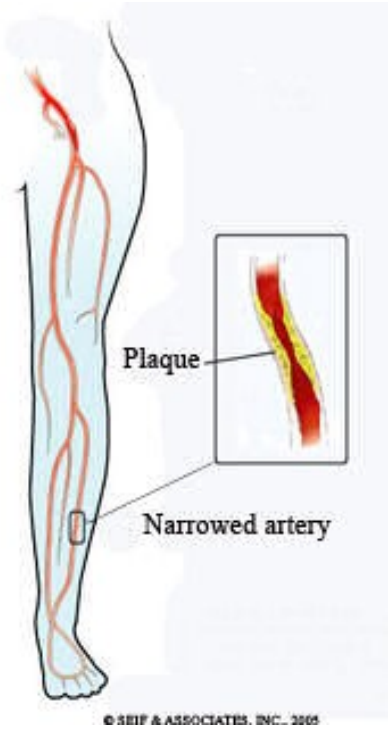
Peripheral Vascular Disease (PVD)

Peripheral Vascular Disease (PVD), also called Peripheral Arterial Disease (PAD), is a circulation problem caused by cholesterol (*atherosclerotic plaque*) deposits in the arteries. PVD commonly occurs in the lower *extremities* (legs) but it can occur in other areas of the body, such as your arms. The cholesterol buildup in the arteries reduces blood flow which can cause pain and other serious problems. The presence of PVD can place a person at risk for Coronary Artery Disease (CAD).



CAUSES

Causes of PVD can be many. It is usually associated with more than one risk factor such as:

- High Cholesterol.
- Smoking.
- Diabetes.
- Lack of exercise or inactivity.
- High blood pressure (*Hypertension*).
- Obesity.
- Family history.

SYMPTOMS

- When the lower extremities are affected, patients with PVD may experience:
  - Leg pain with exertion or physical activity. This is called INTERMITTENT CLAUDICATION. This may present as cramping or numbness with physical activity. The location of the pain is associated with the level of blockage. For example, blockage at the abdominal level (*distal abdominal aorta*) may result in buttock or hip pain. Lower leg arterial blockage may result in calf pain.
  - As PVD becomes more severe, pain can develop with less physical activity.
  - In people with severe PVD, leg pain may occur at rest.
- Other PVD signs and symptoms:
  - Leg numbness or weakness.
  - Coldness in the affected leg or foot, especially when compared to the other leg.
  - A change in leg color.
  - Patients with significant PVD are more prone to ulcers or sores on toes, feet or legs. These may take longer to heal or may reoccur. The ulcers or sores can become infected.
  - If signs and symptoms of PVD are ignored, gangrene may occur. This can result in the loss of toes or loss of an entire limb.
- Not all leg pain is related to PVD. Other medical conditions can cause leg pain such as:
  - Blood clots (*embolism*) or *Deep Vein Thrombosis.*
  - Inflammation of the blood vessels (*vasculitis*).
  - Spinal stenosis.

DIAGNOSIS

Diagnosis of PVD can involve several different types of tests. These can include:

- Pulse Volume Recording Method (PVR). This test is simple, painless and does not involve the use of X-rays. PVR involves measuring and comparing the blood pressure in the arms and legs. An ABI (Ankle-Brachial Index) is calculated. The normal ratio of blood pressures is 1. As this number becomes smaller, it indicates more severe disease.
  - < 0.95 – indicates significant narrowing in one or more leg vessels.

- <0.8 – there will usually be pain in the foot, leg or buttock with exercise.
- <0.4 – will usually have pain in the legs at rest.
- <0.25 – usually indicates limb threatening PVD.

- Doppler detection of pulses in the legs. This test is painless and checks to see if you have a pulses in your legs/feet.
- A dye or *contrast material* (a substance that highlights the blood vessels so they show up on x-ray) may be given to help your caregiver better see the arteries for the following tests. The dye is eliminated from your body by the kidney's. Your caregiver may order blood work to check your kidney function and other laboratory values before the following tests are performed:
  - *Magnetic Resonance Angiography* (*MRA*). An MRA is a picture study of the blood vessels and arteries. The MRA machine uses a large magnet to produce images of the blood vessels.
  - *Computed Tomography Angiography* (*CTA*). A CTA is a specialized x-ray that looks at how the blood flows in your blood vessels. An IV may be inserted into your arm so contrast dye can be injected.
  - *Angiogram*. Is a procedure that uses x-rays to look at your blood vessels. This procedure is minimally *invasive*, meaning a small *incision* (cut) is made in your groin. A small tube (*catheter*) is then inserted into the artery of your groin. The catheter is guided to the blood vessel or artery your caregiver wants to examine. Contrast dye is injected into the catheter. X-rays are then taken of the blood vessel or artery. After the images are obtained, the catheter is taken out.

TREATMENT

Treatment of PVD involves many interventions which may include:

- **Lifestyle changes**:
  - Quitting smoking.
  - Exercise.
  - Following a low fat, low cholesterol diet.
  - Control of diabetes.
  - Foot care is very important to the PVD patient. Good foot care can help prevent infection.
- **Medication**:
  - Cholesterol-lowering medicine.
  - Blood pressure medicine.
  - Anti-platelet drugs.
  - Certain medicines may reduce symptoms of Intermittent Claudication.
- **Interventional/Surgical options**:
  - Angioplasty. An Angioplasty is a procedure that inflates a balloon in the blocked artery. This opens the blocked artery to improve blood flow.
  - Stent Implant. A wire mesh tube (*stent*) is placed in the artery. The stent expands and stays in place, allowing the artery to remain open.
  - Peripheral Bypass Surgery. This is a surgical procedure that reroutes the blood around a blocked artery to help improve blood flow. This type of procedure may be performed if Angioplasty or stent implants are not an option.

SEEK IMMEDIATE MEDICAL CARE IF:

- You develop pain or numbness in your arms or legs. Seek **immediate** medical help if your arm or leg turns cold, becomes blue in color and/or becomes numb.
- You develop redness, warmth, swelling and pain in your arms or legs.

MAKE SURE YOU:

- Understand these instructions.
- Will watch your condition.
- Will get help right away if you are not doing well or get worse.

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