



COMMENTARY

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## Pathophysiology of Peripheral Artery Disease and its Diagnosis and Symptoms

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### ARTICLE HISTORY

Received: 03-Apr-2023, Manuscript No. JCMEDU-23-96430;  
Editor assigned: 07-Apr-2023, Pre-QC No. JCMEDU-23-96430 (PQ);  
Reviewed: 21-Apr-2023, QC No. JCMEDU-23-96430;  
Revised: 28-Apr-2023, Manuscript No. JCMEDU-23-96430 (R);  
Published: 05-May-2023

### Description

An abnormal constriction of arteries other than those that carry blood to the heart or brain is known as Peripheral Arterial Disease (PAD). Although PAD can occur in any blood vessel, it tends to affect the legs more frequently than the arms. Heart artery narrowing is referred to as Coronary Artery Disease (CAD), and brain artery narrowing is referred to as cerebrovascular disease. Although peripheral artery disease most frequently affects the legs, it can also affect other arteries, including those in the arms, neck and kidneys. A type of peripheral vascular disease is peripheral artery disease (PAD). Vascular describes both the body's arteries and veins. Peripheral venous disease and PAD are distinct. PAD is a condition in which the arteries, the blood channels that transport oxygen-rich blood from the heart to various areas of the body, are constricted or clogged. On the other hand, peripheral venous illness refers to issues with veins, the blood vessels that return blood to the heart.

### Pathophysiology

Peripheral arterial disease is understood to be a collection of acute or chronic syndromes that are typically brought on by the presence of occlusive arterial disease and result in insufficient blood flow to the limbs. Atherosclerosis is the most typical cause of peripheral artery disease, particularly in people over the age of 40. Atherosclerosis is a constriction of the arteries brought on by a buildup of calcium and lipids in the damaged arteries' walls. Cholesterol and vascular cells interact in a complicated way in the pathogenesis of atherosclerosis. In the early stages of PAD, the arteries widen to make up for the plaque buildup and maintain blood flow. When the artery reaches its maximum dilation, the atherosclerotic plaque begins to constrict the arterial flow lumen. Atherosclerotic plaque begins to constrict the arterial flow channel when the artery can no longer expand any further.

Ischemia is the condition that results from an imbalance between the blood supply and the requirements of the peripheral tissues. A lower limb blood supply restriction (ischemia) might be categorised as functional or essential from a pathophysiologic perspective. Functional ischemia manifests clinically as intermittent claudication when the blood flow is adequate during activity but abnormal at rest. Pain at rest or trophic lesions in the legs are indicators of critical ischemia, which is caused when blood flow is reduced and results in a perfusion deficit at rest. An accurate diagnosis is essential in this case since there is a real risk of losing the limb if enough blood flow is not restored, either through surgery or endovascular therapy. In order to determine the treatment indication and the prognosis in patients with PAD, it is crucial to distinguish between the two ideas.

### Diagnosis

A physical examination, a history of symptoms, and confirmatory testing are required for the diagnosis or identification of peripheral artery disease. These examinations may involve imaging ultrasounds, Magnetic Resonance Angiography (MRA) scans, or Computed Tomography Scans (CT). A doctor will next perform particular exam findings on a patient if they exhibit signs of peripheral artery disease. A medical professional may evaluate a certain diagnosis if they discover abnormal physical examination results. However, confirmation testing is necessary in order to verify a diagnosis.

These results show a connection to peripheral artery disease:

- Reduced or nonexistent pulses
- Thickened nails
- Smooth or shiny skin and hair loss
- Noticable blueness of the afflicted limb
- Reduced temperature (coolness) of the affected

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limb when compared to the other

- Muscle atrophy or wasting

### **Symptoms**

The damaged body portion determines the symptoms of peripheral artery disease. About 66% of PAD patients either have unusual symptoms or no symptoms at all.

Other symptoms may include

- Thigh, hip, or buttock pain; pains or cramps
- Muscle atrophy (loss of muscle mass)
- Hair loss on the affected limb
- Numbness or coldness in the toes
- Unhealing sores or ulcers on the afflicted limb