

The VEU

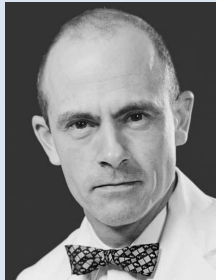
The Vascular & Endovascular Update

Summer 2021

Evolution and Advancements in Vascular Surgery

In the winter of 1964, an 82-year-old female patient presented with leg pain and an infected foot. Consulting surgeons, she was told that amputation was her only option.

She then consulted interventional radiologist Dr. Charles Dotter. On January 16, Dotter inserted a wire guide and coaxial catheter into the patient's leg and dilated her clogged artery, performing the first successful percutaneous transluminal angioplasty.



After recovery, the patient walked out of the hospital and was independently mobile for the rest of her life.

Dr. Dotter stated, "The angiographic catheter can be more than a tool for passive means of diagnostic observation; used with imagination, it can become an important surgical instrument."

For those patients whose options were previously limited to amputation, Dr. Dotter's vision has been life-changing, and his work is still inspiring vascular surgery advancements today.

As a physician, you've seen patients with pain in the legs when they walk or bend down a thousand of times and you know there is a myriad of possible causes – from orthopedic issues such as a strained tendon, to something much more severe.

When assessing a patient with this complaint, you may notice the patient is overweight and a smoker, or perhaps they are on cholesterol or blood pressure medication. You might also see varicose veins. Any of these factors could suggest that the leg pain might be a lack of circulation in the lower limbs, caused by a narrowing of the arteries. You know it's time to refer the patient to a vascular specialist.

It wasn't always that way. Vascular surgery didn't come into prominence until the mid-1990s. As noted in the blue sidebar, vascular surgery was originally pioneered by interventional radiologists. Vascular surgery became a specialty in and of itself in 2005 when the American Board of Surgery received approval from the American Board of Medical Specialties to offer a Primary Certificate in Vascular Surgery.

Today, vascular surgeons receive extensive training to treat diseases of the circulatory system. They treat arteries and veins in all parts of the body except for the heart and brain. After medical school, a vascular surgeon typically spends 5-7 years of additional training before going into private practice.

Education and Training

After medical school, there are several avenues aspiring vascular surgeons may take. Most of them are a combination of surgical residency and vascular surgery fellowship. For example, a surgeon may spend five years in general surgery residency and then spend two years in vascular surgery fellowship training. This 5+2 track makes the surgeon eligible for board certification in both general surgery and vascular surgery.

There is also a 5-year residency program in vascular surgery. This entails 5 years of training focused in Vascular and Endovascular surgery. These physicians are eligible for board certification in vascular surgery only.

Training choices are determined by the medical student's end goals. The decision also depends

upon the hospital where the student will be fulfilling their residency as each hospital has its own policies and requirements for surgical residents.

The Role of a Vascular Surgeon

Vascular surgeons diagnose, treat, and manage issues affecting circulation outside the heart and brain, especially the legs, arms, neck and kidneys. They are specifically trained to treat peripheral vascular system issues medically, with minimally-invasive procedures and traditional open surgical interventions. Their expertise is in using advanced endovascular techniques, including angioplasty and stenting to restore blood flow. Vascular surgeons also use open surgery for conditions such as complex lesions or limb salvage when needed, as well as hemodialysis access creation.

Conditions Vascular Surgeons Treat

Vascular surgeons treat diseases of the veins and arteries including:

- Aneurysm: a bulge or a weak spot in an artery
- Atherosclerosis: when plaque builds up inside arteries causing diminished blood flow
- Carotid artery disease: narrowing of the arteries in the neck that can lead to stroke
- Deep vein thrombosis: a blood clot in a vein deep inside the body, typically in the leg
- Peripheral artery disease: narrowing of arteries in legs or arms
- Spider veins: small webs of veins inside the skin
- Varicose veins: damage to the venous pumps within the veins
- Damage to blood vessels after an injury

Vascular Ultrasound

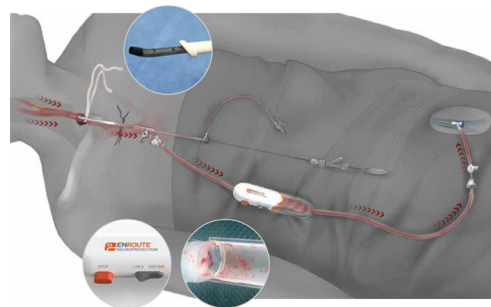
Vascular surgeons use ultrasound technology to generate images of blood flow in veins and arteries. These tests are extremely helpful in diagnosing a variety of conditions related to vascular disease and disorders of the heart and blood vessels. The ultrasound studies completed in a vascular lab are non-invasive and thus do not require the use of needles, dyes, radiation or anesthesia. This makes these studies generally painless.

Major Surgery Out. Endovascular Procedures In.

Vascular surgeons specialize in minimally invasive procedures, but unlike other specialists, vascular surgeons are the only physicians who can also perform open surgeries or combination procedures, where a mix of open and minimally invasive techniques are used. Patients receive the very best care for their disease and health condition, not just what other specialists can provide.

Recent ground-breaking endovascular procedures include:

• TransCarotid Artery Revascularization (TCAR)



To treat carotid artery disease and reduce the risk of stroke during the insertion of the stent, TCAR uses a special transcrotid neuro-protection system (NPS).

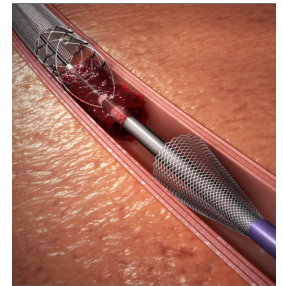
The device allows the vascular surgeon to directly access the common carotid artery in the neck and initiate high-rate temporary blood flow reversal to protect the

brain from stroke while delivering and implanting the stent.

The TCAR procedure is performed through a small incision at the neckline just above the clavicle. This incision is much smaller than a typical Carotid endarterectomy (CEA) incision. The vascular surgeon places a tube directly into the carotid artery and connects it to the NPS that directs blood flow away from the brain, protecting against plaque that may dislodge.

• ClotTrieve®

ClotTrieve® is an entirely new thrombectomy system to address deep vein thrombosis (DVT). ClotTrieve uses a mechanical device to remove large firm-to-hard clots from veins in the lower and upper extremities. It is completed in just a single procedure, and there is no need for thrombolytic drugs or an ICU stay.



ClotTrieve® procedure is minimally invasive, requiring just a small incision into the affected vein below the clot to allow for percutaneous access.

- A guide wire is inserted into the vein and advanced through the clot.
- The ClotTrieve® Sheath is inserted over the guide wire and positioned below the clot.
- A mesh funnel expands to ensure as much of the clot as possible is removed.
- The ClotTrieve® Catheter is advanced through the Sheath past the clot.
- A coring element and collection bag expand, filling the vein from wall to wall.
- The catheter and coring element are pulled back, collecting the clot.
- The clot filled bag and coring

element are further pulled back into the mesh funnel where the bag collapses and elongates for removal.

- The catheter is withdrawn, removing the clot from the body.
- Any remaining clot in the sheath is aspirated and removed.
- The ClotRiever® device is removed, and the incision is closed.

• **Venous Ablation**

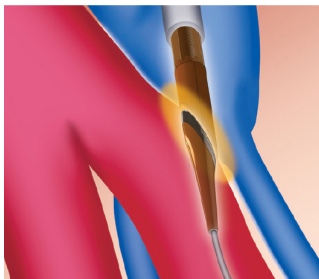
Used to treat varicose veins and other conditions, venous or endovenous ablation uses either radio frequency or laser energy to cause coagulation and fibrosis of a malfunctioning vein. This seals off the vein, and the body routes blood through healthy veins, preventing the treated vein from causing issues.

Advancements in Dialysis Access

Vascular surgeons, with a deep and thorough understanding of the veins and arteries, are best qualified to create accesses for patients facing dialysis. Vascular surgeons can lower a patient's access malfunction risk, lower the risk of infection and improve the patient's long term outlook. A recent innovation in access creation includes:

• **Ellipsys® Access System**

The Ellipsys Vascular Access System is a minimally invasive method of creating an AV fistula, performed without making an incision on the skin.



Using local anesthesia and ultrasound guidance, a vascular surgeon will use a small needle to access a healthy vein. The needle is used to pierce through the vein wall and through the wall

of the desired artery. The needle is removed and a sheath put in its place. The Ellipsys catheter slides through the sheath, cuts an opening in each blood vessel and fuses the tissue with low power thermal energy to create a permanent cross connection between the blood vessels. Patients leave with a band aid on the wound, with no lumps, bumps or scars.

Advancements in Minimally Invasive Treatments

In the last 20 years, vascular disease treatment with angiograms, stenting, non-operative varicose vein treatment sclerotherapy, and endovenous laser treatment have rapidly replaced major surgery. The outcomes of endovascular arterial and venous procedures are typically positive, especially in the context of their common clinical usage, i.e. arterial disease occurring in elderly patients and usually associated with concurrent significant patient comorbidities, especially ischemic heart disease.

Additionally, the cost savings from shorter hospital stays and lower morbidity are considerable.

Under the care of a vascular surgeon, your patient with leg pain may need just medication management and lifestyle changes. Vascular surgeons are

unbiased with treatment; they don't recommend or prefer any kind of treatment or procedure over another. Your patient gets the very best care with no provider prejudice.

A Team Approach to Vascular Care

Throughout your patients' lives, needs for medical care evolve.

In the very beginning, people need a pediatrician. Children may then need an allergist or orthopedic surgeon added to their health care team. In later years, engaging in drugs, tobacco or alcohol and becoming overweight will deteriorate health. Careers which involve too much sitting, standing or lifting will impact health.

When your patients have leg pain, numbness in the feet, legs, arms or hands, diabetes, twisted and swollen veins, kidney disease or arteriosclerosis, it's time to add a vascular surgeon to their health care team.

A vascular surgeon will work with all your patients' health care providers, from primary care to podiatrist, endocrinologist to infectious disease specialists and more. Vascular surgeons will work collaboratively to help determine a diagnosis, treatment plan, and disease management to help your patient live a healthier, more active life.

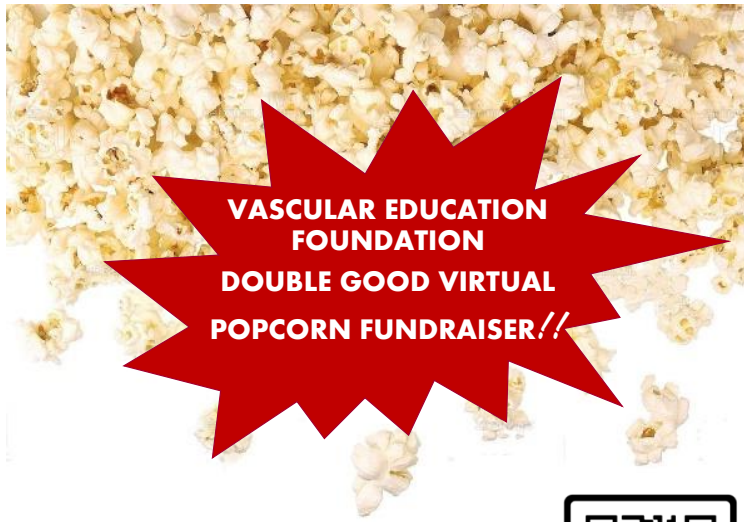
About the author, Dr. Patrick Coffey

Award-winning **Dr. Patrick Coffey** earned Vascular and Endovascular Fellowship at Deborah Heart and Lung Center and is board certified.

Dr. Patrick H. Coffey is an osteopathic physician, helping the body heal with traditional medications and interventional procedures along with exercise, nutrition, and lifestyle.

Dr. Coffey is committed to patient and peer education, speaking about amputation prevention, vascular disease, wound care and minimally invasive techniques.

When you have questions about vascular care for your patients, reach out to Dr. Patrick Coffey at 607-768-0542.



All proceeds will support the Foundation's efforts to continue to provide education to the medical and public community. Scan the QR code to start poppin'.

SCAN ME TO PURCHASE!



WHEN
Wednesday,
September 8 -
Saturday, September 11
-4 days only

WHAT
-Virtual online ordering
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QUESTIONS?
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LEA-UP MEETING

(Lower Extremity Amputation & Ulcer Prevention Program)
A Collaborative, Multi-Disciplined Approach to Limb Salvage

Topic:

NON-ATHEROSCLEROTIC DISEASE

Date:

WEDNESDAY, AUGUST 11, 2021

Time:

6:30 p.m. – 9:00 p.m.
(presentation from 7:30 p.m. – 8:30 p.m.)

Speaker:

KAMBIZ ZORRIASATEYN, MD, FACP, RPVI

Director, Arteriopathy Clinic and Vascular Medicine Attending Physician, Northshore Cardiovascular Institute, Northshore University Health System, Evanston, IL; Physician Advisor, Illinois State Medical Society

DESIRED OUTCOMES - At the conclusion of this activity, the learner will be able to:

1. Discuss areas of concern for non-atherosclerotic disease to patients
2. Recognize that the underlying results (test results) are associated with the disease
3. Improve communication with a Vascular Doctor
4. Refer appropriately to a specialist

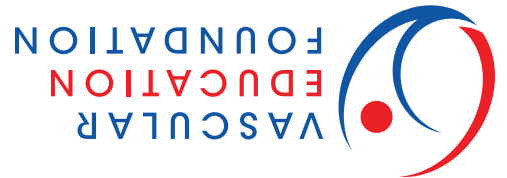
The presentational method for this activity will be Lecture with Q&A. This activity is geared to meet the educational requirements of clinicians. This activity will encompass the following desirable physician attributes: Patient Care & Procedural Skills, Medical Knowledge, Interpersonal & Communication Skills, Practice-Based Learning & Improvement, and Systems-Based Practice.

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of CME Consultants and Vascular Education Foundation. CME Consultants is accredited by the ACCME to provide continuing medical education for physicians.



CME Consultants designates this live activity for a maximum of 1.0 AMA PRA Category 1 Credit™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

In accordance with the Americans with Disability Act (ADA), please contact 219-390-9470 | vascular.edu.foundation@gmail.com should you require special assistance.



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