis
  - Any headache?
  - Any cord like structure on the side of your head (actually done in PE)
  - Any jaw pain with repeated jaw movements (jaw claudication = pathognomic)
  - Do you have any pain while combing, any difficulty standing up from a sitting position? (pain around hip and shoulder regions for PMR)
- Migraine: any headache? Vomiting? Photophobia? Aura?
- Raised intracranial pressure: headache? nausea/vomiting? Change in mental state/drowsy?
- Cardiovascular: amaurosis fugax (TIA), central retinal artery or vein occlusion (CRAO, CRVO)
- Thyroid disorders: ophthalmoplegia and exophthalmos

Differential diagnosis questions

- Infections: Any pain? Redness? Discharge? Fever?
- Trauma/foreign body
  - Any recent injury to the head or eye? What is your occupation?
- Malignancy (pituitary adenoma, intraocular malignancy)
  - Any recent change in weight or appetite? Any lumps or bumps? Night sweats?
  - Pituitary tumours: galactorrhoea, decreased libido, oligo-/amenorrhoea, headache, bitemporal hemianopia, nipple discharge in men
- Medication induced: SADMA
- Nutritional deficiency: what is your daily diet like?
- Functional (non-organic)
  - Diagnosis of exclusion!
  - Are you generally an anxious person?
  - How are your mood and stress levels?

Physical examination

- General appearance
- General examination: PRICCLED BMI
- Vitals
- Chicken wings and get up from chair (if suspecting PMR)
- Focused eye examination
- Temporal arteritis: inspect and palpate for dilated tortuous tender vessels, feel scalp for tenderness
- Neck: thyroid examination
- CNS (cranial nerves)
- CVS + carotid bruit for TIA, ~~RS, ABD~~
- Office tests: UDS, BSL, fundoscopy

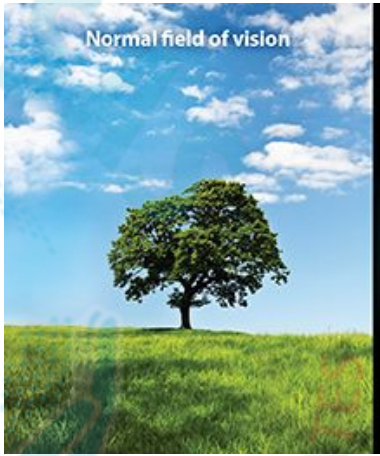
Focused eye examination

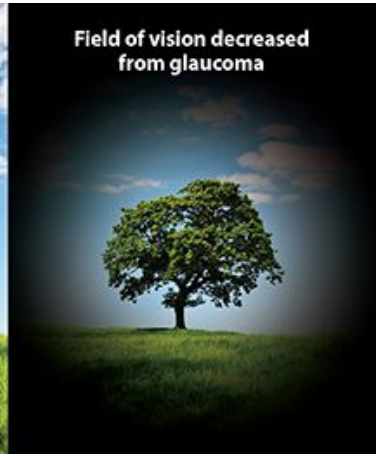
- Inspection: both eyes symmetrical, any obvious deformities, ectropion or entropion, lid retraction, ptosis, pupil size and shape, any color changes?
- Palpation: any tenseness of the eyes or tenderness around the eyes? Any cordlike structure on the temples (TA)? Temperature raised?
- Visual Acuity: improved with pinhole?
- Visual Field
- Color Vision
- Accommodation reflex
- Light reflex
- Eye movements
- Corneal reflex
- Special tests:
    a. Amsler grid test (macular degeneration must be confirmed with fluorescein angiography by specialist)
    b. Tonometry: normal tone <20. Glaucoma values 26 or sth.
    c. Fundoscopy

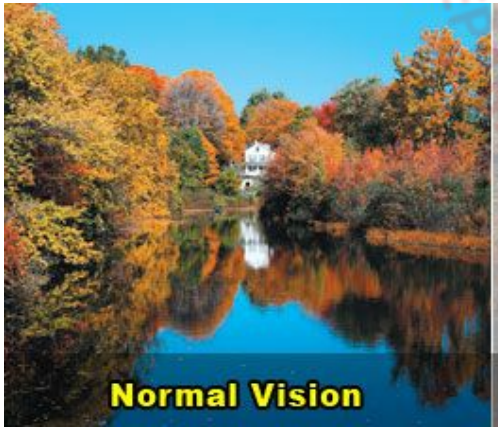
Differences in vision

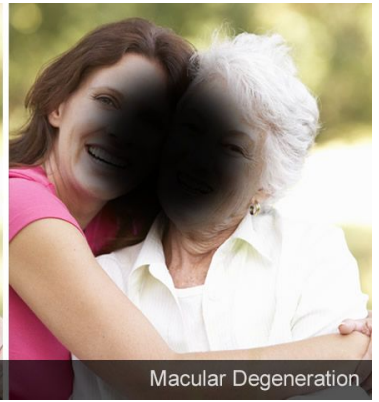
Myopic Vision

Normal Vision







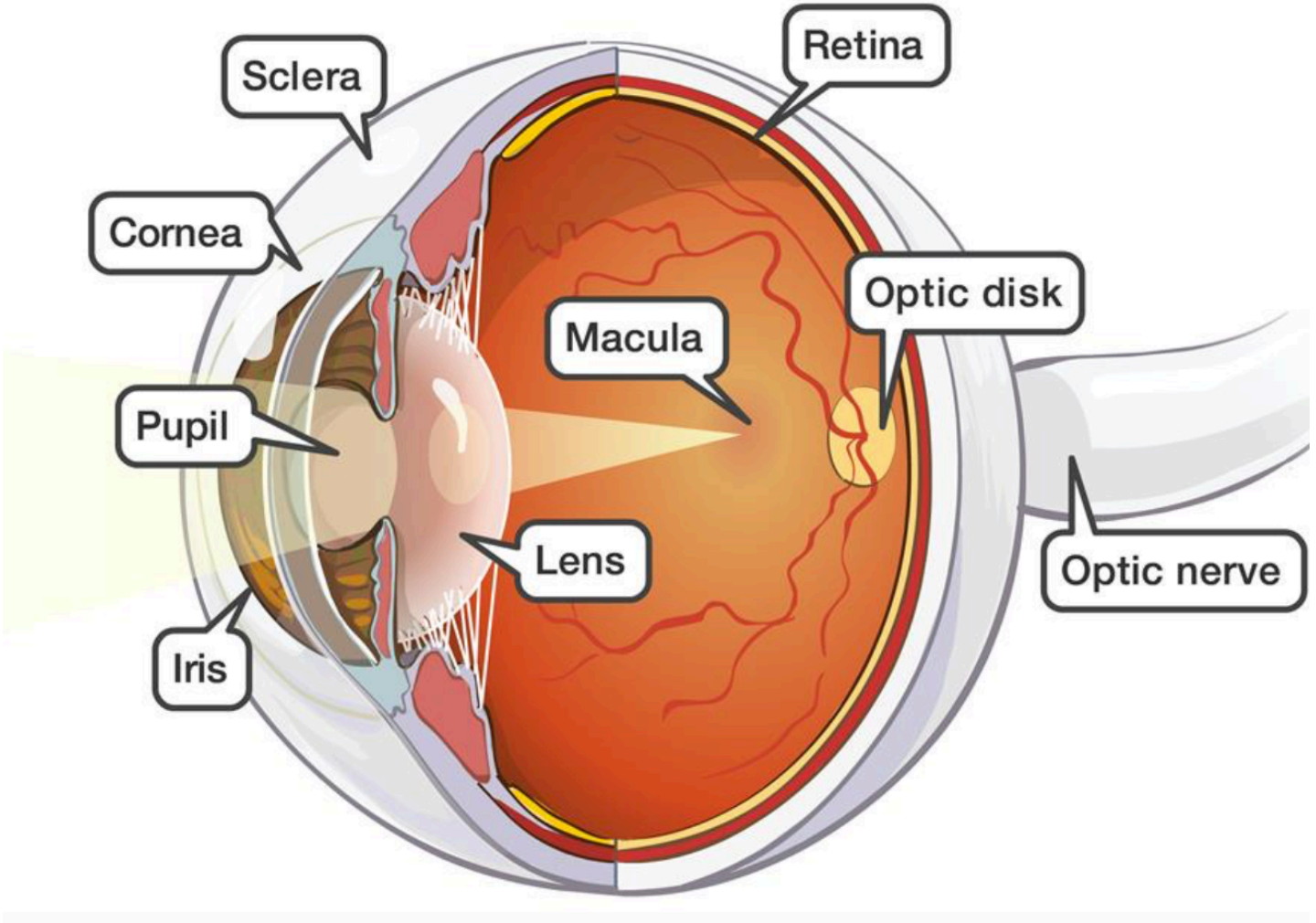


Fundoscopy

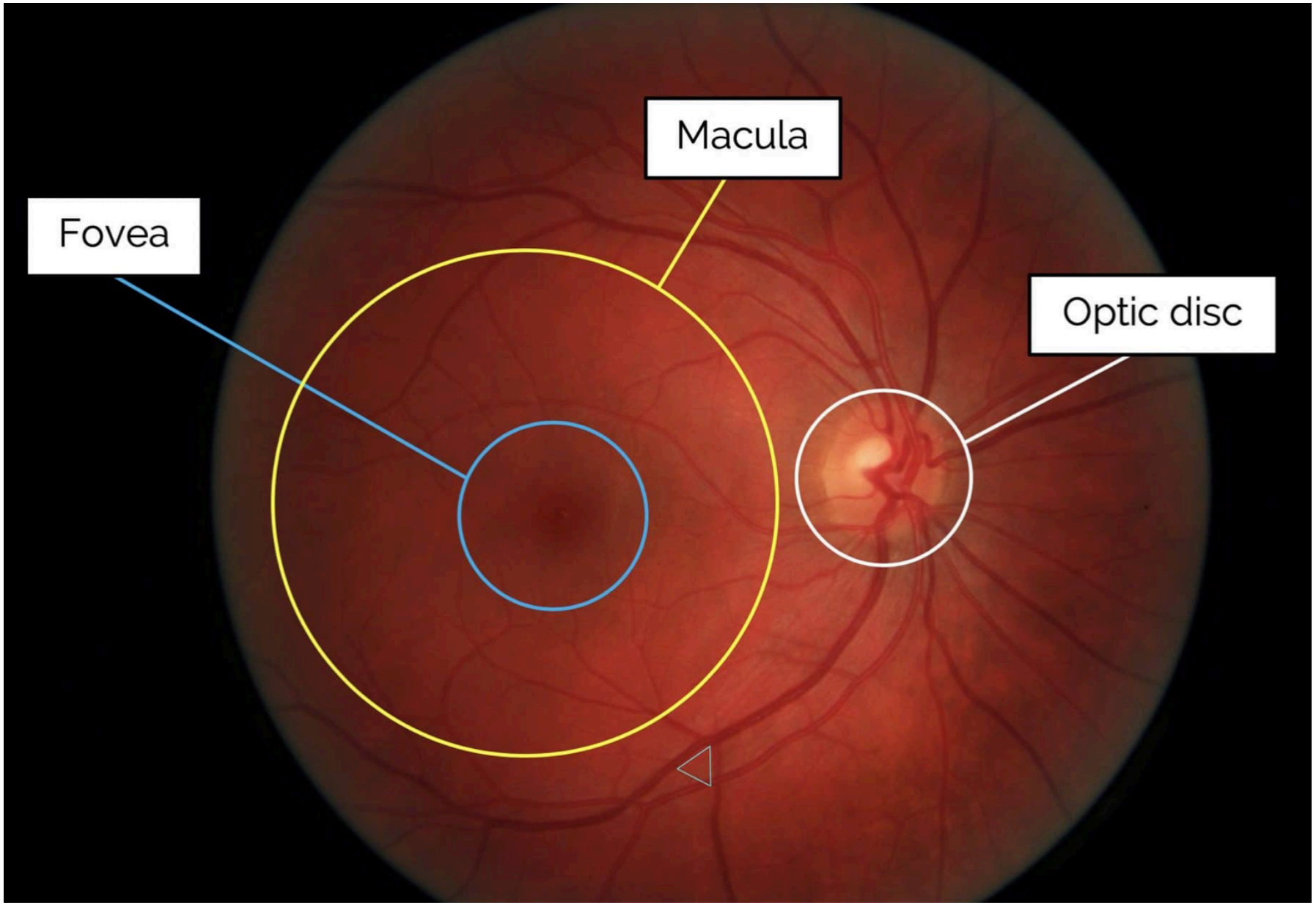
- Wash your hands! Introduce yourself, position the patient, explain the procedure and ask permission
- Check your ophthalmoscope to make sure it is working (light is on)
- Dim the light and dilate the eye with (short-acting) eye drops
- Ask patient to look straight, place your hand on patient's forehead at an arm's length
- Line yourself nose-to-nose, then 15 degrees to the side: your right eye to patient's right eye
- Look for red reflex
    - if present: there is no obstruction until the retina
    - if not present: can be cataract or retinoblastoma or melanoma
- Then slowly approach while keeping the red reflex in sight. Make sure one finger rests on patient's forehead so you don't poke them. Tilt and pan the scope to inspect all 4 quadrants of retina and find optic disc - follow any veins, they all converge to the optic disc
- Re-wash your hands!

https://www.youtube.com/watch?v=AzxNGz1cjgI

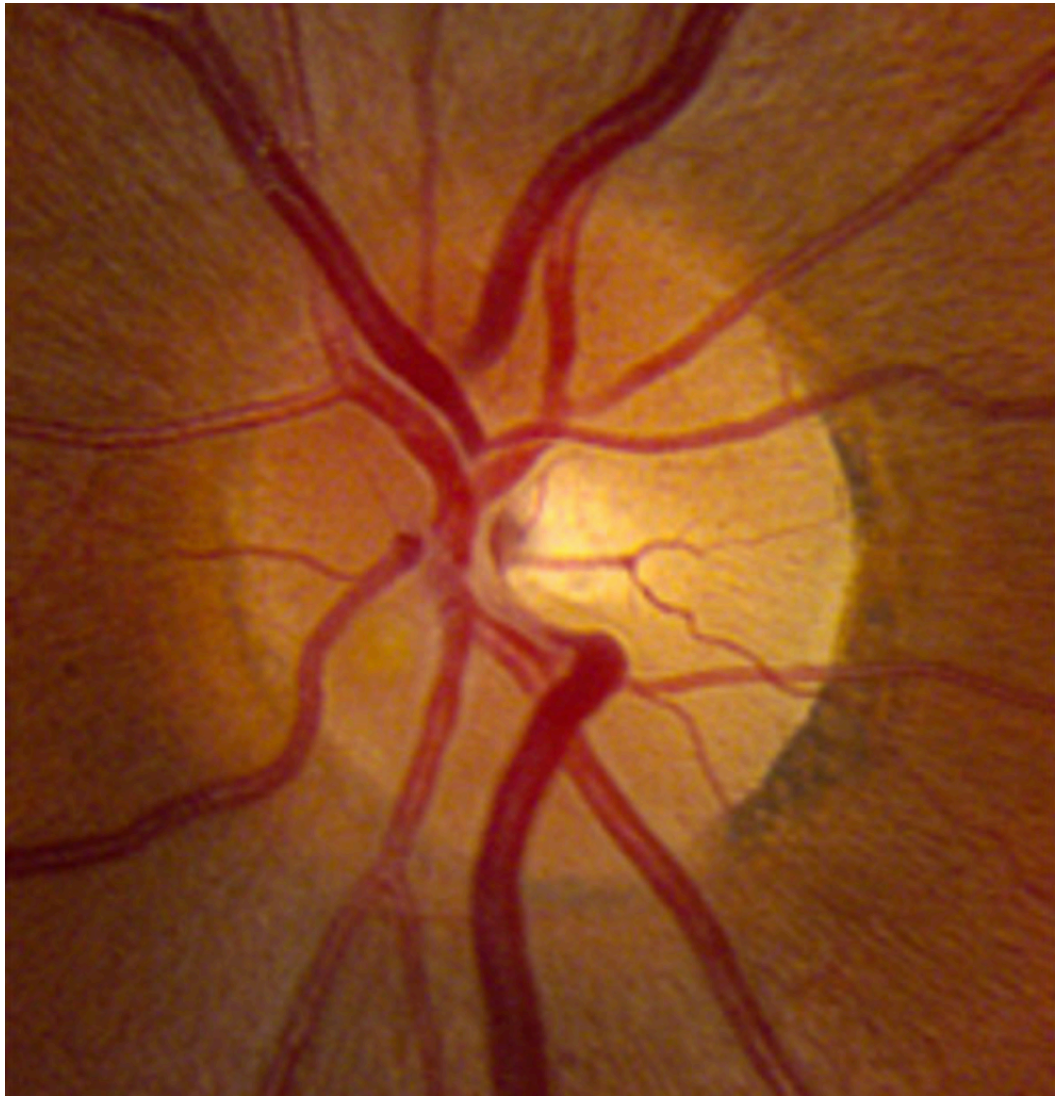
Anatomy

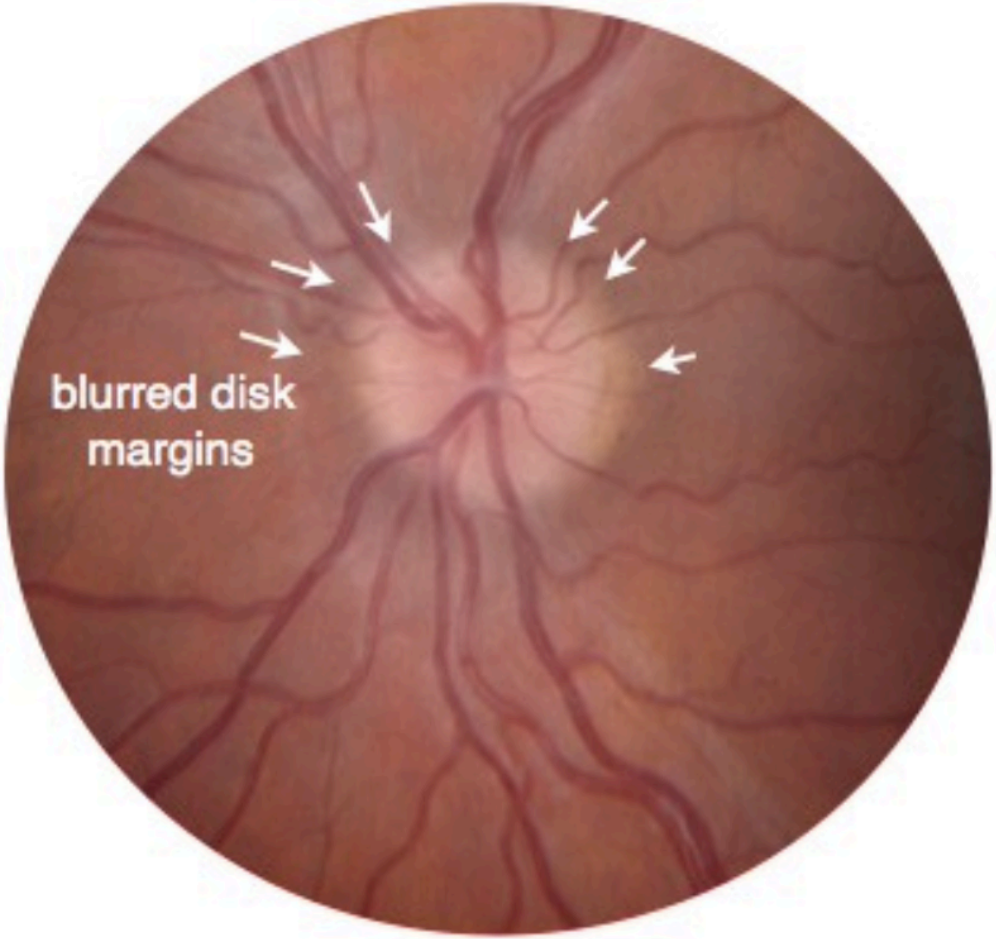

Sclera
Retina
Cornea
Optic disk
Macula
Pupil
Lens
Optic nerve
Iris

Normal fundus

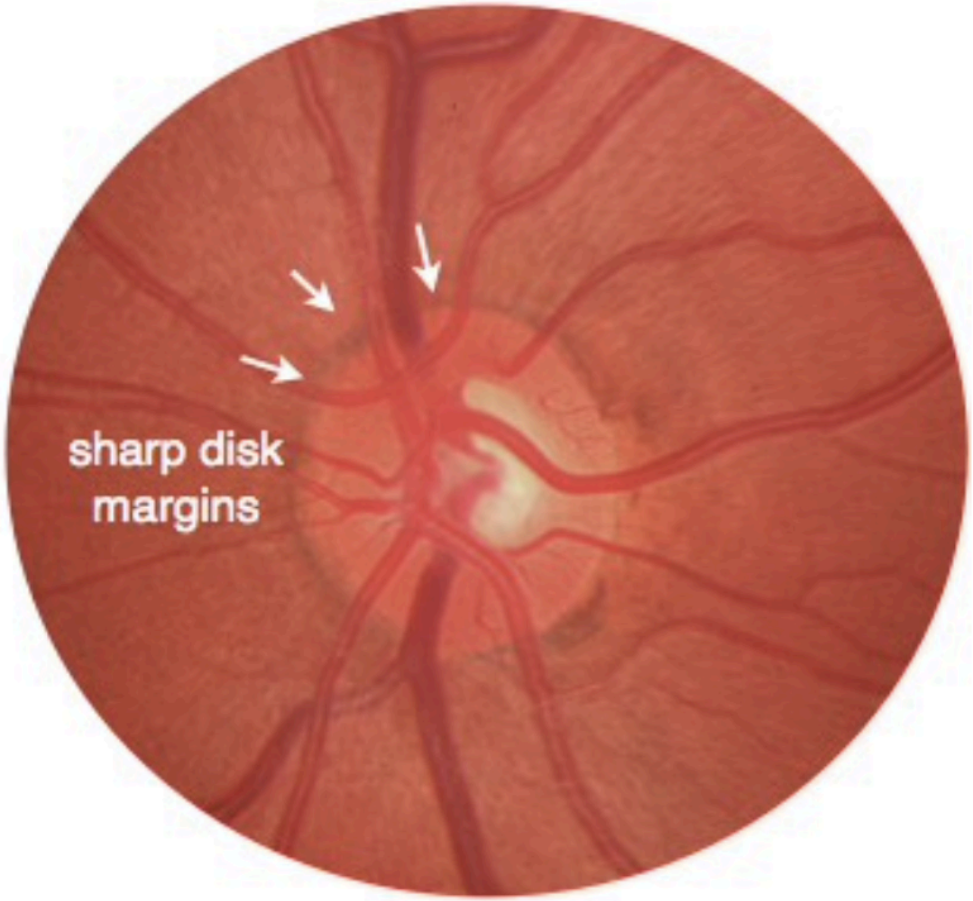


Normal optic disc





Blurred Optic Disc

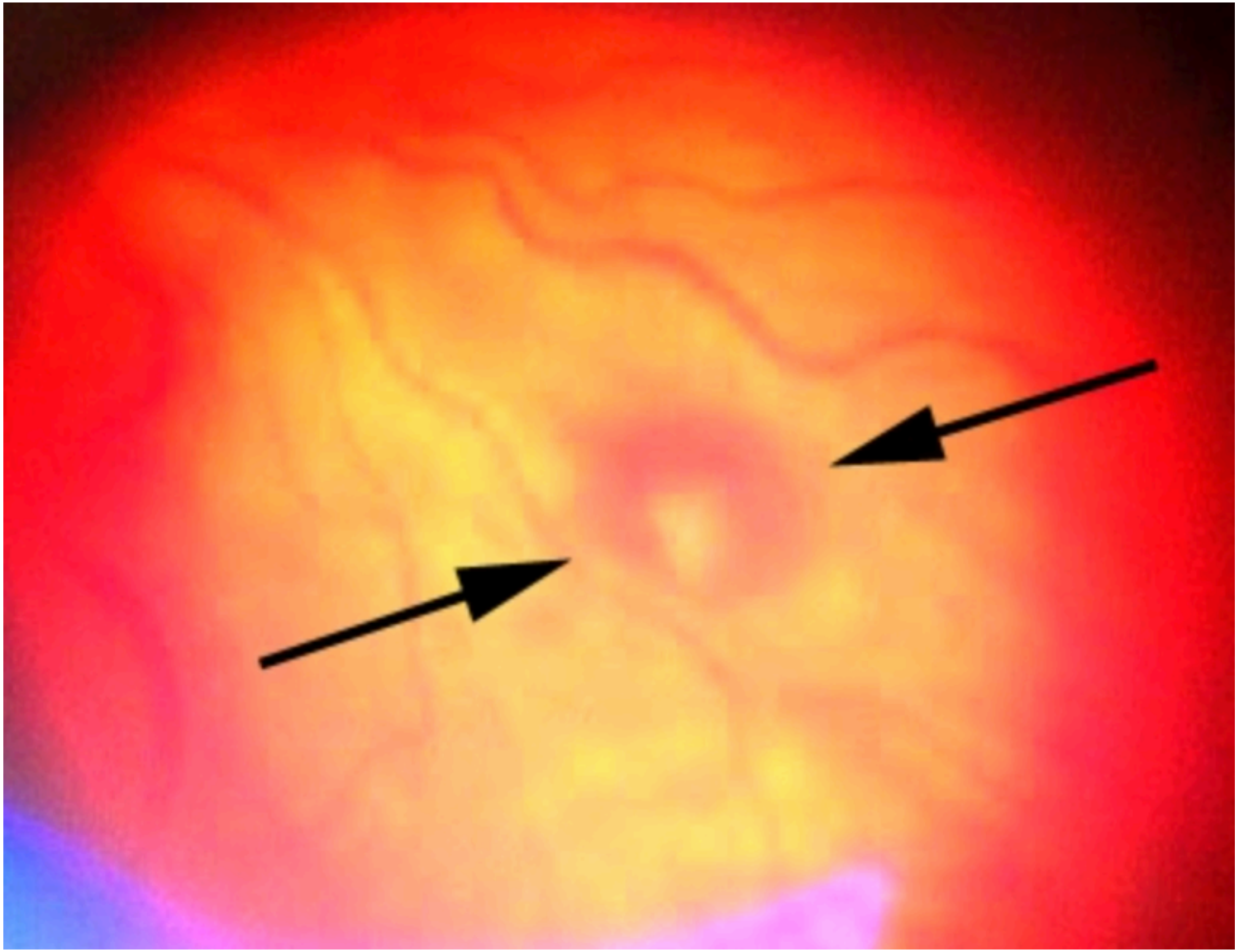


Normal Optic Disc

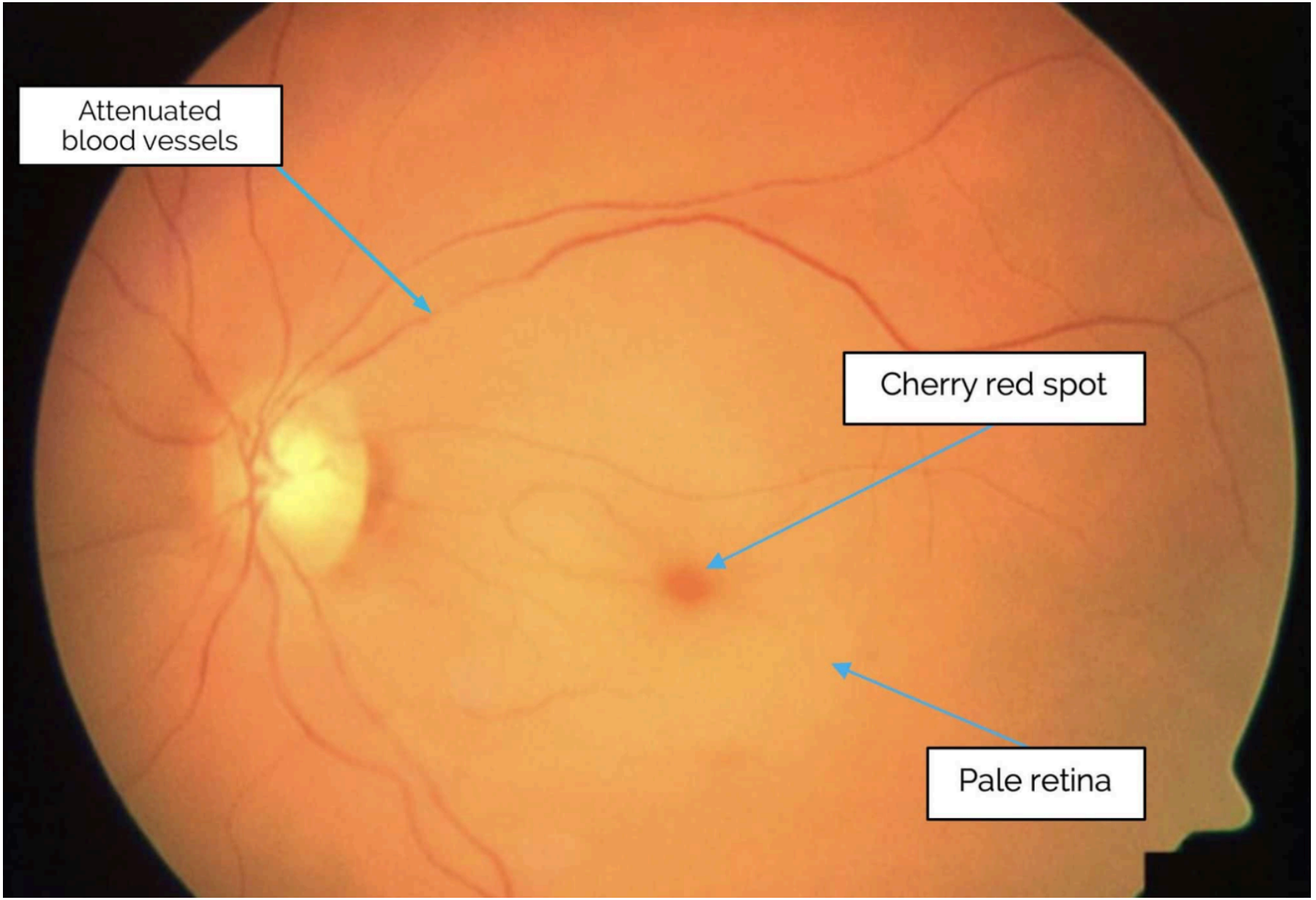
- increased intracranial pressure - papilloedema
- Inflammation - optic neuritis

Roth spot (or Litten's sign)

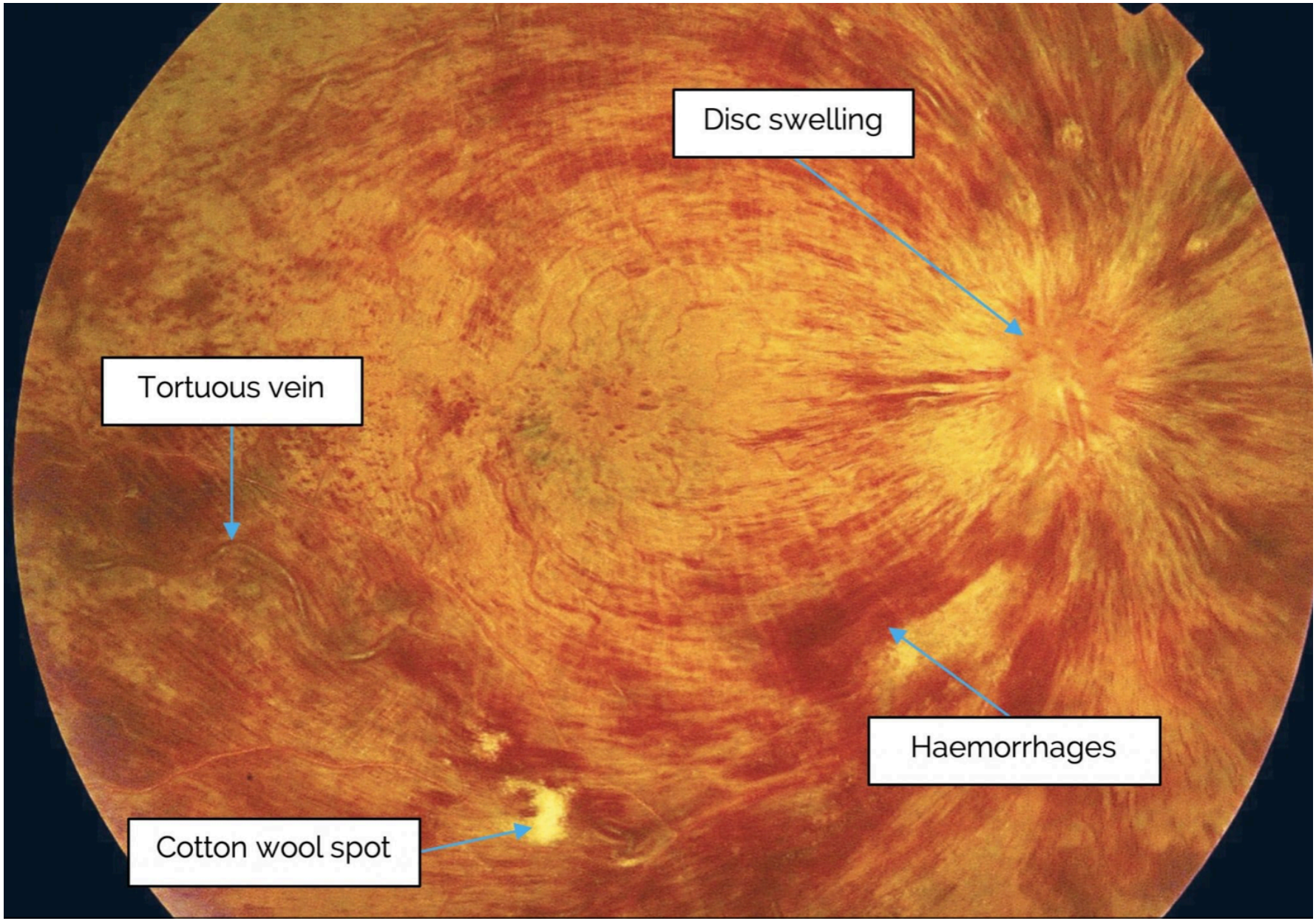
- seen in infective endocarditis (but also in other conditions like DM, hypt, leukaemia)



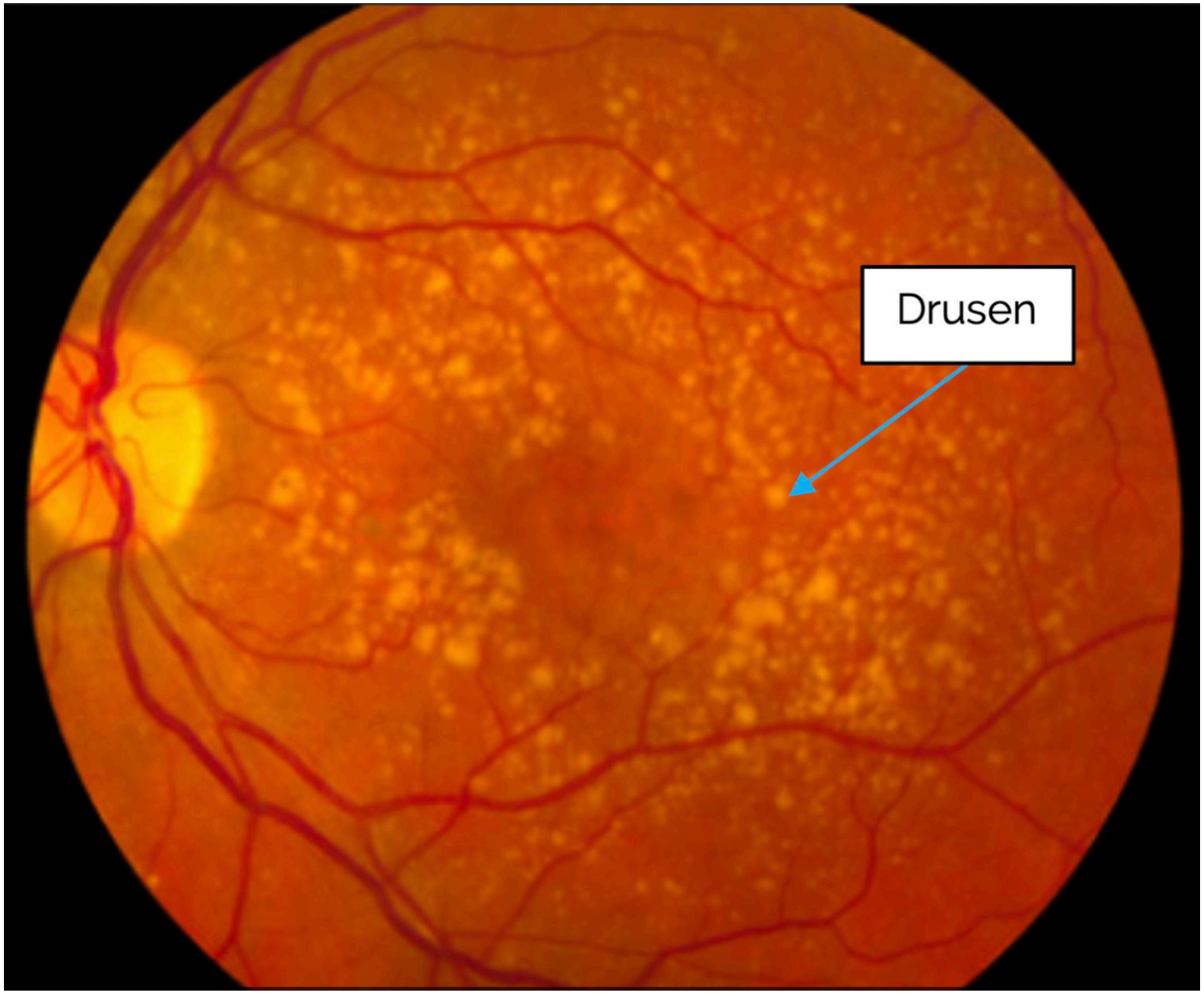
Central Retinal Artery Occlusion (CRAO)



Central Retinal Vein Occlusion (CRVO)



Age-related Macular Degeneration



Back to our case

Positive findings:

- blurry vision since 6 months
- difficulty recognising faces and fine prints
- distorted or wavy images
- with or without black central spot
- it is getting worse
- not driving now
- drinks alcohol occasionally and no smoking
- PEFE: drusen deposits

Explanation

- Based on what you have told me I believe that you have a condition called macular degeneration.
- The film at the back of the eye is called the retina. The central portion of that is called the macula.
- In your case this macula has gone some abnormal changes, which is why you have difficulties recognising faces and fine prints. These changes are normal with age, but when they are excessive we call this macular degeneration. Usually occurs in increasing age, can run in families.
- Common condition ! (In Australia the leading cause of blindness. Trachoma is the cause worldwide)
- There are two types of MD.
    - Dry type with drusen deposits. There is destruction so angiogenesis takes place
    - Wet type: neovascularisation with fragile vessels, which break and cause bleeding. This causes acute deterioration of vision and is an emergency situation.
- You have drusen deposits (exudates) therefore you are at early stage, which is called the dry stage.

Management

Inx
- **slit lamp**
- **Amsler's grid**
- **fluorescein angiography**
- **indocyanine green angiography**
- **optical coherence tomography**

- **ophthalmologist**
- **low vision rehabilitation specialist**
- **OT**
- **support groups**

- Refer to ophthalmologist who can confirm the diagnosis
- Give some anti-oxidants, vitamin A, C, E and zinc supplements
- General measures: please always wear sunglasses, whenever you go out.
- SNAP guidelines
- Driving: 6/12 is acceptable, at least in 1 eye - if worse than 6/12: cannot drive.
- Support group for macular degeneration
- Red flags: if sudden deterioration in vision, please go to hospital immediately
- If wet stage: refer to specialist with medical urgency (for laser procedure or coagulation, they might give anti-VEGF; local injection into the eye)
- Reading materials
- Review regularly

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Case 2

A 45 year old female comes to the GP clinic with difficulty in vision since a couple of months.

Tasks:

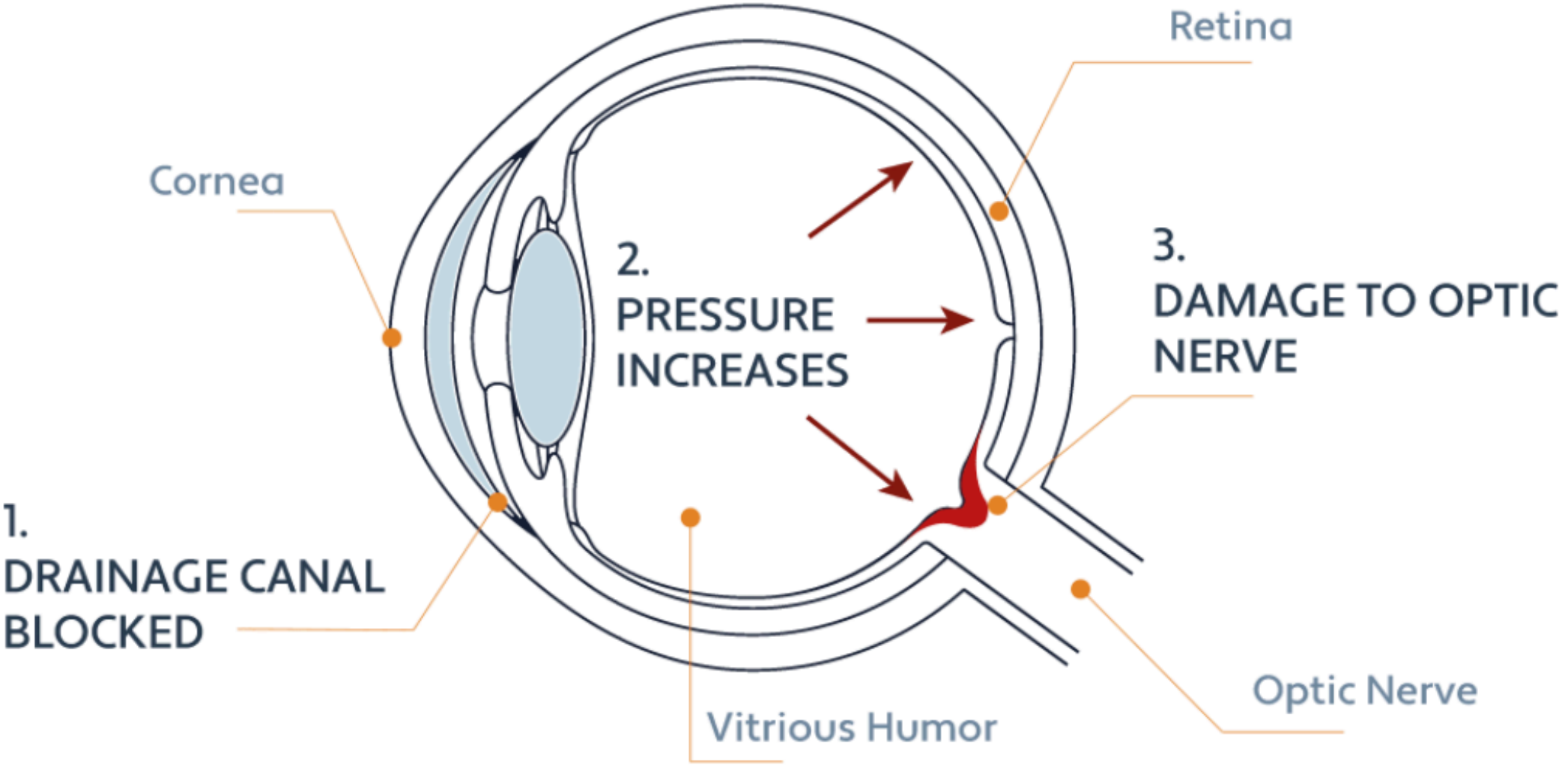
1. Take history and PEFE
2. Explain your diagnosis and management

Positives in chronic glaucoma

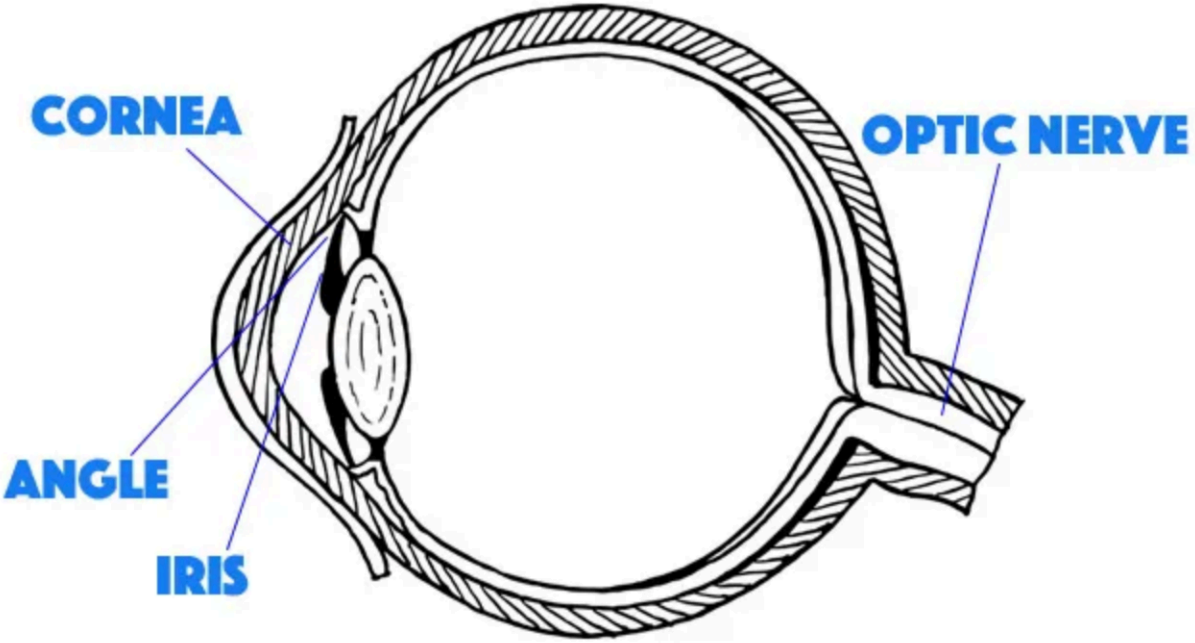
- Peripheral vision is affected: bumping into things or has to turn the head during driving
- Started gradually
- Diabetic since 7-8 years, well-controlled
- Coloured haloes can be present

PEFE

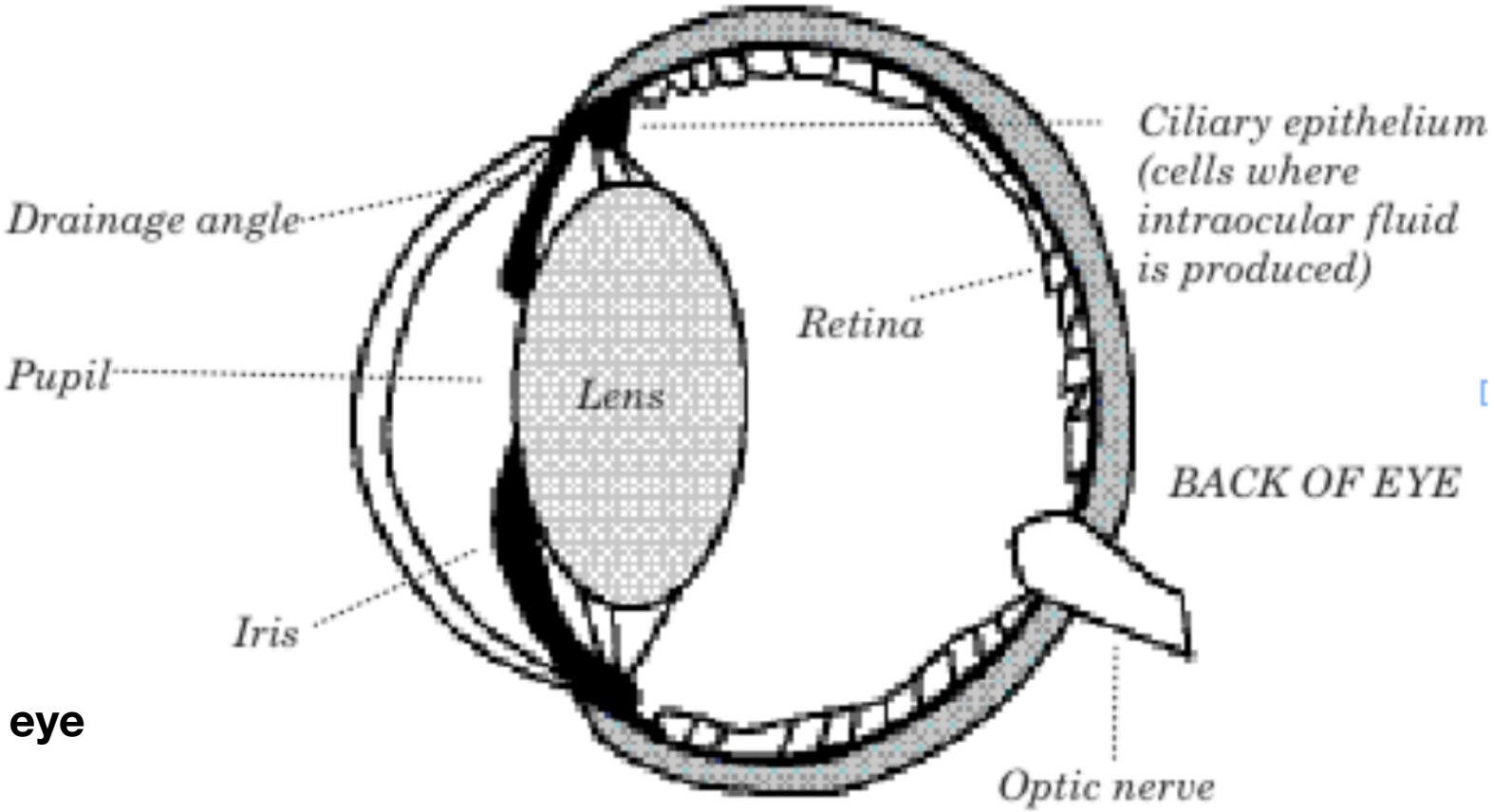
- VA 6/18 in both eyes, does not improve with pinhole test
- VF: peripheral vision affected
- Pinhole test: vision does not improve
- Tonometry 27 or 28 (positive - normal is <20) - cannot miss tonometry!!
- Fundoscopy is not given (can give optic disc cupping/papilledema)
- Amsler grid negative



Open Angle Glaucoma Diagram



Human eye



Canine eye

Explanation

- Based on what you told me and my examination most likely you have a condition called open angle glaucoma or chronic glaucoma.
- (Draw eye) This is an eyeball and there is fluid circulating through it, passing through an effective drainage system (essential for normal function of the eyeball)
- In your case unfortunately there is an increased build up of the fluid, either due to increased production or decreased absorption through the drainage system.
- This in turn leads to an increased pressure in the eyeball, which can put pressure on the surrounding structures, including the nerve responsible for seeing. Usually it affects the outer region that is why you have to turn your head when you look at signboards or you bump into other people's shoulders.
- If left untreated, it can lead to blindness
- Risk factors: increasing age, myopia, diabetes, hypertension, positive family history, long-term steroid use, injury to the eye

Management

- Refer to a specialist to confirm the diagnosis
- You will be given certain medications to bring down the pressure in your eye
    - (timolol, ~~pilocarpine~~, acetazolamide (in acute glaucoma given IV acetazolamide))
- The specialist might also consider to do a surgical or laser procedure (where they put holes in the eye so the fluid can drain properly)
- VA 6/18 — please do not drive until the condition is sorted out
- Write a medical report (with patient) to the authorities (VicRoads)
- Critical error: if tonometry is not done
- Red flags: sudden deterioration in vision
- Reading materials
- Review

Screening 1st degree relatives

If asked for differentials:

1. AMD
2. DM retinopathy
3. hypt retinopathy
4. refractive error
5. cataract
6. optic neuritis (MS)
7. brain SOL, raised ICP

Case 3

You are a registrar in ED. A 35 year old female presents with a 2 week history of visual disturbance, pins and needles in the left hand and difficulty walking.

Tasks:

1. Take focused history and PEFE
2. Give diagnosis
3. Explain your management (including investigations)

Differential diagnosis

- Optic neuritis (MS, sarcoidosis, lupus)
- Myasthenia Gravis
- Ischemic optic neuropathy
- Infectious optic nerve impairment (meningitis, syphilis, Lyme)
- Drugs / toxins
- Malignancy
- Nutritional deficiencies (vitamin B1, B12, folate)

History

- HOPC
  - What is the visual disturbance exactly? Since when? Progressive? Constant or on and off? Anything that makes it better or worse? First time?
- Associated symptoms
  - Headache, tiredness (especially at end of the day), pain, redness, discharge, fever
- Differential diagnosis questions
- SADMA (smoking, alcohol, drugs, medications, allergies)
- MeSu SoFa (past Medical and Surgical history, Social and Family history)

PEFE

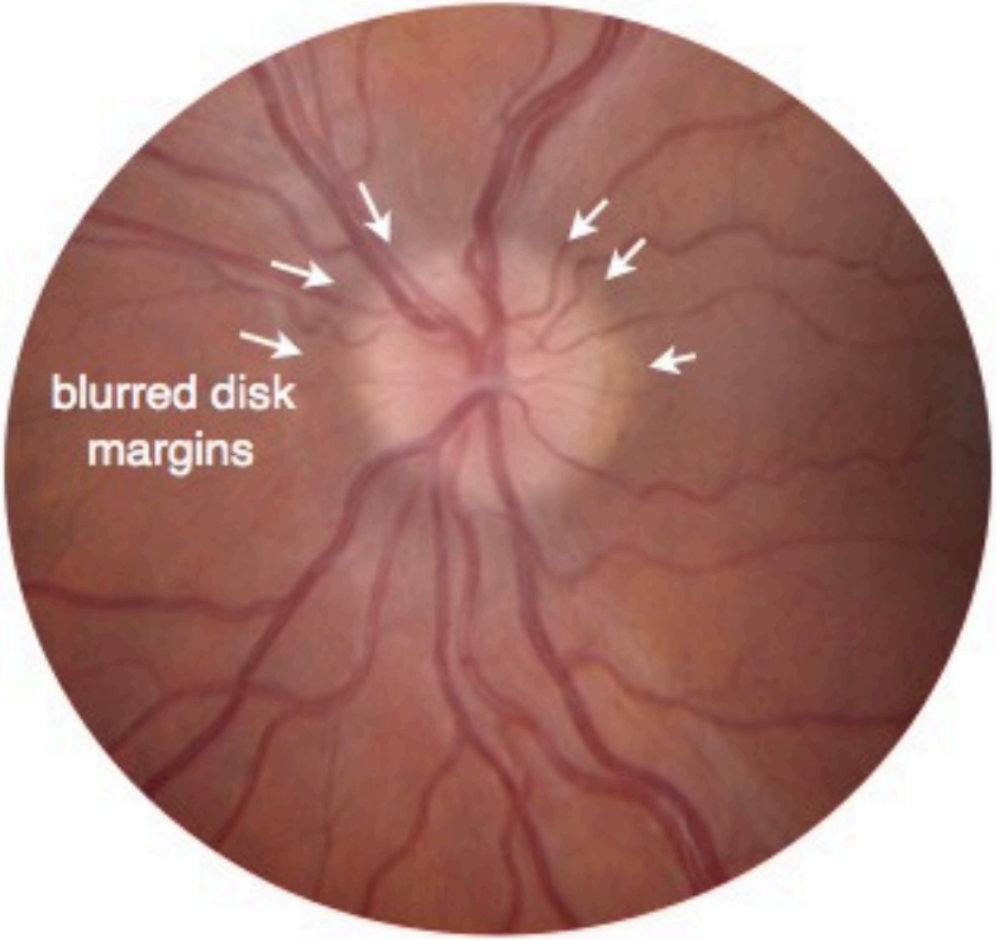
- General appearance
- General examination: PRICCLED BMI
- Vitals
- Eye examination
- Rest of cranial nerves examination
- ~~ENT~~
- CNS: upper and lower limbs: ITPRCS
- CVS, ~~RS, ABD~~
- Office tests: fundoscopy, tonometry

Positive findings on history

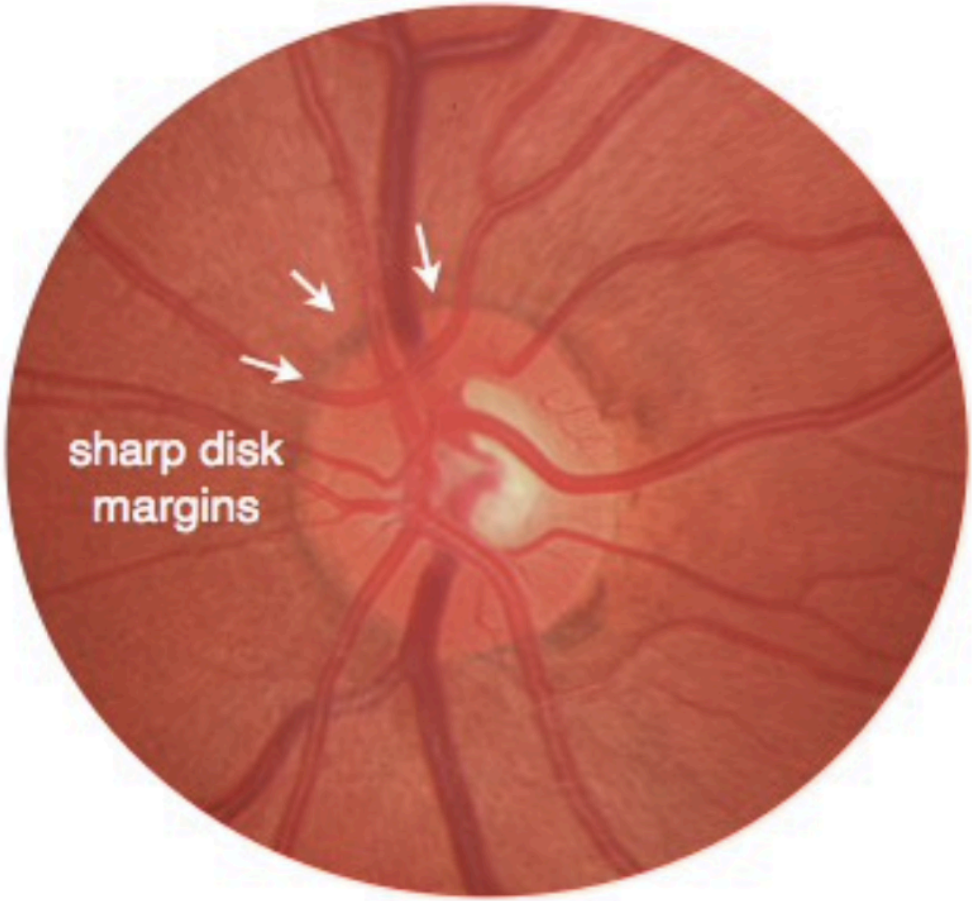
- blurry vision, getting worse
- also difficulties identifying colours
- Since 2 months clumsy, difficulties with coordination when walking, right leg is weak
- Can hold a pen, numbness and tingling since few months
- 10 years ago similar episode in eyes for few days, now worse
- Bowels normal, but sometimes difficult to control the bladder; urgency
- Family history of autoimmune disease
- Tiredness

PEFE positive findings

- Patient looks distressed
- Ophthalmoplegia: discoordination between two eyes. Double vision on examination
- Fundoscopy: Red reflex present. A bit of atrophy of optic nerve and slight swelling of optic disc
- CNS
    - Upper limbs: tone normal, impaired sensation left
    - Lower limbs: ataxic gait, spastic paraparesis in lower limb, increased reflexes bilaterally, impaired coordination in heel shin test



Blurred Optic Disc



Normal Optic Disc

- Inflammation - optic neuritis

Explanation and management

- Based on what you have told me and the examination I performed I believe most likely you have a condition called optic neuritis. This is inflammation of a nerve that connects eye and I believe that this is part of a condition called Multiple Sclerosis, or MS. Have you ever heard about it?
- MS is an uncommon auto-immune condition, it occurs in around 1 in 800 people, where the coverings of nerves are being destroyed (demyelination).
- It occurs usually in young females and can have different ways of presenting itself, such as blurring of vision, double vision or weakness or tingling in limbs such as what you have. It can also give pain in the eye, a disturbed way of walking, dizziness or dysfunction of the bladder. The start of the illness can be sudden or insidious.
- Unfortunately this condition cannot be cured, but we can manage it Before I can be sure of this diagnosis we have to do some investigations.

Management

- I would like to order some blood tests (general) and a scan, called MRI, to confirm the diagnosis
- I would also like to refer you to the specialist for further evaluation and treatment. This includes both the ophthalmologist to evaluate your eye as well as neurologist for the MS. lumbar puncture, evoked potential by specialist
- Although MS cannot be cured, there are several medications that can help to slow the progression (immunosuppressants). corticosteroids like prednisolone
  DMT - disease modifying therapy (special medicines)
- Reading materials, review regularly, red flags

  Referral to physio, OT, psychologist, support groups

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Case 4

A 27 year old male complains of a red right eye for the last few days. He says it feels irritated and that light bothers him.

Tasks:

1. Take history and PEFE
2. Explain diagnosis and management

Differential diagnosis red eye?

Differential diagnosis red eye

- conjunctivitis (bacterial, viral, allergic, chemical)
- uveitis: pain + IBS + joint pains - irregular pupil (associated with connective tissue diseases
- keratitis: dendritic ulcer: HSV keratitis (exam case)
- Glaucoma: fixed and dilated pupil, painful
- Scleritis - vessels from deep - very painful
- Episcleritis - vessels are superficials - superficial discomfort
- Foreign body - ask regarding occupation
- Injury - laceration injury gives tear drop appearance
- Sjogren syndrome (dry eye syndrome; must have 2 constellations such as dry eyes and dry mouth)
- Hyphema: blood in the pupil: medical emergency.
- Subjconjunctival haemorrhage - self-limiting, but it should never cross the corneal margin. Looks dramatic, reassure the patient regarding self-limiting course.

PEFE

Focused eye examination

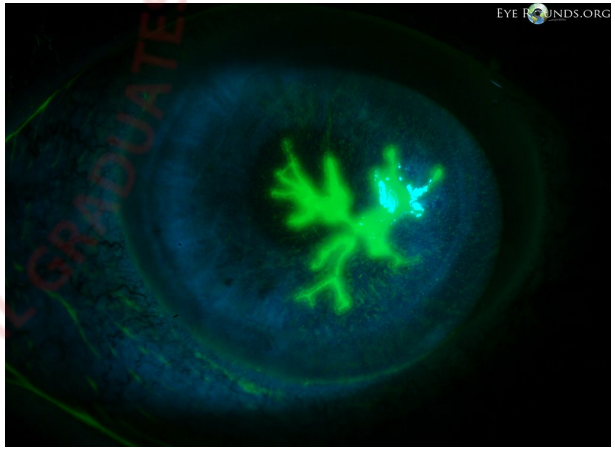
- plus : fluorescein dye stain for injury (use local anesthetic drops before the examination) - shine with cobalt blue light with ophthalmoscope after dimming the lights. - you can see typical dendritic ulceration, scratch marks or abrasions.
- plus : subtarsal examination: lid eversion to look below the eyelid for foreign body - put a cotton bud use it as a leverage and evert holding eyelashes.

Positive findings

- History of wearing contact lenses since 4 years, which he changes fortnightly
- Vision is a little worse on the irritated eye

PEFE

- Vision on left eye 6/6, vision on right eye 6/12.
- Dendritic ulcer if fluorescein staining is performed and shone with blue light



Explanation

- Based on what you have told me and my examination I think most likely you have a condition called keratitis, which is an inflammation of the covering of the front of your eye.
- I believe most likely this is due to an infection with a virus called herpes simplex, because of the typical ulcer that I saw during my examination.
- This is not an uncommon but serious condition.
- It can result in blindness, if not treated appropriately

Management

- Hand and eye hygiene: extra care when wearing lenses (increases risk!)
- Antivirals: eye drop, ointment or orally
- Refer to specialist (ophthalmologist) as emergency
- Surgical debridement by specialist (if scarring causes vision problems)

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Case 5

A 65 year old male presents to you with a vision problems. He has a history of hypertension and diabetes.

Tasks:

1. Perform an eye examination
2. Give your diagnosis/differentials

Physical examination

- You can ask a few questions at the start if you want: mainly past medical history & medication compliance (patient is not compliant)
- Wash your hands! Introduce yourself, position the patient, explain the procedure and ask permission
- General appearance
- General examination: PRICCLED BMI
- Vitals
- Focused eye examination
- Rest of cranial nerves
- CVS (+carotid bruit)
- Office tests: BSL, fundoscopy

Eye examination - WIPER

- Inspection: both eyes symmetrical, any obvious deformities, ectropion or entropion, lid retraction, ptosis, pupil size and shape, any color changes?
- Palpation: any tenseness of the eyes or tenderness around the eyes? Temperature raised?
- VA, VF, CV
- Reflexes: accomodation, light
- Eye movements → **either normal or diplopia on lateral gaze** lateral rectus palsy
- Special tests:
  - Amsler grid test
  - Tonometry: normal tone <20. Glaucoma values 26 or sth.
  - Fundoscopy (normal)
- "Mention: ideally I would also like to complete the eye examination by checking intra-ocular pressure and using fluorescein staining to rule out other ocular pathology"
- Re-wash your hands!

Detailed eye examination

- Visual Acuity: do it with glasses, if patient wears them. Use Snellen chart (usually 3m). Cover one eye with palm at a time, read lowest line as possible
- Visual Fields: do it without glasses but with red topped pin. Cover one eye of patient and your own opposite eye. Distance should be an arms length. Patient should look at your nose, head still.
  ("Ok, I will move my hand from the outside towards the inside, please say yes once you see my hand. Keep looking at my nose"). Start with upper outer quadrant of each eye.
- Colour Vision: ask for Ishihara chart
- Accommodation reflex, light reflex (PEARL)
- Eye movements (move pen in H-shape and ask patient to follow it with eyes, and not to move the head. Ask for pain or diplopia

If normal fundus
+ abnormal eye movements:

Diagnosis
- Lateral Rectus palsy (DM)

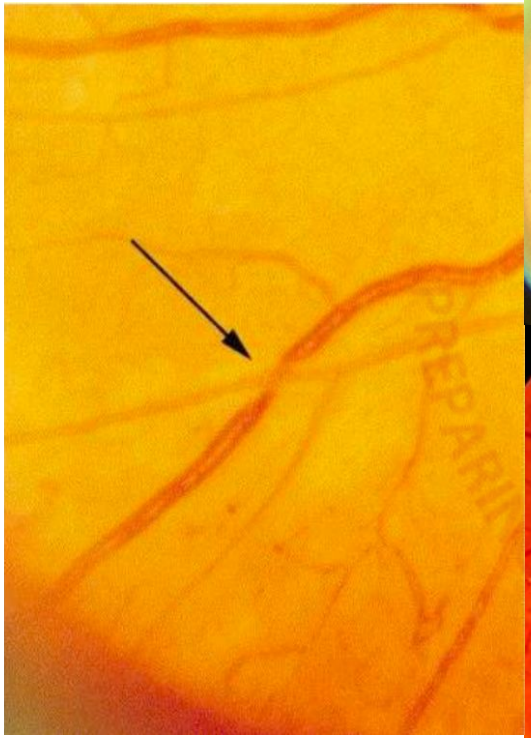
Differential Diagnosis
- Myasthenia gravis
- Thyroid ophthalmopathy
- MS
- Cranial neuropathy
- Trauma

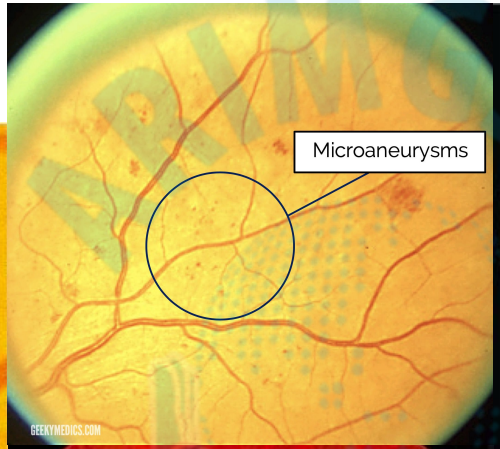
If abnormal fundus
+ normal eye movements:

Differential Diagnosis
- DM retinopathy
- Hypertensive retinopathy
- AMD
- Lupus retinopathy
- Central serous retinopathy

Fundoscopy of HTN and DM retinopathy

Hypertensive retinopathy	Diabetic retinopathy
Arterio-venous nicking (AV nipping)	Micro-aneurysms (small red dots)
Silver wiring	Dot and blot haemorrhages
Micro-aneurysms (small red dots)	Cotton wool spots
Hard exudates	**Neovascularisation**
Haemorrhages	Hard exudates
Cotton wool spots	
Swelling of optic disc (severe)	




Microaneurysms
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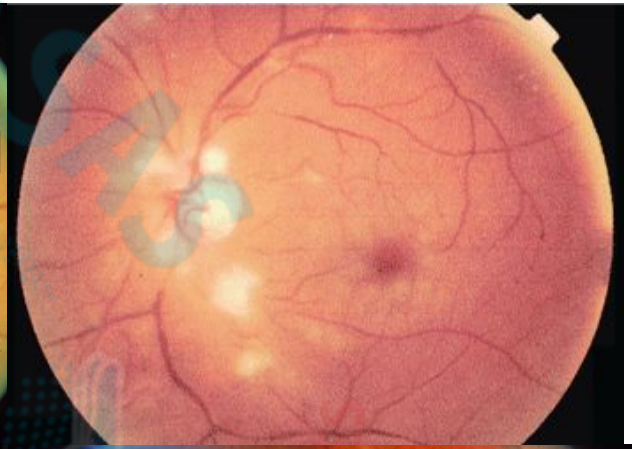
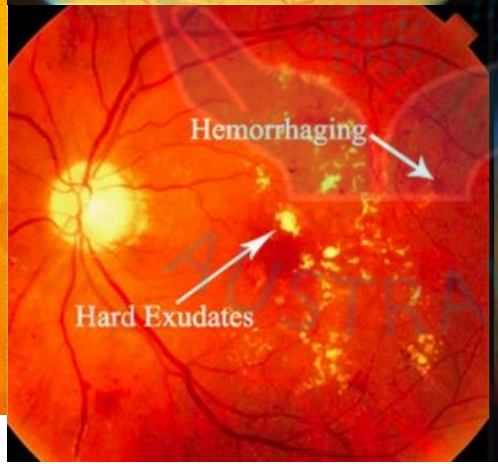
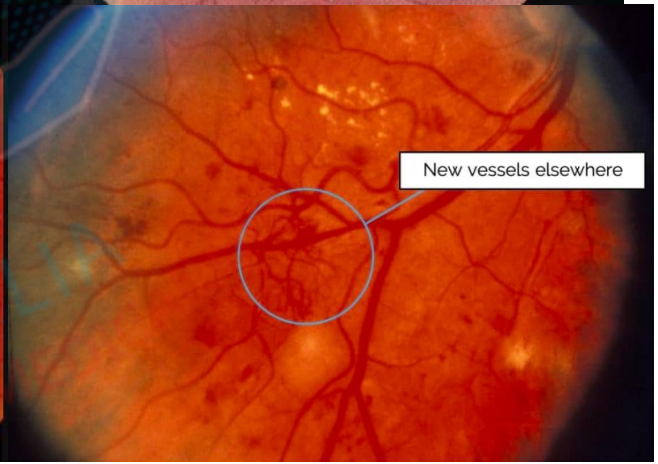
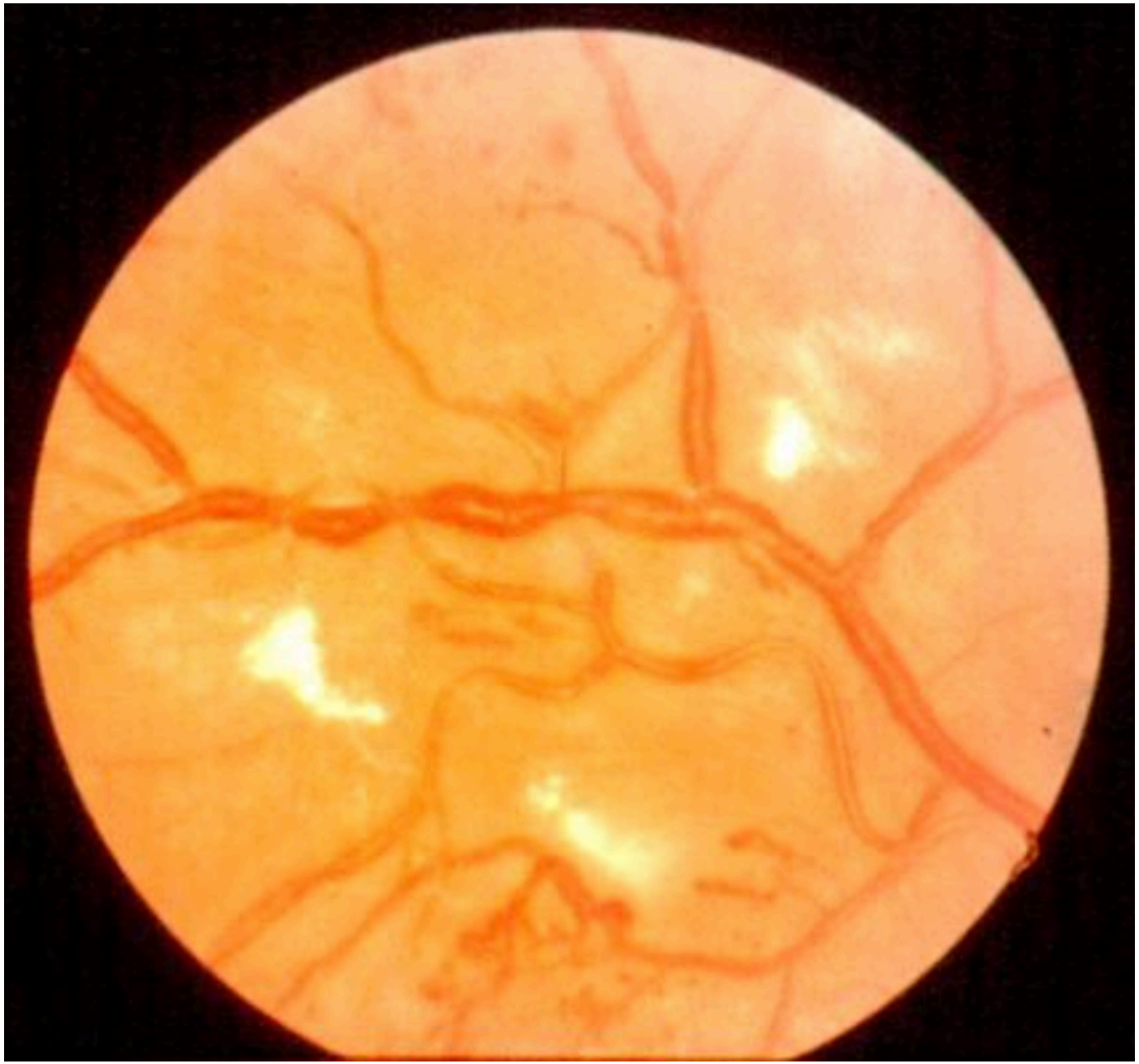


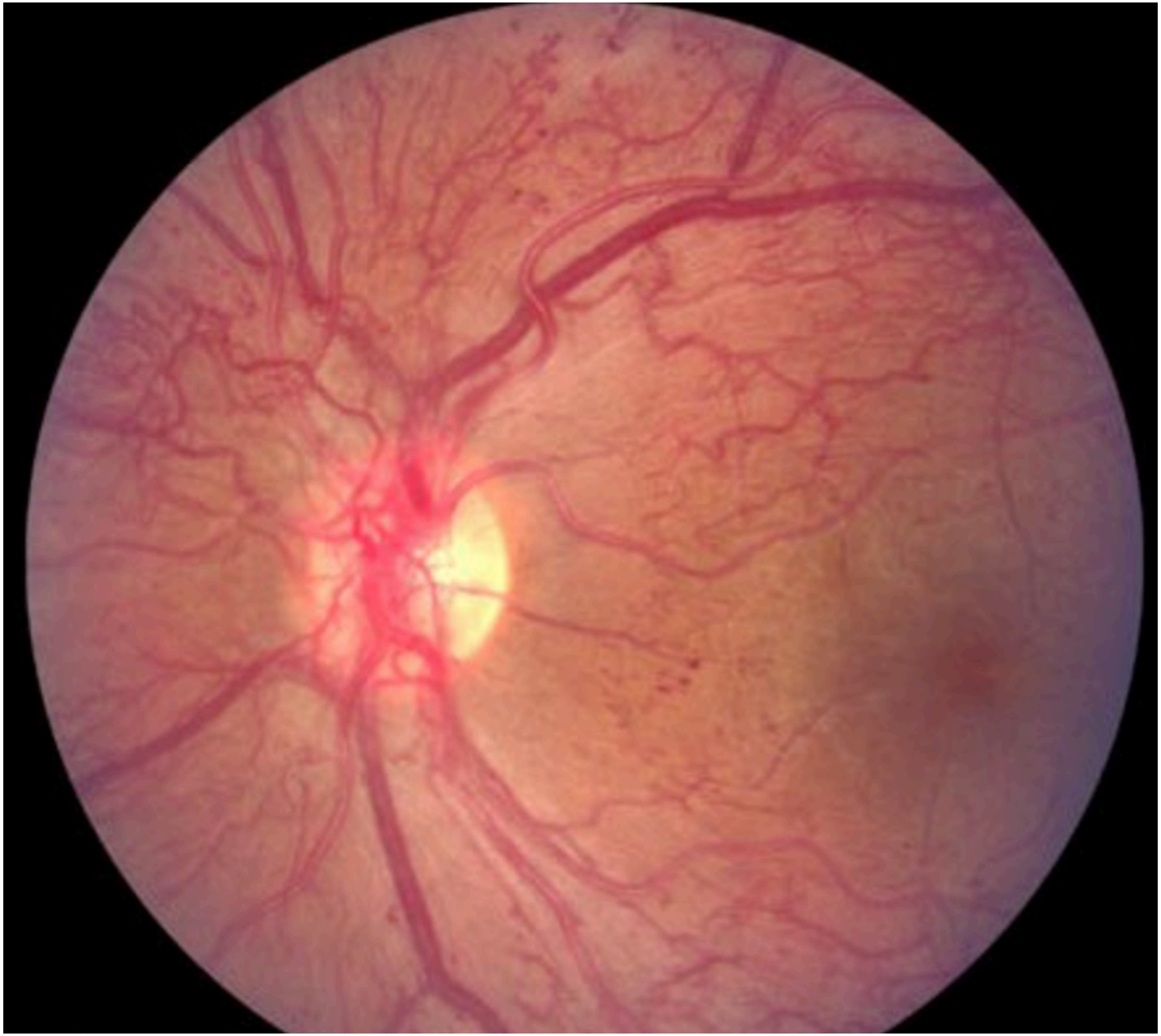

Hemorrhaging
Hard Exudates


New vessels elsewhere

Hypertensive Retinopathy



Diabetic Retinopathy



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Case 6

Young patient presents after MVA, primary survey done, patient is stable.

Tasks:

1. Do head and eye examination with running commentary to examiner
2. Explain diagnosis

Case 6

- Do inspection of the head, focusing on signs of trauma and blow-out fracture (eg. bruises, rhinorrhea, otorrhea, battle sign, raccoon sign, enophthalmos etc…)
- Palpation of head and face to check for fractures.
- Eye examination as normal
- Check CN especially CN V and VII
- Rest of CNS is normal
- **Positive points: diplopia on upward gaze (vertical diplopia), loss of sensation Left infra-orbital region (Trigeminal V2) and bruise on left cheek or raccoon eyes**

→ Most probably blow-out or orbital floor fracture with extraocular muscle entrapment.

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Case 7

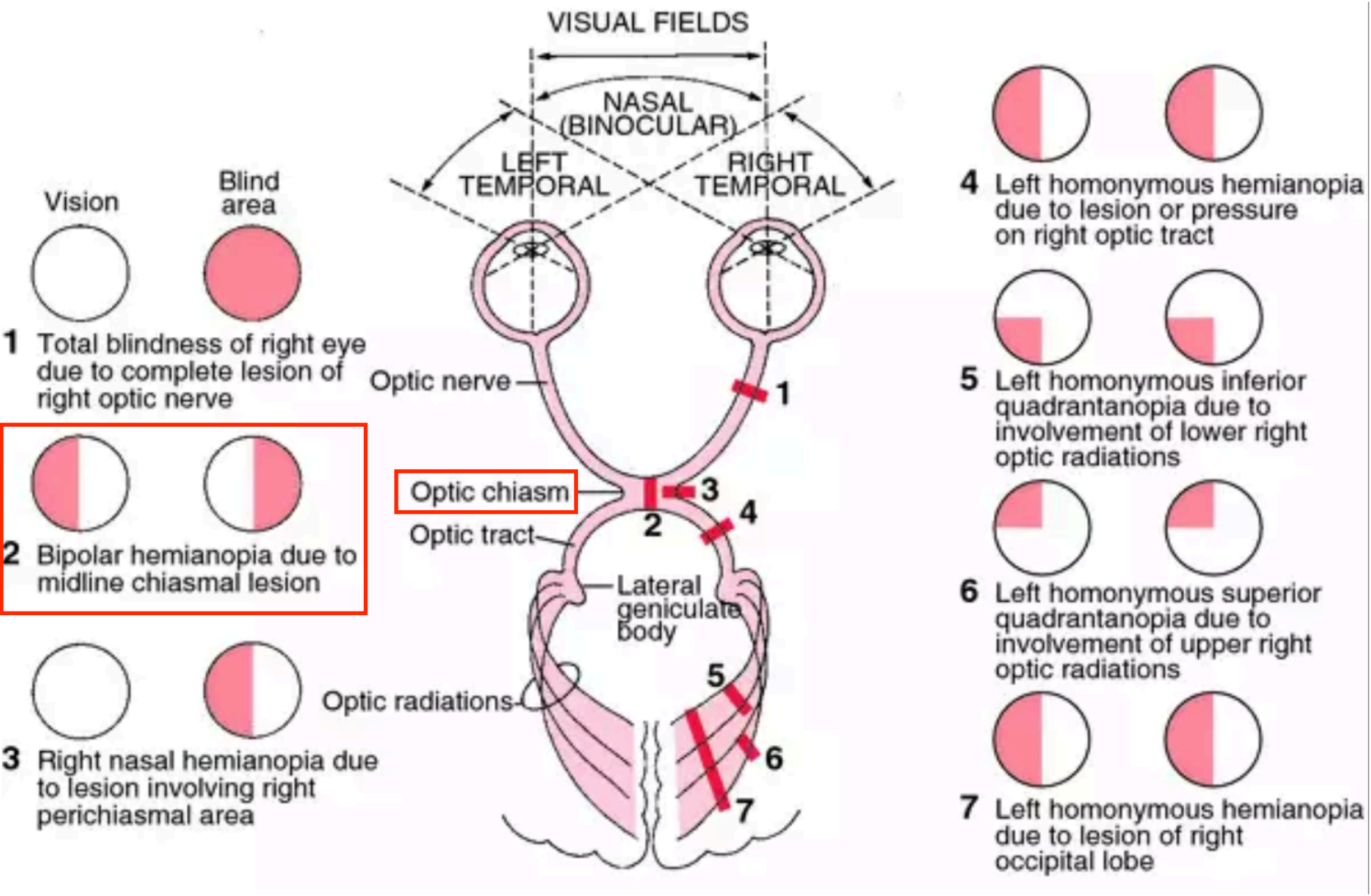
Man, in 50s, came with progressive (gradual) diminishing of vision.

Tasks:

1. Perform eye examination
2. Explain your findings and diagnosis.

Case 7

- Difficulty seeing road signs and often bumps into things
- On examination bitemporal hemianopia (only positive finding)
- Fundoscopic picture might be given, is normal
- Explain: most likely pituitary adenoma, compressing optic chiasm


VISUAL FIELDS
NASAL (BINOCULAR)
LEFT TEMPORAL
RIGHT TEMPORAL
Vision
Blind area
1 Total blindness of right eye due to complete lesion of right optic nerve
Optic nerve
1
2 Bipolar hemianopia due to midline chiasmal lesion
Optic chiasm
2
3
4
Optic tract
Lateral geniculate body
Optic radiations
5
6
7
3 Right nasal hemianopia due to lesion involving right perichiasmal area
4 Left homonymous hemianopia due to lesion or pressure on right optic tract
5 Left homonymous inferior quadrantanopia due to involvement of lower right optic radiations
6 Left homonymous superior quadrantanopia due to involvement of upper right optic radiations
7 Left homonymous hemianopia due to lesion of right occipital lobe

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Case 8

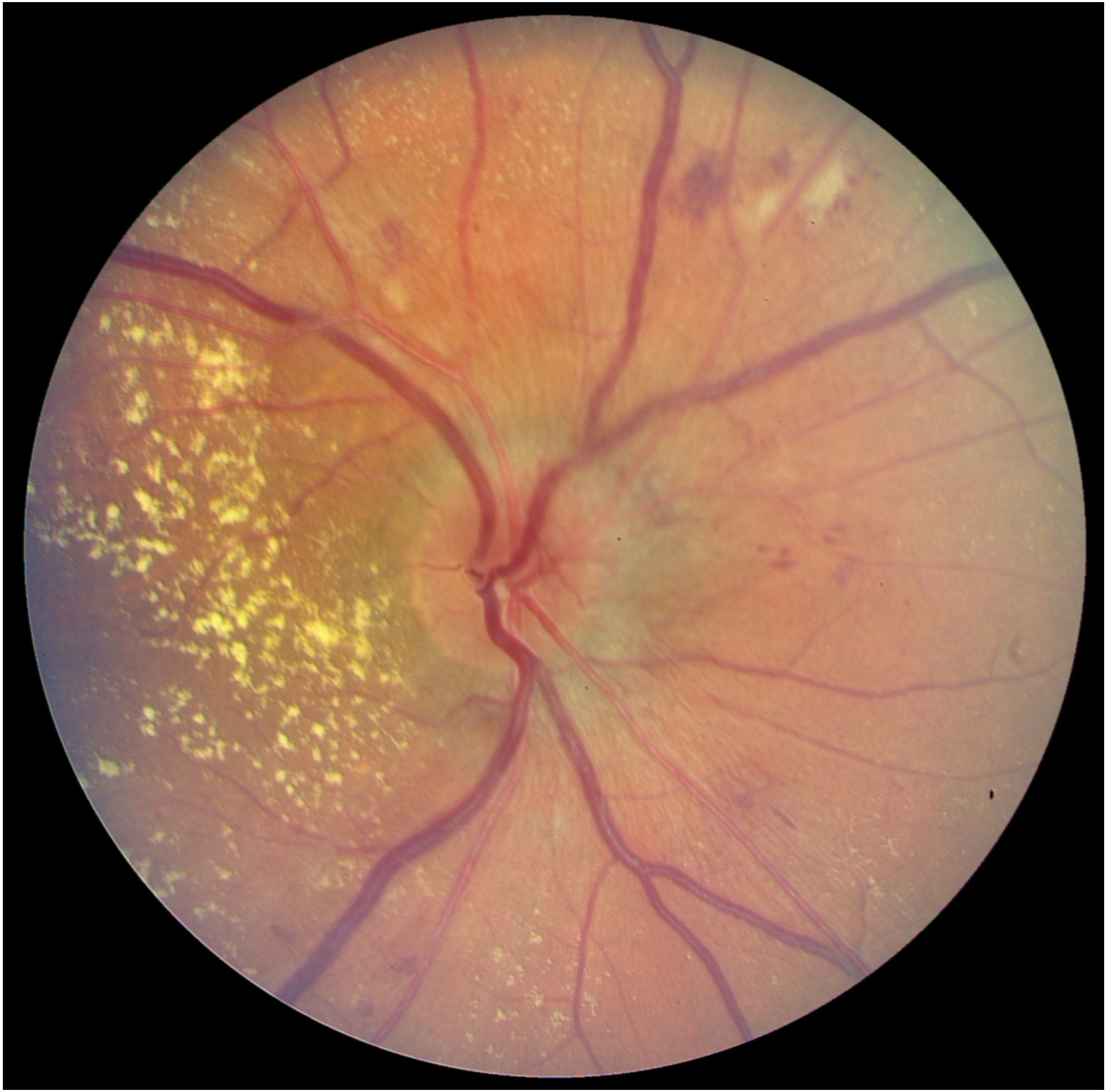
A 55 year old female presents with an episode of sudden loss of vision. She is okay now.

Tasks:

1. Examine patient
2. Explain your diagnosis and management

Case 8

- **Examine 3 systems: EYE + CVS + CNS**
- On examination everything will be normal
- Fundoscopy: examiner gives you hypertensive retinopathy (AV nicking, cotton wool spots, red spots, hard exudates +/- papilloedema
- CVS examination: check pulse, BP, carotid pulse, carotid bruit, 4 areas auscultation of heart for S1S2, murmurs and added sounds, check for basal crepitations from the back
- CNS examination, including cranial nerves, cerebellar and upper & lower limb neuro examination
- Patient will be extremely worried about diagnosis (mini-stroke = warning sign)
- What happened to you is a condition called amaurosis fugax, where there is a a temporary blocking of a blood vessel that supplies your eye.



Investigations

Diagnosis
- Amarausis fugax

- Basic blood tests: FBE, BSL, lipid profile
- ECG
- arrange ultrasound for neck vessels (doppler ultrasound for carotid artery stenosis)
- if in GP: refer to ED, you will be seen by specialist for further assessment
- if in ED: keep patient and call consultant for further assessment
  may need to admit patient after discussion with senior

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Case 9

17 year old male comes to GP with vision difficulties for the last few months.

Tasks:

1. Take history and PEFE
2. Explain diagnosis and management

Positive findings

- VA in right eye 6/9, 6/12 in left eye
- vision improves with pinhole test - DO NOT FORGET PINHOLE TEST
- patient does not wear glasses
- tonometry, fundoscopy, amsler grid test; all normal

Explanation

- Based on what you told me and the examination I believe most likely the condition you have is myopia, or short sightedness. It is quite common condition and can run in families
- Our eyes are like cameras, the part in the back is called retina. Normally when we look at objects, the light waves pass through the lens and an image is formed on the retina. Unfortunately in your case the image falls in front of the retina (draw). That is why you have difficulties seeing distant objects.
- It can be because a longer axis of the eyeball, or bigger eyeball, or it can be due to other causes like curvature
- With glasses, this can be corrected. The image then comes back and falls on retina

Management

- Refer to optometrist to confirm the condition and prescribe special glasses (concave or diverging)
- *Question: "Cousin had a laser a surgery, can I have it too?"*
- Answer: our eyeball is constantly shaping or changing its shape and structure until around the age of 20-21. It is advisable to do a laser surgery only after the age of 21 years, because at that time the eyeball most likely has stabilised.
- Complications: retinal detachment and glaucoma
- Red flags: sudden deterioration in vision or curtain like appearance going down
- Give reading materials
- Review on regular basis (to look for changes and signs of detachment)
- 6/12 is accepted, if it is worse in one eye; can still drive, 6/18 in both eyes: please do not drive until the condition is sorted out

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Questions?