ILIOFEMORAL POST-THROMBOTIC VENOUS STENT OCCLUSION

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DISCLOSURE

Speaker name: **Kush Desai, MD FSIR**

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I have the following potential conflicts of interest to report:

Consulting, Speaker‘s Bureau, Advisory Board

PATIENT BACKGROUND

- 69-year-old male with history of left iliofemoral deep vein thrombosis 10 years prior, following meniscus surgery
- LLE venous thrombolysis and left iliac vein stent was placed
- 1 year after treatment, noted progressive swelling and pain in LLE, now severe edema extending through the thigh
- Unable to walk beyond 1 block
- Has noted numerous collateral vessels in left groin and along abdominal wall
- Compliant with daily knee-high, 30-40 mmHg compression and warfarin
- No history of ulceration

PATIENT HISTORY & VENOUS METRICS

Patient Profile

- Male, in late 60s with disabling left lower extremity post-thromboti

Medical History

- Left lower extremity iliofemoral deep vein thrombosis 10 years pric
- Underwent thrombolysis and left iliac vein stent placement

Symptoms

- Primarily venous claudication symptoms
- Asymmetric enlargement of whole left leg
- Skin changes extensive below the knee
- No stigmata of venous stasis ulceration

Metrics

- C4a disease
- VCSS 18 (index limb, left leg only)

IMAGING
DUPLEX ULTRASOUND

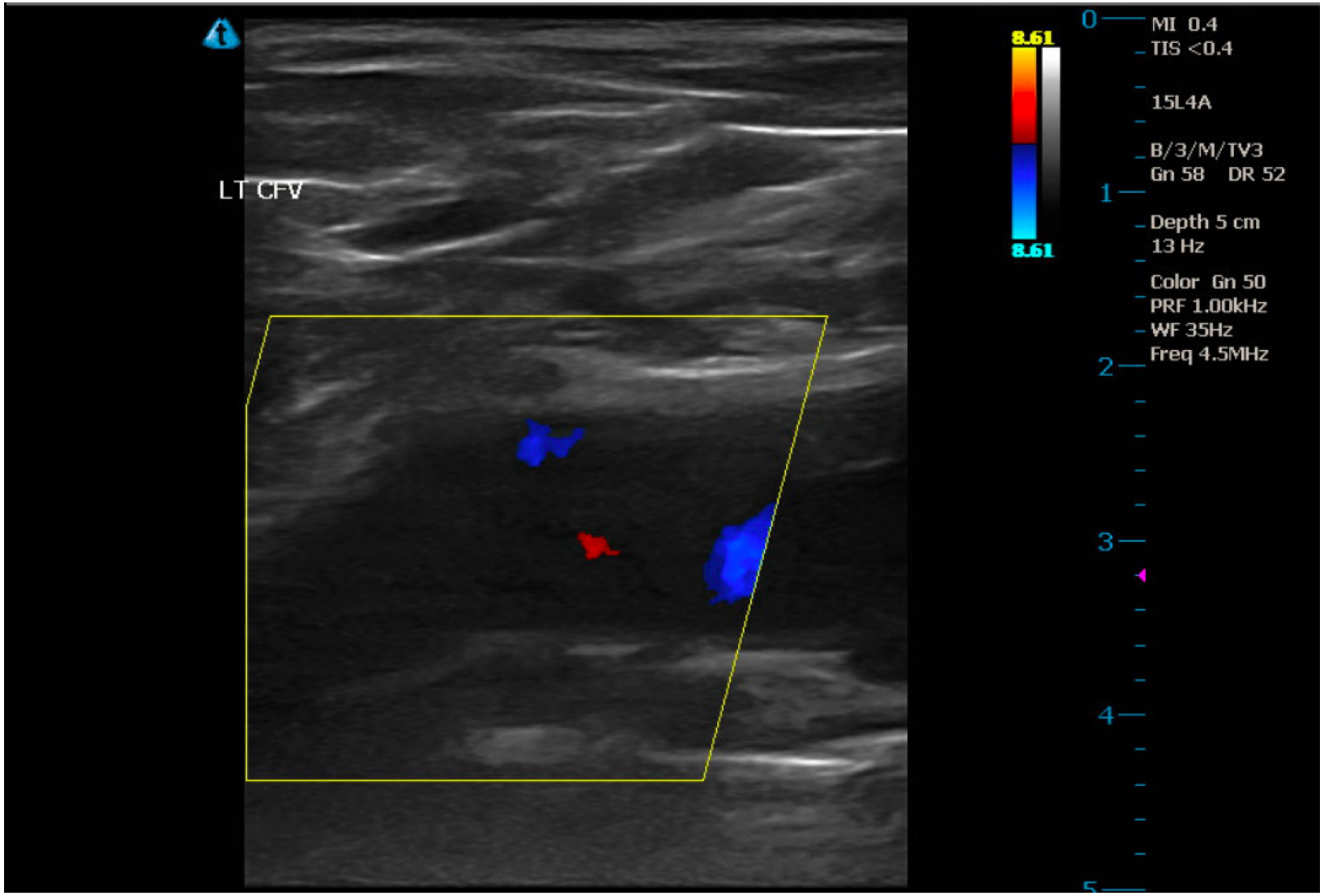

Image courtesy Kush R. Desai, M.D.

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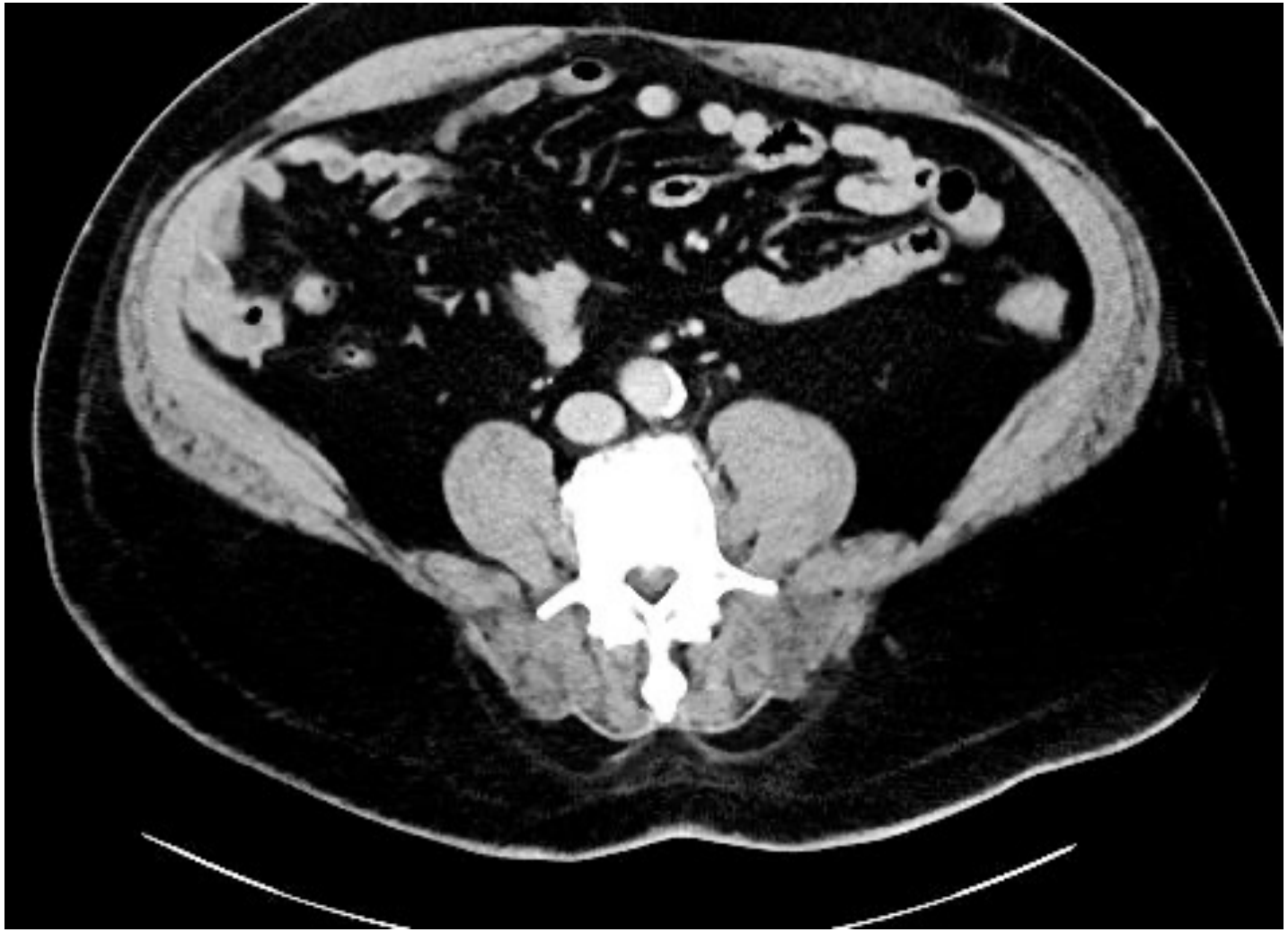
IMAGING
CT VENOGRAPHY



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DIAGNOSIS AND TREATMENT PLAN

Diagnosis

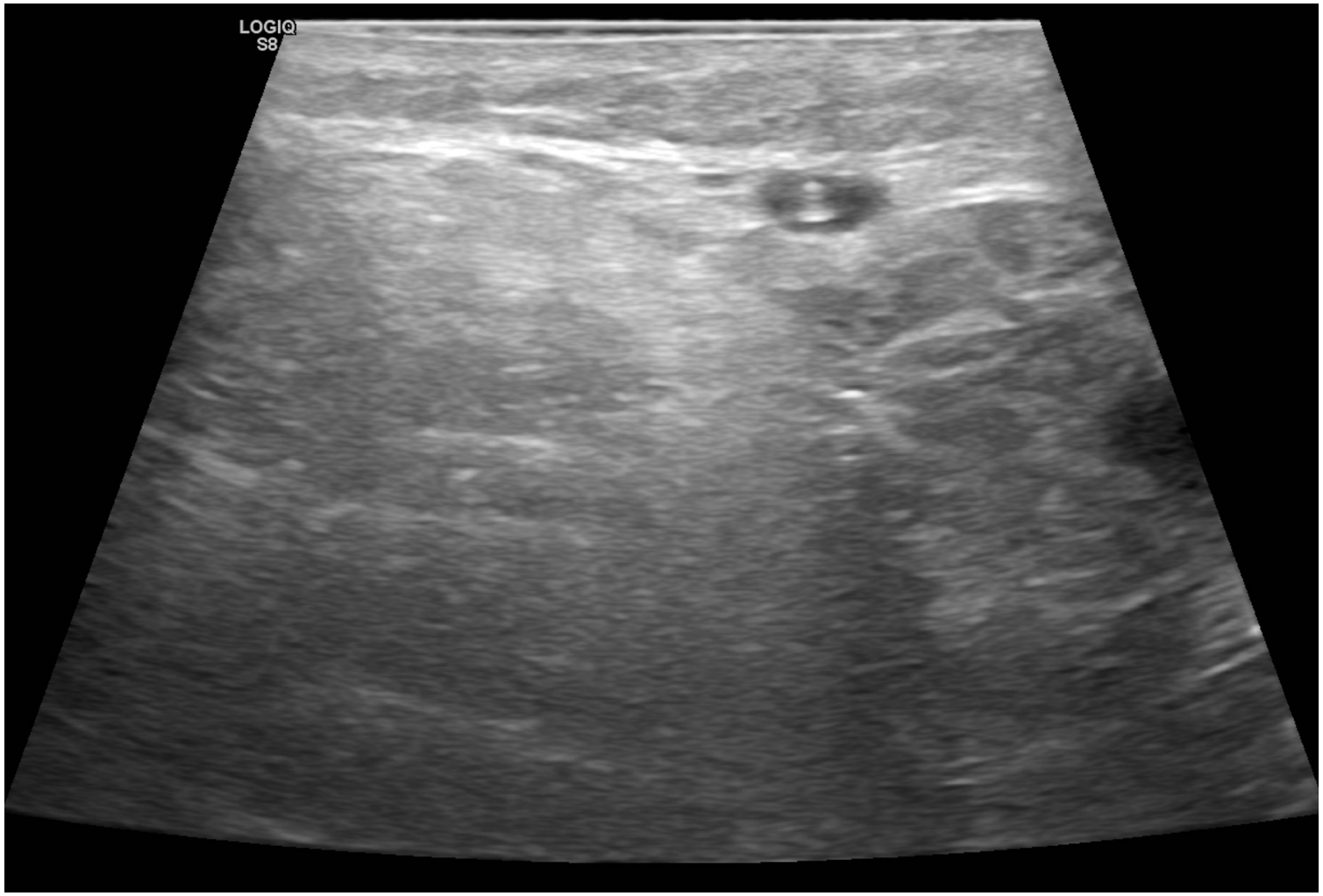
- Chronic left iliofemoral post-thrombotic and iliac vein stent obstruction

Treatment Plan

- Accesses needed: Left posterior tibial/small saphenous, right posterior tibial, possibly jugular
- Crossing catheters/sets, sharp or RF-wire recanalization
- Maintain anticoagulation through procedure, supplement with on-table bolus UFH
- Critically appraise inflow to ensure stent patency is well supported

PROCEDURE
SETUP

- General anesthesia
- Prone position
- Left SSV access, right PTV access



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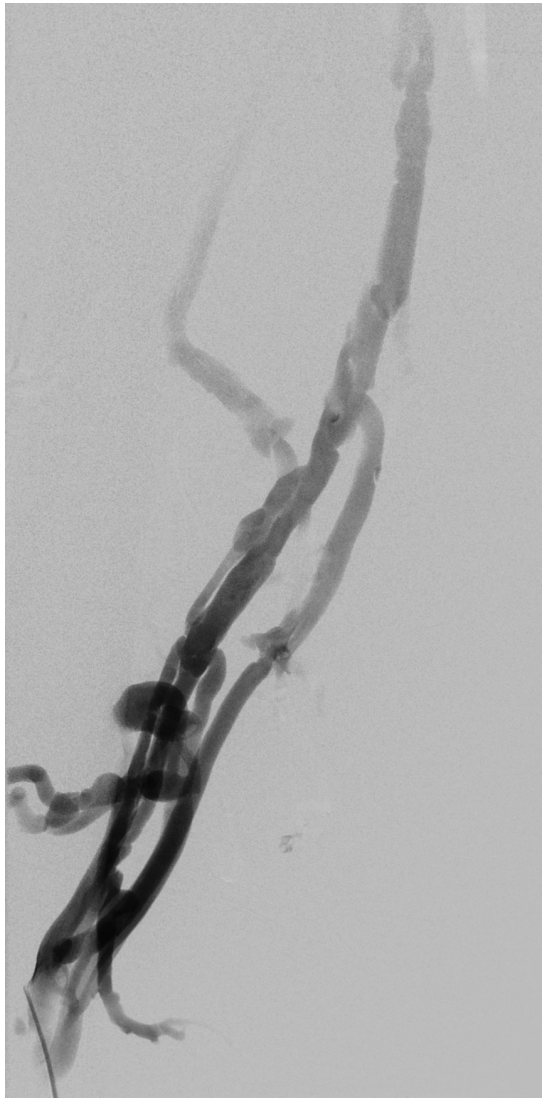
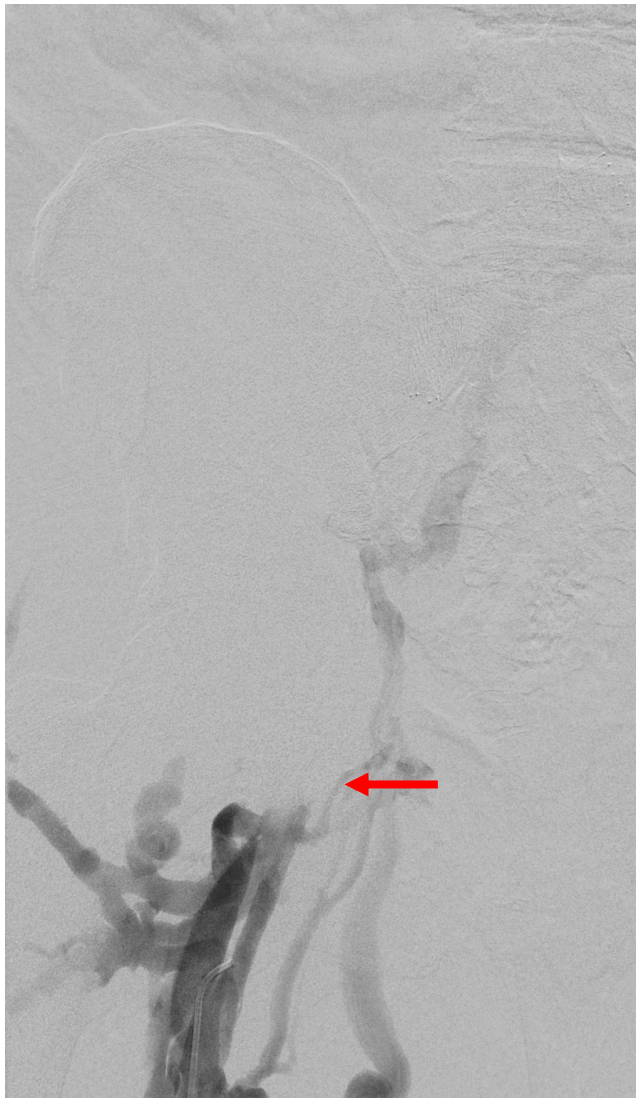
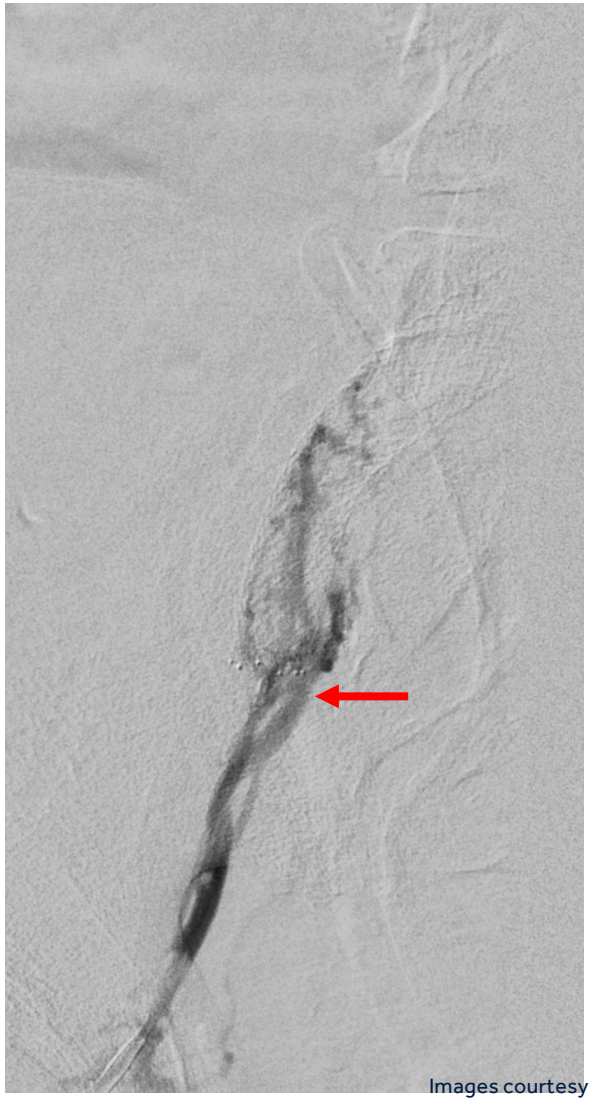
PROCEDURE
INITIAL VENOGRAPHY







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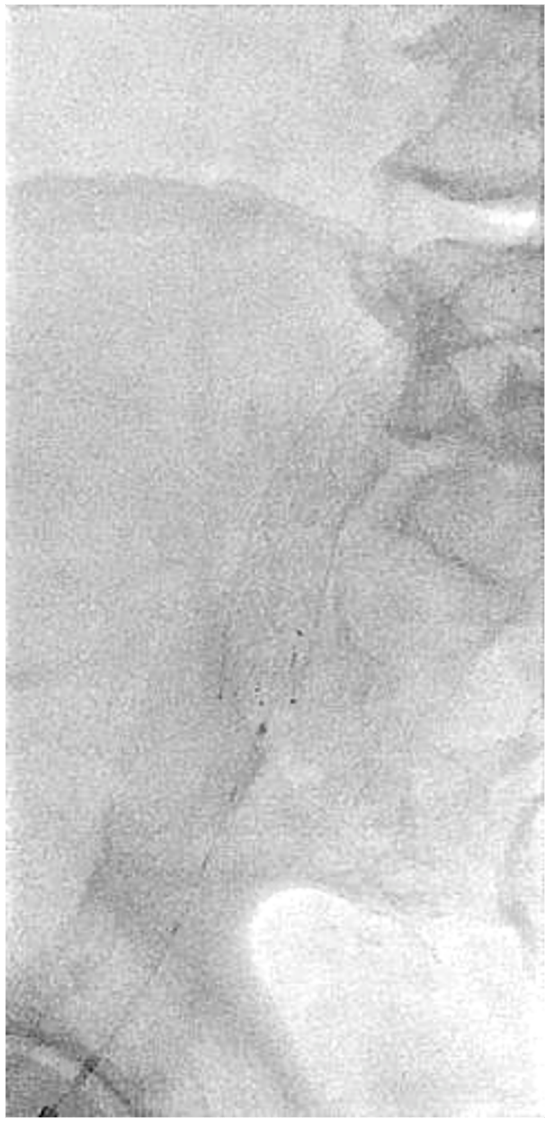
PROCEDURE
ATTEMPTING TO CROSS



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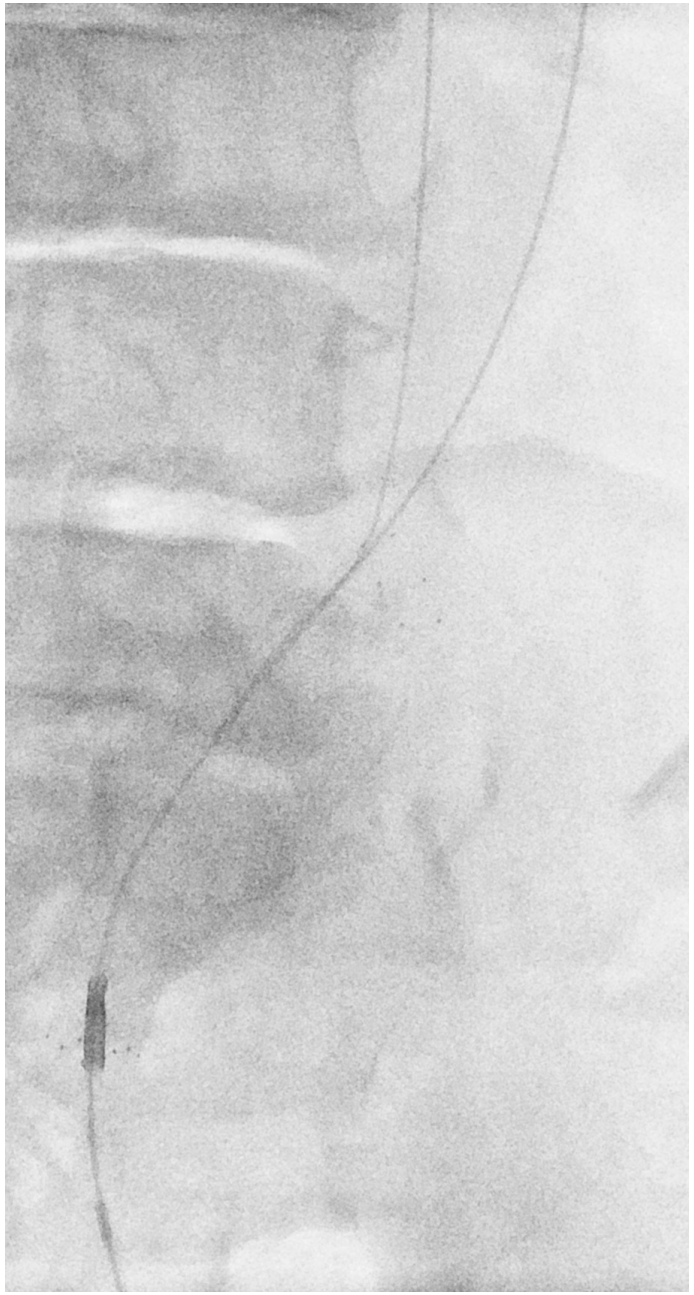
PROCEDURE
NOW WHAT?



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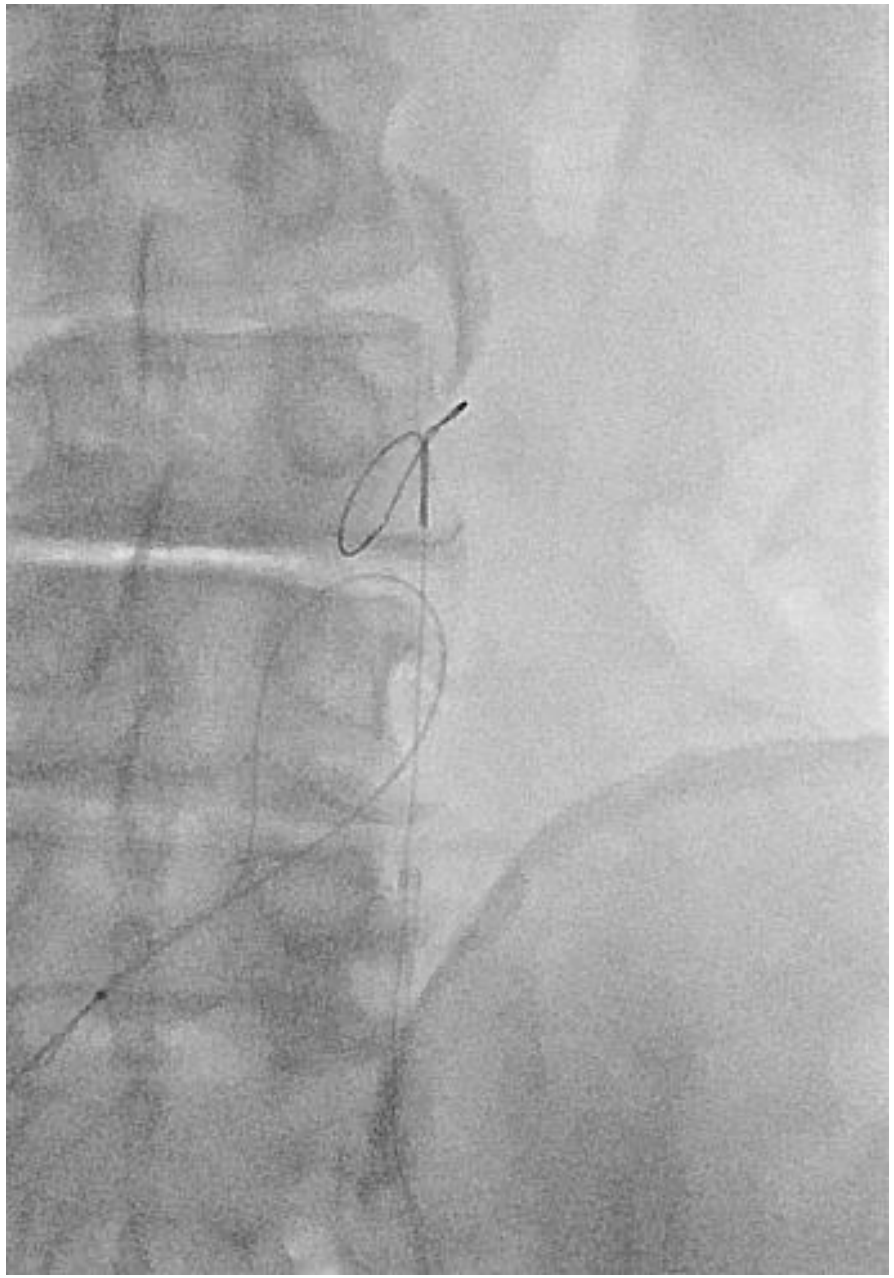
PROCEDURE
BREAKING THE WIRE FREE



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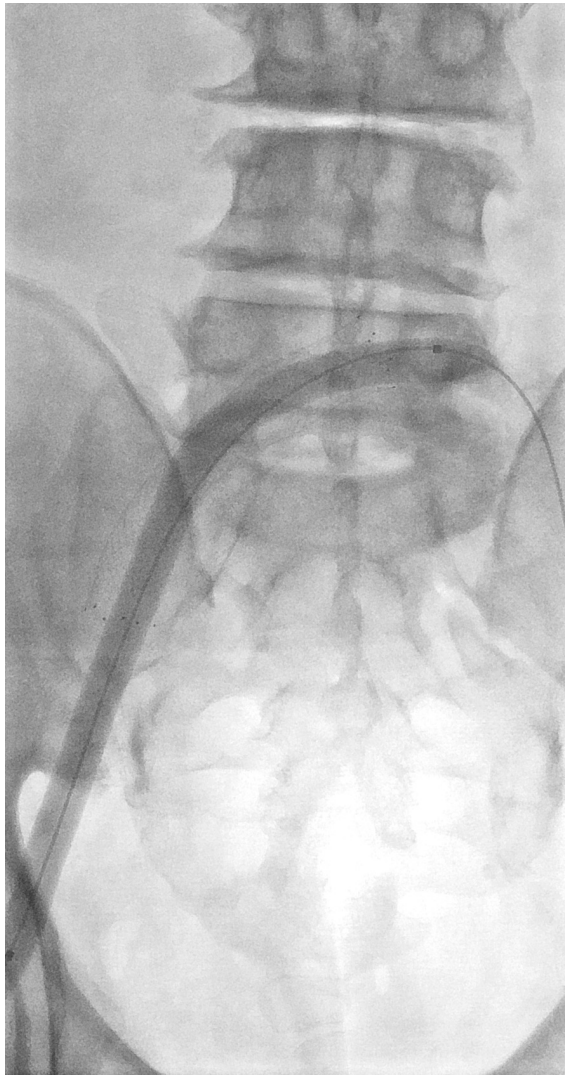
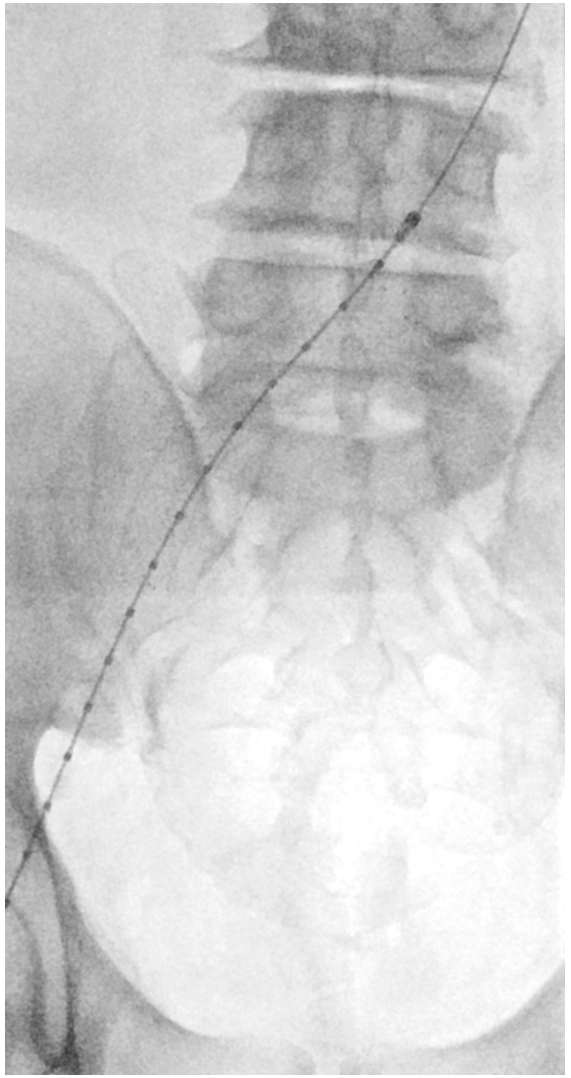
PROCEDURE
ACCESS OBTAINED





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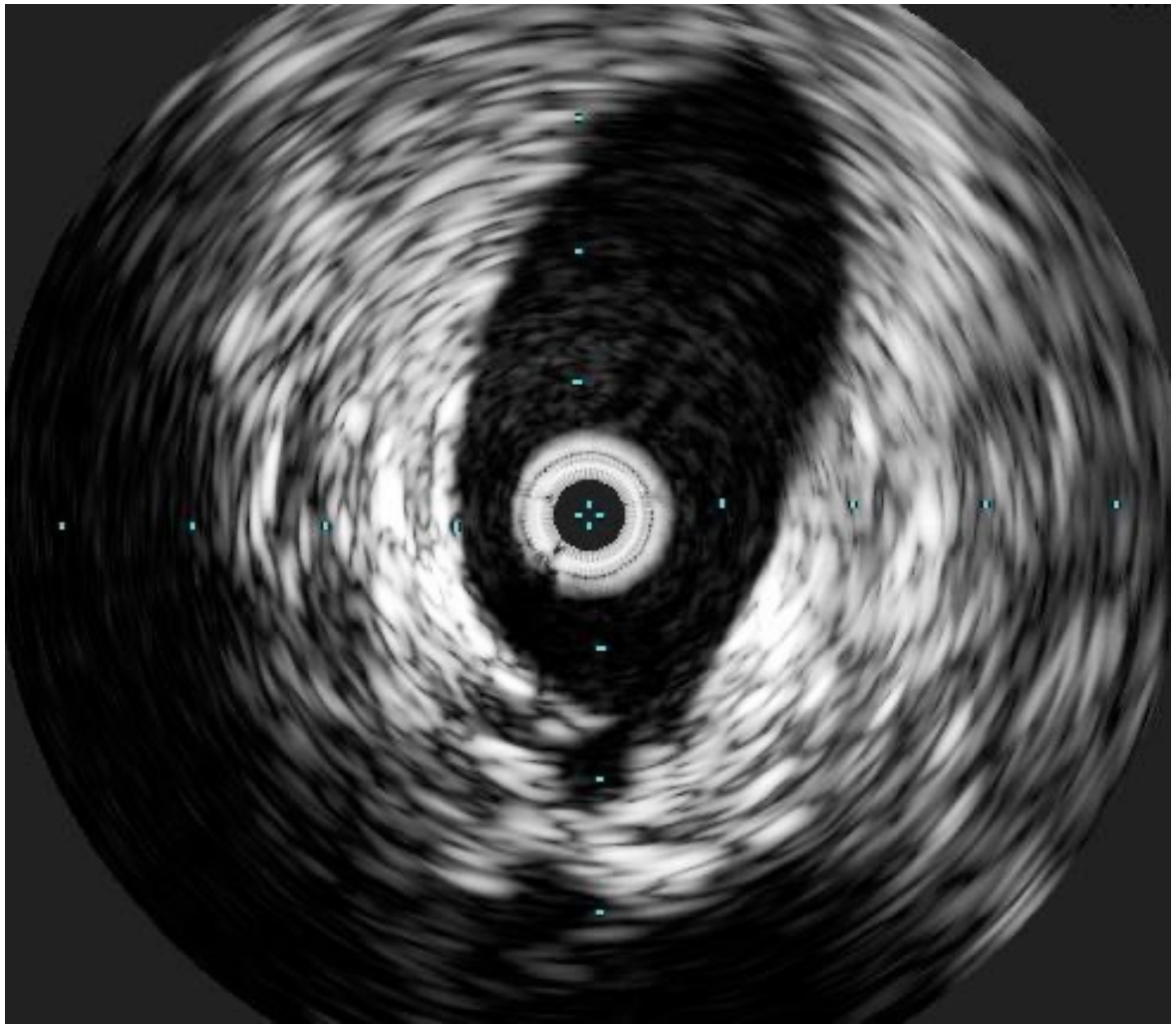
PROCEDURE
INITIAL IVUS



IVUS aids in assessing profunda inflow quality and stent length selection

Image courtesy Kush R. Desai, M.D.

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VENOUS STENT SIZING
HOW I USE IVUS IN POST-THROMBOTIC ILIOFEMORAL OCCLUSIONS

- Size my stent to the NORMAL vein (if EIV is normal)…BUT, frequently no normal reference → best guess
  - Personally, 14 mm stents are fine in most patients
- Use IVUS to assess the inflow → critical for stent patency
- Ensure coverage of compressive lesion/bridge into normal vein
- Use it as a marker catheter to determine stent length needed
- Assess for rouleaux flow → problem with either inflow or outflow

PROCEDURE
BALLOON DILATION PRE-STENT PLACEMENT

12 x 40 pre-dilation of CFV and 14 x 60 mm pre-dilation of iliac segments, same balloons used for post-dilation

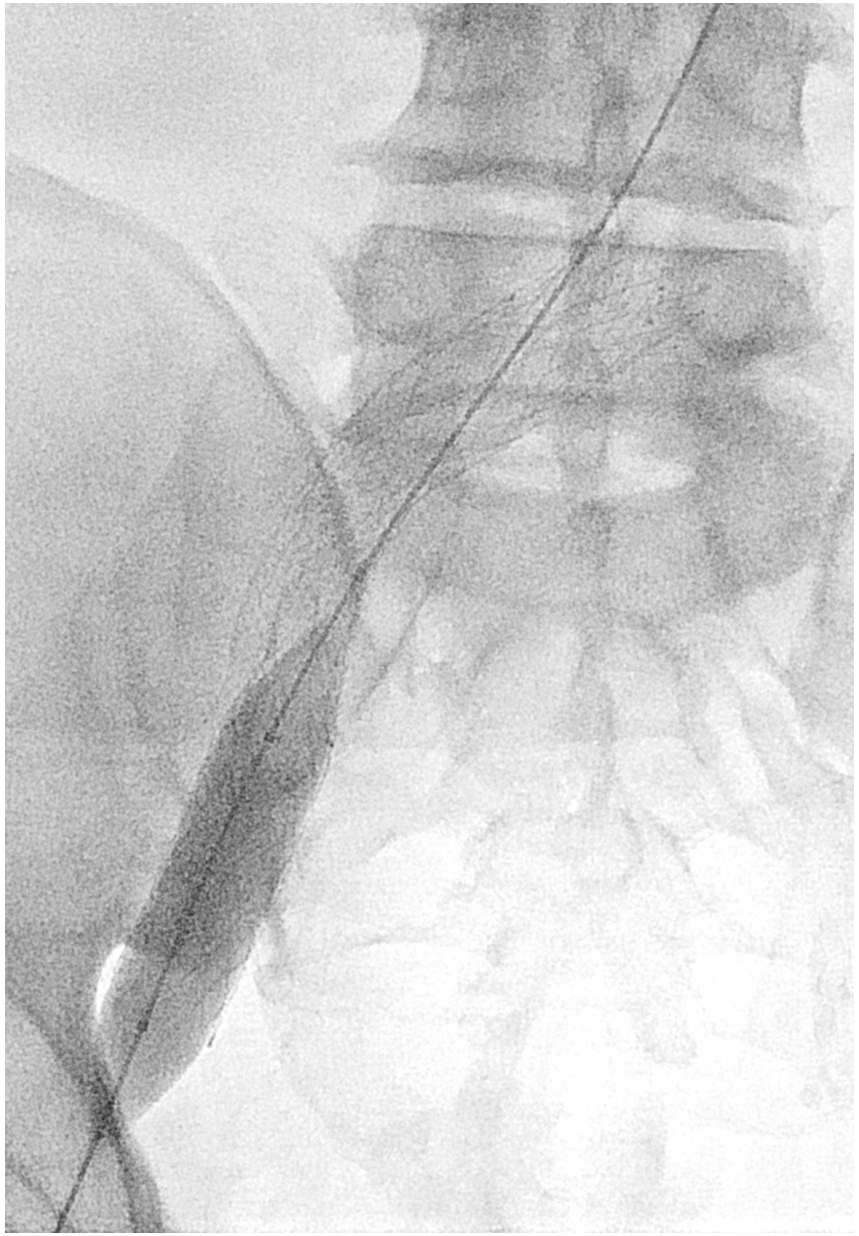

Image courtesy Kush R. Desai, M.D.

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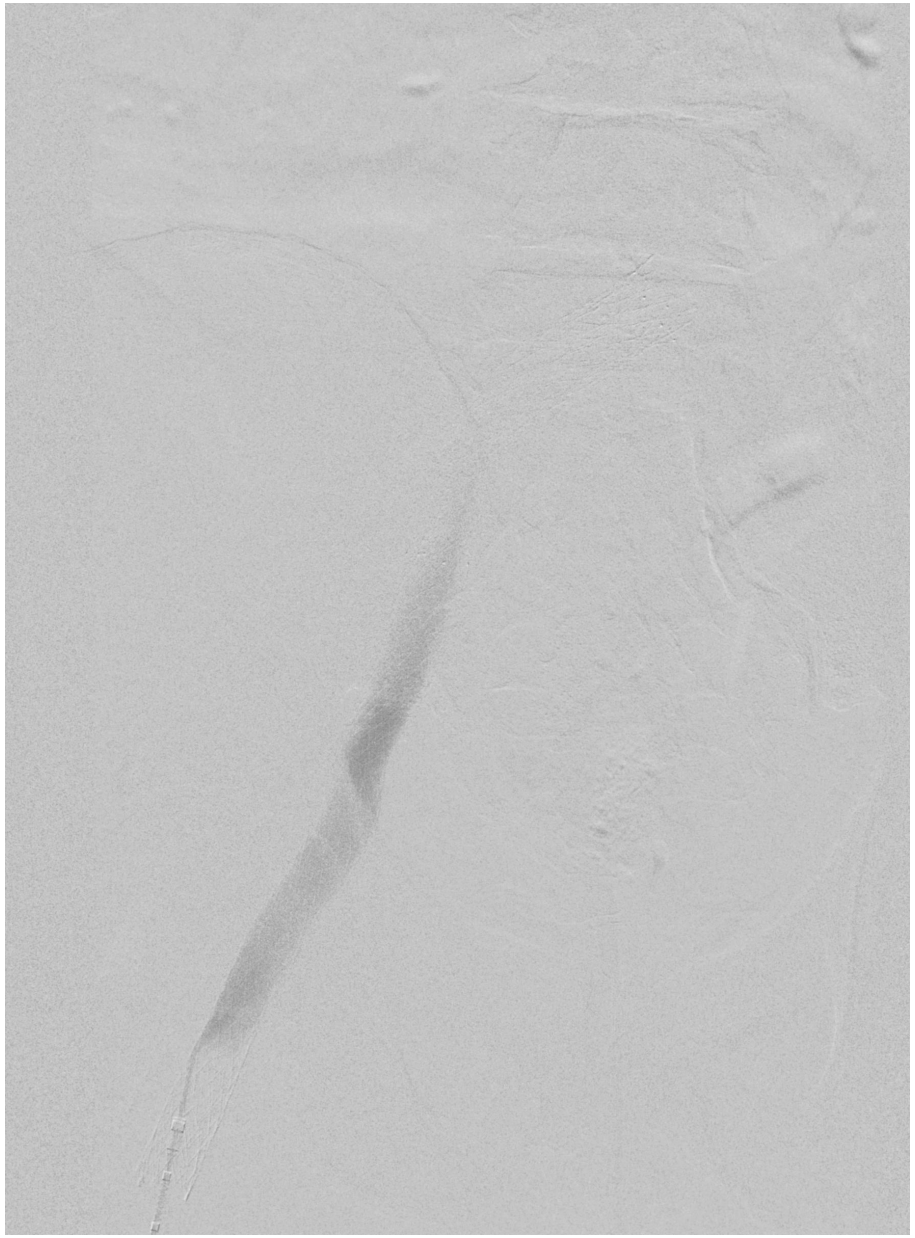
FINAL VENOGRAM

- 14 x 120 mm Abre™ venous self-expanding stent system in iliac segments
- 12 x 120 mm Abre™ stent in CFV to profunda inflow



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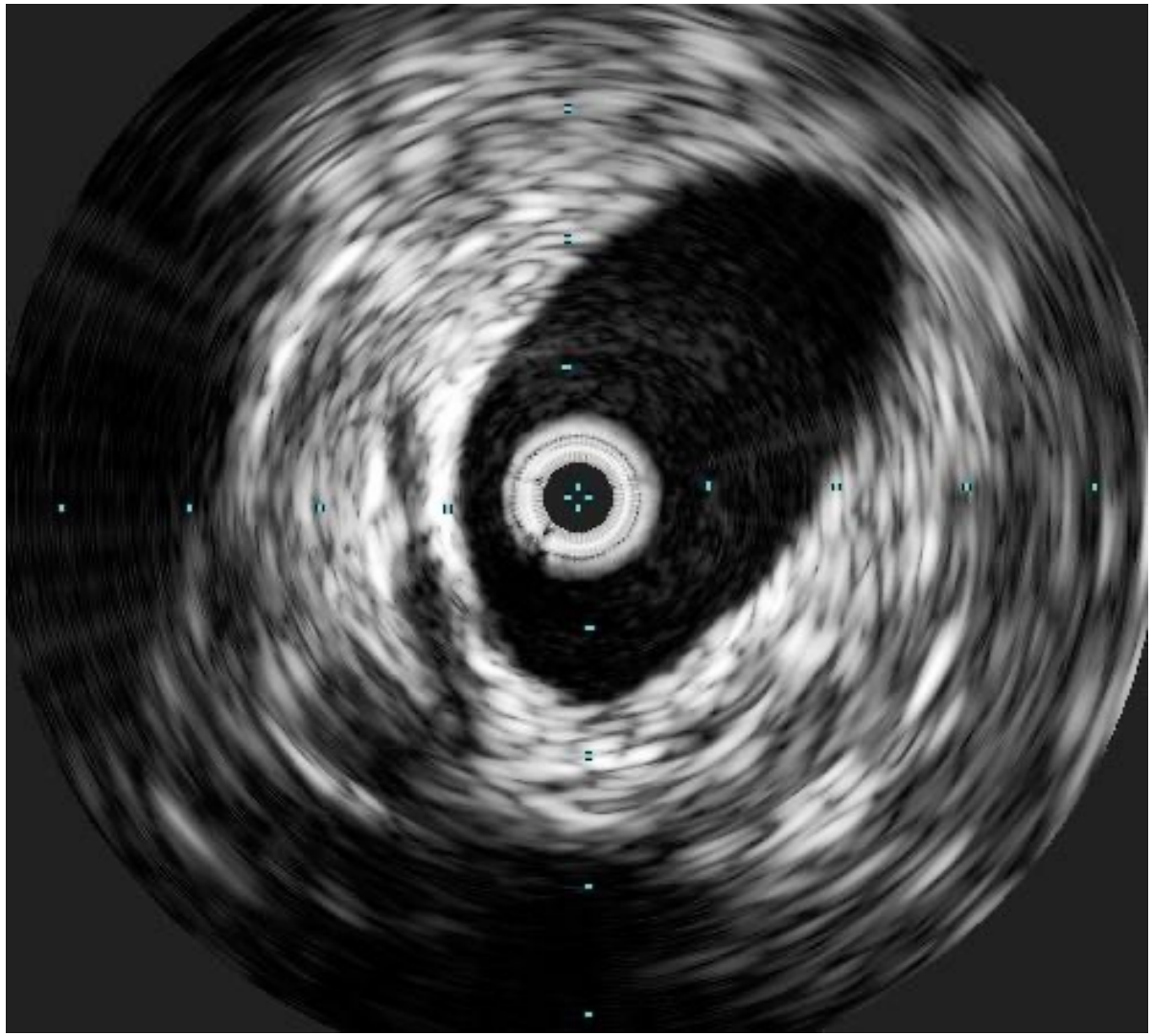
COMPLETION IVUS



Assess stent apposition, look for secondary signs of poor flow (rouleaux phenomenon)

Image courtesy Kush R. Desai, M.D.

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POST-PROCEDURE CARE

- Continuing warfarin
- Started on 90-day course of clopidogrel
- Continues knee-high compression
- Follow-up at 1 month, 6 months, and annually thereafter
- On suture removal visit a few days later, noted that pain had markedly improved

CONCLUSION AND KEY LEARNING POINTS

- Recanalization of chronic post-thrombotic iliofemoral obstructions can significantly improve symptoms and quality of life
- Use imaging to roadmap your procedure
  - Assess extent of occlusion
  - Assess inflow to ensure stents patency is supported→ with CFV disease, profunda is critical
- Multiple accesses and crossing devices may be needed for successful lesion traversal
  - Stent occlusions often require advanced crossing techniques
- On label stents permit treatment of long occlusions with fewer devices
  - IVUS helpful in selecting stent lengths
- Ensure coverage of the entire diseased segment
  - Venography to assess flow
  - IVUS to ensure stent apposition and luminal adequacy
  - DO NOT stent below the profunda
- Post-procedure care is as important as the procedure itself
  - Have a rigorous anticoagulation and follow-up strategy

ABRE™
VENOUS SELF-EXPANDING STENT SYSTEM

Intended for use in the iliofemoral veins for the **treatment of symptomatic venous outflow obstruction**

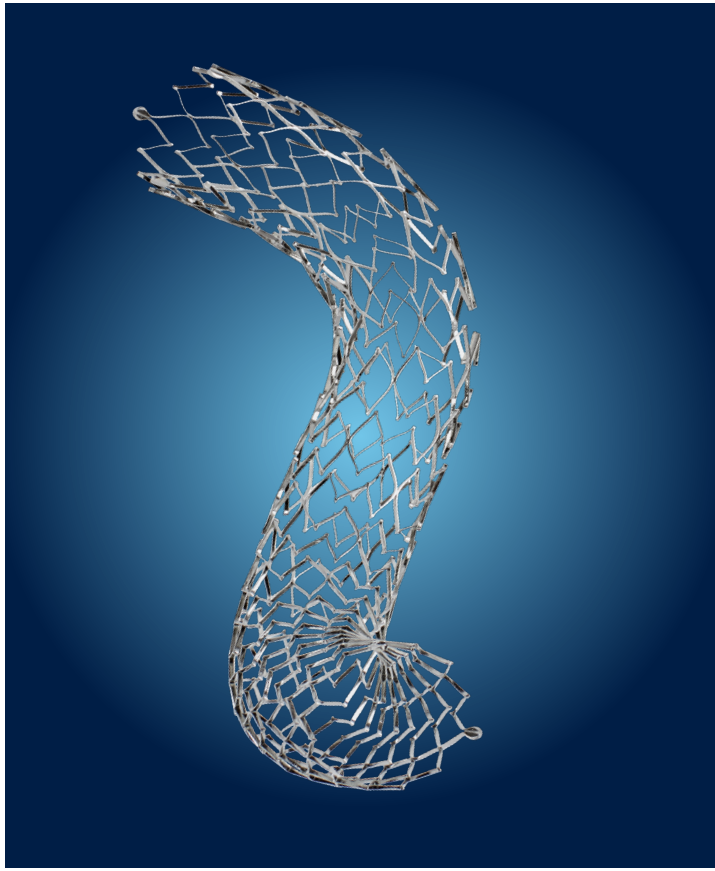
- Open cell stent with unique design
- Nitinol material
- Thumbwheel actuated deployment
- Over-the-wire
- 9 Fr, 0.035" guide wire compatible
- 10 to 20mm diameters
- 40 to 150mm lengths

SIMPLICITY

- Minimizes jumping and foreshortening, for easy and precise deployment[1]

DURABILITY

- Maintains lumen integrity and flow in diverse patients and anatomies[2]
- Bench evidence of 0% fracture rate at 50 years[1]
- Real world dependability from clinical study[2]



[1]Test data on file at Medtronic. Bench test results may not be indicative of clinical performance.
[2]ABRE CSR v1.2 30/JUL/2020

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ABRE™ VENOUS SELF-EXPANDING STENT SYSTEM BRIEF STATEMENT

Intended Use/Indications: The Abre™ venous self-expanding stent system (Abre™ stent system) is indicated for use in the iliofemoral veins for the treatment of symptomatic venous outflow obstruction.

Contraindications: Do not use the Abre™ stent system with patients with known hypersensitivity to nickel titanium (nitinol), with patients who are judged to have a lesion that prevents complete inflation of a balloon dilatation catheter or proper placement of the stent or the stent delivery system, and with patients in whom anticoagulant or antiplatelet therapy is contraindicated.

Potential Adverse Effects of the Device on Health: The potential adverse effects (e.g., complications) associated with the use of the Abre™ stent system include, but are not limited to, access failure, access site infection, allergic reaction to contrast medium or procedure medications; aneurysm; AV fistula; bleeding; bruising; death; device breakage; device maldeployment; edema; embolization; fever; hematoma; hypertension; hypotension, nausea, or other vasovagal response; infection; myocardial infarction, arrhythmia, or other cardiovascular insufficiency; open surgical repair; pain; pseudoaneurysm; renal insufficiency or renal failure (new or worsening); respiratory distress or pulmonary embolism; sepsis; stent fracture; stent malapposition; stent malposition; stent migration; stroke, paradoxical embolism, transient ischemic attack, or intracerebral hemorrhage; tissue necrosis; venous occlusion, restenosis, or thrombosis, within or outside of stented segment; and vessel damage, including intimal injury, dissection, perforation, or rupture.

Warnings, precautions, and instructions for use can be found in the product labeling at http://manuals.medtronic.com.

CAUTION: Federal (USA) law restricts this device to sale by or on the order of a physician.

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