Successful Treatment of a Renal Artery Aneurysm with a New Hydrogel-Coated Coil Embolization System

Introduction
Renal artery aneurysms account for approximately 15–25% of all visceral aneurysms. Though relatively uncommon, the incidence of clinically recognized renal artery aneurysms may be increasing due to the rise in abdominal imaging. If untreated, renal artery aneurysms can result in impaired renal function and acute renal failure. Treatment options include surgery, though it often is challenging and is associated with high morbidity and mortality rates. As a result, there is a growing interest in less-invasive approaches such as transcatheter coil embolization, which in early use is showing significant improvements in patients’ clinical conditions.

This clinical case study summarizes the successful treatment of a right renal artery aneurysm with a new coil embolization system featuring hydrogel-coated coils that expand when introduced into the bloodstream, delivering greater filling and mechanical occlusion with fewer coils. The AZUR Peripheral HydroCoil Embolization System (Terumo Interventional Systems) is based on technology successfully used since 2002 in the treatment of cerebral aneurysms and was recently cleared for use in peripheral vascular applications.

The HydroCoil technology was designed to address challenges in the treatment of aneurysms, such as coil migration, coil compaction, and aneurysm recanalization/reperfusion. Hydrogel-coated coils provide a biologically inert scaffolding for natural tissue proliferation and wound healing, and the detachable system offers greater control in the placement of coils, along with the ability to withdraw and reposition the coils until they are securely placed.

Clinical Case
Physicians at Emory University Hospital used AZUR HydroCoils to occlude a 2-cm x 1-cm x 1-cm aneurysm in the right renal artery of a 70-year-old man.
As expected, the 5–6 mm (diameter) right renal artery, the aneurysm’s parent vessel, had high flow. The aneurysm was accessed through the right femoral artery with an SOS OMNI II (AngioDynamics) guide catheter through a 6-Fr renal double-curve Pinnacle® Destination® sheath (Terumo Interventional Systems).

The first coil introduced into the aneurysm was removed, as it was too large (20-mm diameter x 20-cm length). The next coil (10-mm x 15-cm) prolapsed through the wide neck of the aneurysm into the parent vessel and thus also was removed. A 5-mm x 15-cm Express LD stent (Boston Scientific) was placed across the neck of the aneurysm. A Progreat™ microcatheter (Terumo Interventional Systems) over a Glidewire® GT Guide wire (Terumo Interventional Systems) then was used to access the aneurysm for placement of three 0.018-inch detachable AZUR HydroCoils (one 16-mm x 20-cm and two 8-mm x 10-cm), achieving stasis of flow. Positioning, repositioning, detachment, placement, and stability of these coils were excellent. A total of 110 cc intravenous radiocontrast was used during the procedure. The physicians reported that the AZUR HydroCoils were easy to place, and no complications or adverse events occurred.

References

“The AZUR HydroCoils are a significant advancement in the treatment of aneurysms. The ease of use and the detachment system are extremely user-friendly.”
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