



# Focused Concentration on Atherosclerotic Peripheral Arterial Disease (APAD) in M3 Education

Heidi Hansen, MD and C. Steven Powell, MD

Heidi Hansen  
Cardiovascular Sciences  
East Carolina University  
Greenville, North Carolina 27858  
hansenh16@ecu.edu

## RATIONALE/NEED

Atherosclerotic peripheral arterial disease (APAD) is under-recognized and poorly understood by many primary providers. This can lead to loss of effective diagnosis and management of patients with APAD in the primary care setting. Many patients are not referred to a vascular specialist, and subsequently receive no treatment. Other patients may be referred to a specialty provider biased toward interventions, regardless of the indication. The 4-year curriculum for medical students did not include a concentrated course on APAD. While the 8-week surgical clerkship did include a 1-week rotation on vascular surgery, there was only a single 2-hour lecture on vascular disease. Over time this lecture became uninspiring and rote. Repeating a dedicated series of oral lectures for each cohort was not feasible.

## METHODS

We came up with the concept of the APAD academy. It is a set of 5 recorded lectures focused on APAD. Each lecture is archived on Blackboard and is required viewing for all M3 students. An article summarizing each topic is provided to accompany the APAD lectures. The APAD topics create a balanced curriculum to encompass the most common vascular diseases. At the end of the M3 vascular surgery rotation, the division chief meets with each student for a one-hour check-out session to go over the lectures and the written document. This ensures the student's have grasped the major learning points from the rotation's clinical activities and the APAD academy.

## APAD LECTURE TOPICS

- > Atherosclerosis: Location, Etiology, and Management of Dyslipidemia
- > Non-dyslipidemia Risk Factor Management: Diet, Diabetes, Hypertension, Smoking, and Exercise
- > Carotid, Subclavian, and Vertebral Artery Occlusive Disease
- > Atherosclerotic Renal and Mesenteric Artery Occlusive Disease
- > Atherosclerotic Aortic and Lower Extremity Arterial Disease

## LECTURE EVALUATION

### What was most beneficial?

- Physiology of vascular disease and prevention based on the big 7 lifestyle changes that a patient can make to improve their health outcomes. The hand-out was a great summary of things covered in the lectures.
- Evidence-based teaching. Lecture to the depth that any medical provider should understand.
- The ability to sit down at the end of the rotation and discuss the topics in person
- Important topic
- Good structured review of common vascular pathologies
- Getting to discuss the slides at the end
- Content
- The notes sheet was quick and easy to review

### What was least beneficial?

- Some lectures seemed repetitive, or similar enough in content that two separate lectures may not have been necessary
- Not having much time to watch – 7 hours of lecture on an already overly busy rotation
- I found that having so many videos to watch during just one week of vascular surgery was a little much
- A lot of repetition within videos
- Slightly on the long side
- The first lecture. Too broad and doesn't teach much.
- Long, hard to fit into the surgery clerkship, could be consolidated into one lecture

### Recommendations to improve this presentation

- Consolidate into 2-3 lectures
- Make them shorter perhaps
- Have a more detailed hand-out to go along with the videos so students can study/review this information in the hospital (i.e. carry it with us in our white coats)
- Get rid of lecture one and do a one page summary of notes instead
- The recording would be better if the video was just of the PowerPoint with the voice recording over it. Or a closer range video of the presenter.
- Lots of extra material for a 5-day rotation
- Make the lectures student-oriented, not recordings meant for primary care physicians



## APAD PHYSICAL EXAM

### Inspection

- Skin changes
  - Shiny skin
  - Hair loss
- Discoloration
  - Rubor
  - Pallor
  - Erythema
  - Peripheral Cyanosis (blue toe)
- Tissue loss
  - Ulcers
  - Gangrene
- Muscle wasting
- Swelling

### Palpation

- Temperature
- Edema
- Capillary refill
- Tenderness
- Pulses
  - Carotid arteries
  - Brachial arteries
  - Radial arteries
  - Abdominal aorta
  - Femoral arteries
  - Popliteal arteries
  - Posterior tibial arteries
  - Dorsalis pedis arteries
- Motor and sensation

### Auscultation

- Doppler signals
- Bruits
  - Carotid arteries
  - Abdominal aorta
  - Renal arteries
  - Femoral arteries
  - Popliteal arteries

### Special Tests

- Pallor on elevation
- Rubor on dependency
- Ankle Brachial Index (ABI)
- Allen test

## EVALUATION PLAN

There was initially no formal evaluation of the vascular surgery rotation because it was included with the evaluation of the whole surgical clerkship. We are now obtaining specific feedback from the students. Many have noted the lectures and checkout session are extremely beneficial. Some students have noted the lectures are too long and not easily followed in a particular video setting. This was remedied by teaching the students how to manipulate the mediasite viewer to provide a better viewing format. We are also revising the videos to make them more succinct and easier to follow. Also at the student's suggestion, we will add a structured patient station in the clinic setting to teach how to perform a vascular history and physical exam.

## IMPACT/LESSONS LEARNED

Vascular surgery does not have a corresponding medical specialty like the relationship between cardiology and cardiac surgery. Primary providers make up the bulk of referrals to vascular surgeons. It is logical that medical education must provide a solid foundation for the understanding of APAD, because today's students become tomorrow's providers. More importantly, a concentrated educational course should emphasize diagnosis and secondary preventative measures in patients with APAD. This involves teaching about lifestyle changes and medical treatment of risk factors. At our primary care oriented medical school, knowledge of this treatment should be emphasized equal to or greater than learning about invasive procedures.

## REFERENCES

Armstrong EJ, Chen DC, Westin GG, et al. Adherence to guideline-recommended therapy is associated with decreased major adverse events and major adverse limb events among patients with peripheral arterial disease. *J Am Heart Assoc.* 2014; 3(2): 1-12.

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