Peripheral arterial disease:
who needs urgent assessment?

Dr Robert Tang

Peripheral arterial disease (PAD) is divided into acute limb ischaemia and chronic limb ischaemia. The former is the most feared arterial compromise and requires immediate treatment. The majority of the PAD are chronic leg ischaemia, which includes intermittent claudication(IC) and critical limb ischaemia(CLI).

Critical limb ischaemia:

- Rest pain
- Tissue loss
- The European Consensus defines CLI as rest pain for more than 2 weeks, or ulceration/gangrene, and an ankle pressure of <50 mmHg or a toe pressure of <30 mmHg

IC and CLI are very different prognostically; IC patients have amputation rates of 1%-7% at 5 years compared to CLI patients who has approximately 40% chance of losing their legs and 20% chance of death within 6 months of onset. Hence, patients with CLI should be seen urgently.

The Rutherford's classification system is commonly used for PAD. Diabetic foot can also present as neuro-ischaemic ulceration as diabetics usually have a propensity for tibial arteries disease and they should be reviewed promptly.

Rutherford Classification

Stage 0 – Asymptomatic
Stage 1 – Mild claudication
Stage 2 – Moderate claudication
Stage 3 – Severe claudication
Stage 4 – Rest pain
Stage 5 – Ischaemic ulceration not exceeding the digits of the foot
Stage 6 – Severe ischemic ulcers or frank gangrene

History and physical examination should be focused on excluding acute limb ischaemia and neurogenic claudication. Buerger's test involves lying the patient supine and raising their legs until they go pale and then lowering them. It is positive if the foot becomes hyperaemic. The angle at which limb goes pale is termed Buerger's angle; an angle of less than 20 degrees indicates severe ischaemia.

Investigations

Duplex ultrasound – in experienced hands, it is accurate at identifying disease from the common femoral to the distal popliteal artery, with a sensitivity of 84–87% and specificity of 92–98% compared to catheter angiography. This usually suffice as the initial test prior seeing a vascular surgeon.

Computed tomography angiography - has limitations with severely calcified vessels e.g. in tibial arteries seen in diabetics.

Magnetic resonance angiography - not commonly used.

Ankle-brachial index is a useful and non-invasive test:

- >1.30 incompressible
- 1-1.30 Normal
- 0.90-1.0 Equivocal
- <0.90 PAD
- Limitations- calcified vessels in diabetics or patient with end stage renal failure

Management

PAD medical treatment - risk factors management, smoking cessation, antiplatelets and a statin.

CLI-Revascularisation (open surgery or endovascular interventions) to prevent limb loss or primary amputation.

IC-Exercise therapy has been shown to be the initial treatment of intermittent claudication. It involves exercise training, in the form of walking, should be performed for a minimum of 30 to 45 minutes per session, three to four times per week, for a period not less than 12 weeks. It improves symptoms and reduces cardiovascular risk by lowering cholesterol and blood pressure and by improving glycaemic control. If that fails and affects quality of life, then revascularisation can be contemplated.

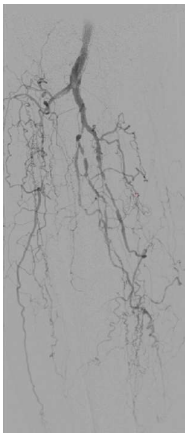

Figure 1.

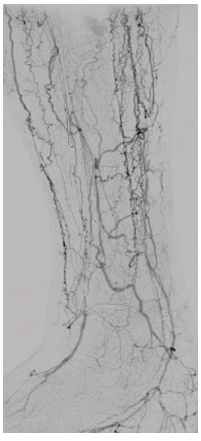

Figure 2.

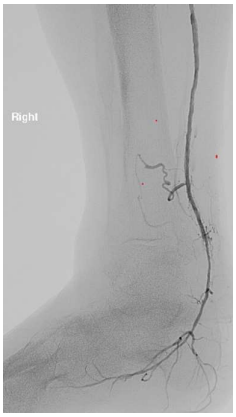

Figure 3.

Figure 1 and 2-a diabetic with significant ulceration with all 3 tibial arteries occluded.

Figure C-The posterior artery was recannalised using subintimal arterial flossing with antegrade-retrograde intervention (SAFARI) with a puncture in the common femoral artery and a puncture in the distal posterior tibial artery and advancing and advancing wires and catheters to cross the lesion. Subsequently, the lesion was treated with angioplasty balloons. ■

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