Peripheral vascular disease

Summary

- Peripheral vascular disease is the reduced circulation of blood to a body part, other than the brain or heart, due to a narrowed or blocked blood vessel.
- Risk factors include diabetes, obesity, smoking and a sedentary lifestyle.
- Treatment may include procedures to widen the artery, medications to reduce the build-up of fatty deposits within blood vessels, and lifestyle changes such as weight loss and regular exercise.

Peripheral vascular disease is the reduced circulation of blood to a body part other than the brain or heart. It is caused by a narrowed or blocked blood vessel. The main cause is atherosclerosis, which is the build-up of fatty deposits that narrow a blood vessel, usually an artery. The narrowed blood vessel reduces the circulation of blood to the associated body part.

Peripheral vascular disease mainly affects blood vessels of the legs and kidneys and, less commonly, the arms. Peripheral vascular disease is also known as peripheral artery disease, peripheral artery occlusive disease or peripheral atherosclerosis.

When atherosclerosis occurs in arteries of the heart, it is called coronary artery disease. Atherosclerosis in arteries of the brain is called cerebrovascular disease.

A person with peripheral vascular disease is up to six times more likely to have a heart attack or stroke.

Symptoms of peripheral vascular disease

In some cases, a person with peripheral vascular disease does not have any symptoms until the condition is advanced and severe. Symptoms depend on which body part is deprived of sufficient blood, but may include:

- Intermittent pain (claudication), which may feel like cramps, muscle fatigue or heaviness (usually in the legs)
- Worsening pain during exercise (usually in the legs)
- Easing of pain during rest (usually in the legs)
- Coldness of the affected body part
- Numbness
- Pins and needles
- Muscular weakness
- Blue or purple tinge to the skin
- Wounds that won’t heal (vascular ulcers)
- Blackened areas of skin or skin loss (gangrene).

Gangrene explained

Body tissues rely on a steady supply of blood to deliver oxygen and nutrients. A narrowed or blocked blood vessel deprives tissues of blood. Gangrene is the death and decay of tissue. There is no cure. The only treatment is surgical amputation of the affected body part.

Causes of peripheral vascular disease

In most cases the cause is atherosclerosis, the build-up of fatty deposits within the blood vessel that reduces blood flow to the area. Commonly this occurs in the body where a blood vessel kinks or subdivides.

Apart from fatty deposits, other causes of peripheral vascular disease include:
• **Diabetes** – high blood sugar damages and weakens blood vessels, causing them to narrow.
• **Obstruction** – a blood clot (thrombus) may lodge within the blood vessel.
• **Infection** – can cause scarring and narrowing of the blood vessels. Syphilis or salmonellosis, for example, can lead to peripheral vascular disease.
• **Arteritis** – inflammation of arteries. Some autoimmune diseases can cause arteritis.
• **Blood vessel defects** – blood vessels may be unusually narrow at birth. The cause is unknown.
• **Blood vessel spasms** – conditions such as Raynaud’s disease may cause narrowing of blood vessels in response to certain factors, including cold temperatures or stress.

**Risk factors of peripheral vascular disease**

Risk factors for peripheral vascular disease include:

- Diabetes – this is the most significant risk factor
- Cigarette smoking
- Advancing age
- Family history of peripheral vascular disease, stroke or coronary artery disease
- Medical history of stroke, cardiovascular disease or heart attack
- Overweight or obesity
- Sedentary lifestyle
- High blood pressure (hypertension)
- High blood cholesterol (hypercholesterolaemia).

**Diagnosis of peripheral vascular disease**

Diagnosis of peripheral vascular disease may include:

- Medical history
- Physical examination
- Family history
- Pulse check, using a stethoscope to listen for signs of reduced blood flow through a blood vessel
- Ankle/brachial index (ABI) test, which compares the blood pressure readings of the arms and legs to check for differences
- Exercise test, usually performed on a treadmill while blood pressure is taken to check for a drop in blood pressure within the affected body part
- Scans such as ultrasound or magnetic resonance imaging (MRI) to locate narrowed sections of blood vessels
- Angiography, the injection of a contrast dye into the blood vessel that shows up on x-ray examination – this test is less common now that advanced imaging techniques, such as MRI, are available.

**Treatment of peripheral vascular disease**

Treatment options may include:

- **Medications** – to help treat atherosclerosis, such as statins to lower LDL cholesterol and antihypertensive drugs to lower blood pressure.
- **Drugs to treat blood clots** – treatment may include various medications (including anticoagulants and anti-platelet drugs) to prevent blood clots from developing and medications (including thrombolytics) that dissolve existing blood clots.
- **Angioplasty** – this procedure, usually performed under sedation and local anaesthetic, involves threading a thin tube (catheter) into the narrowed blood vessel through a small incision, usually in the leg. Once the catheter reaches the narrowed or blocked site, the small balloon on its tip is inflated. This widens the blood vessel and improves blood flow. Angioplasty is usually considered as a temporary measure.
- **Surgical insertion of a stent** – a stent is a metal ‘sleeve’ that is implanted inside the narrowed blood vessel during an angioplasty procedure to prop it open. Stents may be impregnated with medications that help to prevent scar tissue from narrowing the treated area of blood vessel.

betterhealth.vic.gov.au
• **Atherectomy** – this operation involves cutting away the fatty obstruction with a small scalpel-like instrument.

• **Bypass surgery** – this operation is usually only considered in severe cases that don’t respond to other treatments or in cases that involve large sections of the diseased blood vessel. A section of healthy vein is taken from somewhere else in the body and surgically grafted to re-route blood flow around the blockage in the affected blood vessel. A surgeon may sometimes use a piece of synthetic tubing to detour blood flow.

**Self-help treatment of peripheral vascular disease**

Lifestyle changes are an important part of treatment. Be guided by your doctor, but general self-help suggestions include:

- Take steps to properly manage risk factors, such as diabetes or high blood pressure, as advised by your doctor.
- Quit smoking.
- Exercise regularly. Ask your doctor for advice on appropriate activities.
- Eat a low-fat, high-fibre diet.
- Maintain a healthy weight for your height and build.
- Take care of injuries to the affected area, for example, dress wounds promptly and seek medical attention.
- Take all medications strictly as prescribed.
- See your doctor for regular check-ups.
- See your doctor if you have symptoms in the affected body part such as redness, warmth and swelling. These symptoms could be signs of infection. Treatment may include antibiotics.

**When to seek urgent medical attention for peripheral vascular disease**

Seek medical help immediately if you have unusual symptoms such as chest pain, loss of consciousness, sudden confusion or severe headache. These symptoms could suggest heart attack or stroke.

**Where to get help**

- Your doctor
- Emergency department of your nearest hospital
- Always call triple zero (000) in an emergency
- Local community health centre
- Podiatrist
- Diabetes educator
- **Quitline** Tel. 13 7848 (13 QUIT)
- **Baker IDI Heart and Diabetes Institute** Tel. (03) 8532 1111
- **Heart Foundation** Tel. 1300 36 27 87
- Nurse-on-Call Tel. 1300 60 60 24 – for expert health information and advice (24 hours, 7 days)

**Things to remember**

- Peripheral vascular disease is the reduced circulation of blood to a body part, other than the brain or heart, due to a narrowed or blocked blood vessel.
- Risk factors include diabetes, obesity, smoking and a sedentary lifestyle.
- Treatment may include procedures to widen the artery, medications to reduce the build-up of fatty deposits within blood vessels, and lifestyle changes such as weight loss and regular exercise.