



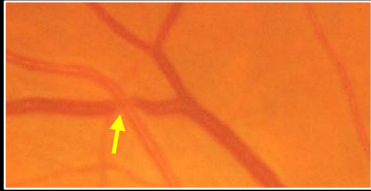
CHAIR-SIDE REFERENCE: RETINAL VASCULAR DISEASE

RETINAL SIGNS OF SYSTEMIC VASCULAR DISEASE

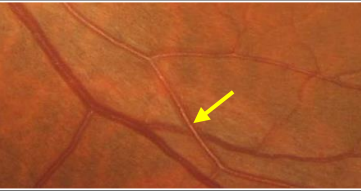
THE FOLLOWING IMAGE GALLERY INCLUDES SPECIFIC EXAMPLES OF RETINAL LESIONS WHICH MAY BE ASSOCIATED WITH A RANGE OF SYSTEMIC CONDITIONS. RETINOPATHY ASSOCIATED WITH SYSTEMIC VASCULAR DISEASE, SUCH AS HYPERTENSIVE RETINOPATHY, DIABETIC RETINOPATHY, OCULAR ISCHAEMIC SYNDROME OR VASCULAR OCCLUSIONS, WILL OFTEN PRESENT WITH A COMBINATION OF THE BELOW LESIONS.

Chronic (in the absence of any acute signs listed below)

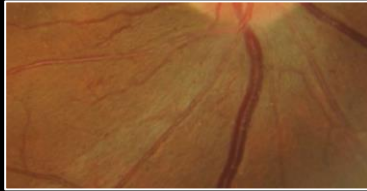
Arteriovenous crossing changes/nipping



Copper/silver wiring



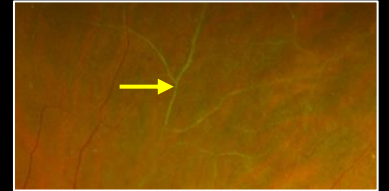
Arteriolar narrowing/venous dilation



Collateral vessels

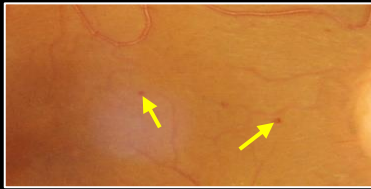


Ghost vessels/vascular non-perfusion

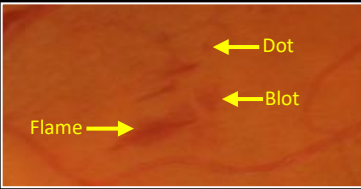


Acute

Microaneurysms



Intraretinal haemorrhages



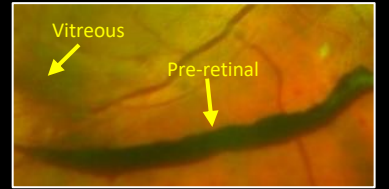
Roth Spot



Macroaneurysm



Vitreous / Pre-retinal haemorrhage



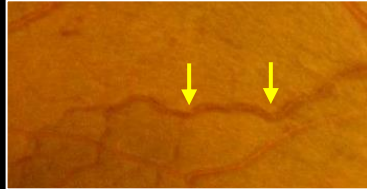
Arterial tortuosity



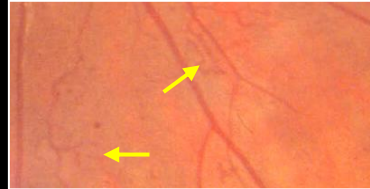
Venous tortuosity



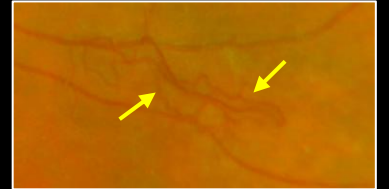
Venous beading



IRMA (intraretinal microvascular abnormalities)



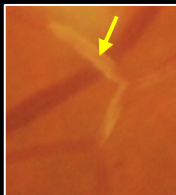
Retinal neovascularisation



Cotton wool spot



Embolism



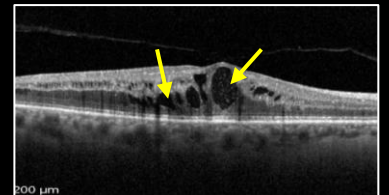
Papillopathy



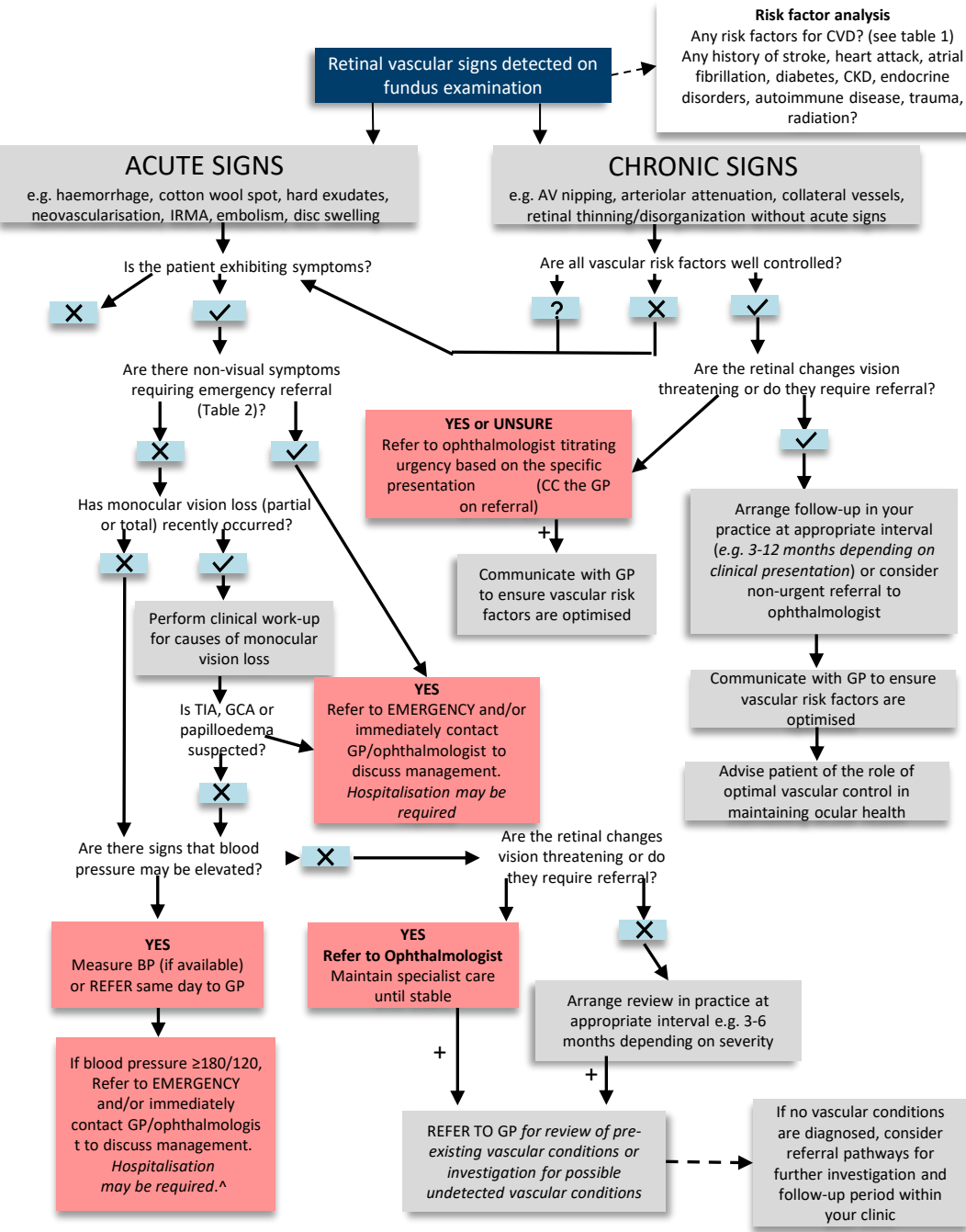
Hard exudates



Macular oedema (OCT)



MANAGEMENT OF PATIENTS WITH RETINAL VASCULAR CHANGES SUGGESTIVE OF SYSTEMIC VASCULAR DISEASE*



* This is a guide only. Individual patient circumstances should be considered.

Table 1. Risk factor analysis for cardiovascular disease (CVD)

Modifiable risk factors

- Smoking
- Blood pressure
- Elevated cholesterol
- Waist circumference ($\geq 102\text{cm } \sigma$, $\geq 88\text{cm } \text{♀}$) and BMI ($\geq 30\text{kg/m}^2$)
- Poor nutrition
- Low physical activity
- Increased alcohol intake

Non-modifiable risk factors

- Age (≥ 45) and sex (σ)
- Family history of premature CVD
- Social history (including cultural identity, indigenous ethnicity, low socioeconomic status)

Patients at high risk of CVD

- Diabetes >60 years
- Diabetes with microalbuminuria
- Moderate to severe chronic kidney disease (CKD)
- Familial hypercholesterolaemia or serum total cholesterol $>7.5\text{mmol/L}$
- Aboriginal/Torres Strait Islander >74 years
- Hypertensive crisis (see table below)

Information obtained from: <https://www.racgp.org.au>

Table 2. Non-visual symptoms of vascular disease requiring referral to emergency

- Shortness of breath
- Nausea/vomiting
- Severe headache
- Chest pain
- Fast irregular heartbeat
- Weakness or numbness or paralysis of the face, arm or leg on either or both sides of the body
- Difficulty swallowing
- Episodes of speech difficulty
- Episodes of poor coordination
- Diaphoresis (excessive, abnormal sweating)

Table 3. Commonly performed tests for vascular disease

	Normal range	Elevation cutoffs	Treatment target (may vary depending on the patient)
Hypertension			
Blood pressure	120/80 mmHg	Hypertension: ≥ 140 systolic or >90 diastolic Hypertensive crisis: ≥ 180 systolic or >120 diastolic	$\leq 140/90$ without other vascular comorbidities $\leq 130/80$ for patients with DM $\leq 120/80$ for patients with high CVD risk if tolerable
Type 2 Diabetes			
HbA1c	$<6\%$ (43mmol/mol)	$\geq 6.5\%$ (48 mmol/mol)	$<7\%$ (53mmol/mol) (although targets may vary due to patient demographic)
Fasting blood glucose	$<5.5\text{mmol/L}$	$\geq 7.0\text{mmol/L}$ (>11.1 non fasting)	4-6mmol/L
Oral glucose tolerance test (fasting)	$<5.5\text{mmol/L}$	$\geq 7.0\text{mmol/L}$	N/A
Oral glucose tolerance test (2 hours after glucose syrup ingestion)	$<7.8\text{mmol/L}$	>11.1 mmol/L (7.8-11mmol/L is indicative of impaired glucose tolerance)	N/A
Cholesterol			
Serum total cholesterol	$<5.5\text{mmol/L}$	$>7.5\text{mmol/L}$	$<4.0\text{mmol/L}$
Low-density lipoprotein cholesterol (LDL-C)	$<2.0\text{mmol/L}$	$>4.0\text{mmol/L}$	$<2.0\text{mmol/L}$
High-density lipoprotein cholesterol (HDL-C)	0.8-1.5mmol/L	N/A	$\geq 1.0\text{mmol/L}$
Triglycerides (TGs)	$<1.7\text{mmol/L}$	$>2.0\text{mmol/L}$	$<2.0\text{mmol/L}$