

Atlas of Clinical Vascular Medicine

Edited by Jessica Mintz, Bruce L Mintz and Michael R Jaff


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Clinical Vascular Medicine

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Preface and Dedication

For those who have committed their professional careers to the diagnosis and management of vascular diseases, one of the true joys of this specialty is the broad and myriad presentations patients demonstrate. One can never get bored, nor can one assume that they have "seen it all".

Vascular medicine specialists must have a keen ability to identify subtle physical diagnostic findings, and link them to often difficult historical presentations and objective imaging tests. There are many tomes on vascular medicine; however, we felt that an easy to reference pictorial atlas would serve as a useful ready reference for practicing clinicians. We have asked renowned experts in the field to help us put together a comprehensive, organized pictorial with brief descriptions of what you see in each figure. We hope you find this a useful addition to your clinical libraries.

Each of us dedicates this *Atlas* to our families, who tolerate our hectic lifestyles. Still, the true dedication of this *Atlas* is to Jess R. Young, MD, Emeritus Chair of Vascular Medicine at the Cleveland Clinic. For those of us who were privileged to train under Dr. Young (B.L.M., M.R.J.), we have never encountered his equal. Dr. Young combined a mastery of clinical medicine with an encyclopedic fund of knowledge and a unique method of approaching patients. We use Dr. Young's approach to vascular medicine every day in our clinical practice, and attempt to pass on his acumen and diagnostic strategies to our trainees. Thank you, Dr. Young, on behalf of all of the physicians you have trained and all the patients you directly, and indirectly, touched and healed.

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About the Companion Web Site

There is a companion web site for this book at
http://www.wiley.com/go/Jaff/Vascular

On this site you will find
- A complete set of figures from the book

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Peripheral Artery Disease

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BRIEF CASE PRESENTATION

A 74-year-old man presents with a chief complaint of limb discomfort with exercise which resolves with rest.

CHARACTERISTICS

- Peripheral artery disease (PAD) is a common manifestation of systemic atherosclerosis
- Patients with PAD present in myriad ways. They may have no symptoms, report muscular pain with ambulation, claudication, or present with critical limb ischemia. Critical limb ischemia is represented by pain at rest, a non-healing ulcer or gangrene
- The diagnosis is made through history, careful physical examination of the lower extremities, pulse evaluation and performance of the ankle-brachial index (ABI). An ABI less than 0.91 is diagnostic of PAD
- Several other non-invasive tests are used for the diagnosis of PAD including exercise stress testing, segmental blood pressure, and pulse volume detection. Duplex ultrasonography can be utilized to pinpoint the specific morphology of the vascular lesion
- Pulse volume recordings (PVR) are especially useful in diabetic patients with non-compressible arteries as it is less effected by medial calcinosis than segmental blood pressure recordings
- Patients with PAD have a similar risk of myocardial infarction and stroke as patients with coronary heart disease, yet PAD patients are typically less intensively treated with anti-platelet therapy and risk reduction than patients with coronary disease

TREATMENT

Cardiovascular risk reduction therapies including tobacco cessation, blood pressure control, cholesterol management, tight glycemic control and aspirin therapy are all indicated to reduce myocardial infarction, stroke, and death. Management of intermittent claudication include risk factor intervention and a supervised exercise walking program. Revascularization is considered when medical management and maximal exercise therapy have failed to improve the patients physical functioning. In the setting of critical limb ischemia, lower extremity revascularization may be required to avoid amputation

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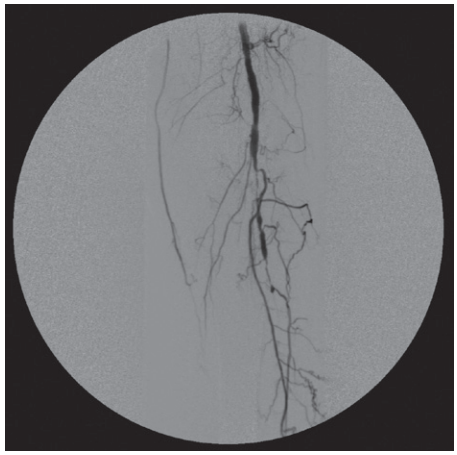

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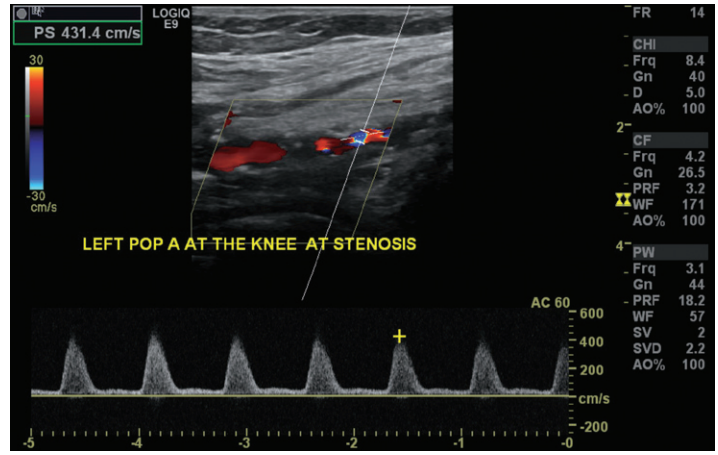

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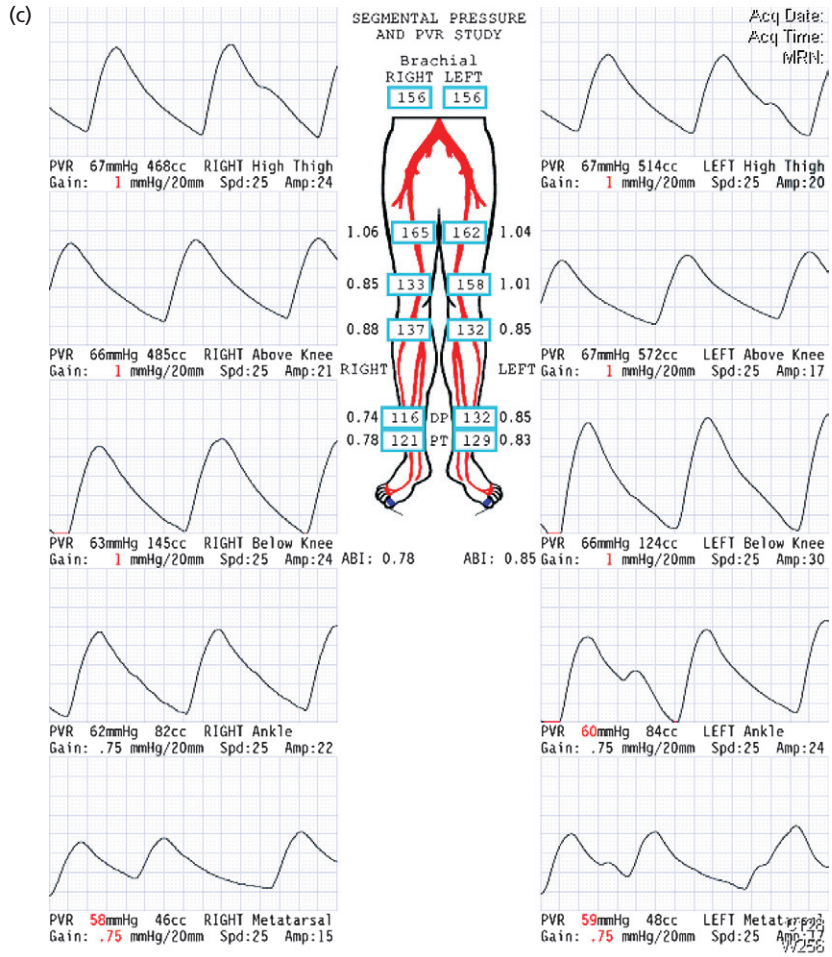

Peripheral Artery Disease Imaging. (a) Angiography of atherosclerotic popliteal artery stenosis. (b) Duplex ultrasonography of popliteal artery stenosis. (c) Pulse volume recordings demonstrating bilateral superficial femoral artery and popliteal artery stenoses.

Elevation Pallor and Dependent Rubor

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BRIEF CASE PRESENTATION

An 82-year-old woman with a history of extensive tobacco abuse and type 2 diabetes mellitus for 25 years developed foot pain during sleep. She attained relief by dangling her foot over the bed. Physical examination revealed a diminished femoral pulse and absent popliteal and pedal pulses on the right. In the dependent position, the right foot became deeply erythematous, while pallor of the forefoot developed rapidly with elevation of the foot 60 degrees above the level of the heart.

CHARACTERISTICS

- Dependent rubor and elevation pallor are elicited by the elevation-dependency test and denote severe peripheral artery disease
- Dependent rubor results from the dilation of dermal arterioles and capillaries in the presence of increased hydrostatic pressure
- Elevation pallor results from inadequate blood flow to reach the foot without the assistance of gravity

TREATMENT

This is a physical finding. Treatment must be directed towards the underlying peripheral artery disease.

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Peripheral artery examination. (a) Lower extremity demonstrating pallor on elevation. (b) Rubor on dependency.

Ischemic Toes

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BRIEF CASE PRESENTATION

A 75-year-old man presents with painful, discrete purple lesions on his toes bilaterally. Past medical history includes atrial fibrillation, hypercholesterolemia, hypertension and cigarette smoking.

CHARACTERISTICS

- Emboli to the toes cause local ischemic phenomena. They are typically intensely painful and can be located anywhere
- A bilateral lower extremity presentation suggests a central etiology such as an abdominal aortic aneurysm or cardiogenic emboli. Unilateral ischemic digits suggest a source in the extremity such as popliteal aneurysm
- Ischemic limbs can arise spontaneously or as a result of catheter manipulation
- There are multiple conditions that can mimic ischemic toes including, but not limited to, vasospastic disorders, thromboangiitis obliterans and vasculitis

TREATMENT

The specific treatment for ischemic toes includes management of pain; skin, toe, limb protection; and assessment of large artery circulation. Treatment should be directed at the source and associated atherosclerotic risk factors. Evaluation for emboli in other vascular beds should be considered (renal, mesenteric). Systemic antiatherosclerosis therapy should be provided.

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Limb Ischemia. (a) Thromboemboli, note plethoric changes in toes along with rubor and multiple circumferential cutaneous lesions on forefoot; (b) Livedo reticularis of the great toe. Irreversible ischemia of the 4th and 5th toes. (c) Atheromatous emboli to foot with evidence of heel emboli. (d) Emboli to great toe with impending tissue loss. (e) Livedo reticularis with tissue loss of the lateral forefoot and great toe. (f) Livedo reticularis of bilateral feet. Image (c) is courtesy of Bruce L. Mintz.