

Vascular Surgery for the Primary Care Physician

Presented by Sheraz Qureshi, MD FACS, of Vascular Specialists

Led by Dr. Qureshi, our group was given an understanding of the role a vascular surgeon can play in a primary care practice, how to identify common vascular diagnoses seen in the office, to recognize pertinent history and physical exam findings relevant to the vascular diagnosis and to know when to make an appropriate vascular surgery referral.

Vascular surgery is a surgical subspecialty focused on the surgical treatment of all of the blood vessels of the body excepting the cranium and pericardium. A vascular surgeon's skill set includes:

- Open surgery
- Catheter-based endovascular & minimally-invasive surgery
- Hybrid surgery
- Medical management of vascular disease

For primary care physicians (PCP) who recognize the value of a vascular surgeon and strive for good outcomes, they'll find a vascular surgeon is an indispensable partner, whether in private practice or part of a health system. Vascular surgeons provide medical and surgical care and often determine that many patients don't require a surgical intervention. They are proactive, providing surveillance, imaging, non-invasive testing and interpretation. A vascular surgeon can provide an unbiased opinion on what's best for a patient, with treatment tailored to each patient, because they possess all the tools to maintain continuity and strive for the best outcome.

When a patient presents with TIA or stroke history, the first step is to determine the nature of the cerebrovascular accident (CVA). Is it hemorrhagic or ischemic? Identify the etiology of infarct:

- Cardiac, for example, arrhythmia
- Small intracranial vessels, a hypertensive emergency
- Aorta or aortic arch
- Carotid artery

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- Vertebral artery

Look for systemic risk factors including:

- Over 65 years of age
- Obesity
- High blood pressure
- High cholesterol
- Tobacco use
- Diabetes
- Family history

Determine local hemodynamic forces such as low shear forces or flow reversal.

Perform an initial workup collecting patient history including:

- Unilateral neurological symptoms
- Unilateral blindness that resolves (amaurosis fugax)
- Evidence of intracranial infarct on previous test
- Risk factors for atherosclerotic disease
- History of neck radiation, as there is a 22% risk of more than 70% stenosis with prior neck radiation

A physical exam should include:

- Focal neurological deficits
- Carotid bruit with a sensitivity of about 63%
- Acute onset confusion or rapidly deteriorating neurological function
- Neck incisions and skin quality

Next steps include imaging tests such as bilateral carotid ultrasound and CT angiogram of head and neck. Initiate a preoperative risk assessment and ensure that the patient is on anti-platelet agent, typically 81 mg baby aspirin, and statin therapy, considering a single versus dual antiplatelet therapy after an acute TIA. Ensure medical risk factors are addressed and make a referral to a vascular specialist. Your specialist will then determine if an intervention should be made in the case of carotid

stenosis. For less than 50% stenosis, specialists will use best medical therapy-managing lifestyle risk factors.

If the patient is asymptomatic, with greater than 60% stenosis by arteriography or 70-80% stenosis with carotid ultrasound or with plaque abnormality, intervention should be considered. In symptomatic patients, intervention is recommended in patients with stenosis greater than 50%.

In asymptomatic patients, with medical therapy, there is 5-year stroke risk of about 11% versus a 5-year stroke risk of 6% with surgical therapy.

In symptomatic patients with 50-69% stenosis, there is a 5-year stroke risk with medical therapy of 22% and a 5-year stroke risk with surgical therapy of 16%.

In symptomatic patients with more than 70% stenosis, there is a 2-year stroke risk with medical therapy of 26% and 2-year stroke risk with surgical therapy of 9%.

When a patient presents with vertigo and/or dizziness, many reasons may cause this condition. It can suggest vertebrobasilar insufficiency or cerebellar stroke, so a carotid duplex should be ordered. Vertebral artery assessment is part of protocol. There may be stenosis, occlusion, or reversal of flow. Ask about upper extremity effort fatigue, or claudication of the arms, and check blood pressure in both arms. Consider a robust CTA or MRA of the head and neck.

The most common way abdominal aortic aneurysms (AAAs) are diagnosed is through imaging obtained for another complaint, such as an abdominal X-ray, MRI of lumbar spine or a CT of the abdomen and pelvis for abdominal pain.

200,000 aortic aneurysms are diagnosed yearly in the US. It's the 15th leading cause of death overall, and the 10th leading cause of death in males over 55. There is a rupture mortality of up to 90% and even if a patient makes it to the hospital, mortality is still about 70%. It is critical to catch AAA early.

AAA are true aneurysms, involving all layers of the vessel wall. The infrarenal aorta is the most typical location. Any morphology greater than 3 cm is considered an aneurysm. Risk factors are:

- Male gender
- Age over 65
- Tobacco use
- Hypertension
- Family history

- Atherosclerosis

Aneurysm morphology are of two types; fusiform or saccular. Fusiform aneurysms are:

- Uniform and symmetrical
- Follow more predictable behavior
- Follow size criteria

Saccular aneurysms are:

- Asymmetric
- More aggressive with less predictable behavior
- May not follow size criteria
- Likely to rupture unexpectedly

The initial workup should include family history of aortic aneurysms, risk factors and prior bowel surgery. Recommend an ultrasound for:

- Males older than 65 years with any tobacco history
- Males older than 60 years with a first degree relative with AAA

During a physical exam, look for a pulsatile abdominal mass, check peripheral pulses and screen for other aneurysms in the visceral and peripheral vessels. Up to 14% of patients with AAA will have a peripheral vessel aneurysm. When a popliteal artery aneurysm is found, up to 62% of patients will have AAA. That percentage increases to 85% when a femoral artery aneurysm is found.

Monitor AAA as follows:

- Less than 3 cm, exam every 5 years
- 3 to 3.9 cm, exam every 3 years
- 4 to 4.4 cm, exam every 2 years
- 4.5 to 5.5 cm. exam every year
- More than 5.5 cm, consider elective intervention
- In females, consider intervention when the AAA is greater than 5 cm.

Stay consistent with chosen imaging modality.

It's time to intervene when a patient has radiating back pain and may be light-headed as they could be experiencing a leak, rupture, embolic phenomena or asymptomatic mural thrombus.

Saccular aneurysms may require intervention when there is rapid growth of more than 0.5 cm in 6 months.

An AAA of 4 to 5.4 cm carries a risk of rupture of 0.5% to 1% per year, while more than 5.5 cm up to 7 cm carries risk of 19% to 35% per year. Females, patients with COPD, and transplant patients may have a lower threshold for intervention.

Make a referral to a vascular specialist. Treatment

options include the endovascular approach:

- Minimally invasive, often without incisions
- Faster recovery time
- Indicated for ruptures when anatomy is feasible
- Long-term surveillance is required
- 10-12% re-intervention rate
- Sacrifice of prominent lumbar arteries and IMA

The second treatment option is an open approach:

- Preferred approach
- Patients under the age of 65
- Unfavorable anatomy for endovascular repair
- Unfavorable neck anatomy
- Small access vessels in patient
- Concomitant iliac artery involvement
- Anticipated issues with long-term follow up

AAA are approached transabdominally or retroperitoneally.

When a patient presents with lower extremity wounds, cold or discolored feet or leg pain, it's

important to identify etiology. Issues to consider are:

- Arterial (Peripheral arterial disease or PAD)
- Venous (Venous insufficiency)
- Mixed
- Non-vascular origin

In the initial workup for PAD, the most important factor is patient history, including:

- Claudication symptoms
- Rest pain
- Medical risk factors for poor healing
- Diabetes, hypertension, HLD/atherosclerosis, smoking history, renal failure, poor nutrition, neuropathy
- Wounds including length of time they have been present, progress, and etiology such as trauma or ischemic.
- Any elective surgical intervention of lower extremity or foot

In the physical exam for PAD, look for:

- Quality of skin and soft tissues
- Dependent rubor, with pain relief only when leg dangles freely
- Wound location
- Health and appearance of toes
- Pressure points in medial or lateral lower leg
- Presence of infection
- Evidence of purple discoloration or frank dry gangrene
- Concomitant swelling

- Lower extremity pulse exam
- Lower extremity doppler exam

When you suspect peripheral arterial disease, ensure that the patient is on an anti-platelet agent and statin if no contraindication. This should be standard for patients ages 18 to 75 with diabetic, cardiac, or vascular history or LDL more than 190 mg/dL.

Screen for coronary artery disease and carotid artery disease. Obtain a non-invasive lower extremity study and perform bedside ankle-brachial index (ABI), formal ABI with toe pressures and toe-brachial index (TBI) or bilateral lower extremity arterial duplex.

An ABI less than .09 indicates PAD. These patients may show little to no progression of PAD and may remain stable when they are medically managed. These patients still have a worse morbidity and should be referred to a vascular specialist.

Critical limb ischemia requires an urgent referral, as 20% of these patients will die within a year. 40% will survive with an amputation, with about 40% surviving without an amputation.

Consider toe pressures/toe-Brachial Index (TBI) for patients with non-compressible vessels, those who are diabetic or are end stage renal. Normal toe pressures are 20-40 mmHg; anything less than 0.7 is abnormal.

Without intervention, a wound in a patient with a TBI of less than 30 mmHg will not heal. A wound in a patient with a TBI of 30-40 mmHg is likely to heal in non-diabetics and a wound in a patient with a greater than 40 mmHg is likely to heal with appropriate care and risk factor management.

Treatment options for PAD include:

- Medical management
- Supervised walking program
- Continued surveillance
- Endovascular revascularization
- Open revascularization
- Hybrid revascularization

In an initial workup for venous insufficiency, look for:

- Patient history
- Leg swelling, aching, cramping, tingling, restlessness that is worse at end of the day and relieved by walking and elevation
- Family history of varicose veins
- Smoking history
- Hormonal therapy
- DVT history

- Vocation
- Wounds, ulcers, cellulitis history
- Pelvic heaviness, hematuria, dyspareunia

During the physical exam, look for the presence of varicose veins in the pelvic area and/or legs, generalized swelling, skin changes and skin quality. Evaluate the patient for arterial issues.

Recommend ambulation, elevation of the legs above heart level whenever possible and the wearing of graded compression stockings (15-20 mmHg at minimum).

Obtain a venous ultrasound of the bilateral lower extremity as this will confirm venous insufficiency and will rule out DVT. Make a referral to a vascular specialist who will also look for central stenosis.

Treatment options for venous insufficiency include:

- Ablation therapy
- Sclerotherapy

Your patient may be experiencing May-Thurner Syndrome, which causes persistent and recurrent swelling and venous insufficiency despite treatment. May-Thurner most commonly affects the left leg as the left iliac vein is compressed by the right iliac artery. This increases the risk of left leg DVT. It is important to rule out May-Thurner before a diagnosis of lymphadema may be made.

When a patient presents with kidney dysfunction, a vascular specialist should place and manage a dialysis access as soon as possible when dialysis becomes inevitable. A vascular specialist can place an arteriovenous fistula or graft and then monitor and maintain the placed access, giving your patient continuity of care.

Vascular surgical care actually starts with the primary care physician. When a primary care physician identifies and initiates an appropriate workup, together the team can save lives and limbs. Vascular surgeons are here to support you to achieve the best outcomes possible for all patients

Questions?

Contact Sheraz Qureshi, MD FACS, Vascular Surgeon at Vascular Specialists, squreshi@vascspecialists.org.

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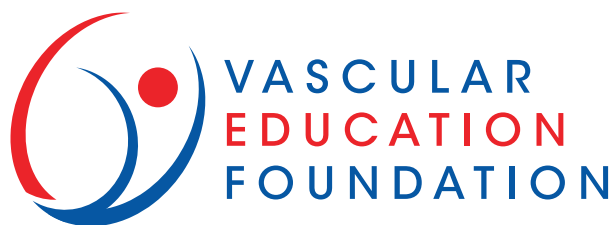
You're invited to LEA-UP Lower Extremity Amputation and Ulcer Prevention

LEA-UP meets quarterly to learn from experts in the fields of podiatry, infectious disease, primary care, nephrology, vascular surgery and more.

Thursday, April ??? at 6:30 pm
Joan Doe, MD

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Reserve your seat with Julie Rivera
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About Vascular Education Foundation founder, Dr. Eugene Tanquilut



Award-winning and recognized as a Vitals Top 10 Doctor and a Patient's Choice Doctor, **Dr. Eugene Tanquilut** is board-certified in both vascular and endovascular surgery. He earned Vascular and Endovascular Fellowships at Cleveland Clinic. Dr. Tanquilut is the President of Vascular Specialists.