

VASCULAR DISEASE

INSIGHT INTO THE DIAGNOSIS AND TREATMENT OF VASCULAR DISEASE

MANAGEMENT

DECEMBER 2004



Ipsilateral Lumbar Artery Coil Embolization Made Possible by the Technology of a Novel Guide Catheter: A Case Report

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The patient is a 83-year old male with an infrarenal abdominal aortic aneurysm (AAA) and right iliac aneurysm. Previously the patient underwent coil embolization of the proximal right hypogastric artery followed by stent grafting of the abdominal aortic aneurysm. The right limb of the stent graft ended in the proximal external iliac artery. At 1-month follow-up, a large type II endoleak via the inferior mesenteric artery was present. Repeat CT-scan completed at 3 months showed enlargement of the endoleak and a small amount of enlargement of the AAA. The patient underwent coil embolization of the inferior mesenteric artery. Three months later, the aneurysm was unchanged but a large lumbar artery type II leak was now noted (Figure 1).

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Coil Embolization

The patient was brought back to the angiographic suite to attempt coil embolization of the lumbar artery. Preprocedural evaluation of the previous angiography showed a very tortuous take off of the left hypogastric artery. Vascular access would need to be obtained either from the brachial artery or ipsilateral femoral artery. The brachial access would potentially allow for better catheter support during the procedure but the distance to the aneurysm may be excessive and outreach the catheters. The ipsilateral femoral approach would be a more acceptable distance but the tortuosity of the hypogastric would make for poor catheter support (Figure 2).

It was decided to utilize the Morph catheter® (Biocardia, San Fran, CA). This torquable tipped catheter could potentially be shaped during the procedure to allow for the proper amount of support for the coiling procedure. The Morph catheter was placed over a .035" flexible guide wire through an 8-French sheath to the distal common iliac artery. The catheter was then shaped to drop into the hypogastric artery (Figure 3). Utilizing a .010" guided wire and coil transit catheter, the lumbar artery and aneurysm were reached and coiled (Figure 4). Repeat angiography revealed another patent lumbar artery feeding the AAA which also required coil embolization. This procedure was completed through the same Morph catheter. No catheter softening occurred and support was maintained well. Final angiography showed complete exclusion of the aneurysm with no flow in the lumbar arteries (Figure 5).

This case illustrates the utility of a new-technology catheter. The Morph allows for intraprocedural customization of the catheter tip for any particular patient's anatomy. The unique catheter technology allows for firm support during the entire procedure, allowing for even long procedures to be completed successfully. For years, catheter tip manipulation has been available to our electrophysiology colleagues, but only now has it been developed to allow for wire and equipment passage during endovascular procedures.

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He discloses he is a member of Biocardia's advisory board.

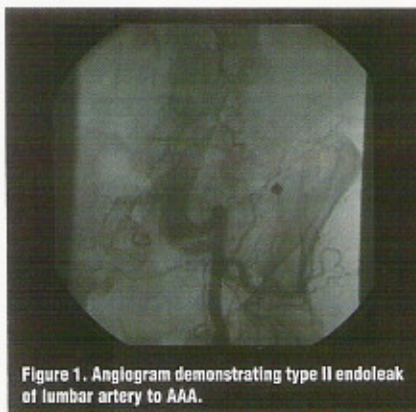


Figure 1. Angiogram demonstrating type II endoleak of lumbar artery to AAA.

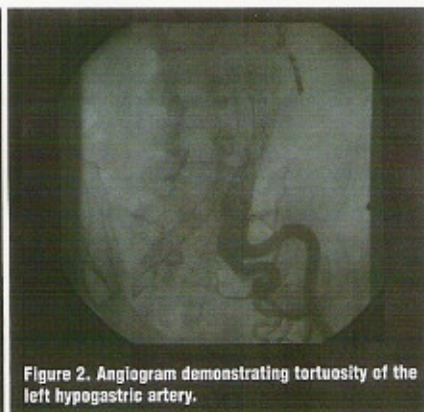


Figure 2. Angiogram demonstrating tortuosity of the left hypogastric artery.



Figure 3. A) angiography demonstrating Morph catheter after wire removal and B) after catheter tip movement into supportive position.

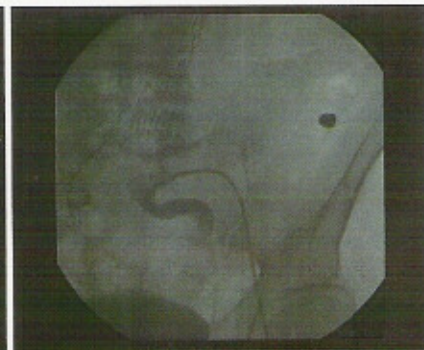


Figure 4. Angiogram demonstrating Morph catheter and coiling catheter and wire.



Figure 5. Angiogram demonstrating coils in lumbar arteries.

Commentary: Ipsilateral Lumbar Artery Coil Embolization Made Possible by the Technology of a New Novel Guide Catheter

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The advent of endoluminal graft repair for abdominal aortic aneurysms has dramatically changed the therapeutic option for many patients. It is now well established that the devices can be safely inserted and short-term results have been excellent. Long-term outcome for many of these patients remains

uncertain. The authors present a case report in which incomplete exclusion of the aneurysm with continued endoleak has resulted in aneurysm enlargement. As a result, the patient is not protected from continued expansion and the potential for eventual rupture. It is established in the literature that not all type II endoleaks result in continued expansion of the aneurysm sac. Clearly, however, in this case, documented continued expansion obligates the treating physicians to intervene and either eliminate the endoleak or consider surgical conversion.

The technical difficulties associated with successful obliteration of endoleaks can be substantial. Frequently, the interventionalist is confronted with significant tortuosity, access difficulties, and the potential to cause vascular compromise to an alternative area that may have significant independent

complications (i.e., compromise of visceral or mesenteric blood flow).

Wide variability in anatomical and morphologic configuration does not lend itself well to a specific endovascular approach or catheter configuration. The authors describe the use of the Morph catheter (Biocardia, San Francisco, CA). This catheter is dynamically shapeable during the course of the intervention. It allows the operator to achieve access when conventional shaped guides or support catheters may not be adequate. This interesting report clearly highlights the use of this catheter and encourages other interventionalists to at least become familiar with its unique characteristics that may allow improved procedural efficiency and improve overall technical success. ■