Sudden Visual Loss

History
- sudden onset, duration
- monocular/binocular
- pain
- precipitating factors
- hx trauma
- assoc Sx
- prior episodes
- PMH incl risk factors for vasculopathy

Exam
- VA (snellens chart at 6m then 3m, finger counting, hand movt, light perception)
- visual fields
- RAPD and pupil reactivity
- extraocular movts
- red reflex
- fundus
- slit lamp incl ant chamber
- IOP (normal 10-20 mmHg)
- physical exam

Referral
CRAO <3hrs
GCA or sudden visual loss and cause not established <6hrs
All other causes <24hrs

24% TIA, 17% ocular disease, 10% transient monocular blindness, 15% migraine

Painless causes
CRAO, RVO, branch RVO, ischaemic optic neuropathy, retinal detachment

Painful causes
AACG

Bilateral
Bilat occipital infarct; bilat temporal arteritis; quinine, methanol
Retinal Artery Occlusion
Central or branch
Ocular emergency - >240mins no blood flow = irreversible damage
Anatomy: ICA - ophthalmic artery - CRA
Causes:
- thrombotic (most common)
- embolic (young females, better prognosis, plt emboli; talc if IVDU; from carotid / heart)
- inflammatory: temporal arteritis (5%)
Commonly 60-65 years with RF for atherosclerosis
Sx: Sudden, unilateral, painless visual loss; progresses from outer field inwards
OE: RAPD; pale optic disc; cherry red spot (fovea against white infarcted retina - may not be present early); retinal
white oedema (may take >24hrs to develop), emboli visible in 40%
Ix: FBC, pro-coagulant screen, ESR/CRP, ECG (embolism), +/- carotid doppler/ECHO
Mng: time-critical condition/ophthalmological emergency; permanent if >90mins; digital massage; hypercarbia
(carbogen = 95% O2, 5% CO2); topical beta-blockers; retrobulbar anaesthesia with lignocaine to relieve vasospasm;
CA inhibitors (acetazolamide 500mg IV stat + decr IOP); diuretics; aqueous humour paracentesis if resistant to trt,
aspirin. Steroids if GCA. Hyperbaric O2
Prognosis depends on degree of visual loss
Branch RAO - focal/scotomatous defect

Retinal vein occlusion
Infarction not ischaemia
Causes: hyperviscosity, HTN, glaucoma, atherosclerosis, DM (older vasculopathies)
Assessment: sudden onset painless blurred vision; progresses from outer field inwards; no floaters; can count fingers;
thunderstorm retina (extensive intraretinal and pre-retinal haemorrhage), dilated retinal veins, cotton wool spots, disc
oedema, RAPD if severe
Ix: BSL, BP, IOP, FBC, ESR
Mng: poor prognosis; prevent neovascularisation. Check/treat underlying condition. Refer within 24hrs

Retinal detachment
Neurosensory retina separates from underlying retinal pigment epithelium
Pathophysiology:
- rhegmatogenous (most common; assoc with retinal tear)
- tractional (proliferative diabetic retinopathy, trauma)
- exudative (fluid accumulated under tear; neoplastic, inflamm, vascular)
Associations: myopia, cataracts removal, vitreous diseases, trauma
Assessment: slow onset painless loss of vision, recent hx floaters/flashes, onset over hrs; partial field loss like curtain;
maybe normal VA if macular not involved
Exam: decr VA, abnormal red reflex, +/- detached retina, field defect
Ix: USS 90% sens and spec
Mng: eye pad; bed rest; laser photocoagulation

Vitreous haemorrhage
Associations: trauma; DM (neoV); coagulopathy; post vitreous detachment (shaken baby; incomplete in 40% and
attached parts cause traction); retinal detachment; prev retinal vein occlusion
Assessment: large black floaters precede hundreds of small black specks - cobweb floaters (clots) - visual loss,
sudden, painless
Mng: ophthalmology review within 24hrs; admit; check for DM, bed rest; laser photocoagulation and vitrectomy;
recurrence common; USS to exclude retinal detachment if view obscured
**Optic neuritis**
Demyelinating inflammation of optic nerve
Women:men 2:1; young adults; May be preceding viral illness
Causes: idiopathic; MS; temporal arteritis; HTN; atherosclerosis; post vaccination; viral (measles, mumps, chickenpox, IMN); syphilis, TB: sarcoidosis; cryptococcus
Assessment: decr vision (esp colour; progresses over hrs-days); unilat; eye pain, esp on adduction (90%); Uthoff’s phenomenon (vision worse when warm); decr VA <6/12; central scotoma; RAPD; optic disc oedema in 50%; small haemorrhages over disc
Mng: referral, most recover spontaneously; steroids speed recovery and decr rate of progression to MS in 2yrs, but no long term benefit; MS develops in 20% if normal MRI, 56% if abnormal. ESR, MRI (demyelination) or CXR (TB, sarcoid)

**Ischaemic Optic Neuropathy**
Occlusion of posterior choroidal blood supply of optic nerve
Most often caused by GCA (granulomatous inflammation in artery wall)
- with jaw claudication and headaches, tenderness/non-pulsatile temporal artery, fever and nights sweats, muscle pain
Usually not complete loss of vision, RAPD common
Symptoms of waking, don’t worsen
Fundoscopy: Papilloedema with splinter haemorrhages at disc margin
Ix: ESR/CRP
30% bilateral
Mx: steroids, refer, biopsy

**Transient Ischaemic Attack – Amaurosis Fugax**
Monocular visual loss usually lasts seconds to minutes, may last 1-2 hrs. Vision returns to normal
Essentially normal fundus exam, sometimes embolus seen
Other neurological signs associated with TIA
Investigate as for TIA
Management as for TIA

**Others**
Optic nerve / chiasm compression; metabolic; infarct; Ca; AVM; trauma
Drugs: methanol, lead, digoxin, amiodarone, quinine
Any cause of Red Eye