Rapid Visual Loss

Dr Michael Johnson PhD FCOptom DipOrth DipGlauc DipTp(IP)

Independent Prescribing Optometrist

Outline

- Pathophysiology
- Differential diagnosis.
- Patient scenarios in community practice:
  - What should you ask?
  - What should you examine?
  - When, where and how urgent should be any referral?

Summary

- Eye problems – 3 red flag Ps
  - Poor vison
  - Pain
  - Photophobia
- Is it ‘just’ an eye problem?
  - Consider vascular or neurological disease
- If it’s not simple trauma then they need to go somewhere for a Dx

Pathophysiology

- Opacification of normally clear media
- Retinal abnormality
- Visual pathway problems

Differential diagnosis (common)

- AMD (wet)
- Retinal vascular occlusions
- Ischaemic optic neuropathy
- Vitreous haemorrhage
- Retinal detachment
- Amaurosis fugax
- TIA & CVA

Differential diagnosis (less common)

- Corneal trauma
- Corneal infection
- Anterior uveitis = iritis
- Acute glaucoma
- Optic neuritis

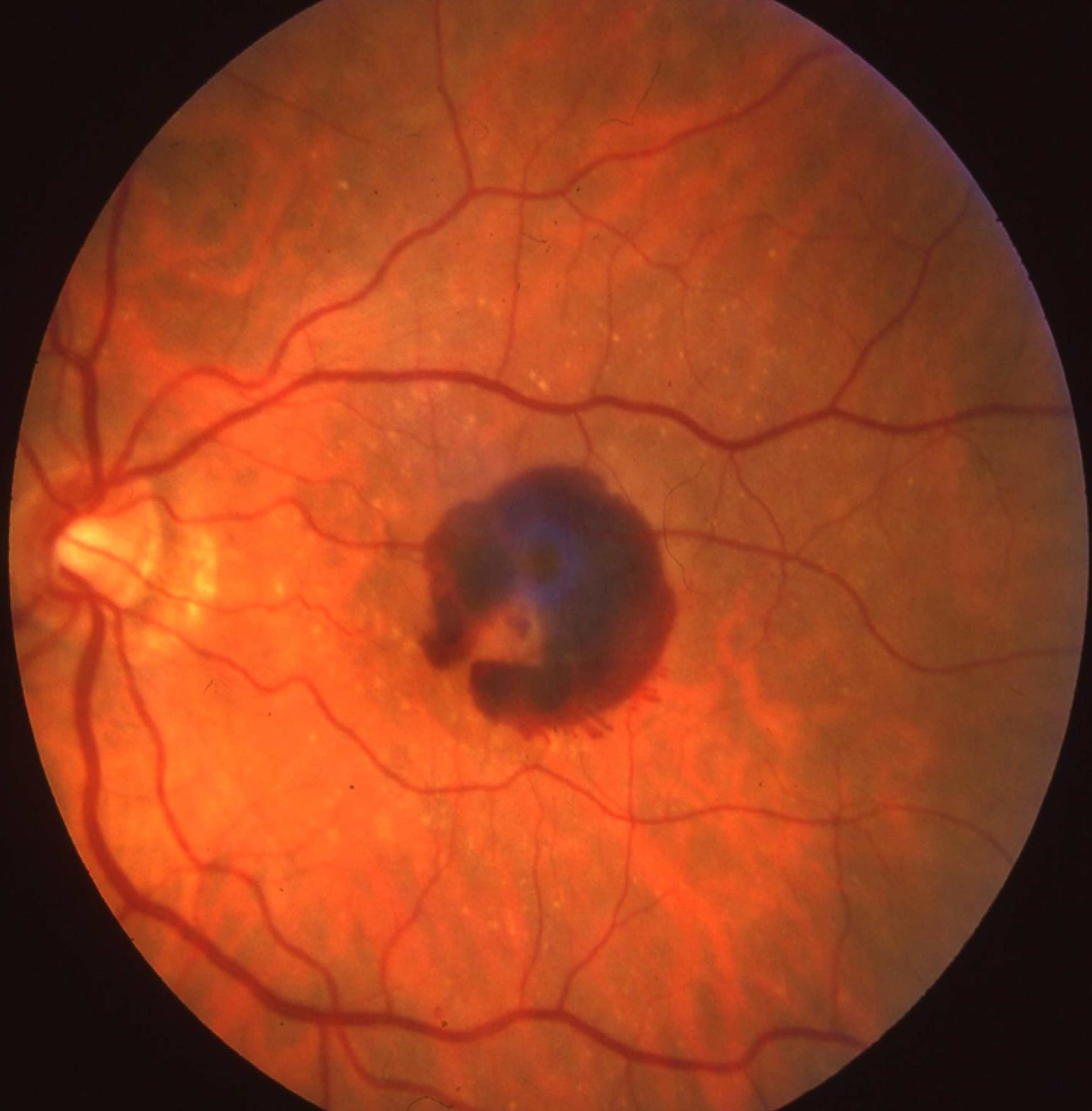
Age-related macular degeneration = AMD

- Cells of central retina no longer work properly
- Impairment of central vision
    - Reduced acuity
    - Distortion (more commonly when “wet”)
- Functional consequences
    - Difficulty reading
    - Unable to identify road signs
    - Cannot recognise people’s faces

homes

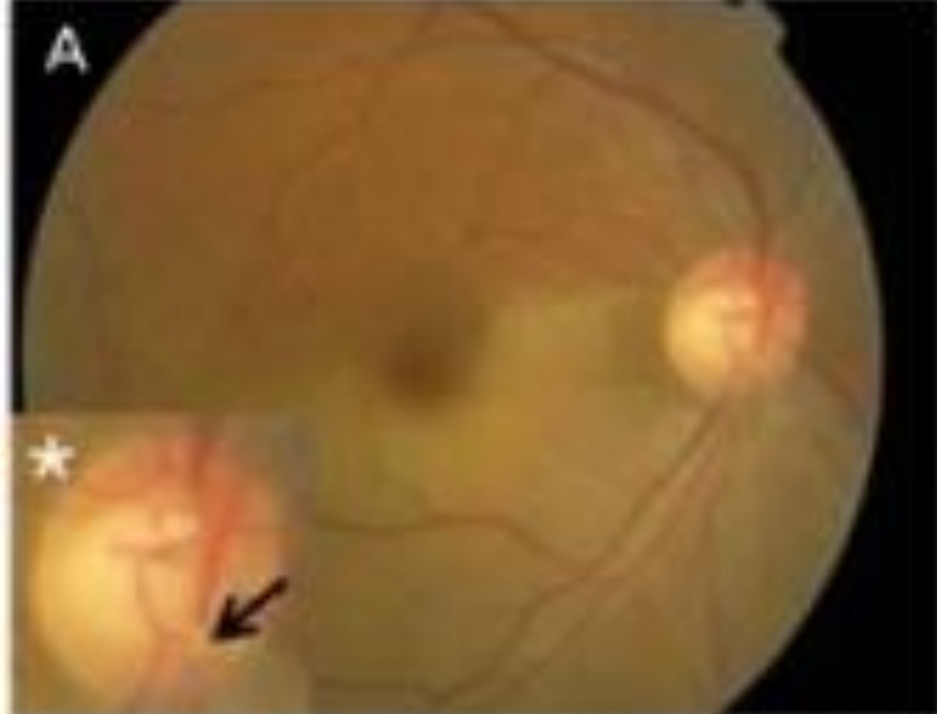
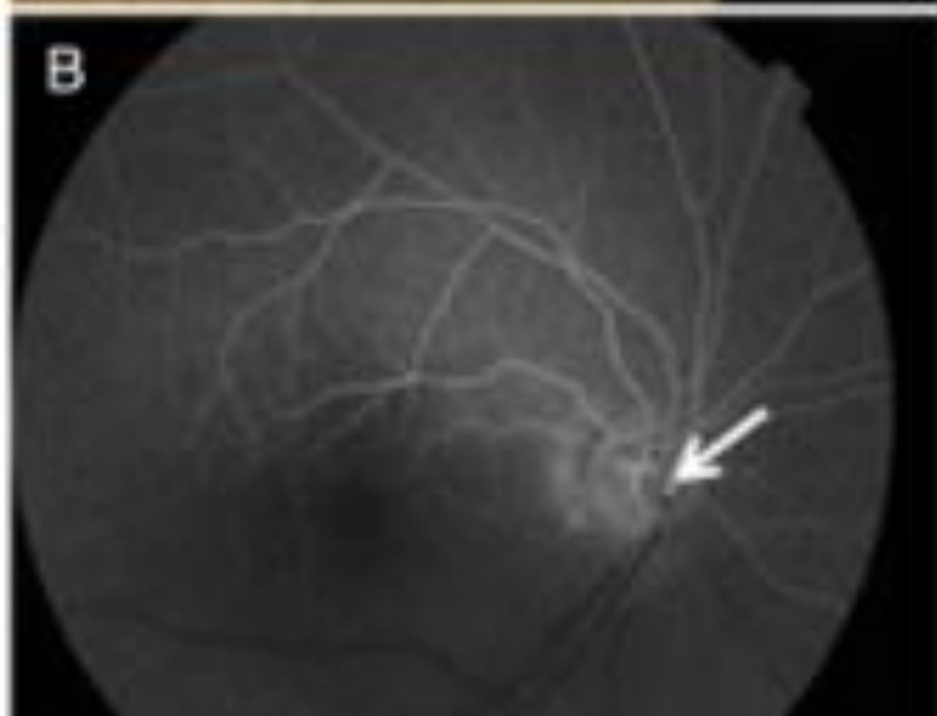
AMD (wet)

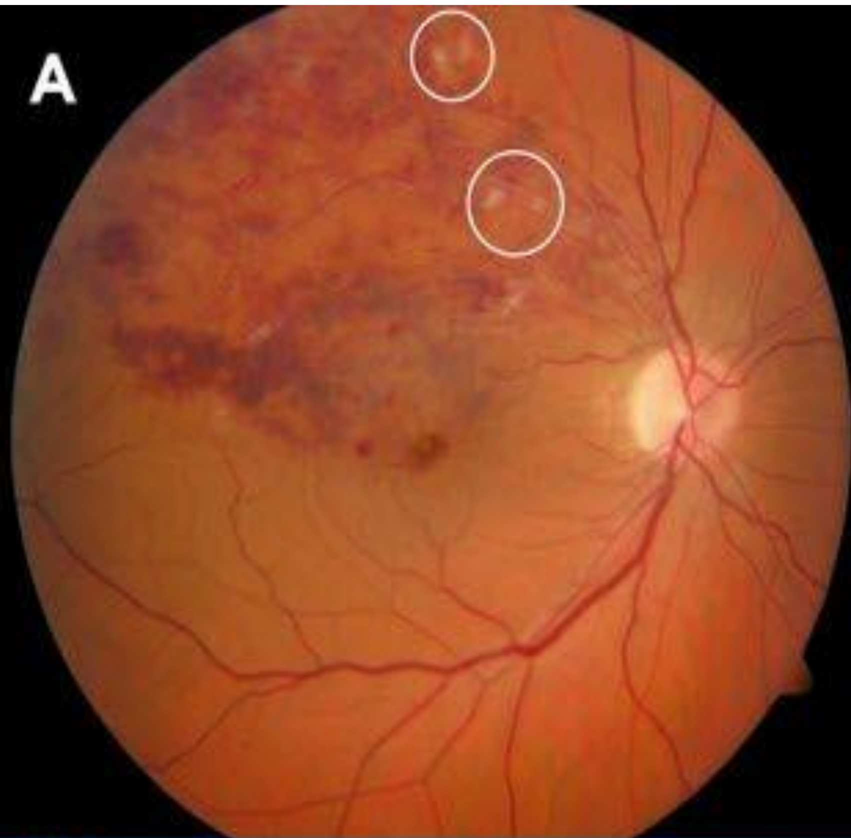
- Dry changes accompanied by neovascularisation
- New blood vessels are leaky
- Characterised by more abrupt reduction in central vision
- Distortion is common

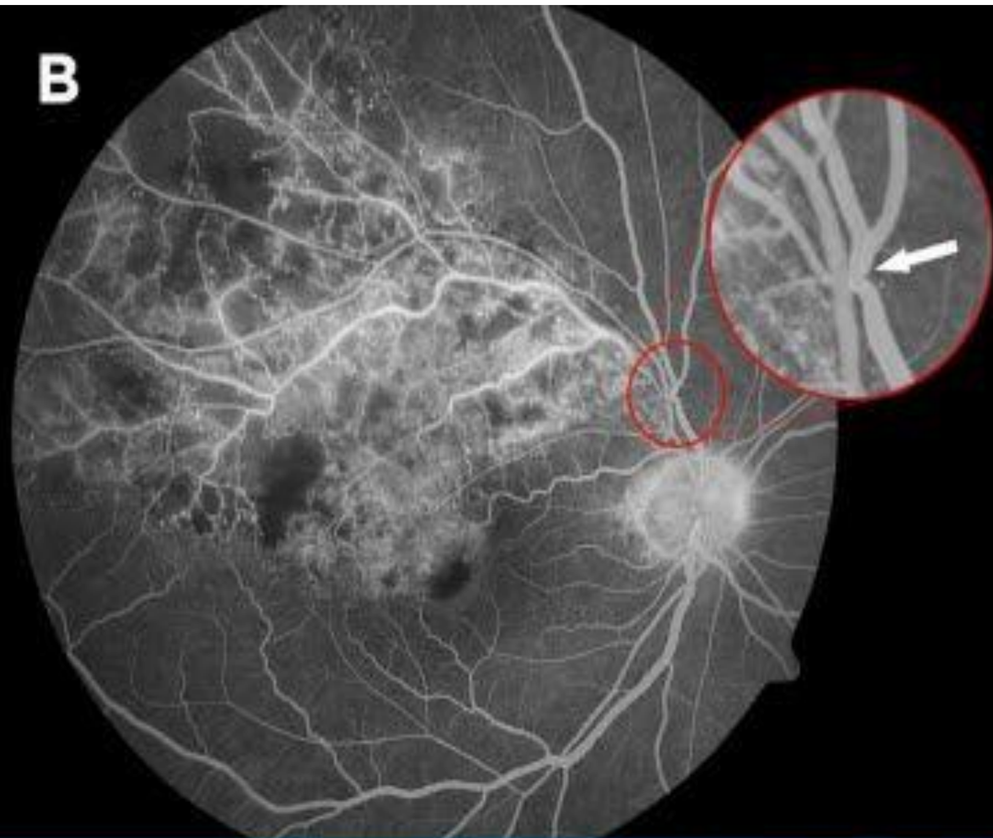


Retinal vascular occlusions

- Blockage by emboli travelling to eye from carotid
- Thrombus from localised factors causing turbulent flow & endothelial damage
- Result:
  - Ischaemia
  - Venous occlusion leads to leakage of fluid


A
*

B



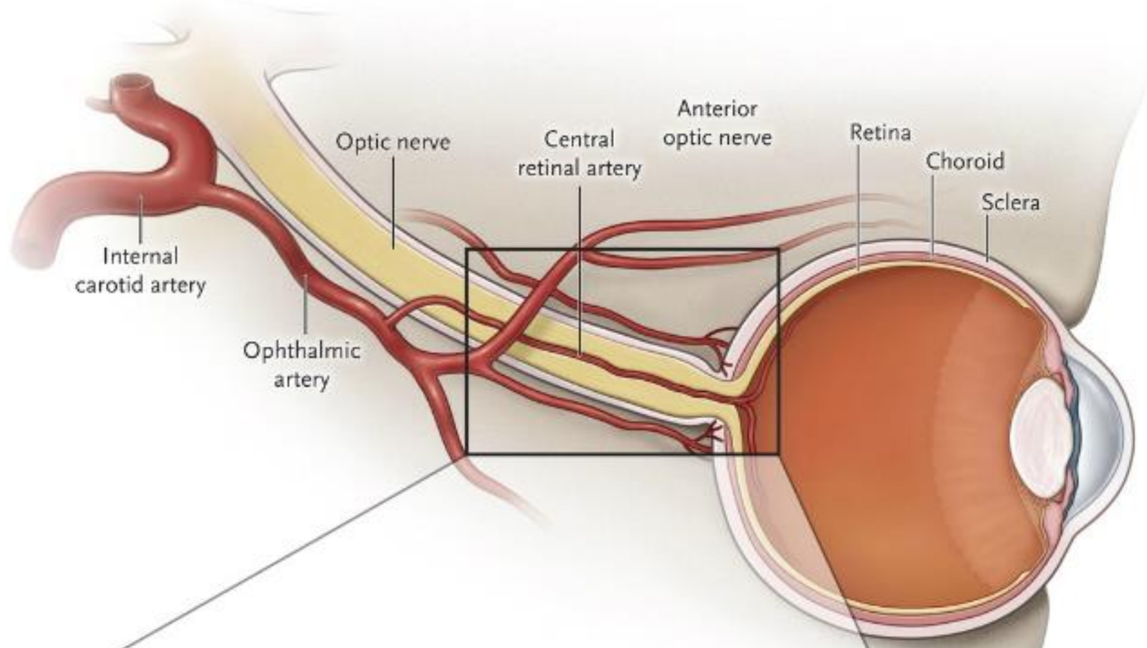


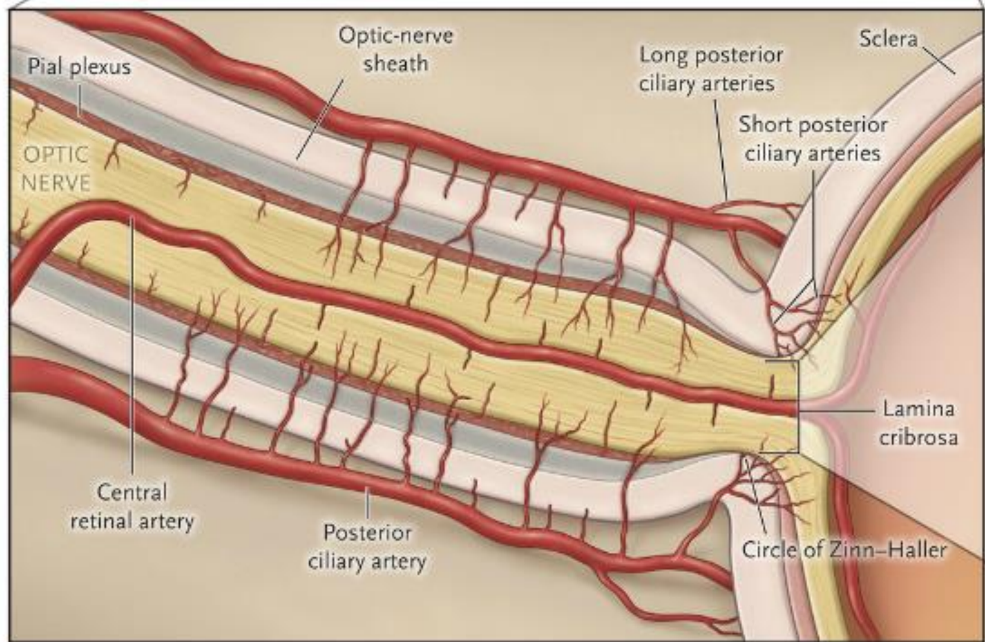
Medscape

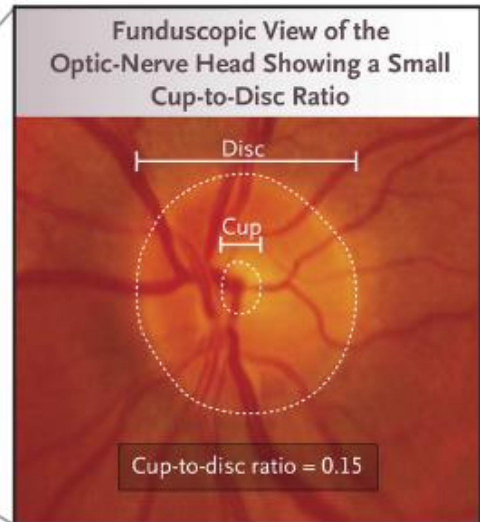
Source: BMJ © 2012 BMJ Publishing Group Ltd

Ischaemic optic neuropathy

- Two diseases
  - Non-arteritic
    - Systemic and ocular pre-disposition
    - Precipitated by period of hypotension, often nocturnal
    - Very rarely due to embolism of feeding arteries
  - Artertitic
    - Normally due to GCA
    - Rarely other types of vasculitis

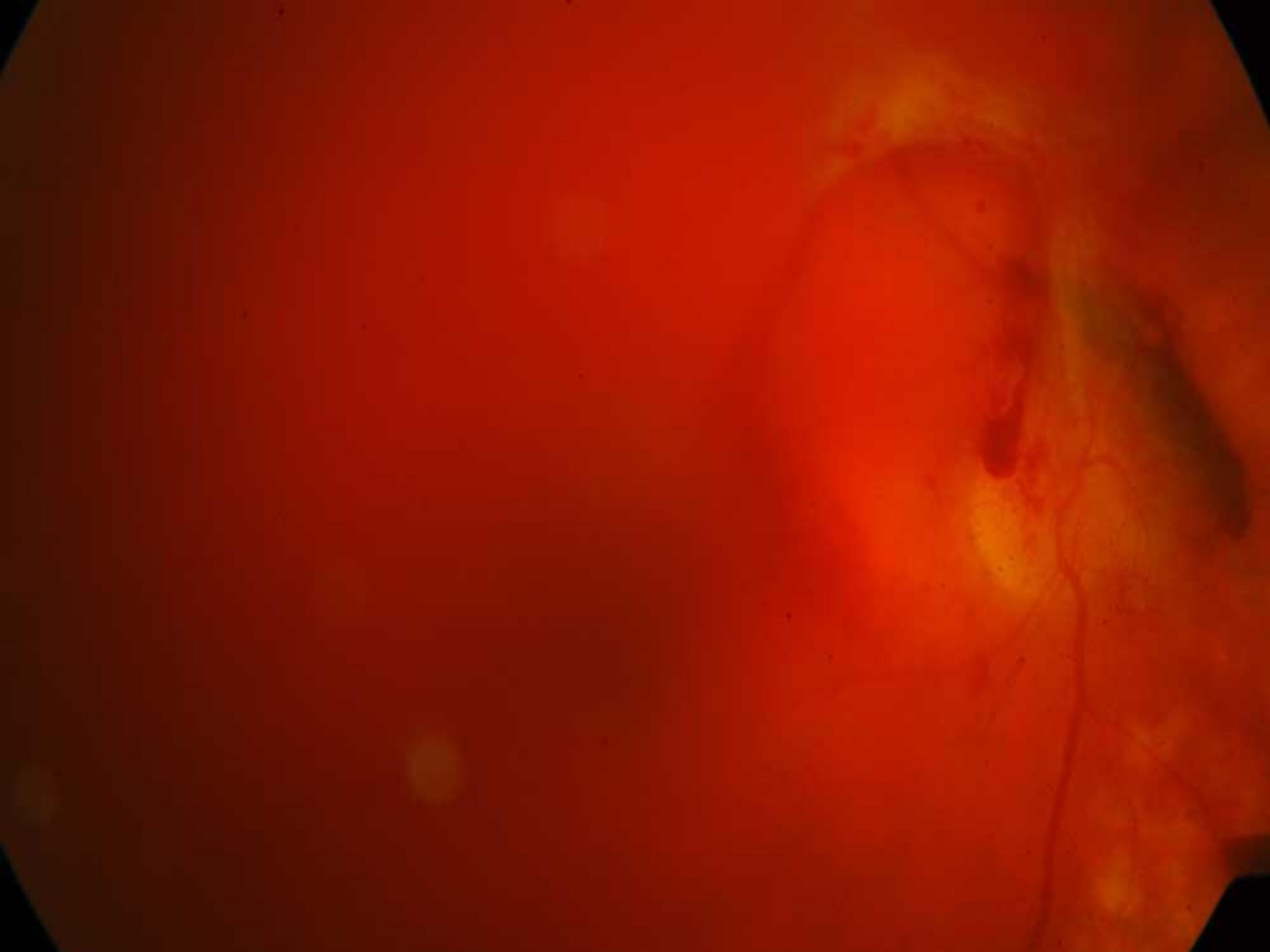

Internal carotid artery
Ophthalmic artery
Optic nerve
Central retinal artery
Anterior optic nerve
Retina
Choroid
Sclera


Pial plexus
OPTIC NERVE
Optic-nerve sheath
Long posterior ciliary arteries
Sclera
Short posterior ciliary arteries
Lamina cribrosa
Central retinal artery
Posterior ciliary artery
Circle of Zinn–Haller


Funduscopic View of the Optic-Nerve Head Showing a Small Cup-to-Disc Ratio
Disc
Cup
Cup-to-disc ratio = 0.15

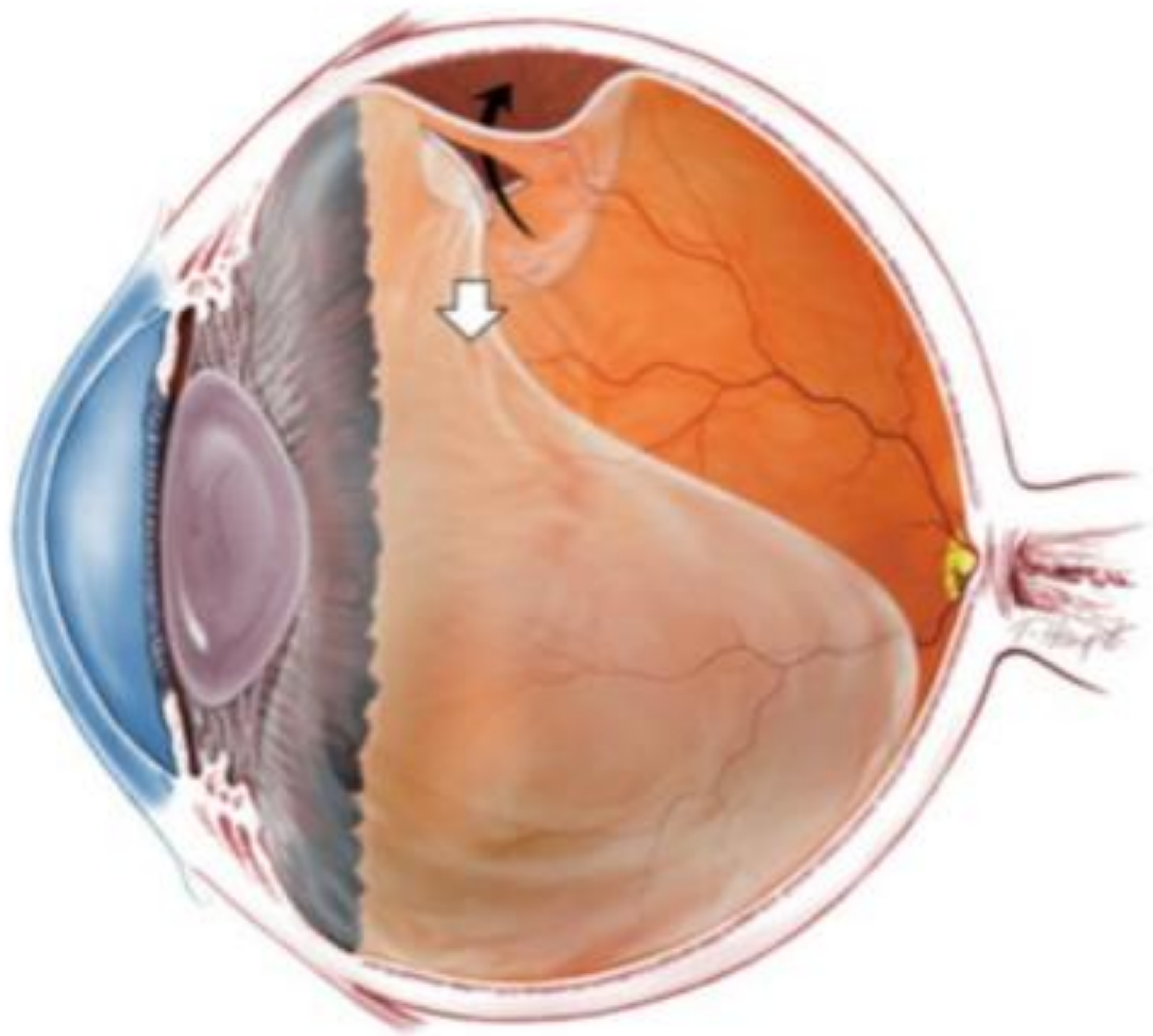
Vitreous haemorrhage

- Blood inside the eye between the lens and retina
- Normally the result of proliferative diabetic retinopathy
- Less common causes include a retinal tear and ocular tumours
- Sudden, painless loss of vision
    - Mild = Increase in floaters/streaks and blurred vision
    - Severe = Profound reduction in vision to perception of light



Retinal detachment

- Separation of the retina from the back of the eye
- Big risk factors are myopia and trauma
- Most symptom related to triggering PVD
  - Sudden increase in the number of floaters
  - Flashes of light
  - Dark shadow that starts at the edge of vision and extends centrally
  - Impression of a veil or curtain over vision



Amourosis fugax

- Amourosis = darkening. Fugax = fleeting
- Embolic / hypoperfusion / migraine
- Consider associated Sx of CVA and medical Hx
- If confident not migraine then refer to stroke clinic

TIA & CVA

- Vision loss tends to be sudden over seconds, not minutes
- Often associated neuro Sx

Differential diagnosis (less common)

- Corneal infection
- Anterior uveitis = iritis
- Acute glaucoma
- Optic neuritis

Red flags

- Sudden loss of vision
- Pain
- Distortion
- Light sensitivity
- Red eye, especially in contact lens wearer
- Associated with new neurological Sx
- Associated with Sx suggestive of GCA

What to ask

- How bad is vision?
- One eye or both eyes?
- How sudden? – seconds/minutes vs days vs months
- Pain? – versus annoying discomfort.
- Recent trauma/surgery?
- Associated with new neurological Sx
- Associated with Sx suggestive of GCA

What to examine

- Consider demographics
- Consider general health, principally vascular health
- Is the eye red
- Visual acuity – RE & LE tested separately
- Pupil reflexes – is constriction to light symmetrical
- Optional:
  - Crude assessment of peripheral vision with confrontation
  - Assessment of red reflex with the ophthalmoscope
  - Ophthalmoscopy
  - Blood pressure

Anyone you do not refer to Eye Casualty?

- Superficial trauma
- High suspicion of CVA
- Reasonable to ask to see optometrist in next few days depending on local arrangements for extended services, especially if:-
  - Reduction in vision modest
  - Vision reduced more than 2 weeks ago
  - No pain or redness
  - Pupil reflexes symmetrical
  - No new neurological Sx

Case 1

- 82 year old lady
  - C/O reduced vision
    - What questions to ask?
    - What to examine?
    - What is the differential diagnosis?
    - How would you manage?

Case 1

- What questions to ask?
  - When and how sudden? **= Reduced over past week**
  - One eye or both eyes? **= RE**
  - How bad is vision? **= Blurred**
  - Pain? **= No**
  - Recent trauma/surgery? **= No**
  - Associated with new neurological Sx **= No**
  - Associated with Sx suggestive of GCA **= No**

What to examine

- Demographics **= AMD or vascular cause**
- Consider general health, principally vascular health **= Nil remarkable**
- Is the eye red **= No**
- Visual acuity **= RE: 6/12, LE: 6/9**
- Pupil reflexes **= Normal**
- Optional:
    - Crude assessment of peripheral vision with confrontation **= NA**
    - Assessment of red reflex with the ophthalmoscope **= OK**
    - Ophthalmoscopy **= NAD**

Case 1

- Differential diagnosis

- Management

Case 1

- Differential diagnosis
  - **Age-related macula degeneration – suspect wet**
  - **Vascular occlusion of retinal vein**
  - **Non-arteritic AION**
- Management
  - **Urgent referral to eye casualty**
  - **Referral to community optometrist (maybe)**

Case 2

- 23 year old man
  - C/O reduced vision in RE following brawl at weekend
    - What questions to ask?
    - What to examine?
    - What is the differential diagnosis?
    - How would you manage?

Case 2

- What questions to ask?
  - When and how sudden? **= Yesterday, noticed shadow in vision**
  - One eye or both eyes? **= RE**
  - How bad is vision? **= OK**
  - Pain? **= Achy discomfort**
  - Recent trauma/surgery? **= Yes**
  - Associated with new neurological Sx **= No**
  - Associated with Sx suggestive of GCA **= No**

What to examine

- Demographics **= RD, iritis, hyphema, vitreous haemorhage**
- Consider general health, principally vascular health **= Nil remarkable**
- Is the eye red **= No, but periorbital bruising**
- Visual acuity **= RE: 6/6 (poor) , LE: 6/6**
- Pupil reflexes **= Normal**
- Optional:
    - Crude assessment of peripheral vision with confrontation **= OK**
    - Assessment of red reflex with the ophthalmoscope **= OK**
    - Ophthalmoscopy **= NAD**

Case 2

- Differential diagnosis

- Management

Case 2

- Differential diagnosis
  - **RD**
  - **Iritis**
  - **Hyphema**
- Management
  - **Urgent referral to eye casualty**

Case 3

- 80 year old man
  - C/O sudden reduction in vision 3 weeks ago
    - What questions to ask?
    - What to examine?
    - What is the differential diagnosis?
    - How would you manage?

Case 3

- What questions to ask?
  - When and how sudden? **= 3 weeks ago**
  - One eye or both eyes? **= RE**
  - How bad is vision? **= Blurred**
  - Pain? **= None**
  - Recent trauma/surgery? **= No**
  - Associated with new neurological Sx **= No**
  - Associated with Sx suggestive of GCA **= No**

What to examine

- Demographics **= Wet AMD, retinal vascular occlusion, AION**
- Consider general health, principally vascular health **= NAD**
- Is the eye red **= No**
- Visual acuity **= RE: 6/12 , LE: 6/6**
- Pupil reflexes **= Normal**
- Optional:
  - Crude assessment of peripheral vision with confrontation **= OK**
  - Assessment of red reflex with the ophthalmoscope **= OK**
  - Ophthalmoscopy **= NAD**

Case 3

- Differential diagnosis

- Management

Case 3

- Differential diagnosis
  - **Wet AMD**
  - **Vascular occlusion**
  - **AION**
- Management
  - **Refer to optometrist < 1 week due to delayed presentation**

Rapid Visual Loss

Dr Michael Johnson PhD FCOptom DipOrth DipGlauc DipTp(IP)

Independent Prescribing Optometrist