

FExNet 2026

Collated SAQs: Ophthalmology

ANSWER BOOKLET

Model answers for the 18 ophthalmology SAQs. References cited at the foot of each question.

Items marked [core] are required for full marks. Drug doses confirmed with current eTG
Therapeutic Guidelines (Eye Disorders) and RANZCO / RACGP Eye Emergency Manual.

18 questions • 183 marks

ACEM-aligned format. Sub-questions labelled a) b) c). Mark allocations indicative; references cited in the Answer Booklet. Question and answer indexes are clickable.

Answer Index

Click any entry to jump to its answer. Marks shown right.

Q1. Acute Angle-Closure Glaucoma	12	Q10. Herpes Simplex Keratitis (Dendritic Ulcer)	9
Q2. Central Retinal Artery Occlusion	11	Q11. Herpes Zoster Ophthalmicus	11
Q3. Central Retinal Vein Occlusion	9	Q12. Orbital versus Pre-septal Cellulitis	11
Q4. Retinal Detachment	10	Q13. Endophthalmitis	9
Q5. Optic Neuritis	10	Q14. Pupillary Abnormalities and Anisocoria	11
Q6. Giant Cell Arteritis with Visual Loss	11	Q15. Painful Red Eye — Differential Diagnosis	10
Q7. Acute Anterior Uveitis (Iritis)	10	Q16. Sudden Painless Vision Loss Differential	10
Q8. Acute Conjunctivitis — Causes and Treatment	12	Q17. Corneal Abrasion and Corneal Foreign Body	9
Q9. Bacterial Keratitis in Contact Lens Wearer	10	Q18. Subconjunctival Haemorrhage	8

Question 1 | Acute Angle-Closure Glaucoma (12 marks)

A 65-year-old Asian woman presents to your emergency department with a 4-hour history of severe right-eye pain, blurred vision with halos around lights, headache, and nausea. The pain began when she walked into a darkened cinema. She is hypermetropic (long-sighted). On examination, her right eye is intensely injected, the cornea appears hazy / cloudy, and the pupil is mid-dilated, oval, and unreactive to light. Vital signs are within normal limits.

a) List 4 features supporting acute angle-closure glaucoma. (4 marks)

- **Severe unilateral eye pain with halos around lights**; pain may be referred to the forehead [core]
- **Mid-dilated, oval, fixed (unreactive) pupil** from iris ischaemia [core]
- **Cornea appears hazy / cloudy / steamy** (from corneal oedema due to raised IOP compromising endothelial pump) [core]
- **Significantly raised intraocular pressure (greater than 40 millimetres of mercury, often 50-80)** with stony-hard globe on palpation [core]
- Conjunctival injection (ciliary flush)
- Reduced visual acuity
- Nausea, vomiting, abdominal pain (vagal response — may mask presentation)
- Risk factors: Asian or Inuit ethnicity, hypermetropia, older age, female, dim lighting, anticholinergic / sympathomimetic drugs

b) List 3 methods of measuring intraocular pressure AND state the upper limit of normal. (4 marks)

- **Goldmann applanation tonometry** — gold standard; uses split-image prism after fluorescein and topical anaesthetic application [core]
- **iCare (rebound) tonometry** — handheld; no need for anaesthetic; convenient for emergency department [core]
- **Tono-Pen / Schiötz tonometry; finger palpation** (gross estimate only — stony-hard globe in this case) [core]
- **Upper limit of normal: 21 millimetres of mercury**; measurements above 30 considered significantly elevated [core]

c) State 4 immediate management priorities (with drug, dose, route). (4 marks)

- **Acetazolamide 500 mg intravenous (or orally if no IV) STAT**, then 250 mg every 4-6 hours — carbonic anhydrase inhibitor reduces aqueous production (check no sulfa allergy) [core]
- **Topical pilocarpine 1-2 percent** (2 percent if pigmented iris) — every 5-10 minutes for 30 minutes; constricts pupil and pulls iris from the angle (may not work if iris ischaemic and pupil mid-dilated) [core]
- **Topical beta-blocker (timolol 0.5 percent)** + topical alpha-2 agonist (brimonidine 0.2 percent) + topical steroid (prednisolone acetate 1 percent) every 5-10 minutes for first 30 minutes [core]
- **Urgent ophthalmology consultation** for definitive treatment — laser peripheral iridotomy (within 24-48 hours); consider hyperosmotic agents (mannitol 0.5-1 g/kg IV) if intraocular pressure refractory to medical treatment [core]
- Analgesia (oral / IV) and anti-emetics
- Recheck IOP at 30 min and 60 min
- Once acute attack settled, refer for laser iridotomy of FELLOW eye (high risk of bilateral attack)

References: eTG Therapeutic Guidelines — Eye Disorders • RANZCO Ophthalmology Society / NHMRC clinical guidelines • Tintinalli's Emergency Medicine 9e Ch 241 • RACGP Eye Emergency Manual

Question 2 | Central Retinal Artery Occlusion (11 marks)

A 74-year-old woman presents to your emergency department with sudden painless visual loss in her right eye that occurred 30 minutes ago. She has perception of light only at the periphery of her right visual field. Her main comorbidities are hypertension, hypercholesterolaemia, and type 2 diabetes mellitus. On fundoscopy of the right eye, you see a pale (whitish) retina with a 'cherry-red spot' at the macula. Her vital signs are within normal limits.

a) List 5 causes of sudden painless unilateral vision loss. (5 marks)

- **Central retinal artery occlusion** (this case) [core]
- **Central retinal vein occlusion** [core]
- **Retinal detachment** [core]
- **Vitreous haemorrhage** [core]
- **Optic neuritis** (often associated with pain on eye movement) [core]
- **Giant cell arteritis with anterior ischaemic optic neuropathy** [core]
- Acute glaucoma (more typically painful)
- Migraine with aura (transient)
- Stroke involving the visual pathway / occipital cortex (usually bilateral)
- Functional / hysterical visual loss

b) Describe what is meant by a relative afferent pupillary defect (RAPD) AND state when it would be expected. (3 marks)

- **Relative afferent pupillary defect (RAPD), or Marcus Gunn pupil:** when performing the swinging-flashlight test, the pupil of the affected eye paradoxically DILATES when the light is moved from the unaffected eye to the affected eye (rather than constricting) [core]
- **Indicates an asymmetric afferent visual pathway lesion** (optic nerve, retina, or chiasm) — the affected eye perceives less light, so when the light swings to it the consensual relaxation of the unaffected eye dominates [core]
- **Conditions causing RAPD:** optic neuritis (multiple sclerosis), severe glaucoma, ischaemic optic neuropathy (GCA), CRAO, severe retinal detachment, compressive optic neuropathy [core]
- RAPD does NOT occur in cataract or refractive errors (these are not retinal / optic nerve diseases)

c) List 3 emergency department treatment options for CRAO with rationale. (3 marks)

- **Ocular massage** — firm pressure on globe through closed eyelid, applied for 10 seconds with 5-second relief; may dislodge the embolus into a more peripheral vessel [core]
- **Reduce intraocular pressure** — intravenous acetazolamide 500 mg, anterior chamber paracentesis (by ophthalmology); intermittent vigorous coughing or Valsalva; aim to reduce intraocular pressure quickly to encourage embolus movement [core]
- **Carbogen / vasodilator therapy** — rebreathing into a paper bag (raises PaCO₂, dilating retinal vessels); evidence is limited; nitrate spray under tongue [core]
- **Thrombolysis** — intra-arterial or intravenous tissue plasminogen activator considered in selected cases within 4.5 hours of onset; evidence is mixed; specialist input required
- Investigate underlying cause — carotid Doppler (carotid artery dissection / stenosis), echocardiography (cardio-embolic source — atrial fibrillation), inflammatory markers (giant cell arteritis must always be considered in >55 years)
- Time-critical: retinal infarction occurs by 90-100 minutes; outcomes generally poor; secondary prevention is the priority

References: eTG Therapeutic Guidelines — Eye Disorders • RANZCO Ophthalmology Society / NHMRC clinical guidelines
• Tintinalli's Emergency Medicine 9e Ch 167 • Stroke Foundation Living Guideline

Question 3 | Central Retinal Vein Occlusion (9 marks)

A 66-year-old man with hypertension, type 2 diabetes mellitus, and primary open-angle glaucoma presents to your emergency department with sudden painless vision loss in his left eye that occurred 2 hours ago. He has noticed haloes around lights for the past few weeks. On examination, his left visual acuity is 6/60. Fundoscopy reveals widespread intraretinal haemorrhages in all four quadrants, dilated and tortuous retinal veins, cotton-wool spots, and disc swelling. There is no relative afferent pupillary defect.

a) Describe 3 fundoscopic features distinguishing CRVO from CRAO. (3 marks)

- **CRVO: 'blood and thunder' fundus** — widespread retinal haemorrhages in all 4 quadrants, with dilated tortuous retinal veins; **CRAO**: pale (whitish) retina with cherry-red spot at macula **[core]**
- **CRVO**: cotton-wool spots and disc swelling; **CRAO**: clear retina with narrow attenuated arterioles **[core]**
- **CRVO**: vision loss usually less complete (partial — 6/60 typically); **CRAO**: profound vision loss (perception of light or worse) **[core]**

b) List 3 risk factors for CRVO. (3 marks)

- **Hypertension** (most common — 60-70 percent of cases) **[core]**
- **Diabetes mellitus** **[core]**
- **Hyperlipidaemia / atherosclerosis** **[core]**
- Glaucoma (raised intraocular pressure may compress the central retinal vein at the lamina cribrosa)
- Hyperviscosity syndromes (polycythaemia, multiple myeloma, Waldenström's macroglobulinaemia)
- Hypercoagulable states (factor V Leiden, antiphospholipid syndrome, oral contraceptive)
- Vasculitides (giant cell arteritis, polyarteritis nodosa)

c) State 3 management priorities. (3 marks)

- **Urgent ophthalmology referral** for specialist assessment (often outpatient rather than emergency); investigate for macular oedema (the main treatable cause of vision loss) **[core]**
- **Investigate and treat underlying cause** — blood pressure control, glycaemic control, lipid lowering; thrombophilia screen in younger patients; ESR / temporal arteritis if >55 years **[core]**
- **Anti-VEGF therapy** (intravitreal ranibizumab, aflibercept, or bevacizumab) for macular oedema — performed by ophthalmology; or intravitreal dexamethasone implant **[core]**
- Pan-retinal photocoagulation if iris / angle neovascularisation develops
- Cardiovascular risk assessment and management

References: eTG Therapeutic Guidelines — Eye Disorders • RANZCO Ophthalmology Society / NHMRC clinical guidelines
• Tintinalli's Emergency Medicine 9e Ch 241

Question 4 | Retinal Detachment (10 marks)

A 78-year-old myopic man presents to your emergency department with sudden painless vision loss in his right eye that started 1 hour ago. Over the past few days he has noticed flashing lights (photopsia) and an increasing number of floaters in the right eye. He has a history of cataracts (operated 2 years ago) and hypertension. On examination, his right visual acuity is hand movements only. The posterior chamber is not clearly visible due to a posterior vitreous detachment.

a) List 3 risk factors for retinal detachment. (3 marks)

- **Myopia (high — >6 dioptres) [core]**
- **Previous intraocular surgery** (particularly cataract surgery; post-vitrectomy) [core]
- **Eye trauma** (blunt or penetrating) [core]
- Family history
- Previous retinal detachment in fellow eye
- Older age
- Diabetic retinopathy (proliferative)
- Inherited disorders (Marfan syndrome, Stickler syndrome, Ehlers-Danlos)

b) List 4 investigations or examinations to help establish the diagnosis (with reasoning). (4 marks)

- **Bedside B-scan ocular ultrasound** with high-frequency probe (linear, 7.5-10 MHz) on closed eyelid — identifies retinal detachment as a hyperechoic membrane tethered to the optic nerve head [core]
- **Slit-lamp examination** with fluorescein to exclude corneal abrasion / foreign body; intraocular pressure [core]
- **Indirect ophthalmoscopy** by ophthalmologist after pharmacological dilatation of the pupil — definitive examination [core]
- **Optical coherence tomography** if available — visualises macula and subretinal fluid [core]
- Visual field testing identifies the specific area of retinal detachment
- Magnetic resonance imaging of orbits if mass lesion or retinal detachment with vitreous haemorrhage / cataract obscuring view

c) State 3 management principles. (3 marks)

- **Urgent ophthalmology consultation** for definitive surgical repair — vitrectomy with gas / silicone tamponade, scleral buckling, or pneumatic retinopexy [core]
- **Position the patient** with the detached portion of the retina dependent (e.g. macula-on detachment with superior tear: face-down position) to slow progression while awaiting surgery [core]
- **Make nil by mouth pre-surgery**; manage analgesia and anti-emetics; investigate underlying causes [core]
- Distinguish macula-on vs macula-off detachment — macula-on has urgent surgical repair (within 24-48 hours) to preserve central vision
- Counsel on risk to fellow eye (10-30 percent lifetime risk in pseudophakic eyes)

References: eTG Therapeutic Guidelines — Eye Disorders • RANZCO Ophthalmology Society / NHMRC clinical guidelines
• Tintinalli's Emergency Medicine 9e Ch 241

Question 5 | Optic Neuritis (10 marks)

A 32-year-old woman presents to your emergency department with a 3-day history of progressive vision loss in her left eye, associated with pain behind the left eye that worsens with eye movement. She has noticed her vision is 'washed out' — colours appear less saturated, particularly red. She has no previous medical history. On examination, her left visual acuity is 6/24 (right 6/6 normally). There is a left relative afferent pupillary defect. Fundoscopy is normal.

a) List 4 features supporting optic neuritis. (4 marks)

- **Subacute monocular vision loss** developing over hours to days **[core]**
- **Pain on eye movement / retro-orbital pain** (90 percent of patients) **[core]**
- **Reduced colour vision (especially red desaturation)** — affected disproportionately to visual acuity **[core]**
- **Relative afferent pupillary defect** in the affected eye **[core]**
- Central scotoma on visual field testing
- Fundus typically NORMAL in retrobulbar optic neuritis (the most common form); papillitis (optic disc swelling) in anterior optic neuritis
- Younger age (15-50 years), female predominance
- Worsening with heat / exercise (Uhthoff's phenomenon)

b) List 3 investigations with rationale. (3 marks)

- **Magnetic resonance imaging brain and orbits with contrast** — assesses for demyelinating plaques (multiple sclerosis diagnosis); identifies optic nerve enhancement **[core]**
- **Visual evoked potentials** — delayed P100 latency with normal amplitude (subclinical demyelination) **[core]**
- **Lumbar puncture** — oligoclonal bands in cerebrospinal fluid (supports multiple sclerosis); normal opening pressure (excludes idiopathic intracranial hypertension) **[core]**
- Blood tests — vitamin B12, folate, thyroid-stimulating hormone, autoimmune screen (antinuclear antibodies, anti-dsDNA, anti-Ro/La), anti-aquaporin 4 antibody (neuromyelitis optica)
- Ophthalmology assessment with formal visual field testing

c) State 3 management priorities. (3 marks)

- **Methylprednisolone 1 g intravenous daily for 3-5 days** (hastens recovery but doesn't change long-term visual outcome — Optic Neuritis Treatment Trial); followed by oral prednisolone taper over 11 days (if used) **[core]**
- **Avoid oral corticosteroids alone** (may increase relapse rate in multiple sclerosis — ONTT findings); avoid in pregnancy unless severe **[core]**
- **Refer to neurology and ophthalmology** for diagnosis and disease-modifying therapy if multiple sclerosis confirmed **[core]**
- Provide patient with written information and support; multiple sclerosis is the underlying cause in 50-70 percent of patients with optic neuritis
- Counsel re visual prognosis — most achieve 6/12 or better; recovery typically over 4-6 weeks
- Investigate for less common causes — neuromyelitis optica, sarcoidosis, syphilis, Lyme disease

References: eTG (Therapeutic Guidelines, current) • RANZCO Ophthalmology Society / NHMRC clinical guidelines • Tintinalli's Emergency Medicine 9e Ch 241 • Optic Neuritis Treatment Trial (NEJM 1992)

Question 6 | Giant Cell Arteritis with Visual Loss (11 marks)

A 78-year-old woman presents to your emergency department with sudden painless vision loss in her left eye that occurred 6 hours ago. She has had increasing right-sided headache, jaw pain when chewing, and scalp tenderness for the past 3 weeks. She has a 2-month history of generalised malaise, fevers, and weight loss. On examination, her left visual acuity is hand movements; there is a left relative afferent pupillary defect. Fundoscopy shows a swollen pale optic disc. The right temporal artery is thickened, tortuous, and tender to palpation, with absent pulse.

a) List 4 supportive features for giant cell arteritis (GCA). (4 marks)

- **Age >50 years** (typically >65); **female:male ratio 2:1** [core]
- **New-onset headache** (typically temporal; 60-90 percent of patients) [core]
- **Jaw claudication** (pain on chewing from masseter ischaemia — most specific feature) [core]
- **Scalp tenderness; abnormal temporal artery** (thickened, tender, absent pulse) [core]
- Visual disturbance — sudden vision loss, amaurosis fugax, diplopia (anterior ischaemic optic neuropathy)
- Polymyalgia rheumatica symptoms (proximal limb girdle pain and stiffness; coexists in 50 percent)
- Constitutional symptoms — fever, weight loss, fatigue
- Markedly elevated inflammatory markers (CRP, ESR; ESR often >100)

b) List 3 investigations with expected findings. (3 marks)

- **Erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP)** — both markedly elevated; ESR typically >50 and often >100; CRP >25 mg/L [core]
- **Temporal artery biopsy** (definitive diagnosis; arrange within 1-2 weeks; should NOT delay treatment); shows granulomatous arteritis with multinucleated giant cells, lymphocytic infiltration of the media, fragmentation of internal elastic lamina; skip lesions mean biopsy must be at least 1 cm [core]
- **Temporal artery ultrasound** (non-invasive; 'halo sign' — hypoechoic ring around the lumen); MRI of head with vasculitis protocol [core]
- Full blood count — anaemia of chronic disease, thrombocytosis
- Liver function tests — raised ALP common

c) State 4 immediate management priorities — emphasise URGENCY. (4 marks)

- **High-dose intravenous methylprednisolone 1 g daily for 3 days** (for vision loss or recent threatened vision); do NOT delay for biopsy — irreversible bilateral blindness imminent if untreated [core]
- **Then high-dose oral prednisolone 60 mg daily** (1 mg/kg) — long taper over 12-18 months; commence proton pump inhibitor and bone protection (calcium, vitamin D, bisphosphonate) [core]
- **Aspirin 100 mg daily** (reduces risk of stroke / vision loss in GCA — observational data) [core]
- **Urgent rheumatology referral** for ongoing management; ophthalmology for fellow-eye monitoring; arrange temporal artery biopsy within 1-2 weeks (steroids do not invalidate biopsy if performed within 7-10 days) [core]
- Educate the patient about recurrence risk and long-term steroid management (osteoporosis, diabetes, peptic ulcer, cushingoid features)

References: eTG (Therapeutic Guidelines, current) • RANZCO Ophthalmology Society / NHMRC clinical guidelines • Tintinalli's Emergency Medicine 9e Ch 241 • EULAR / ACR GCA guidelines

Question 7 | Acute Anterior Uveitis (Iritis) (10 marks)

A 35-year-old male presents to your emergency department with a 2-day history of severe right-eye pain, photophobia, and reduced vision. He has a history of ankylosing spondylitis. On slit-lamp examination, the right eye shows a constricted (small, irregular) pupil, ciliary flush (deep circumferential redness around the limbus), cells and flare in the anterior chamber, and corneal keratic precipitates. Intraocular pressure is 18 millimetres of mercury (normal).

a) List 3 distinguishing features of anterior uveitis from conjunctivitis. (3 marks)

- **Photophobia and pain** (severe in uveitis; mild and gritty in conjunctivitis) **[core]**
- **Ciliary flush** (deep circumferential limbal redness in uveitis; conjunctival redness is more superficial and peripheral) **[core]**
- **Cells and flare in anterior chamber, keratic precipitates, miotic pupil** (anterior uveitis); none of these in conjunctivitis **[core]**
- Reduced visual acuity in uveitis (preserved in conjunctivitis)
- No discharge or itching in uveitis; both common in conjunctivitis

b) List 4 systemic associations of anterior uveitis. (4 marks)

- **HLA-B27-associated spondyloarthropathies** — ankylosing spondylitis, reactive arthritis (Reiter's), inflammatory bowel disease, psoriatic arthritis **[core]**
- **Sarcoidosis** **[core]**
- **Tuberculosis, syphilis** **[core]**
- **Behçet's disease** **[core]**
- Juvenile idiopathic arthritis (children — often asymptomatic)
- Multiple sclerosis
- Herpes zoster ophthalmicus
- Trauma (post-traumatic uveitis)
- Idiopathic (40-60 percent of cases)

c) State 3 management priorities. (3 marks)

- **Topical corticosteroids** — prednisolone acetate 1 percent 1 drop every 1-2 hours initially, tapered over weeks; reduces inflammation **[core]**
- **Topical cycloplegic / mydriatic** — atropine 1 percent drops twice daily OR cyclopentolate 1 percent drops three times daily — relieves ciliary spasm (reducing pain and photophobia) and prevents posterior synechiae formation **[core]**
- **Urgent ophthalmology referral within 24-48 hours** for slit-lamp examination, exclusion of posterior uveitis (retinitis), and ongoing management; complete systemic workup **[core]**
- Investigate underlying systemic disease — HLA-B27, ESR/CRP, ANA, syphilis serology, chest radiograph (sarcoidosis, TB), tuberculin / IGRA
- Avoid topical NSAIDs; they may delay diagnosis

References: eTG Therapeutic Guidelines — Eye Disorders • RANZCO Ophthalmology Society / NHMRC clinical guidelines
• Tintinalli's Emergency Medicine 9e Ch 241 • RACGP Eye Emergency Manual

Question 8 | Acute Conjunctivitis — Causes and Treatment (12 marks)

A 25-year-old man presents to your emergency department with a 3-day history of bilateral red eyes with watery discharge. He had an upper respiratory tract infection 1 week ago. On examination, both eyes have conjunctival hyperaemia, mild watery discharge, and mild eyelid swelling. Visual acuity is preserved (6/6 bilaterally). He denies pain (only foreign-body sensation). Pre-auricular lymphadenopathy is palpable bilaterally.

a) Complete the table — for each cause of conjunctivitis (bacterial, viral, allergic), give 3 discriminatory features (history / examination) AND treatment (3 marks for discriminatory + treatment per category). (9 marks)

- **BACTERIAL conjunctivitis: Discriminatory:** thick mucopurulent discharge (yellow/green); often unilateral initially then spread; eyelids stuck together on waking; less itch **[core]**
- **BACTERIAL treatment:** chloramphenicol 0.5 percent eye drops every 2 hours for 2 days, then 4-hourly for 5 days, OR ciprofloxacin 0.3 percent (if severe / contact lens wearer); consider azithromycin 1 g single oral dose if chlamydial / gonococcal suspected **[core]**
- **VIRAL (adenoviral) conjunctivitis: Discriminatory:** watery discharge, preceding upper respiratory tract infection, bilateral (often after a few days), foreign-body sensation, palpable pre-auricular lymphadenopathy (highly suggestive) **[core]**
- **VIRAL treatment:** supportive only — cold compresses, lubricant drops; strict hand hygiene (highly contagious); avoid contact lens wear; resolves spontaneously in 1-2 weeks; topical antibiotics generally NOT indicated unless secondary bacterial **[core]**
- **ALLERGIC conjunctivitis: Discriminatory:** itching is the dominant symptom; bilateral; clear watery / stringy discharge; chemosis (swelling of conjunctiva); papillae on tarsal conjunctiva; atopy (asthma, eczema, hay fever) coexisting **[core]**
- **ALLERGIC treatment:** topical antihistamine / mast-cell stabiliser (olopatadine 0.1 percent, ketotifen 0.025 percent); cool compresses; oral antihistamine (loratadine, cetirizine) for systemic symptoms; allergen avoidance **[core]**
- **Note: gonococcal conjunctivitis** (hyperacute purulent — treats as ophthalmic emergency with systemic ceftriaxone 1 g IM and intensive ocular irrigation)
- **Chlamydial conjunctivitis** (chronic, often associated with genital infection — azithromycin 1 g PO single dose AND genital tract treatment + partner notification)

b) List 3 'red-flag' features that warrant urgent ophthalmology referral. (3 marks)

- **Reduced visual acuity** — suggests more serious pathology (uveitis, keratitis, glaucoma, scleritis) **[core]**
- **Severe eye pain (rather than foreign-body sensation), photophobia** — suggests anterior chamber involvement **[core]**
- **Hyperacute (within hours) profuse purulent discharge** — gonococcal conjunctivitis (ophthalmic emergency) **[core]**
- Corneal involvement (white spot, infiltrate, ulceration on fluorescein staining)
- Pupillary abnormality, ciliary flush
- Contact lens wearer with corneal involvement

References: eTG Therapeutic Guidelines — Eye Disorders • eTG (Therapeutic Guidelines, current) • RACGP Eye Emergency Manual • Tintinalli's Emergency Medicine 9e Ch 241

Question 9 | Bacterial Keratitis in Contact Lens Wearer (10 marks)

A 22-year-old woman presents to your emergency department with severe right-eye pain, photophobia, and discharge for the past 12 hours. She wears soft contact lenses and has been sleeping in them. On examination, the right eye is intensely injected with significant ciliary flush and watering. Slit-lamp examination reveals a 3-millimetre paracentral round white corneal infiltrate (ulcer) with fluorescein-staining epithelial defect overlying it. Visual acuity is reduced to 6/24. There is a small hypopyon (1 millimetre layer of pus in the anterior chamber).

a) List 3 features supporting bacterial keratitis. (3 marks)

- **Round white corneal infiltrate** with overlying fluorescein-staining epithelial defect **[core]**
- **Severe pain, photophobia, ciliary flush;** reduced visual acuity **[core]**
- **Hypopyon** (white blood cell layer in anterior chamber) — indicates severe inflammatory response; signs of endophthalmitis if persisting **[core]**
- Mucopurulent discharge
- Risk factor: extended-wear contact lens use, swimming with lenses, poor lens hygiene

b) List 4 likely causative organisms (specifically in contact lens wearer). (4 marks)

- **Pseudomonas aeruginosa** — most common in contact-lens-associated keratitis; rapidly progressive corneal melt **[core]**
- **Staphylococcus aureus** (including MRSA) and **coagulase-negative staphylococci** **[core]**
- **Streptococcus pneumoniae** **[core]**
- **Acanthamoeba** (consider with water exposure, swimming with lenses; severe pain out of proportion to findings) **[core]**
- Fungal keratitis (*Fusarium*, *Aspergillus*) — common with vegetable trauma
- Herpes simplex virus (atypical for contact-lens-related but consider)

c) State 3 management priorities. (3 marks)

- **URGENT same-day ophthalmology referral** — sight-threatening; will perform corneal scraping for microscopy (Gram stain) and culture (bacterial, fungal, *Acanthamoeba*) **[core]**
- **Empirical intensive topical antibiotics** — fortified ciprofloxacin 0.3 percent + cefazolin 5 percent OR fluoroquinolone monotherapy (ciprofloxacin 0.3 percent or moxifloxacin 0.5 percent) — hourly drops day and night for 24-48 hours, then taper **[core]**
- **Cease contact lens wear in BOTH eyes immediately;** do NOT use eye patch (promotes bacterial growth); cycloplegic for pain (atropine 1 percent twice daily); topical analgesia **[core]**
- Consider admission for hourly drops and observation if extensive keratitis or non-compliant outpatient
- Educate on lens hygiene; replace lens case; switch to daily disposable lenses if possible; never swim or sleep in lenses

References: eTG Therapeutic Guidelines — Eye Disorders • RANZCO Ophthalmology Society / NHMRC clinical guidelines
• RACGP Eye Emergency Manual

Question 10 | Herpes Simplex Keratitis (Dendritic Ulcer) (9 marks)

A 38-year-old man presents to your emergency department with a 3-day history of a painful left red eye, photophobia, and watering. He has had similar episodes 2 years ago and 4 years ago. Slit-lamp examination with fluorescein reveals a branching, dendritic-shaped epithelial defect on the corneal surface with terminal bulbs. Visual acuity is mildly reduced (6/9).

a) List 3 features supporting herpes simplex keratitis. (3 marks)

- **Dendritic / branching corneal epithelial ulcer** with characteristic terminal bulbs (pathognomonic; visualised with fluorescein) **[core]**
- **Reduced corneal sensation** over the lesion (test with cotton-tip applicator) — from trigeminal nerve involvement **[core]**
- **Recurrent episodes** of similar symptoms (HSV reactivates from trigeminal ganglion) **[core]**
- Often unilateral; may have prior cold sore (oral HSV) history
- Vesicular periorbital rash in some primary infections

b) State 3 management priorities (drug, dose, duration). (3 marks)

- **Topical aciclovir 3 percent ointment** 5 times daily for 7-14 days OR ganciclovir 0.15 percent ophthalmic gel 5 times daily; AVOID in infection if not certain diagnosis **[core]**
- **Oral aciclovir 400 mg orally 5 times daily for 7-10 days** (preferred in Australia per eTG; particularly for stromal involvement) OR valaciclovir 500 mg three times daily **[core]**
- **AVOID topical steroids** (worsens epithelial herpes simplex keratitis — expansion of dendritic ulcer to geographic ulcer); steroids may have a role in stromal disease but only under ophthalmology supervision **[core]**
- Cycloplegic (cyclopentolate 1 percent twice daily) for ciliary spasm and pain
- Ophthalmology referral within 24-48 hours
- Consider HIV testing in unusual presentations (HSV keratitis can be more severe in immunocompromised)

c) List 3 complications of recurrent herpes simplex keratitis. (3 marks)

- **Stromal scarring with corneal opacity** and reduced vision (most common cause of infectious corneal blindness in developed countries) **[core]**
- **Stromal keratitis / disciform keratitis** — immune-mediated stromal inflammation **[core]**
- **Neurotrophic keratitis** from reduced corneal sensation; persistent epithelial defect **[core]**
- Glaucoma (steroid-induced or post-inflammatory)
- Cataract (recurrent inflammation)
- Need for corneal transplant in severe cases

References: eTG Therapeutic Guidelines — Eye Disorders • eTG (Therapeutic Guidelines, current) • RANZCO Ophthalmology Society / NHMRC clinical guidelines • Tintinalli's Emergency Medicine 9e Ch 241

Question 11 | Herpes Zoster Ophthalmicus (11 marks)

A 68-year-old man presents to your emergency department with a 4-day history of severe right-sided forehead and periorbital pain that started before the rash appeared. He has now developed a vesicular rash in a strict unilateral distribution across the right forehead, scalp, upper eyelid, and tip of the nose. He notes mild blurred vision in the right eye. He has type 2 diabetes mellitus.

a) List 4 features supporting herpes zoster ophthalmicus. (4 marks)

- **Vesicular rash in V1 (ophthalmic) distribution of the trigeminal nerve** — forehead, upper eyelid, peri-orbital, scalp; strictly unilateral, does not cross midline **[core]**
- **Hutchinson sign** — vesicles on the tip of the nose (nasociliary nerve branch) — strong predictor of ocular involvement (50-75 percent) **[core]**
- **Pre-eruptive prodrome** (severe neuropathic pain preceding the rash by days) **[core]**
- **Older age (>50), immunocompromise** (diabetes, malignancy, HIV) — risk factors for shingles reactivation **[core]**
- Eye involvement — keratitis, uveitis, conjunctivitis, episcleritis
- Periorbital oedema and erythema

b) State 4 important complications. (4 marks)

- **Post-herpetic neuralgia** — chronic neuropathic pain persisting beyond 90 days after rash; risk increases with age (up to 75 percent in >75 years); affects 10-30 percent of HZO patients **[core]**
- **Keratitis** — pseudo-dendritic, stromal, neurotrophic; can lead to corneal scarring and permanent vision loss **[core]**
- **Anterior uveitis / iritis** with secondary glaucoma (intraocular pressure rise) **[core]**
- **Post-herpetic complications** — scleritis, retinitis (acute retinal necrosis), optic neuritis, cranial nerve palsies (III, IV, VI), neurogenic ptosis **[core]**
- Stroke (increased risk for 3-12 months post-HZO — particularly contralateral middle cerebral artery)
- Cellulitis (secondary bacterial infection)
- Encephalitis (rare)

c) State 3 management priorities. (3 marks)

- **Oral aciclovir 800 mg 5 times daily for 7-10 days** (or valaciclovir 1 g three times daily, OR famciclovir 500 mg three times daily) — IDEALLY started within 72 hours of rash onset; reduces duration and severity **[core]**
- **Urgent ophthalmology consultation** (within 24 hours) given Hutchinson sign — slit-lamp examination, intraocular pressure measurement, fundoscopy **[core]**
- **Adequate analgesia** — opioids in acute phase; consider gabapentin / pregabalin for prevention of post-herpetic neuralgia (in elderly, immunocompromised); amitriptyline 10-25 mg nocte **[core]**
- Skin care — gentle cleansing, calamine lotion; topical aciclovir on rash (limited evidence)
- Vaccination of contacts considered (especially immunocompromised)
- Document and notify if appropriate (immunocompromised / workplace exposure considerations)

References: eTG Therapeutic Guidelines — Eye Disorders • eTG (Therapeutic Guidelines, current) • RANZCO Ophthalmology Society / NHMRC clinical guidelines • Australian Immunisation Handbook

Question 12 | Orbital versus Pre-septal Cellulitis (11 marks)

A 7-year-old boy is brought to your emergency department by his parents with a 2-day history of swelling and redness around his left eye. He has had a 1-week history of upper respiratory tract infection with purulent nasal discharge. On examination he is febrile (38.6 degrees Celsius), with marked left periorbital swelling, erythema, and tenderness. The eye is closed by oedema. When the eyelid is gently retracted, the globe appears proptosed, eye movements cause pain, and there is limitation of upgaze and lateral gaze.

a) List 4 features distinguishing orbital from pre-septal cellulitis. (4 marks)

- **Proptosis** (anterior globe displacement) — present in orbital, absent in pre-septal **[core]**
- **Painful and restricted eye movements / ophthalmoplegia** — orbital cellulitis (EOM involvement); pre-septal cellulitis spares EOMs **[core]**
- **Reduced visual acuity, relative afferent pupillary defect, colour vision impairment** — orbital (optic nerve involvement); preserved in pre-septal **[core]**
- **Systemic signs** (fever, raised inflammatory markers, leucocytosis) — more pronounced in orbital cellulitis **[core]**
- **Chemosis** (conjunctival oedema) — orbital
- **Site of origin**: orbital cellulitis usually arises from sinusitis (especially ethmoid, ~75 percent); pre-septal from skin infection, dacryocystitis, insect bite

b) State 4 management priorities for orbital cellulitis. (4 marks)

- **Urgent computed tomography of orbits and sinuses with contrast** — confirms diagnosis, differentiates from pre-septal, identifies subperiosteal abscess (surgical drainage indication) **[core]**
- **Empirical broad-spectrum intravenous antibiotics** — **flucloxacillin 50 mg/kg every 6 hours + cefotaxime 50 mg/kg every 6 hours + metronidazole 12.5 mg/kg every 12 hours** (per eTG); covers Staphylococcus, Streptococcus, Haemophilus, anaerobes (sinus origin) **[core]**
- **Urgent ophthalmology AND ENT consultation** — surgical drainage if subperiosteal abscess, intracranial extension, or progressive deterioration despite IV antibiotics **[core]**
- **Inpatient admission with hourly neurological observations and visual checks**; supportive care (analgesia, antipyretics, fluids); blood cultures **[core]**
- Avoid lumbar puncture if signs of raised intracranial pressure / cavernous sinus thrombosis

c) List 3 important complications of orbital cellulitis. (3 marks)

- **Visual loss** — from optic neuritis, central retinal artery / vein occlusion, exposure keratopathy from proptosis **[core]**
- **Cavernous sinus thrombosis** — extension via valveless venous drainage; presents with headache, cranial nerve palsies (III, IV, V1, V2, VI), bilateral proptosis **[core]**
- **Intracranial extension** — meningitis, brain abscess, subdural / epidural empyema **[core]**
- Subperiosteal or orbital abscess
- Sepsis with multi-organ failure

References: eTG Therapeutic Guidelines — Eye Disorders • eTG (Therapeutic Guidelines, current) • RANZCO Ophthalmology Society / NHMRC clinical guidelines • Tintinalli's Emergency Medicine 9e Ch 241

Question 13 | Endophthalmitis (9 marks)

A 70-year-old man presents to your emergency department with a 24-hour history of severe right-eye pain, photophobia, and rapidly progressive vision loss. He underwent uncomplicated phacoemulsification cataract surgery 4 days ago. On examination, his right visual acuity is hand movements only. There is conjunctival injection, marked anterior chamber reaction, hypopyon (3 mm layer), and decreased red reflex. Vitreous has a hazy appearance on slit-lamp.

a) List 3 features supporting endophthalmitis. (3 marks)

- **Severe pain, photophobia, and rapid vision loss** following intraocular surgery / penetrating injury **[core]**
- **Hypopyon** in anterior chamber and anterior chamber reaction (cells, flare) **[core]**
- **Vitreous involvement** — vitreous haze, vitritis on slit-lamp / B-scan ultrasound; loss of red reflex **[core]**
- Eyelid swelling, chemosis
- Onset: acute postoperative (1-7 days post-cataract surgery — *Staphylococcus epidermidis*, *S. aureus*, *Streptococcus*)

b) List 4 management priorities. (4 marks)

- **EMERGENCY same-day ophthalmology consultation** — vitreous tap and intravitreal antibiotic injection (gold standard); pars plana vitrectomy may be indicated **[core]**
- **Empirical intravitreal antibiotics** (by ophthalmology) — vancomycin 1 mg + ceftazidime 2.25 mg in 0.1 mL; covers gram-positive and gram-negative organisms **[core]**
- **Topical fortified antibiotics** hourly initially — vancomycin / ceftazidime; topical cycloplegic and steroid **[core]**
- **Systemic antibiotics** — moxifloxacin 400 mg IV daily OR vancomycin + ceftazidime IV; especially in immunocompromised or septic patients **[core]**
- Inpatient admission with frequent monitoring
- Investigate source — recent surgery, penetrating trauma; vitreous culture for organism identification (*Staphylococcus epidermidis* most common post-cataract)

c) List 2 less common causes (other than recent surgery). (2 marks)

- **Penetrating ocular trauma** — particularly with retained intraocular foreign body; often *Bacillus cereus* (highly virulent) **[core]**
- **Endogenous endophthalmitis** — haematogenous spread from systemic infection (endocarditis, urinary tract infection, intravenous drug use, indwelling catheter); *Candida* common **[core]**
- Filtering bleb following glaucoma surgery (years later)
- Intravitreal injection (anti-VEGF, steroid)

References: eTG Therapeutic Guidelines — Eye Disorders • RANZCO Ophthalmology Society / NHMRC clinical guidelines
• RANZCO endophthalmitis guidelines

Question 14 | Pupillary Abnormalities and Anisocoria (11 marks)

Three patients present with pupillary abnormalities: Patient A: A 65-year-old man with a sudden severe headache; right pupil dilated and unreactive, right ptosis and exotropia. Patient B: A 35-year-old woman with chronic anisocoria. The right pupil is constricted; she has right partial ptosis but her right eye is normally positioned. Sweating is reduced on the right side of the face. Patient C: A 22-year-old woman with a chronic tonically dilated right pupil; reacts only slowly to light, but constricts gradually with sustained near vision. Reduced ankle reflexes.

a) Patient A — diagnose AND state 1 cause. (3 marks)

- **Right third (oculomotor) cranial nerve palsy** — pupil-involving (suggests compressive cause) [core]
- **Cause: ruptured posterior communicating artery aneurysm** compressing the oculomotor nerve (parasympathetic fibres run on the outer surface — affected first by compression); requires urgent CT brain + CT angiogram [core]
- Other causes: uncal herniation from raised intracranial pressure; cavernous sinus pathology; diabetic / ischaemic 3rd nerve palsy typically SPARES the pupil

b) Patient B — diagnose AND state 2 causes. (3 marks)

- **Right Horner's syndrome** — partial ptosis (Müller's muscle) + miosis (constricted pupil) + anhidrosis (reduced sweating); reflects sympathetic pathway disruption [core]
- **Causes:** Pancoast tumour (apical lung cancer compressing the sympathetic chain); carotid artery dissection (sudden onset with neck pain — ALL PATIENTS WITH NEW Horner's PLUS NECK PAIN NEED CT/MRA URGENTLY); cluster headache; lateral medullary syndrome (Wallenberg); cervical rib [core]
- First-order: stroke, demyelination, cervical cord lesion. Second-order: Pancoast, lymphadenopathy. Third-order: carotid dissection, cavernous sinus, cluster headache

c) Patient C — diagnose AND describe the physiology. (3 marks)

- **Adie's tonic pupil** with absent deep tendon reflexes (Holmes-Adie syndrome) [core]
- **Damage to post-ganglionic parasympathetic fibres in the ciliary ganglion** → tonic pupil (unilaterally dilated), poor light response, slow but preserved near response (light-near dissociation); typically unilateral, young women [core]
- **Idiopathic, viral, or trauma;** associated with reduced reflexes (Adie's syndrome); benign condition; pupil may constrict with diluted (0.125%) pilocarpine (denervation supersensitivity) [core]

d) Describe Argyll Robertson pupil AND name 2 causes. (2 marks)

- **Argyll Robertson pupils:** small irregular pupils that fail to react to light but constrict normally to accommodation/near vision (light-near dissociation); usually bilateral [core]
- **Causes: tertiary syphilis** (neurosyphilis) classically; diabetes mellitus, multiple sclerosis, midbrain tumours, sarcoidosis, neuromyelitis optica [core]
- Mechanism: dorsal midbrain lesion sparing the near reflex pathway (which loops more ventrally via the supranuclear pretectal area)

References: eTG (Therapeutic Guidelines, current) • RANZCO Ophthalmology Society / NHMRC clinical guidelines • Tintinalli's Emergency Medicine 9e Ch 241 • AHA Cervical Artery Dissection Statement

Question 15 | Painful Red Eye — Differential Diagnosis (10 marks)

A 50-year-old woman presents to your emergency department with a painful red left eye that has developed over 24 hours.

a) List 5 differential diagnoses with one cardinal examination finding for each (10 marks; diagnosis + finding 2 marks each). (10 marks)

- **Acute angle-closure glaucoma: Finding** — mid-dilated fixed pupil, stony-hard globe, hazy cornea, raised intraocular pressure (>40) **[core]**
- **Anterior uveitis (iritis): Finding** — ciliary flush, miotic irregular pupil, cells and flare in anterior chamber, keratic precipitates **[core]**
- **Bacterial keratitis (corneal ulcer): Finding** — corneal infiltrate / ulcer with fluorescein-staining defect, ciliary flush; may have hypopyon **[core]**
- **Herpes simplex keratitis: Finding** — dendritic ulcer with terminal bulbs on fluorescein, reduced corneal sensation, recurrent history **[core]**
- **Scleritis: Finding** — deep boring pain (often disturbs sleep), violet tinge to scleral redness that does NOT blanch with phenylephrine; associated with autoimmune / systemic disease (rheumatoid arthritis, granulomatosis with polyangiitis) **[core]**
- **Episcleritis:** localised redness, mild pain, blanches with phenylephrine 2.5 percent (vs scleritis); benign and self-limiting
- **Subconjunctival haemorrhage with discomfort:** well-demarcated red patch; painless typically
- **Endophthalmitis:** severe pain post-intraocular surgery; vitreous involvement
- **Acute corneal abrasion:** history of trauma or contact lens; fluorescein staining of defect
- **Conjunctivitis:** discharge, foreign-body sensation rather than severe pain (usually BILATERAL eventually)

References: eTG Therapeutic Guidelines — Eye Disorders • RANZCO Ophthalmology Society / NHMRC clinical guidelines
• RACGP Eye Emergency Manual • Tintinalli's Emergency Medicine 9e Ch 241

Question 16 | Sudden Painless Vision Loss Differential (10 marks)

A 70-year-old man presents to your emergency department with sudden painless vision loss in his right eye that occurred 90 minutes ago. He has perception of light only at the periphery.

a) List 5 differential diagnoses for sudden painless vision loss with 1 fundoscopic finding AND 1 distinguishing feature for each (10 marks; 2 marks each). (10 marks)

- **Central retinal artery occlusion:** pale retina with cherry-red spot at macula; distinguishing feature — RAPD, profound vision loss, often history of cardiovascular risk factors / atrial fibrillation **[core]**
- **Central retinal vein occlusion:** 'blood and thunder' fundus with diffuse haemorrhages and tortuous veins; less complete vision loss; risk factors hypertension, diabetes, glaucoma **[core]**
- **Retinal detachment:** indirect ophthalmoscopy shows tear / detachment; preceding flashes (photopsia) and increasing floaters; field loss like a 'curtain' descending **[core]**
- **Vitreous haemorrhage:** red reflex obscured / absent; floaters, particularly large ones; often associated with diabetic retinopathy or trauma **[core]**
- **Anterior ischaemic optic neuropathy (arteritic — giant cell arteritis):** swollen pale optic disc; jaw claudication, scalp tenderness, constitutional symptoms; markedly raised ESR/CRP **[core]**
- **Optic neuritis:** usually with eye pain on movement (PAINFUL — but can be subtle); fundoscopy normal in retrobulbar form; RAPD
- **Stroke involving visual pathway:** usually homonymous hemianopia (NOT monocular vision loss); cortical involvement
- **Functional / hysterical vision loss:** visual field findings are inconsistent; preserved RAPD
- **Acute angle-closure glaucoma:** USUALLY PAINFUL; mid-dilated pupil, stony-hard globe — may present painlessly in some patients

References: eTG Therapeutic Guidelines — Eye Disorders • RANZCO Ophthalmology Society / NHMRC clinical guidelines
• Tintinalli's Emergency Medicine 9e Ch 241

Question 17 | Corneal Abrasion and Corneal Foreign Body (9 marks)

A 35-year-old man presents to your emergency department with a painful right eye that started 2 hours ago after he was working on a metal lathe without eye protection. He has watery discharge, photophobia, and foreign-body sensation. On slit-lamp examination with fluorescein, you visualise a small (1 millimetre) green-stained linear epithelial defect on the right cornea, and a small metallic-looking foreign body adherent to the epithelium just superior to the visual axis. There is a small rust ring around the foreign body.

a) Describe the technique for removing a corneal foreign body in the emergency department. (4 marks)

- **Topical anaesthesia** — proparacaine 0.5 percent or oxybuprocaine 0.4 percent drops × 2-3 doses, 1 minute apart; fluorescein staining to identify defect **[core]**
- **Slit-lamp examination** for direct visualisation; lid eversion to exclude additional foreign bodies under the upper lid; assess depth and location **[core]**
- **Removal with a 25- or 27-gauge needle** (bevel up) on a 2 mL syringe (provides stable handling); approach tangentially from 6 o'clock position; gently lift FB off the cornea **[core]**
- **Rust ring**: refer to ophthalmology if rust ring is visually significant (over visual axis) — drill removal with Alger brush; non-axial residual rust ring usually softens and migrates anteriorly in 24-48 hours **[core]**
- Examine for retained / deeper foreign bodies — consider X-ray or CT if intraocular FB suspected
- Topical chloramphenicol or ciprofloxacin drops after removal

b) List 3 contraindications to topical anaesthetic discharge AND state 3 management steps. (3 marks)

- **Topical anaesthetic should NEVER be given for take-home use** — masks pain, delays diagnosis, prevents healing, and causes corneal toxicity / melt with repeated use; only used in the ED for examination **[core]**
- **Topical antibiotics** — chloramphenicol 0.5 percent eye drops every 2-4 hours for 5-7 days (or until epithelium healed) **[core]**
- **Cycloplegic for pain** if significant ciliary spasm — cyclopentolate 1 percent twice daily for 2-3 days **[core]**
- Oral analgesia — paracetamol + ibuprofen; opioids if severe pain
- Eye padding generally NOT recommended (no benefit for healing; may worsen infection); do NOT pad in contact lens wearers (*Pseudomonas* risk)
- Cease contact lens wear; stop wearing in BOTH eyes until healed

c) List 2 indications for ophthalmology referral after foreign body removal. (2 marks)

- **Suspected intraocular foreign body** (deep penetrating injury, X-ray / CT shows FB in globe, Seidel positive) **[core]**
- **Visual axis involvement / corneal scarring**; rust ring in visual axis; non-healing epithelial defect after 48-72 hours **[core]**
- Concern for infection (bacterial keratitis developing)
- Pre-existing corneal pathology
- Uncooperative patient or difficult removal

References: eTG Therapeutic Guidelines — Eye Disorders • RANZCO Ophthalmology Society / NHMRC clinical guidelines
• RACGP Eye Emergency Manual

Question 18 | Subconjunctival Haemorrhage (8 marks)

A 65-year-old woman presents to your emergency department with a sudden onset of a bright red bleed under the conjunctiva of the right eye that she noticed on waking this morning. She is asymptomatic except for mild discomfort. She has a history of hypertension (treated, well-controlled) and is on warfarin for atrial fibrillation. Her INR is 4.5. On examination, there is a flat, well-demarcated, bright red haemorrhage covering the inferior bulbar conjunctiva, sparing the cornea. Visual acuity is 6/6, eye movements are full, intraocular pressure is 14 mmHg.

a) List 3 features distinguishing simple subconjunctival haemorrhage from concerning pathology. (3 marks)

- **Visual acuity preserved** (no visual loss); pupillary reactions normal; extraocular movements full **[core]**
- **Well-demarcated, flat, bright red bleed under intact conjunctiva**; sparing the cornea; no associated discharge or anterior chamber abnormality **[core]**
- **Globe is intact** — no signs of globe rupture (peaked pupil, hypotony, vitreous extrusion); no history of penetrating trauma **[core]**
- Painless or only mild discomfort (mild gritty feeling); no photophobia

b) List 3 underlying causes / risk factors. (3 marks)

- **Anticoagulation (this case — INR 4.5 is supratherapeutic)**; antiplatelet use; coagulopathy **[core]**
- **Trauma** — direct ocular trauma; valsalva (coughing, vomiting, sneezing, straining at stool) **[core]**
- **Hypertension** (poorly controlled) **[core]**
- Bleeding diathesis (haemophilia, von Willebrand)
- Spontaneous (most common in elderly; idiopathic)
- Oral contraceptive use
- Childbirth (during second stage labour)

c) State 2 management priorities. (2 marks)

- **Reassurance** — benign self-limiting condition; resolves spontaneously over 1-2 weeks (typically yellow-greenish as blood resorbs) **[core]**
- **Investigate underlying cause and treat** — check INR (4.5 is high; may need warfarin dose reduction); check blood pressure; bleeding diathesis screen if recurrent **[core]**
- Lubricant drops (artificial tears) for discomfort
- Cool compresses
- Outpatient review only if symptoms worsen, vision affected, or recurrence — generally no specialist follow-up needed
- If recurrent (especially in young patient) — investigate for haemorrhagic disorder

References: eTG Therapeutic Guidelines — Eye Disorders • RANZCO Ophthalmology Society / NHMRC clinical guidelines
• RACGP Eye Emergency Manual