

Chronic critical limb ischemia due to cardioembolism treated with thromboembolectomy

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CASE REPORT

A 39-year-old female with a history of methamphetamine abuse, untreated atrial fibrillation, and three prior cardioembolic strokes presented to the emergency department with a left hemispheric transient ischemic attack. She was admitted to the neurology service, and treated with tissue plasminogen activator (TPA). Her neurologic symptoms resolved. After several days in the hospital, she voiced complaints about her left leg, which she said had been painful for three weeks. She was unable to move her ankle or toes. She could not walk due to these complaints. On examination, she lacked pedal pulses on the left side, and monophasic Doppler signals were obtainable only in the posterior-tibial location.

Cardioembolic disease was suspected, given her history of arrhythmia and drug use. An echo showed no signs of valvular vegetations or mural thrombi. A Computed tomography angiogram was obtained (Figure 1), which demonstrated a completely occlusive thrombus extending from the junction of the left external iliac and common femoral arteries to the tibioperoneal trunk. Collaterals from the internal iliac artery reconstituted the profunda femoris, which in turn reconstituted the posterior tibial and peroneal arteries. Notably, none of her vessels demonstrated any calcification, consistent with an embolic instead of atherosclerotic pathogenesis.

Due to the longstanding nature of her complaints, an embolectomy was thought to be unlikely to succeed. As she had suitable ipsilateral saphenous vein, she was taken to the operating room with plans for a bypass.

Dissection was started in the groin. The saphenofemoral junction, distal external iliac artery, femoral artery bifurcation, and below knee popliteal artery were exposed. The saphenous vein was dissected along its course. The patient was heparinized, and an arteriotomy was made in preparation for an iliofemoral endarterectomy as well as the proximal anastomosis. Surprisingly, this revealed fresh-appearing clot without any fibrinous organized component. A balloon embolectomy catheter was able to be passed easily below the knee. Withdrawal of the catheter yielded a very elongated thrombus (Figure 2) followed by pulsatile backbleeding. Balloon catheter

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Figure 1: Reconstructed images from computed tomography angiography demonstrating occlusion of the common femoral artery, with reconstitution of the profunda femoris and tibioperoneal trunk.

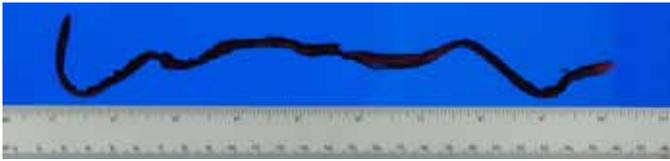


Figure 2: Clot retrieved from the patient's iliofemoral popliteal segment. Ruler for scale, with centimeter markings along bottom margin.

embolectomy of the external iliac artery yielded a short segment of thrombus with a fibrinous cap, and explosive pulsatile bleeding. At this time, the arteriotomy was closed by performing a patch angioplasty with bovine pericardium. The patient regained pedal pulses, and was able to ambulate postoperatively.

DISCUSSION

The management of an ischemic limb is dictated not only by the timing of the inciting event (acute versus chronic) but also by its pathogenesis (embolic versus atherosclerotic). Usually, embolectomy is only effective in the acute setting of a macroembolic event in patients without preexisting atherosclerotic disease. Indeed, situations treatable by simple embolectomy are increasingly rare in the modern era, due to the widespread prevalence of concomitant peripheral arterial disease and the relative rarity of cardioembolism due to arrhythmia or myocardial infarction [1].

This case is unusual in that the patient's longstanding ischemia was still able to be treated via balloon catheter embolectomy. It is unclear why the patient's clot had failed to organize, but her history of drug abuse may have played a role. Thrombocytopenia is a known side effect of methamphetamine use [2], and the patient was mildly thrombocytopenic (platelet count 96 K/uL) on admission. While not enough to produce clinical bleeding, this slight hematologic derangement may have kept her post-embolic clot slightly more pliable, allowing for revascularization without a bypass.

CONCLUSION

In certain cases of chronic or subacute embolic arterial occlusion, it may be possible to restore flow via simple balloon catheter embolectomy. Consideration should be given to attempting this prior to performing the distal exposure for bypass or vein dissection.

Keywords: Cardioembolism, Chronic, Critical, Limb, Thromboembolectomy

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Conflict of Interest

Authors declare no conflict of interest.

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