Angiojet Thrombectomy with a Distal Protection Device for Acute Iatrogenic Limb Ischemia

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Purpose

Acute limb ischemia owing to iatrogenic causes is usually not amenable to use of pharmacological thrombolysis owing to the hemorrhagic risks. Additionally, patients maybe at a high risk for open surgical intervention. Although the use of percutaneous mechanical thrombectomy devices is attractive in this setting, risk of distal embolization may be significantly higher due to the fresh nature of the thrombus. We describe the use of an off-label distal embolic protection balloon (PrecuSurge, Medtronic, Santa Rosa, CA) in conjunction with a mechanical thrombectomy device (Angiojet, Possis, Minneapolis, MN) for four such patients.

Methods

Retrospective chart review of four patients with iatrogenic lower limb ischemia. The first patient was a 62-year-old lady with acute myocardial infarction, cardiac catheterization, massive retroperitoneal bleeding and acute onset right limb ischemia. The second patient had a diagnostic angiogram with access in the groin with a prior femoral to popliteal bypass resulting in acute graft thrombosis. The third patient had a diagnostic angiogram with acute dissection and ischemia of the contralateral iliac artery. The fourth patient had acute left limb ischemia following a hysterectomy with associated iatrogenic transaction of the ureter.

Results

Arterial access was obtained in the contralateral femoral artery in all four patients. The thrombosed segment was traversed with minimal difficulty after an initial diagnostic angiogram. The 0.89 mm (0.035-inch) glidewire used to cross the lesion was withdrawn over a vertebral catheter (COOK, Bloomingdale, IN). The PercuSurge guardwire was passed through this 5F diagnostic catheter and the catheter was then withdrawn. The PercuSurge balloon was then inflated to 5 to 6 mm and a 6F Angiojet catheter (Xpeedior) was run distal to proximal for 5 runs. Completion angiogram was performed after balloon deflation. Three patients required one stent each for an underlying culprit lesion, and the patient with the hysterectomy required two iliac stents. A closure device was used in all patients. All patients developed a palpable pedal pulse post-treatment, in the limb with acute ischemia. No treatment related complications were seen in any patients. Mean length of stay was 4 ± 1 days. Two patients were discharged on warfarin anticoagulation. During a mean follow-up of 8 ± 3 months, a single patient developed a recurrent thrombosis requiring re-intervention.

Conclusion

This is the first report of a percutaneous mechanical thrombectomy device used with an off-label distal protection system. This is an attractive treatment option for patients at high risk for open surgery or patients with contraindications for pharmacological thrombolysis.