An 82-year-old woman with intermittent claudication

COMMENTARY BY **JOHN P. FLETCHER** MD, MS, FRACS, FRCS, DDU

When should surgical intervention be considered for patients with intermittent claudication?

Case scenario

Eighty-two-year-old Muriel has developed intermittent claudication but is otherwise fit and well. She started taking cholesterol-lowering drugs quite recently. Her history includes 20 years of smoking; however, she gave up completely 40 years ago. Please comment on the indications for surgery as compared with allowing nature to build collateral circulation. What are the likely outcomes for each scenario?

Commentary

The first step in clinical assessment is to be certain that the symptoms are intermittent claudication due to peripheral arterial disease. Intermittent claudication typically develops only on walking, with pain affecting calf and sometimes thigh and hip muscles. Symptoms are relieved promptly within a few minutes after stopping and the patient is then able to resume activity, with symptoms then usually recurring after a similar distance. The claudication distance tends to be consistent (for example, 300 metres on level ground at normal pace and a lesser distance on hills and with hurrying). Its effect on the patient's activities will determine if intervention may be indicated (for example, interference with the patient's ability to work, shop or participate in regular activities such as lawn bowls).

If symptoms are present other than on walking, such as discomfort occurring after sitting or lying down, 'neurogenic claudication' associated with spinal canal stenosis should be considered. A likely diagnosis of 'vascular claudication' will be confirmed by examination of femoral, popliteal and pedal pulses, which should be reduced or absent if peripheral arterial disease is present. The pattern of peripheral pulses will also provide a clue as to the level of obstruction:

- a reduced or absent femoral pulse indicates proximal iliac disease
- a normal femoral with reduced or absent popliteal and pedal pulses indicates femoropopliteal disease (Figure)
- normal femoral and popliteal pulses with reduced or absent pedal pulses indicates below knee tibial disease (the dorsalis pedis pulse may be absent in 10 to15% of the normal population).

Conservative management

The natural history of intermittent claudication is generally benign, with fewer than 5% of patients progressing to critical limb ischaemia with threat of limb loss. Initial management should therefore be conservative, especially in this case with an 82-year-old patient.

Attention to vascular risk factors is of paramount importance: cessation of smoking, weight reduction and control of hypertension and diabetes mellitus.

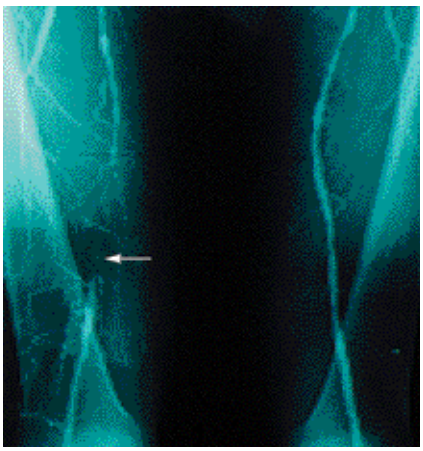

Figure. Angiogram showing occlusion of the distal superficial femoral artery (arrow). This is a typical site of atherosclerotic involvement.

Baseline blood screen should include a full blood count (to exclude anaemia and polycythaemia) and blood glucose, cholesterol, triglyceride, electrolytes, urea, creatinine and liver function tests. Administration of a statin (regardless of the level of serum cholesterol) and low dose aspirin (100 mg daily) has been shown to decrease the risk of subsequent vascular events.

Continued walking within the limits of the intermittent claudication is to be encouraged. Reassure patients that the pain they experience with exercise does not represent damage to the limb. They should walk into the pain a little, which helps to stimulate the development of collateral circulation. A supervised exercise program has been shown to be effective in increasing walking distance. Podiatry supervision with good skin and nail care is important.

The Doppler Ankle Brachial Index (ABI) is the ratio of the highest ankle pressure (dorsalis pedis or posterior tibial) divided by the highest brachial (right or left) pressure. It is not only an indicator of the severity of peripheral arterial disease, but also, when reduced, is also a good predictor of the presence of coronary artery disease. An ABI of:

- greater than 0.9 is normal (but beware

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of noncompressible vessels, especially in patients with diabetes, which may give a falsely high recording)
- 0.9 to 0.4 represents mild to moderate peripheral arterial disease
- less than 0.4 is approaching critical limb ischaemia.

Patients with peripheral arterial disease have a strong likelihood of significant coronary and carotid atherosclerosis and careful note should be taken of symptoms suggestive of angina, dyspnoea or carotid territory transient ischaemic attacks.

Interventions

Intervention for peripheral arterial disease should be considered if there is a decrease in the claudication distance rather than improvement despite appropriate attention to vascular risk factors and especially if the symptoms seriously interfere with lifestyle. Intervention is indicated if there is progression to ischaemic rest pain, ulceration or development of gangrenous changes.

Investigation is required to determine the site and extent of disease. Localised stenoses and occlusions may be amenable to minimally invasive percutaneous balloon angioplasty (with or without stenting), whereas longer length occlusions may require a more major intervention of bypass surgery. Femoropopliteal or femorotibial bypass is a major operation with significant morbidity and mortality (around 4 to 5% in most major centres). Such surgery is generally only recommended for limb salvage and is usually not indicated for the management of intermittent claudication.

In recent years there has been extensive development of endovascular interventions for cardiovascular disease. With advances in guide wire, catheter, balloon and stent technology, more extensive occlusive lesions are being treated using these techniques. However, although less than with open surgery, there is still a risk of periprocedural complications (and mortality), particularly in older patients and those with significant comorbidity. Longer-term outcomes with these newer approaches are also uncertain.

Conclusion

A conservative approach remains the preferred initial management for intermittent claudication with anticipation that most patients (up to 90%) will remain stable or improve with appropriate attention to vascular risk factors and a regular exercise program. Intervention is reserved for the patient who has worsening symptoms (especially progressing to critical limb ischaemia). An endovascular approach is preferable if possible, with bypass surgery indicated for limb salvage. MT

COMPETING INTERESTS: Professor Fletcher has received speaker fees and travel asistance to present meetings from Sanofi-Aventis, GlaxoSmithKline and Bayer Schering Pharma.