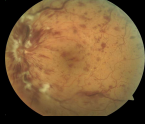


## RETINAL VASCULAR OCCLUSION



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## Retinal vascular occlusion

- Common cause of visual loss
- More common in elderly but can occur in any age group
- Very strong association with cardiovascular disease
- Prognosis generally worse for artery occlusion than for vein occlusion

## Retinal vascular occlusion

- BRVO – 1.2% over age 50<sup>1</sup>
- CRVO – 0.4% over age 50<sup>1</sup>
- CRAO annual incidence ~1:100,000
- Asymptomatic retinal emboli – 1.4% over age 50<sup>1</sup>

<sup>1</sup>Blue Mountains Eye Study

## RETINAL ARTERY OCCLUSION

## Arterial occlusive disease

- Central retinal artery occlusion
- Branch retinal artery occlusion
- Cilioretinal artery occlusion
- Amaurosis fugax
- Asymptomatic retinal embolus

## Symptoms

- CRAO/BRAO
  - Sudden onset, painless, unilateral visual loss
  - (May be painful if inflammatory)
  - Complete visual field (CRAO) or partial visual field (BRAO)
- Amaurosis fugax
  - Transient, painless, unilateral visual loss
  - Lasts seconds to minutes

## Causes of CRAO/BRAO

- Embolic
  - Carotid, cardiac, aortic arch
  - More common in elderly
  - If young patient – more likely to be cardiac source or IV drug use
- Non-embolic
  - Atherosclerotic: most common cause in 40-60yr age group
  - Inflammatory: consider giant cell arteritis in older patients
  - Rare: migraine, thrombophilia, carotid dissection

## Retinal artery occlusion – Principles of management

1. Acute treatment
  - Restore ocular perfusion
2. Systemic assessment
  - Identify cause
  - Prevent further vascular events
3. Monitor for neovascularisation

## Management of CRAO/BRAO

- Acute
  - Weak evidence for effectiveness of any treatment
  - Options include:
    - Rapid lowering of intraocular pressure
    - Hyperbaric oxygen
    - Intra-arterial thrombolysis
  - Benefit highly unlikely beyond 4-6 hours after occlusion

## CRAO and cardiovascular disease

- Increased risk of further stroke
- Higher mortality rate:
  - Life expectancy 5.5yrs CRAO pts vs 15yrs for age-matched controls
  - Any retinal emboli: 56% vs 27% 10-year mortality

## Investigations

- CRAO:
  - 2/3 have hypertension
  - 25% have diabetes
  - 2/3 newly diagnosed vascular risk factor
  - 30% significant carotid stenosis
  - 70% carotid plaques
  - 50% abnormal echocardiogram

- Rudkin et al. Eye 2010; 24: 678–681
- Hayreh. Prog Retin Eye Res. 2011; 30(5): 359–394

## Amaurosis fugax vs migraine aura

	Amaurosis fugax	Migraine aura
Laterality	Monocular	Usually binocular
Duration	Seconds to minutes	Usually 10-30 minutes
Pain	Absent	May follow visual disturbance
Colour	Grey/black (negative)	Coloured or white (positive); may be negative
Location	Diffuse	Commonly hemifield
Onset	Rapid (1 min), curtain	Several minutes
Progression	Static	Migrating
Fundus signs	Usually absent	Absent

## RETINAL VEIN OCCLUSION

## Retinal vein occlusion

- Causes:
  - Hypertension (present in >60% of vein occlusion patients aged >50)
  - Hyperlipidaemia (more common in patients aged <50)
  - Diabetes
  - Glaucoma
  - Rare: inflammatory, haematological, infectious
- Associated with increased risk of stroke, heart disease and cardiovascular death

## Retinal vein occlusion

- Branch, hemicentral or central
- Ischaemic or non-ischaemic forms
- Can be recurrent

## Retinal vein occlusion

- Complications:
  - Macular oedema
  - Macular ischaemia
  - Vitreous haemorrhage (BRVO>CRVO)
  - Neovascular glaucoma (CRVO>BRVO)
- Complications may be immediate or delayed

## Retinal vein occlusion treatment

- Macular oedema
  - Intravitreal anti-VEGF
  - Intravitreal steroid
  - Laser (BRVO only)
- Neovascular complications
  - Panretinal laser
  - Vitrectomy
  - Glaucoma surgery

## Macular oedema due to RVO – Intravitreal therapy

	Lucentis	Eylea	Avastin	Steroid
Effective	✓	✓	✓	✓
TGA approved	✓	✓	✗	✗
PBS subsidised	✓	✓ (CRVO)	✗	✗

## Management of retinal vein occlusion

- Monitor for and treat ocular complications
  - Macular oedema
  - Neovascularisation
- Identify risk factors:
  - All patients: BP, fasting BSL, lipids
  - Further investigation if age <50, recurrent or history suggestive
- Benefit of aspirin in retinal vein occlusion is equivocal

## Retinal vascular occlusion – Summary

- Common cause of visual loss
- Sudden, painless, unilateral visual loss is typical
- Strong association with cardiovascular disease
- Risk factor assessment and modification is critical
- Communication with GP and other specialists is important
- Recent improvements in treatment of retinal vein occlusion
- Early referral is important