

FoxHollow Atherectomy as a Treatment Modality for Common Femoral Artery Occlusion

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ABSTRACT

Common femoral artery occlusions are usually treated with open vascular surgical repair. We present a case of common femoral artery occlusion that was successfully treated with the FoxHollow SilverHawk atherectomy catheter. The use of this device obviated the need for adjunctive balloon angioplasty and stenting. The patient was discharged without complications after 1 day.

INTRODUCTION

Invasive treatment of a common femoral artery (CFA) stenosis or occlusion is generally surgical. This area is usually easily approached surgically with a small incision and endarterectomy with or without patch angioplasty. Surgical reconstruction has excellent long-term results with minimal surgical morbidity and mortality.¹

Percutaneous options for this region are limited due to the often unsatisfactory results of balloon angioplasty alone and the desire to avoid stenting this region. Stenting of the common femoral artery has the potential disadvantage of complicating future percutaneous and/or vascular surgical procedures, in-stent restenosis, and stent fracture due to excessive joint movement with hip flexion and extension. Furthermore, occlusion of the CFA can diminish or occlude blood flow into the profunda femoris artery. The profunda femoris artery is the major collateral pathway to the thigh and hence preservation of this arterial flow is essential for limb preservation. Atherectomy with the FoxHollow SilverHawk (FoxHollow, Redwood, CA) catheter is a new percutaneous modality that potentially allows treatment of this vascular segment without adjunct balloon angioplasty or stenting.

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CASE

A 69-year-old man with a history of coronary artery disease, hypertension, dyslipidemia, and polycystic kidney disease on hemodialysis presented for consultation of left lower extremity claudication. The patient was treated with maximal medical therapy including antiplatelet agents and statin, and his blood pressure was well controlled. The patient had undergone right common femoral endarterectomy 1 year prior for claudication symptoms. The patient's resting ankle-brachial index on the left was 0.57 and he had severe lifestyle limiting claudication. Angiography demonstrated an occluded common femoral artery with reconstitution proximal to the femoral bifurcation. In order to avoid the associated risks of balloon angioplasty and the stenting in this region, FoxHollow atherectomy was performed. The lesion was successfully crossed with a hydrophilic 0.035 in. wire. This was exchanged for a 0.014 in. stiff coronary wire to accommodate the FoxHollow atherectomy device. Several passes were made with the small atherectomy catheter followed by the medium sized catheter. Post atherectomy demonstrated <50% residual common femoral artery stenosis, and no dissection nor evidence of peripheral embolization. The patient's ankle-brachial index (ABI) increased to 0.80 and, clinically, he no longer claudicates. There were no peri-procedural complications (Figure 1).

DISCUSSION

The common femoral artery is a unique vascular territory. Typically, atherosclerosis is not isolated to this arterial segment, and stenosis or occlusions are uncommon in the absence of more extensive inflow and outflow disease. Furthermore, the common femoral artery represents a frequently used site for percutaneous vascular access as well as being the proximal anastomotic site for lower extremity bypass grafts. Thus, placing of an endovascular stent in this region is ideally avoided. Direct surgical approach to occlusive disease in the common

femoral artery is generally well tolerated and preserves the arterial segment for potential future procedures. In 1 study of common femoral artery endarterectomy with or without patch angioplasty, the mean ABI increased from 0.49 to 0.67 with no operative mortality.¹

Although some have reported excellent results with an endovascular approach to the common femoral artery, we felt that it was important to avoid angioplasty and the possibility of stenting this important vascular segment.² In an effort to minimize vascular trauma and reduce stent utilization and possibly restenosis, the FoxHollow's SilverHawk atherectomy catheter was used in this case. The SilverHawk is a monorail single operator device over a 0.014 in. wire. The rear end of the catheter has a motor drive unit with a battery pack and thumb switch to activate the cutter. The working end of the catheter has a cutter blade that when activated apposes the vessel wall and rotates at a speed of 8000 revolutions per minute. Once activated, the catheter is passed through the lesion and the plaque is collected in the distal end of the nosecone. By removing plaque, avoiding barotrauma and plaque shift, it is thought that the FoxHollow SilverHawk reduces the utilization of adjunctive procedures, complication rates, and restenosis rates. However, long-term outcome data are lacking. Mid-term results suggest that FoxHollow atherectomy is at least comparable to angioplasty and stenting of the superficial femoral artery and infrapopliteal arteries.^{3,4} Favorable positive remodeling has been documented during the next 30 days and beyond. The safety of the SilverHawk catheter was demonstrated in the TALON registry, with a perforation rate of 0.7% and dissections 2.5% among 281 procedures.⁵

Angiographically, our patient had successful recanalization of his common femoral artery without the need for adjunctive procedures such as balloon angioplasty or endovascular stent deployment. Clinically, his symptoms of claudication have resolved and his ABI improvement is equivalent to the results obtained with open surgical revascularization. Furthermore, the patient was discharged from the hospital the day after the procedure without any complications.

CONCLUSION

Common femoral artery lesions represent a challenge to treat percutaneously. We present a case of common femoral artery occlusion that was successfully treated with percutaneous atherectomy. The FoxHollow catheter may represent a new treatment modality for this vascular territory, obviating the need for balloon angioplasty and stenting.

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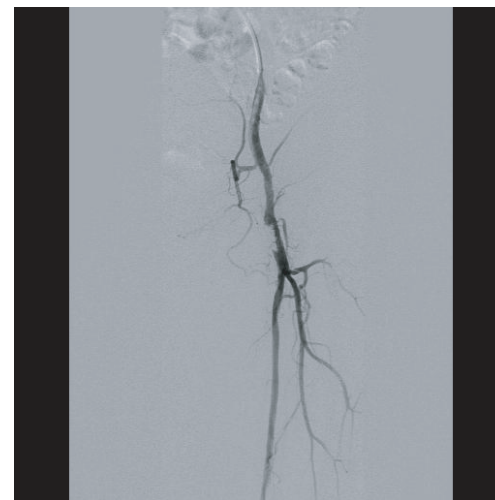
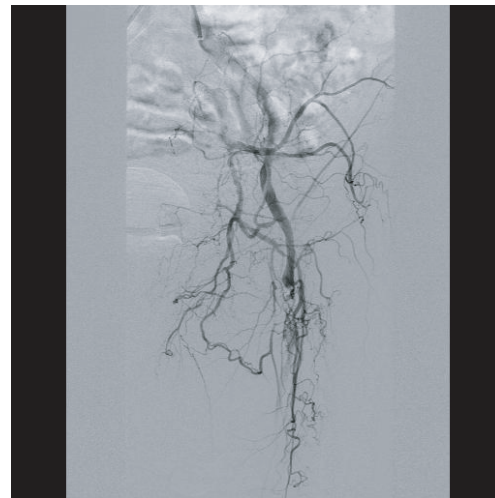


Figure 1. Common femoral artery occlusion pre- and post-FoxHollow SilverHawk atherectomy.

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