

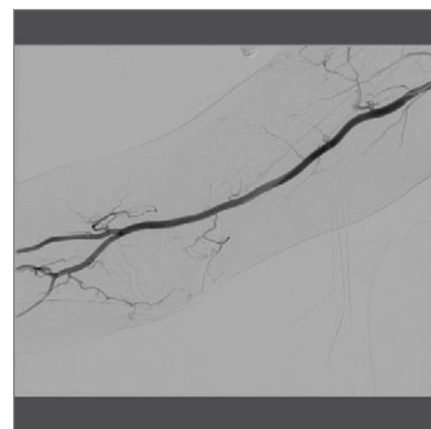
Upper Extremity Angiography

Many patients with peripheral arterial disease (PAD) also have atherosclerotic disease of the lower extremity. However, PAD of the upper extremity is not uncommon especially in patients with history of multiple risk factors. Although proximal disease is more common than distal disease, patients may present with symptoms secondary to distal upper extremity occlusive disease. Signs and symptoms of upper extremity atherosclerosis depend on the severity of the disease. The patient may be asymptomatic or have symptoms of claudication which can cause upper extremity pain with exertion. Rest pain, ulceration and gangrene may result from severe arterial insufficiency to the hand. A number of other conditions may affect the arteries of the upper extremity, including emboli, thrombosis, arterial inflammation, trauma and occupational disorders, vasospasm, thoracic outlet syndrome, arteriovenous malformations, fistulas and vascular tumors.

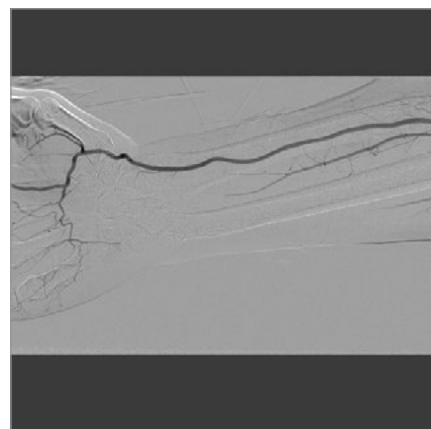
Diagnosis is based on obtaining a complete history and physical. In many patients, specific vascular testing is necessary to make a diagnosis of peripheral arterial disease. Initial non-invasive vascular testing includes upper extremity arterial plethysmography and segmental systolic pressure with digital tracings, thoracic outlet maneuvers, CTA, MRI and possible ice immersion. Angiography plays a critical role in the diagnosis and management of certain arterial lesions involving the upper extremity. Selective angiography provides a detailed image of the upper extremity arterial tree leading to an endovascular intervention. Having an appropriate low profile, braided, radio-opaque tip catheter allows atraumatic selective cannulation of the vessel with detailed imaging of the appropriate vascular bed.



(Figure 1) 150 cm, 4F Bernstein Mariner catheter advanced to right axillary artery.



(Figure 2) Selective angiogram of right upper extremity.



(Figure 3) Angiogram showing occlusion of right ulnar artery, as well as digital occlusion.

CASE PRESENTATION

This is a case of a 39 year old male who is a construction worker with history of smoking. Patient presented with pain involving the right hand and mild discoloration involving the tip of the 4th and 5th digit. Patient is a right hand dominant and has no other significant past medical history. Arterial doppler study showed decrease in digital tracing and ulnar index. Patient underwent angiography to evaluate the abnormality. This included arch and selective right upper extremity arteriograms (Figures 1 & 2) which showed occlusion of the ulnar artery and severe digital occlusive disease (Figure 3). A marked pigtail catheter was used for the arch arteriogram and a 150 cm 4F Bernstein Mariner™ catheter was used for selective arteriogram of the right upper extremity.

Ali Amin, MD, FACS, FACC, RVT, Director of Endovascular Services
The Reading Hospital and Medical Center, West Reading, PA

Mariner Hydrophilic-Coated Angiographic Catheter

The Mariner* hydrophilic-coated angiographic catheter is designed to deliver contrast media to areas of vascular anatomy. The Mariner angiographic catheter features AngioDynamics' patented Soft-Vu* catheter technology—an atraumatic SUPER-RADIOPAQUE* tip, which is highly visible under fluoroscopy—combined with Duration* coating technology. The Duration hydrophilic coating technology significantly reduces catheter surface friction, permitting smoother navigation through challenging vasculature with optimal handling and control.

The Mariner catheter is available in:

- More than 50 shapes of flush and selective catheters
- Lengths ranging from 40 cm to 150 cm
- 4F, 5F and 6F
- .035" and .038" diameters
- Comprehensive specials program is available



IMPORTANT RISK INFORMATION

INDICATION FOR USE: AngioDynamics Angiographic Catheters are designed for use where angiographic diagnosis is indicated. CAUTION: Federal (USA) law restricts these devices to sale by or on the order of a physician.

WARNINGS AND PRECAUTIONS: Reuse of single-use devices creates a potential risk of patient or user infections. Contamination of the device may lead to injury, illness or death of the patient. Reprocessing may compromise the integrity of the device and/or lead to device failure. Contents sterile in unopened,

undamaged package. Do not use if opened or any sign of product damage is visible. AngioDynamics Angiographic Catheters should be used only by physicians with a thorough understanding of angiography and percutaneous interventional procedures. Do not insert catheters directly through synthetic vascular grafts. Insert through a sheath introducer. AngioDynamics Angiographic Catheters are designed for use with specific guidewire diameters. The recommended maximum guidewire diameter is specified on the catheter label. Optimal guidewire size

and judicious use are recommended. Please see package insert for complete list of warnings and precautions.

POTENTIAL COMPLICATIONS: The following adverse reactions have been reported and are associated with the use of angiographic catheters: Thrombus formation, emboli, arterial wall damage, plaque dislodgment, hematoma, cardiac arrhythmias, myocardial infarction, stroke, and death.



USA > 14 Plaza Drive, Latham, NY 12110 > tel: 800-772-6446 or 518-798-1215 > fax: 518-798-1360
International > Haaksbergweg 75 (Margrietoren), 1101 BR, Amsterdam Z-O > The Netherlands
tel: +31 (0)20 753 2949 > fax: +31 (0)20 753 2939

www.angiodynamics.com

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