CASE STUDY
Needle- and Microcatheter-Guided Coiling of a 6-cm Internal Iliac Artery Aneurysm
BY SAAM TABAR, MD

CASE PRESENTATION
A 63-year-old man presented with a large, 6-cm traumatic aneurysmal arteriovenous fistula of the left internal iliac artery, likely secondary to the bullet in his groin area. The patient had a coiling embolization at an outside hospital prior to this case and had a bullet in his groin area (Figure 1A). We attempted to cannulate the left internal iliac artery from a contralateral approach, but this proved unsuccessful due to the tortuosity of the iliac arteries and pelvic regions. Our next step was to access the aneurysmal sac directly, using an 18-gauge needle under CT guidance. CT scans without and with contrast were obtained (Figure 1B and C).

Procedure Description
Direct access was established by placing a 15-cm, 18-gauge needle into the aneurysm sac under CT guidance (Figures 1D and E). We then proceeded to introduce an 0.021-inch (0.53-mm) Renegade™ STC Microcatheter with a Fathom™ Guidewire through the entry needle, and we began to embolize with fibered Interlock™-18 Detachable Coils. We used the Renegade™ STC Microcatheter and Fathom™ Guidewire to maneuver around the aneurysm, placing coils around the aneurysmal area in an attempt to fill as much space as possible.

Once the edges of the sac were coiled, we removed the microcatheter and microwire system, upsized to the 0.035-inch (0.89-mm) Interlock™-35 Fibered Detachable Coils, and pushed the coils directly through the needle and into the center of the sac, where they were delivered smoothly.

Discussion
Upon completion of the embolization, we had used 36 Interlock™ Coils, both 0.018- (0.46-) and 0.035-inch (0.89-mm), ranging in size from 10 mm to 22 mm (Figure 1F). Completion angiography showed an interesting nest of collateral vessels feeding into the venous system (Figure 1G).

Upon embolization of the arterial aneurysm, we noted new arteriovenous channels that appeared to supply the outflow directly to the iliac vein and inferior vena cava. Due to the dense network of thrombogenic Dacron™ (Invista) fibers on each Interlock™ Coil, we felt confident that this treatment would secure the aneurysmal sac in this large, complex, traumatic arteriovenous fistula.
RENEGADE STC 16 MICROCATHERETER, RENEGADE FIBER BRAIDED MICROCATHERETER AND RENEGADE HI-FLO MICROCATHERETER

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INTENDED USE/INDICATIONS FOR USE: The Renegade STC 16 Microcatheter, Renegade Fiber Braided Microcatheter, and the Renegade HI-FLO Microcatheter are intended for peripheral vascular use. The microcatheter can be coaxially tracked over a steerable guidewire in order to access distal tortuous vasculature. Once the subselective region has been accessed, the microcatheter can be used for the controlled and selective infusion of diagnostic, embolic, or therapeutic materials into vessels. Diagnostic, embolic, therapeutic agents to be used in accordance with specifications outlined by the manufacturer. CONTRAINDICATIONS: None Known. WARNING: The Renegade STC 18 Microcatheter, Renegade Fiber Braided Microcatheter, and the Renegade HI-FLO Microcatheter are not intended for use in the coronary vasculature or the neurovasculature. PRECAUTIONS: This device should be used only by physicians thoroughly trained in percutaneous, intravascular techniques and procedures. • Never advance or withdraw an intravascular device against resistance until the cause of the resistance is determined by fluoroscopy. Movement of the microcatheter or guidewire against resistance may result in separation of the microcatheter or guidewire tip, damage to the microcatheter or guidewire tip, or vessel perforation. •Because the microcatheter may be advanced into narrow subselective vasculature, repeatedly assure that the microcatheter has not been ADVERSE EVENTS: The Adverse Events include, but are not limited to: •Vascular trauma • Embolism • Hemorrhage/Hematoma • Vasospasm • Infection • Air embolism • Allergic reaction

FATHOM-16 STEerable Guidewire

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INTERLOCK & I/O COILS-COMBINED

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INTENDED USE/INDICATIONS FOR USE: The Interlock & I/O Occlusion System is a modified interlocking detachable coil. The Interlock & I/O Occlusion Systems are indicated for obstructing or inducing blood flow in the peripheral vasculature during embolization procedures. These devices are not intended for neurovascular use. CONTRAINDICATIONS: None Known. GENERAL PRECAUTIONS: Do not attempt to use the Interlock & I/O Occlusion System with a soft-walled delivery catheter. Do not advance the Interlock & I/O Occlusion System if it becomes lodged within the catheter. Determine the cause of the resistance and replace the catheter if necessary. ADVERSE EVENTS: The complications that may result from a peripheral embolization procedure include, but are not limited to: •Complications related to catheterization (e.g., hematoma on the site of entry, clot formation at the tip of the catheter and subsequent dislodgement, nerve and vessel dissection or perforation, etc.) • Fail • Hemorrhage • Infarction • Vascular complications • Foreign body reactions necessitating medical intervention • Emboli • Ischemia • Vasospasm • Tissue necrosis • Underdose due to failure of the vascular system • Recanalization • Death • Temporary neurological deficit

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Figure 1. Initial angiogram (A). CT images of the aneurysm with (B) and without contrast (C). CT image showing direct access of the aneurysm with an 18-gauge needle (D). Angiogram showing needle access (E). Angiogram showing the coil pack after embolization (F). Completion angiogram showing collateral vessels feeding into the venous system (G).

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