

Embolization of a Type II Endoleak With Interlock™ -18 Coils

BY MAURIZIO CARIATI, MD; PIERLUCA TORCIA, MD; UMBERTO G. ROSSI, MD, EBIR;
AND PAOLO RIGAMONTI, MD

CASE PRESENTATION

A 77-year-old man underwent branched endovascular aneurysm repair for an abdominal and left iliac artery aneurysm with a chimney technique to the left renal artery.

At 24 months, a multidetector CT check-up of an inferior mesenteric artery type II endoleak also showed an enlargement of the abdominal aorta sac (Figure 1).

PROCEDURE DESCRIPTION

A 4-F catheter was used to cannulate the middle colic artery. We chose a straight-tip, 0.021-inch, 2.4-F, 155-cm Direxion™ Microcatheter and a Thruway™ Guidewire; however, the Thruway™ Guidewire was too stiff to navigate in this tortuous anatomy. We retracted the guidewire inside the microcatheter and continued without it. Because of the pushability of the Direxion™ Microcatheter, we were able to advance and cannulate the sac (Figure 2). The tip of the microcatheter was placed inside the nidus of the type II endoleak and was confirmed by angiography of the sac.

We used a liquid embolic system to fill the sac and a 3- X 12-cm Interlock™-18 Fibered Detachable Coil to perform

embolization of the inferior mesenteric origin (Figure 3).

Despite a small perfusion through the coil, we waited a few minutes to allow the Dacron® fiber network to work because of its thrombogenicity.

FOLLOW-UP AND DISCUSSION

Final angiography demonstrated complete exclusion of the type II endoleak, with perfect embolization of the inferior mesenteric artery origin (Figure 4).

The patient was discharged on postoperative day 2 with no complications. Multidetector CT and contrast-enhanced ultrasound follow-up revealed no signs of endoleak with stability of the abdominal aorta sac. ■



Figure 1.

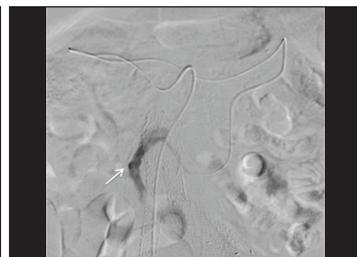


Figure 2.

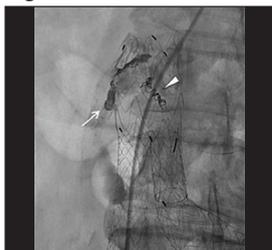


Figure 3.

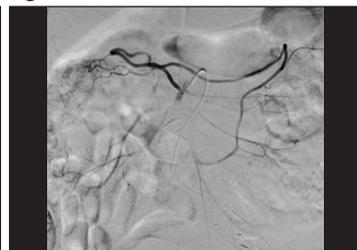


Figure 4.

Maurizio Cariati, MD

Chief of Interventional Radiology Department
San Carlo Borromeo Hospital
Milan, Italy

Disclosures: None.

Pierluca Torcia, MD

Interventional Radiologist
San Carlo Borromeo Hospital
Milan, Italy

Disclosures: None.

Umberto G. Rossi, MD, EBIR

Interventional Radiologist
San Carlo Borromeo Hospital
Milan, Italy

Disclosures: None.

Paolo Rigamonti, MD

Interventional Radiologist
San Carlo Borromeo Hospital
Milan, Italy

Disclosures: None.

Sponsored by Boston Scientific Corporation

Direxion Direxion HI-Flo

CAUTION: Federal law (USA) restricts this device to sale by or on the order of a physician. Rx only. Prior to use, please see the complete "Directions for Use" for more information on Indications, Contraindications, Warnings, Precautions, Adverse Events, and Operator's Instructions.

INTENDED USE/INDICATIONS FOR USE

The Direxion and Direxion HI-FLO Torqueable Microcatheters are intended for peripheral vascular use. The pre-loaded Fathom and Transend Guidewires can be used to selectively introduce and position the microcatheter in the peripheral vasculature. The microcatheter can be used for controlled and selective infusion of diagnostic, embolic, or therapeutic materials into the vessel.

CONTRAINDICATIONS

None known.

WARNINGS

- Never advance or withdraw an intravascular device against resistance until the cause of resistance is determined by fluoroscopy. Movement of the microcatheter or guidewire against resistance may result in damage or separation of the microcatheter or guidewire tip, or vessel perforation.
- This Direxion Microcatheter family is not intended for use in the coronary vasculature or neurovasculature.
- The Direxion HI-FLO Microcatheter is not designed for the delivery of embolic coils.
- Use of excessive force to manipulate the microcatheter against resistance can cause a fracture in the nitinol shaft. Take care not to over-torque the microcatheter, and to relieve any tension before withdrawal by rotating the microcatheter in the opposite direction.

PRECAUTIONS

- This device should be used only by physicians thoroughly trained in percutaneous, intravascular techniques and procedures.
- Do not introduce the microcatheter without guidewire support as this may cause damage to the proximal shaft of the catheter.
- Because the microcatheter may be advanced into narrow sub-selective vasculature, repeatedly assure that the microcatheter has not been advanced so far as to interfere with its removal.

ADVERSE EVENTS

The Adverse Events include, but are not limited to: allergic reaction, death, embolism, hemorrhage/hematoma, infection, pseudoaneurysm, stroke, vascular thrombosis, vessel occlusion, vessel spasm, vessel trauma (dissection, perforation, rupture).

Fathom-16 Steerable Guidewire

CAUTION: Federal law (USA) restricts this device to sale by or on the order of a physician. Rx only. Prior to use, please see the complete "Directions for Use" for more information on Indications, Contraindications, Warnings, Precautions, Adverse Events, and Operator's Instructions.

INTENDED USE/INDICATIONS FOR USE

The FATHOM -16 Steerable Guidewire is intended for general intravascular use in the peripheral vasculature. It can be used to selectively introduce and position catheters and other interventional devices within the peripheral vasculature. This device should be used only by physicians trained in percutaneous, intravascular techniques and procedures.

CONTRAINDICATIONS

None known.

WARNINGS

The FATHOM Steerable Guidewire is not intended for use in the coronary vasculature or the neuro vasculature.

ADVERSE EVENTS

Complications attributed to endovascular procedures are the following: vessel trauma, vessel damage, embolism (catheter/device, air bubble, plaque, thrombus, air embolism, thromboembolism), pseudoaneurysm, seizure/stroke, vessel dissection, hematoma at the puncture site, nerve injury, infection, perforation of the vessel, vessel spasm, hemorrhage, vascular thrombosis, vessel occlusion, death, bleeding, failed treatment, inability to position guidewire, damage to the catheter

Fibred IDC Interlock Fibred IDC Occlusion System IDC Interlocking Detachable Coil

CAUTION: Federal law (USA) restricts this device to sale by or on the order of a physician. Rx only. Prior to use, please see the complete "Directions for Use" for more information on Indications, Contraindications, Warnings, Precautions, Adverse Events, and Operator's Instructions.

INTENDED USE/INDICATIONS FOR USE

The Interlock IDC Occlusion System is a modified interlocking detachable coil. The Interlock IDC Occlusion Systems are indicated for obstructing or reducing blood flow in the peripheral vasculature during embolization procedures. These devices are not intended for neurovascular use.

CONTRAINDICATIONS

None known.

PRECAUTIONS

Do not attempt to use the Interlock - 35 Fibred IDC Occlusion System with a soft-walled delivery catheter.

Do not advance the Interlock IDC Occlusion System if it becomes lodged within the catheter. Determine the cause of the resistance and replace the catheter and coil 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 at the site of entry, clot formation at the tip of the catheter and subsequent dislodgement, nerve and vessel dissection or perforation, etc.), pain, hemorrhage, infection necessitating medical intervention, foreign body reactions necessitating medical intervention, emboli, ischemia, vasospasm, tissue necrosis, undesirable clot formation of the vasculature, recanalization, death, temporary neurological deficit.

Coils 18-Vortx Dia Strt Fig8 MultiLp CH

CAUTION: Federal law (USA) restricts this device to sale by or on the order of a physician. Rx only. Prior to use, please see the complete "Directions for Use" for more information on Indications, Contraindications, Warnings, Precautions, Adverse Events, and Operator's Instructions.

INTENDED USE/INDICATIONS FOR USE

Boston Scientific's 0.018 Fibred Platinum Coils are intended for arterial and venous embolizations in the peripheral vasculature. The Coil Pusher-16 is intended to be used in conjunction with a microcatheter to deliver and deploy 0.018 pushable occlusion coils.

CONTRAINDICATIONS

None known.

PRECAUTIONS

Sponsored by Boston Scientific Corporation

PRECAUTIONS

- The long-term effect of this product on extravascular tissues has not been established, so care should be taken to retain this device in the intravascular space.
- Do not advance the coil with force if the coil becomes lodged within the microcatheter. Determine the cause of resistance and replace the microcatheter and the coil when necessary.
- Replace the microcatheter if increased resistance is noted during coil delivery.

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 at the site of entry, vessel injury, etc.), death, emboli, foreign body reactions necessitating medical intervention, hemorrhage, infection necessitating medical intervention, ischemia, pain, recanalization, temporary neurological deficit, tissue necrosis, undesirable clot formation of the vasculature, vasospasm.

Thruway .014 Guidewire

CAUTION: Federal law (USA) restricts this device to sale by or on the order of a physician. Rx only. Prior to use, please see the complete "Directions for Use" for more information on Indications, Contraindications, Warnings, Precautions, Adverse Events, and Operator's Instructions.

INTENDED USE/ INDICATIONS FOR USE

The Thruway Guidewire facilitates placement of a catheter during diagnostic or interventional peripheral intravascular procedures including but not limited to renal intervention. The wire can be torqued to facilitate navigation through the vasculature.

CONTRAINDICATIONS

- Not intended for use in coronary arteries.
- Not intended for use in the neurovasculature.

WARNINGS/ADVERSE REACTIONS

The complications that may result from the use of a guidewire in a procedure include:

- Vessel perforation, dissection, trauma or damage
- Embolism
- Hematoma
- Infection
- Vessel spasm
- Hemorrhage
- Renal Failure
- Myocardial Infarction
- Vascular thrombosis
- Stroke
- Death