

Peripheral Artery Disease (PAD)

Peripheral artery disease (PAD) is caused by the narrowing of peripheral arteries, especially those in the legs, due to plaque buildup. Patients with PAD can develop intermittent muscle cramping, arterial ulcers, critical limb ischemia, and paresthesias. If the condition is left untreated, amputation(s) may be necessary to remove the diseased limb(s).



PLAY PICMONIC

Mechanism

Atherosclerosis

Clogged Artery-guy

Thickening of the arterial wall occurs as the result of plaque buildup or accumulation of fat and/or cholesterol in the artery. Atherosclerosis can lead to narrowing of the arteries and can eventually cause problems with blood flow. Typically, clinical symptoms do not manifest until the artery is 60 to 75 percent obstructed.

Assessment

Intermittent Claudication

In-mitten Claws

Intermittent cramping pains, usually caused by exercise or physical activity, are common in patients with PAD and usually go away within 10 minutes or less. These cramping pains are often mistakenly attributed to aging; however, unlike joint pain, these cramps occur in the muscle.

Pain with Exercise

Pain-bolt on Treadmill

Muscles need more blood supply when they are actively engaged in physical activity or exercise. The narrowing of arteries seen in patients with PAD prevents adequate blood flow, causing muscle cramps.

Paresthesias

Paris-t-shirt with Pins-and-needles

Inadequate blood supply to nerves or nerve tissue can result in a tingling or numbing sensation, especially in the lower extremities.

Arterial Ulcers

Archery-artery Ulcer-volcano

Prolonged reduction in blood flow due to PAD can lead to progressive degeneration of the skin and muscles. As a result, minor injuries to the lower extremities, such as stubbing one's toe, can lead to wounds that will not heal or ulcers. Arterial ulcers have well-defined edges and are common on the toes and bony prominences of the feet.

Critical Limb Ischemia

Critical Limb of Eye-ski-mask

Critical limb ischemia is characterized by severe pain in the legs and feet when a patient is at rest. Immediate treatment is necessary to re-establish blood flow and to prevent amputation of the affected limb.

Amputation

Amputated-limb

Patients with PAD are at increased risk of amputation due to inadequate blood flow, mainly to the lower extremities. Delayed, inadequate wound healing or critical limb ischemia are the main conditions resulting in amputation. This risk is increased in patients with diabetes and neuropathy.

Consideration

Ankle-Brachial Index (ABI)

[Ankle and Brachial Index-card](#)

The ABI is used as a screening tool for peripheral artery disease and can be performed at the bedside with a hand-held Doppler. The value is calculated by dividing the systolic blood pressures in the ankles by the higher of the two systolic values gathered from the brachial pressures taken in the arms. The patient must be in a supine position when taking ankle blood pressures to prevent a falsely high ABI value. An ABI value of 0.90 or less is abnormal and is indicative of mild PAD.