



Clinical Review



ACUTE LIMB ISCHEMIA: A CASE REPORT AND LITERATURE REVIEW

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Abstract—Background: Acute limb ischemia (ALI), although uncommon, can present with profound symptoms, including disabling pain in the setting of acute vascular and neurologic deficits. The most appropriate diagnostic and therapeutic strategy has evolved with emerging technologies inclusive of less-invasive endovascular diagnostic and therapeutic options. **Objective:** We present a case of ALI to illustrate the diagnostic and therapeutic approaches with a summary of the most common literature. **Discussion:** Utilizing the clinical findings applied to the Rutherford classification, the emergency physician, in consultation with a vascular surgeon and interventional radiologist, can strategize a methodical approach for better clinical outcomes, often with less-invasive endovascular interventions, ideally within 6 h of symptom onset. **Conclusions:** We present a case of ALI to illustrate the diagnostic and therapeutic approach with a summary of the most current literature. Emergency physicians should be aware of optimized clinical outcomes with the use of time-sensitive enhanced endovascular therapies as a recommended option for the best outcomes for the treatment of ALI. © 2015 Elsevier Inc.

Keywords—acute limb ischemia; management; interventional; endovascular; thrombolytic; emergency department

INTRODUCTION

Acute limb ischemia (ALI) is defined as a disruption of arterial blood flow to an extremity occurring within

the previous 14 days and is usually caused by thromboembolic pathology. ALI management has evolved over the last decade, with advances in diagnostic capabilities and less-invasive endovascular therapeutic options (1). By approaching and framing the clinical presentation using the Rutherford classification scheme, the emergency practitioner can better articulate the diagnostic and therapeutic options in consultation with a vascular surgeon and interventional radiologist on a high morbidity clinical condition. This review, by case example, provides a detailed summary of the most current literature on managing ALI.

CASE REPORT

Patient History

A 54-year-old woman, diagnosed approximately 2 months earlier with lung cancer, stage IIIA non-small cell adenocarcinoma, presented with acute onset left hip and leg pain, arriving by ambulance to the emergency department (ED) within 2 h of symptom onset. Although her history was limited due to her severe discomfort, she indicated that her left foot felt like it was “on fire,” and she did not want to bear weight on that side. She denied any trauma, fever, or recent illness. The patient, who denied having any metastatic progression of her disease, reported that she was receiving chemotherapy, and her last treatment was 2 days before presentation. All other review of systems were unremarkable, including no history of palpitations or an irregular heart beat. Her medical history included left leg popliteal fossa varicose veins, in

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addition to the lung cancer. Her social history included a 29-year smoking history.

Physical Examination

The patient appeared older than her stated age and seemed very uncomfortable in the gurney, as evidenced by her writhing in pain from her left hip and proximal leg. The initial vital signs included a blood pressure of 118/56 mm Hg, pulse of 70 beats/min, respiratory rate of 19 breaths/min, oxygen saturation of 100% on room air, and temperature of 37°C. The cardiopulmonary examination was unremarkable. The abdomen was soft and slightly distended. On extremity examination, the patient was able to actively and passively move her left hip and leg, but this was limited because she experienced pain with movement. There were varicosities in the left lower extremity, as documented in the past, as well as mottling of the left lower extremity. On vascular examination, there was no evidence of abdominal or femoral bruits, but there was a diminished pulsation of the left femoral, and delayed pulsation of the left popliteal, arteries, as confirmed by Doppler, compared with the right side. Pedal pulses of the left leg were barely palpable compared to those of the right leg. On neurologic examination, the patient was intact with regard to strength, sensation, and cranial nerve examinations, except for a subjective complaint of numbness and tingling in her entire left foot.

ED Course

This patient was immediately thought to be at high risk for ALI due to the constellation of signs and symptoms, which included an acute onset of extremity pain out of proportion to examination, asymmetrically diminished pulses, and neurologic complaints of left foot paresthesia. In addition, the patient's primary complaint of hip pain and her physical examination with diminished femoral pulses and delayed popliteal pulses weighted our differential toward a vascular occlusion proximal to the femoral artery. However, because the patient presented with no significant risk factors for arterial occlusion, such as atrial fibrillation, we maintained a broad differential diagnosis, including venous thrombosis and pathologic fracture, especially given the recent history of lung cancer.

Emergent phone consultations with a vascular surgeon and interventional radiologist were initiated. Initial portable chest and pelvic x-ray studies were negative for any acute processes, including pathologic fractures. A computed tomography angiogram (CTA) of the abdomen and pelvis with bone windows was performed and demonstrated an acute thrombosis involving the left

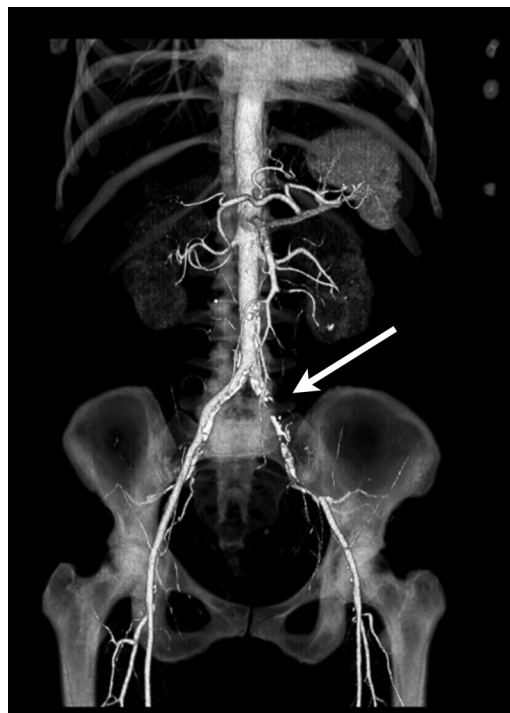


Figure 1. Digital reconstruction of computed tomography angiography of abdomen-pelvis showing a left common iliac and left external iliac thrombosis (arrow).

common iliac and proximal external iliac artery (Figure 1) (2). There was reconstitution in the distal left external iliac artery, which appeared to fill retrograde from collateral vessels. There was no evidence of venous thrombosis or bony pathology.

Because there was no evidence of active bleeding on the CTA, i.v. heparin (bolus of 10,000 U and drip of 1000 U/h) was initiated, and the patient was medicated for pain. Within the first 3 h, the patient was much more comfortable, and it appeared as though perfusion to the left lower leg was improving, based on diminished pain and decreased pallor. For more definitive treatment, it was felt that the patient was a good candidate for intra-arterial thrombolysis.

Hospital Course

In the interventional radiology suite, the patient underwent an infrarenal aortogram, which demonstrated normal flow of the right, but a severe filling defect starting at the left, external iliac artery with poor distal runoff (Figure 2). Catheter-directed therapy, including endovascular clot extraction, was performed on the left external iliac and left common iliac arteries, as well as placement of a lytic infusion catheter just beyond the origin of the left common iliac artery. Intra-arterial tissue plasminogen activator (tPA) infusion at 2 mg/h was initiated and heparin was continued at 600 U/h.

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