Iliofemoral Artery Disease: Borderline or Severe

Mao-Shin Lin, MD, PhD
Division of Cardiology, Department of Internal Medicine
National Taiwan University Hospital



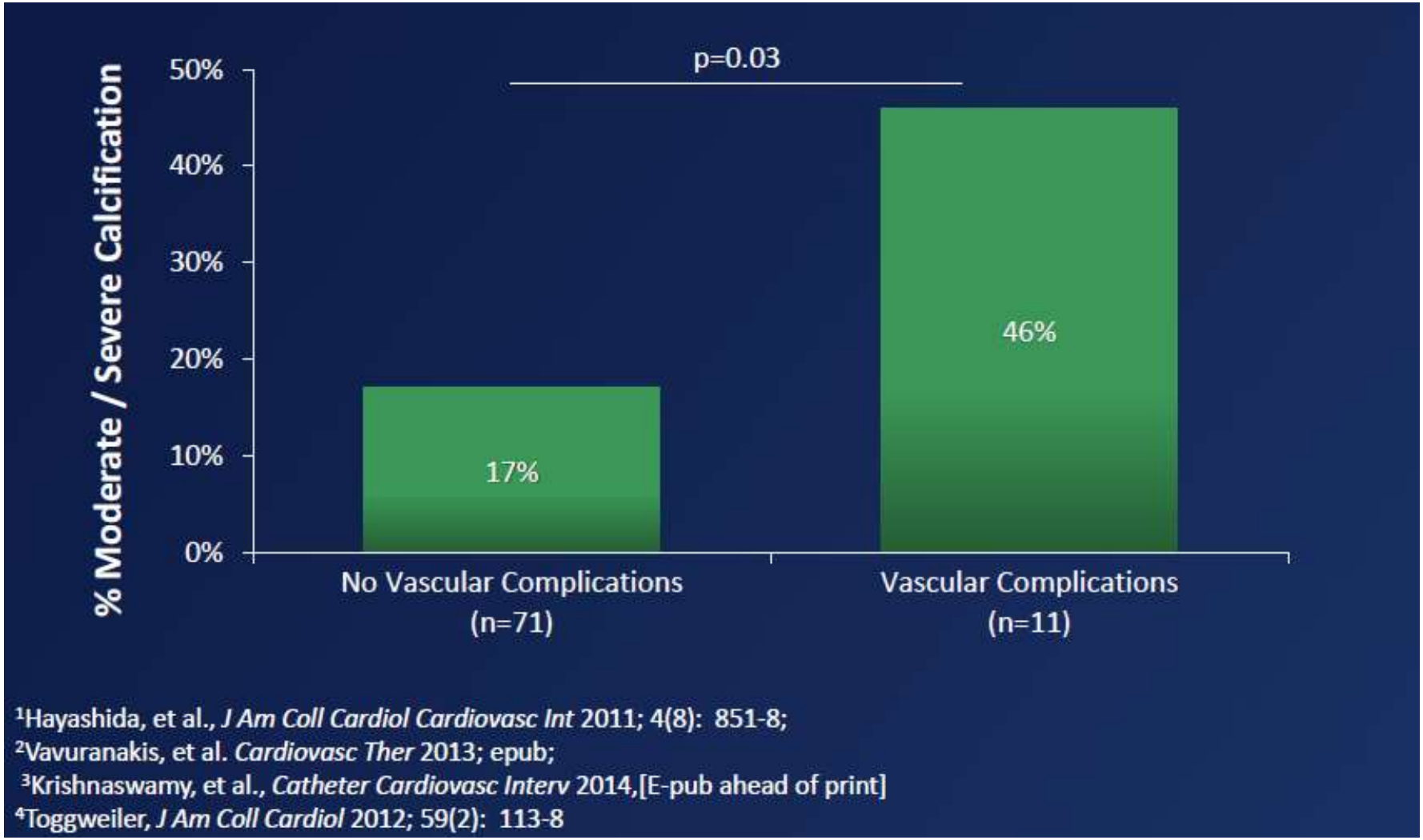
Iliofemoral Artery Disease: Borderline or Severe

- Predictors for major vascular complication
- Angioplasty strategy before TAVI
- New method
- New device

Predictors of Vascular Complication

- Vessel calcification and tortuosity
- Sheath/vessel size ratio
- Female sex
- Learning curve

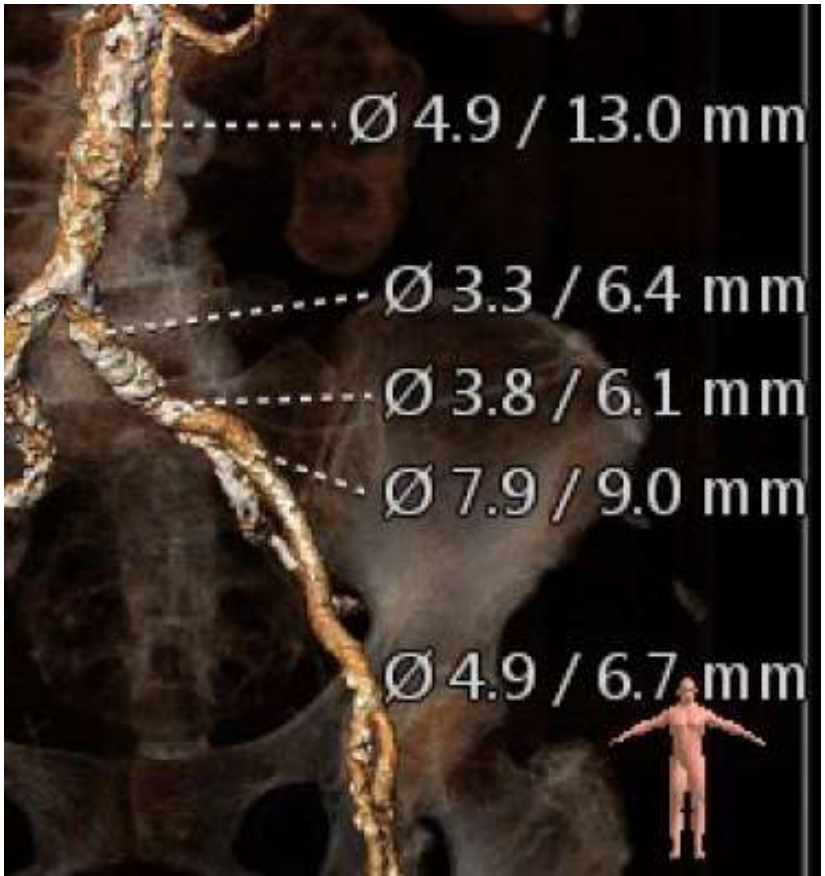
Predictors: Moderate to Severe Calcification



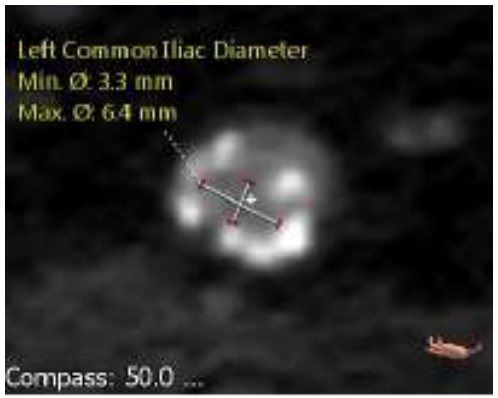
[1]Hayashida, et al., *J Am Coll Cardiol Cardiovasc Int* 2011; 4(8): 851-8;
[2]Vavuranakis, et al. *Cardiovasc Ther* 2013; epub;
[3]Krishnaswamy, et al., *Catheter Cardiovasc Interv* 2014,[E-pub ahead of print]
[4]Toggweiler, *J Am Coll Cardiol* 2012; 59(2): 113-8

Besides calcium load, we should take care of the calcium distribution

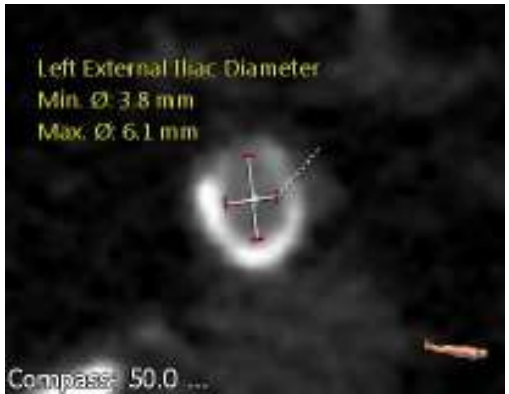
- High risk of major vascular complication if Ca distributed more than **3/4 of vessel perimeter**



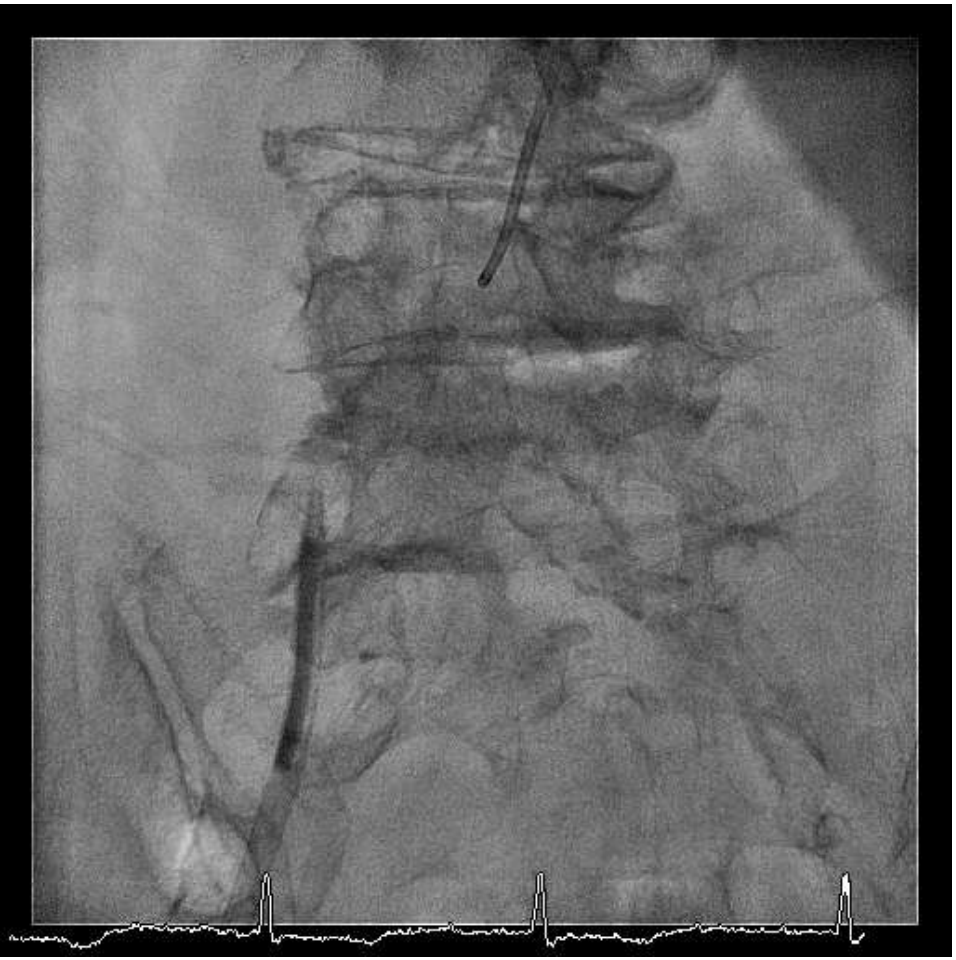
Common iliac a.

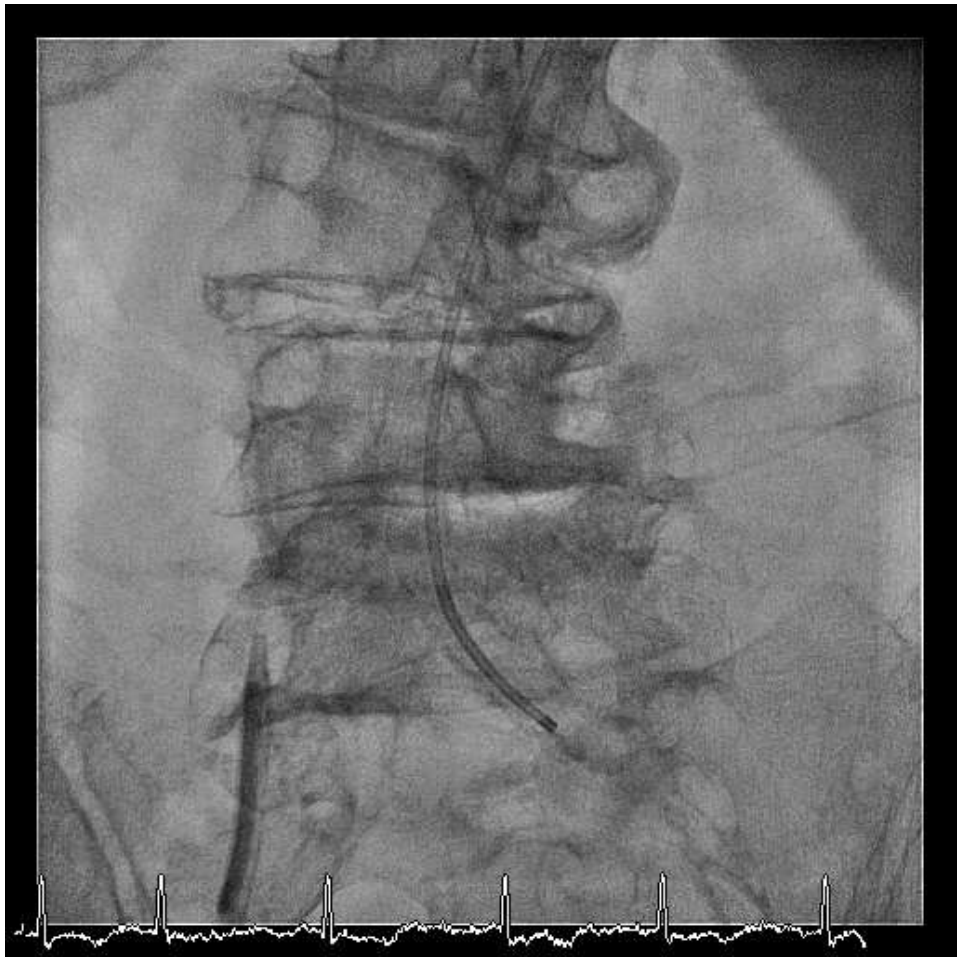


Extrenal iliac a.

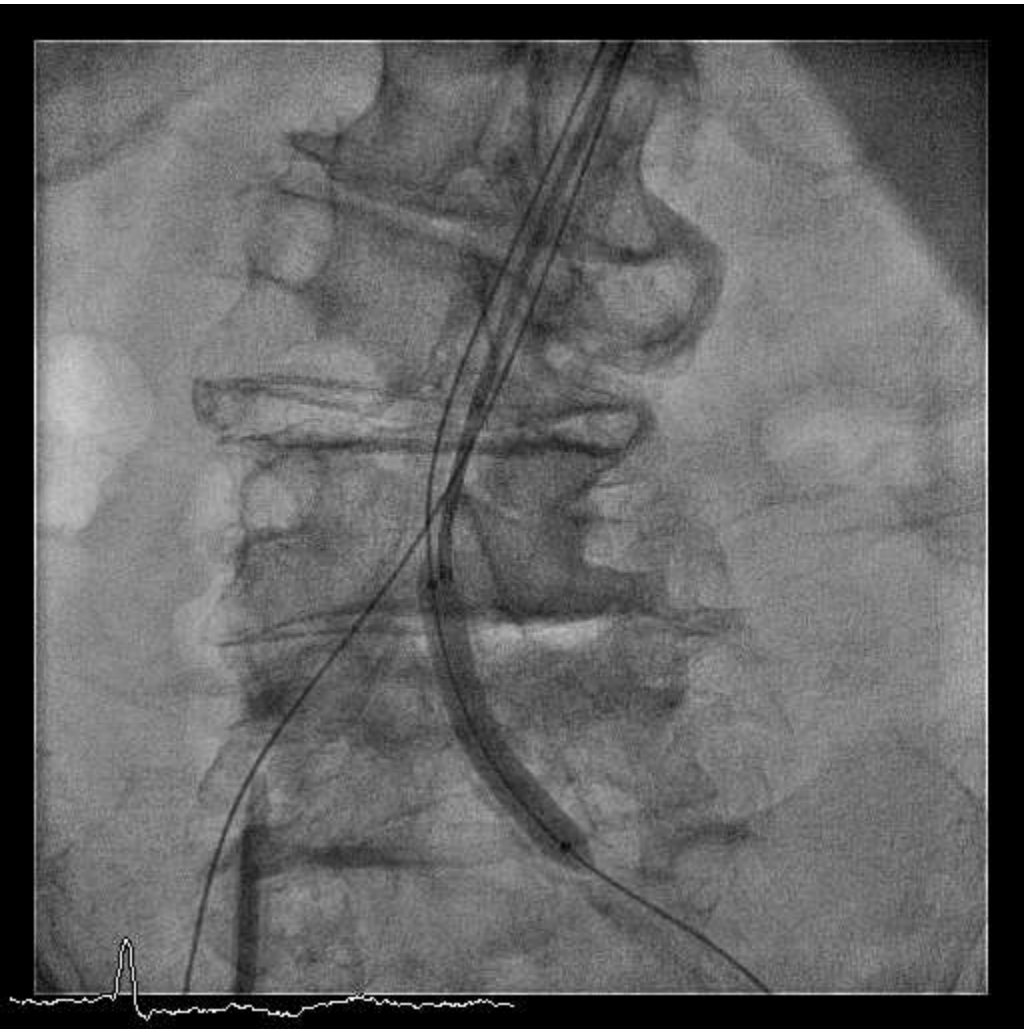


Moderate to Severe Calcification



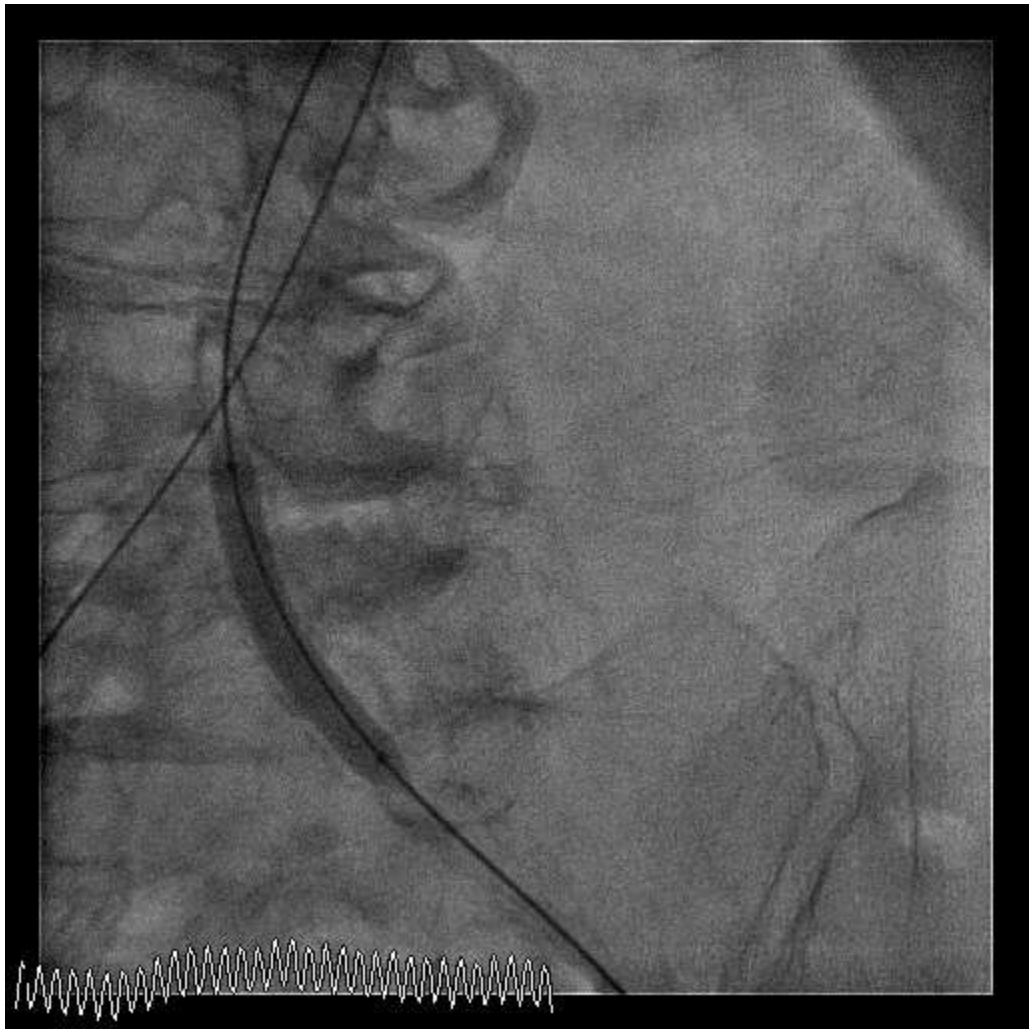


Moderate to Severe Calcification



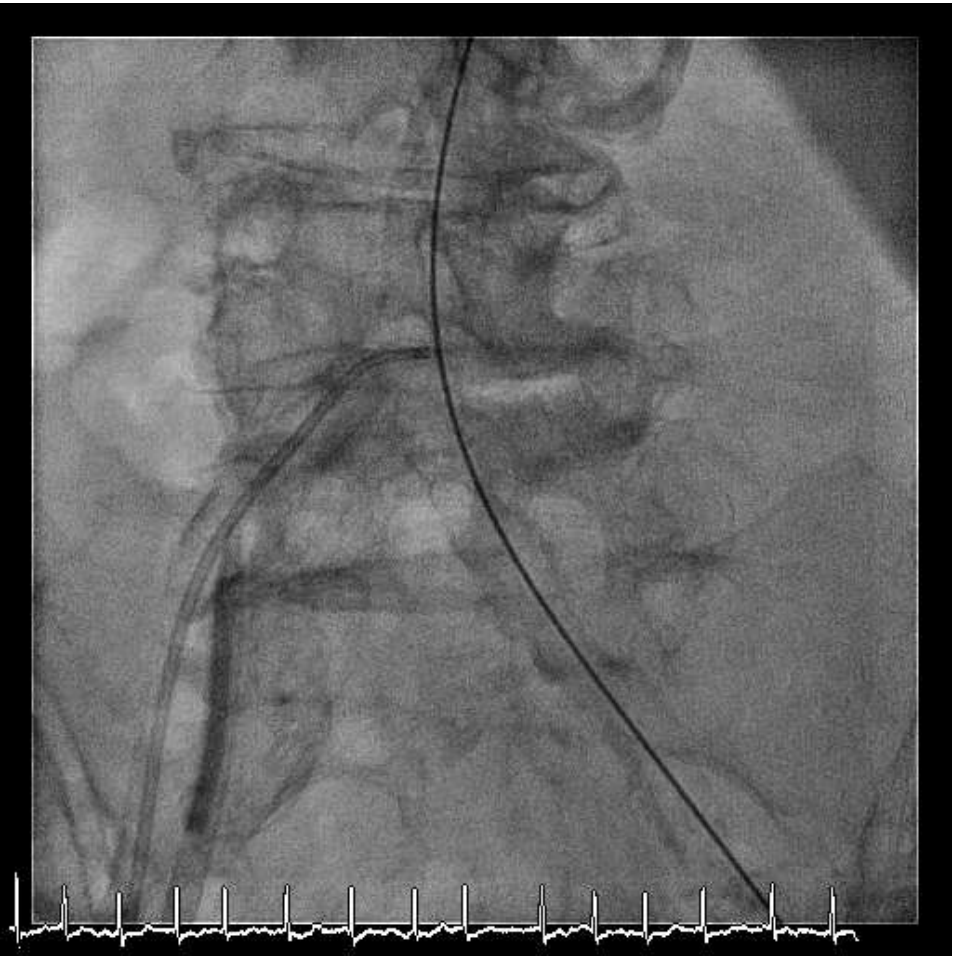
- 6mm balloon pre-dilatation
- Failed to advance the 18F sheath over common iliac artery

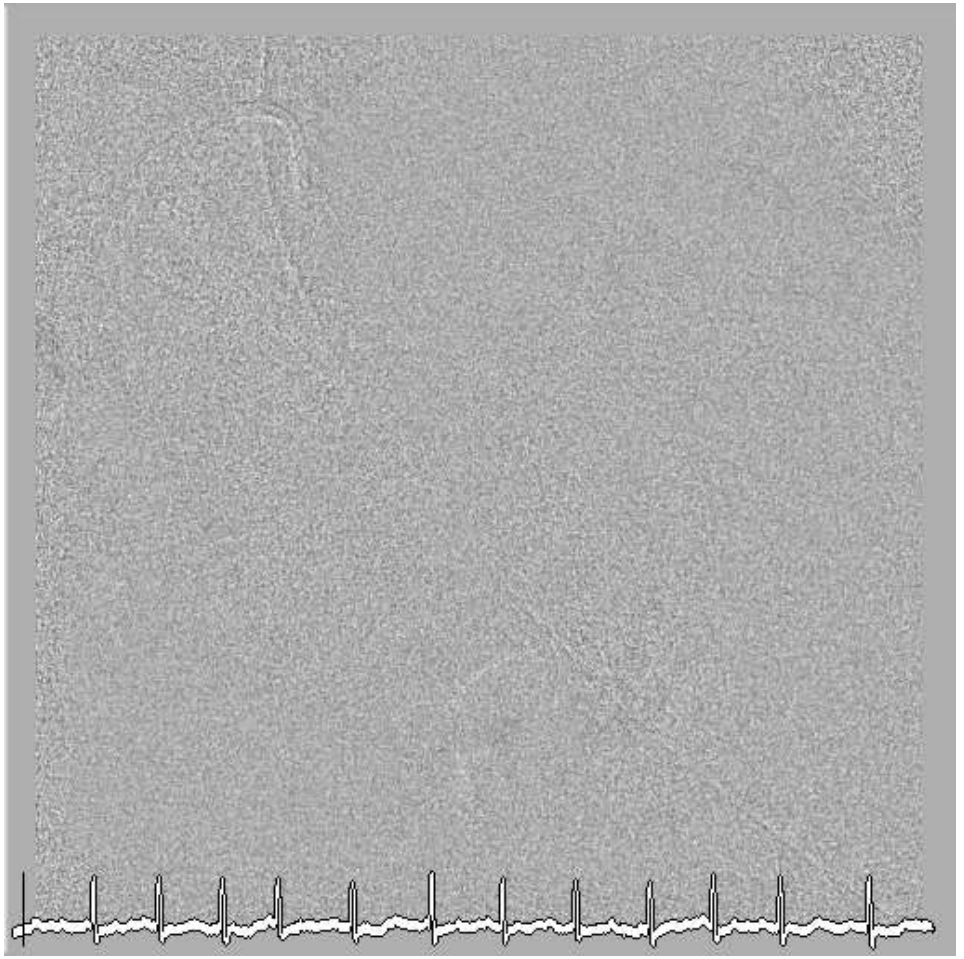
Moderate to Severe Calcification



- 7mm balloon pre-dilatation
- 18F sheath stuck in common iliac area

Extravasation, sealed by stent graft

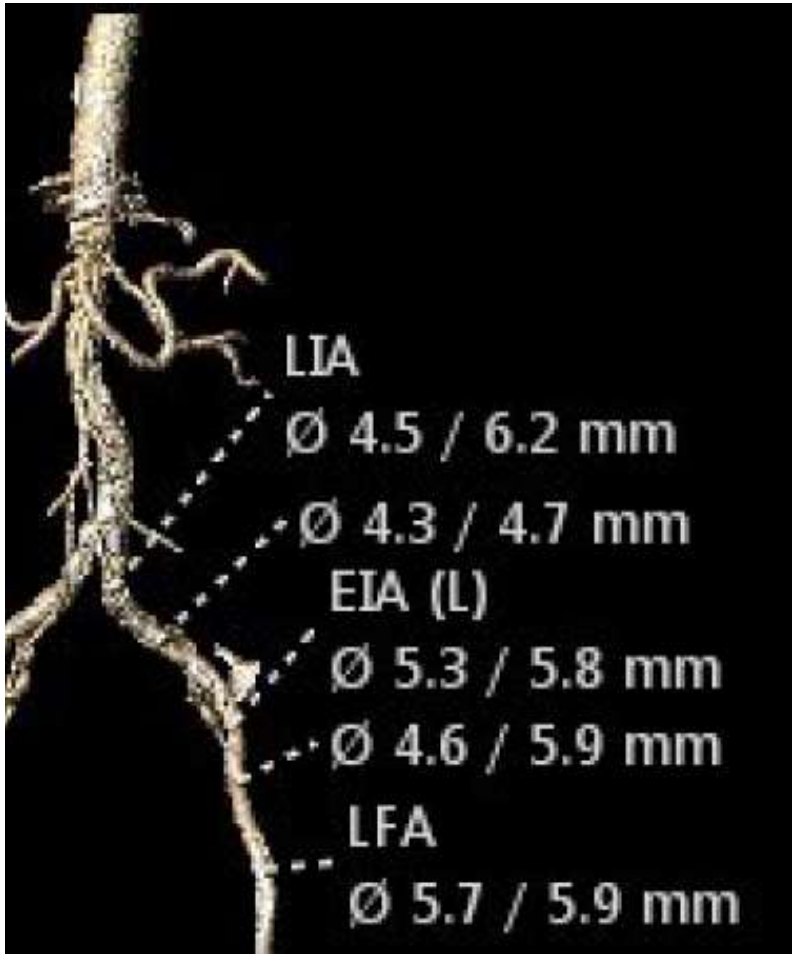


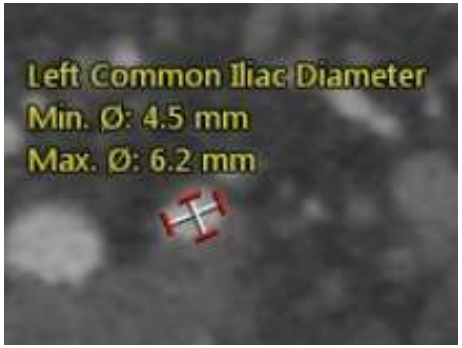


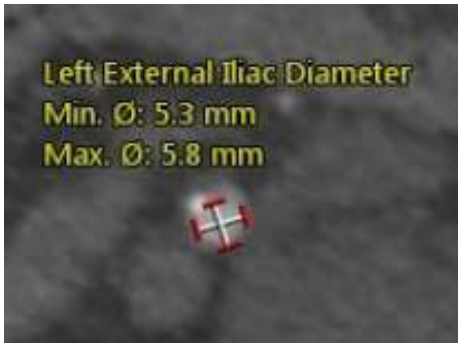
Small vessel size with moderate cacification

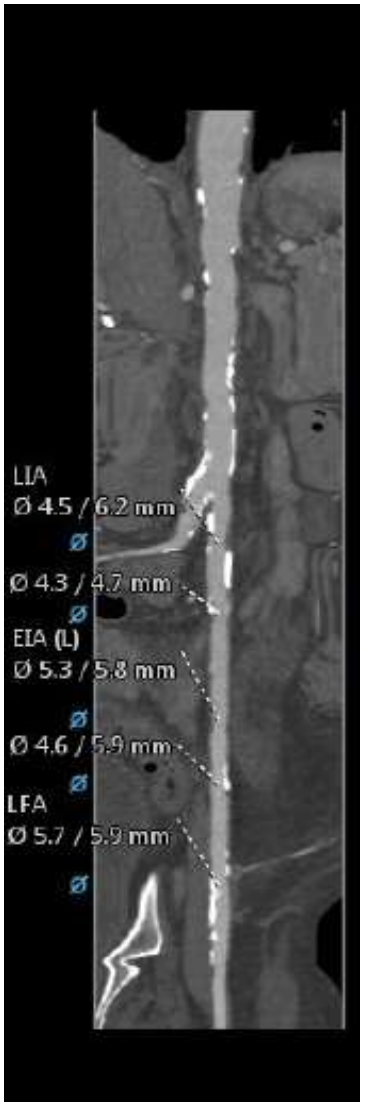
- 88 y/o woman, BH: 150 cm, BW: 46 Kg
- Echo: AVA:0.42 cm2, LVEF: 82.5 %
  Cross AV peak PG: 117.9 mmHg, mean: 69.0 mmHg

Small vessel size with moderate cacification

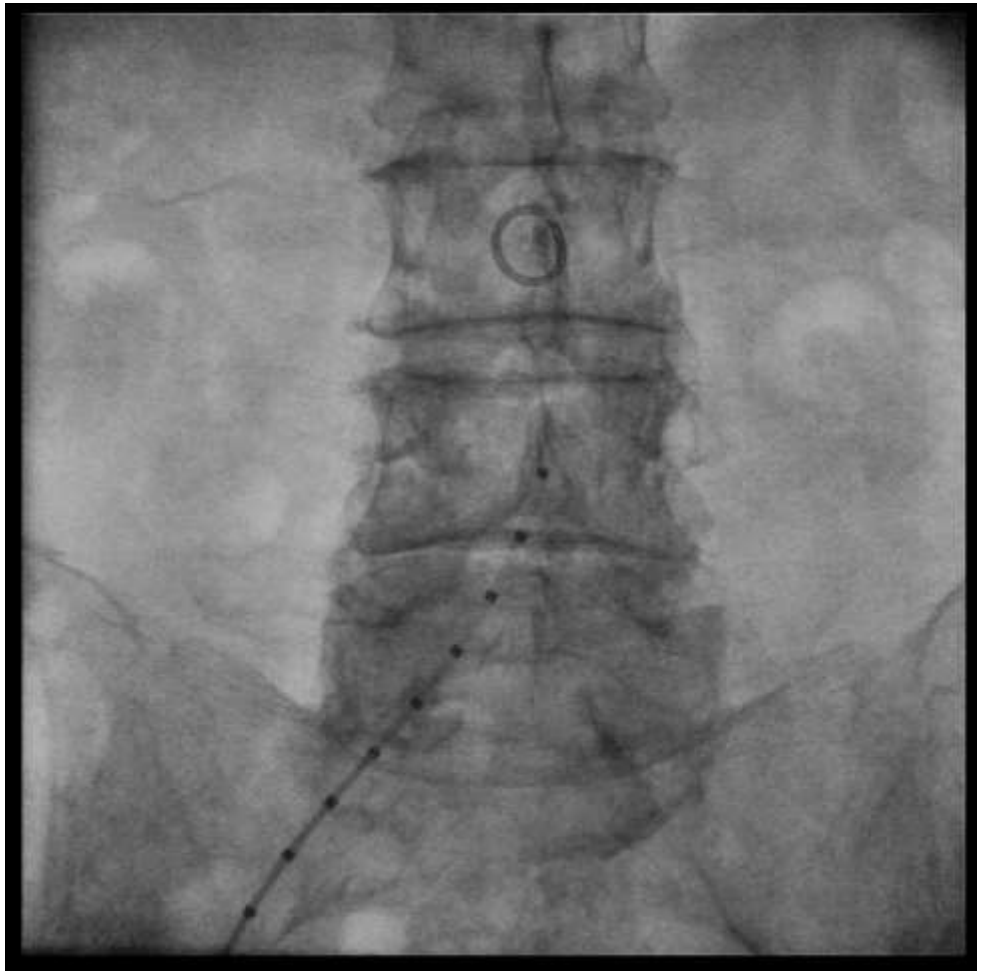








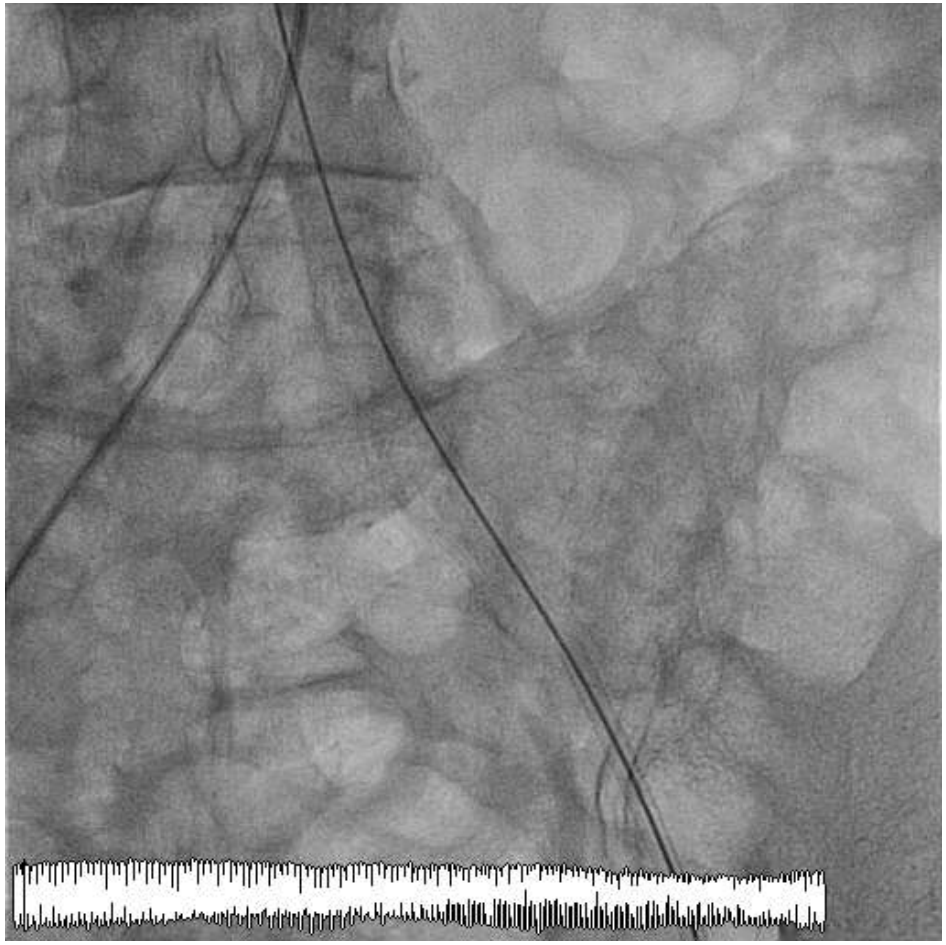
Small vessel size with moderate cacification



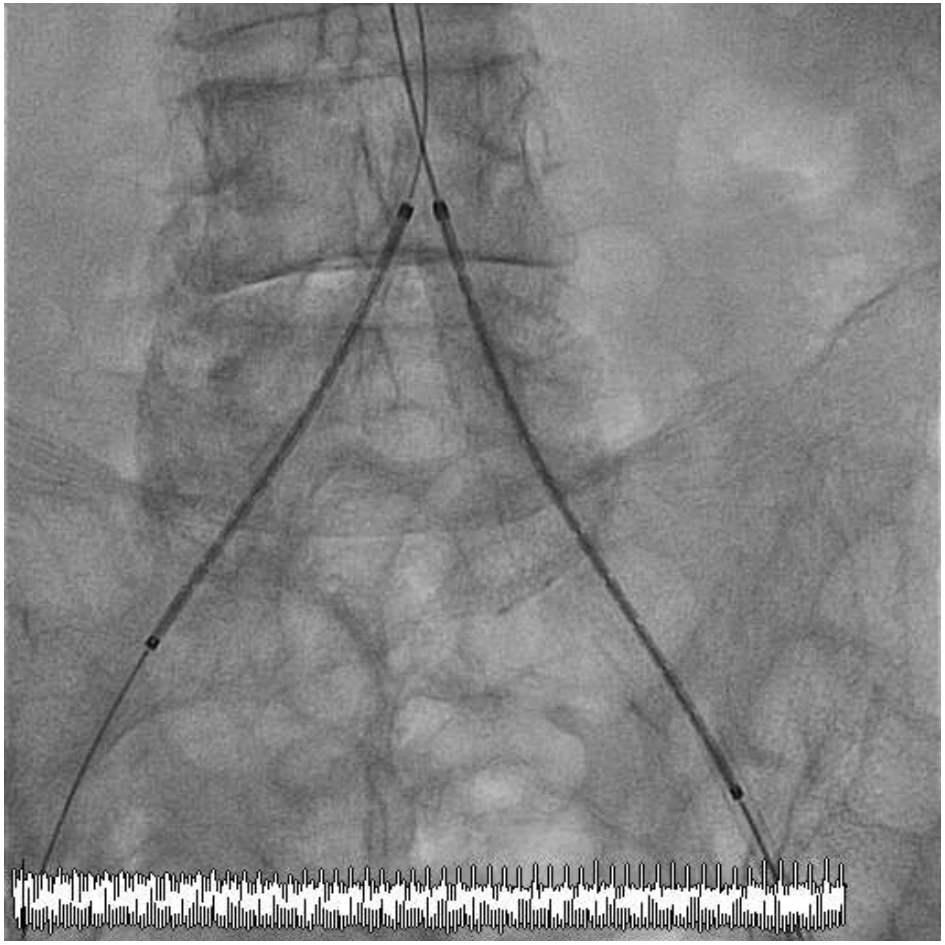
- Approach from left femoral artery
- Pre-dilatation with 6mm balloon
- 18F sheath insertion with moderate resistance

Small vessel size with moderate cacification

Left common iliac dissection

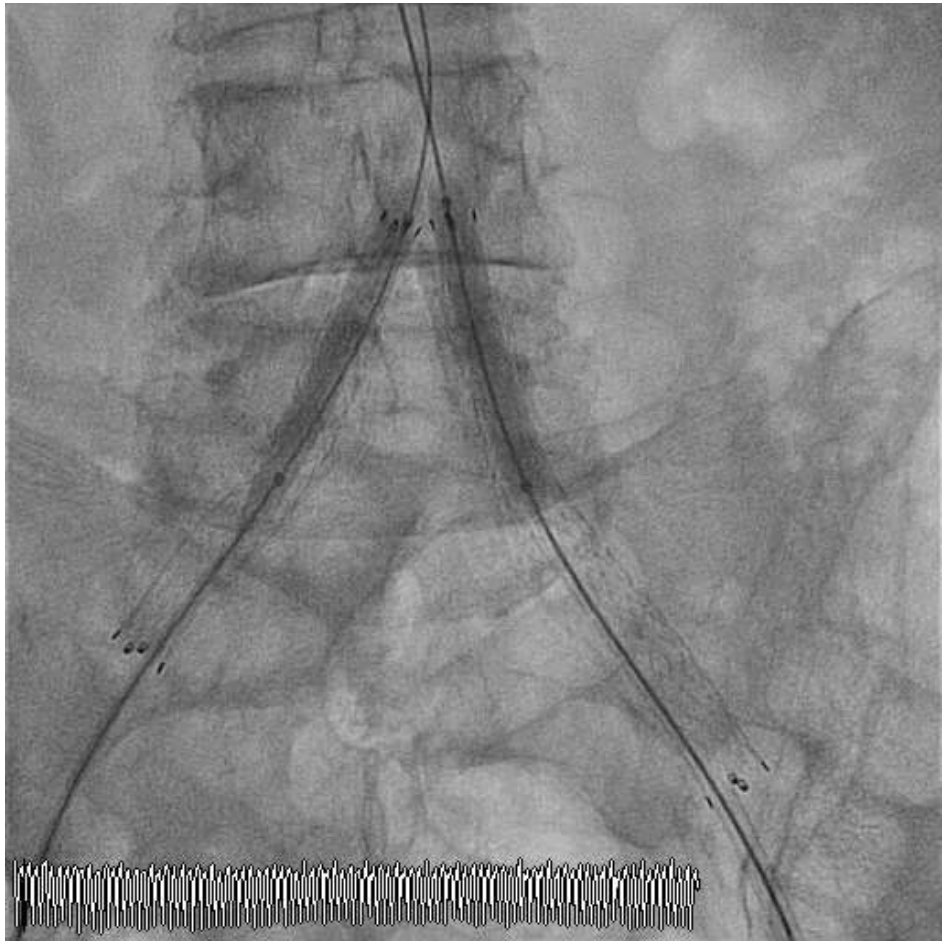


Stenting

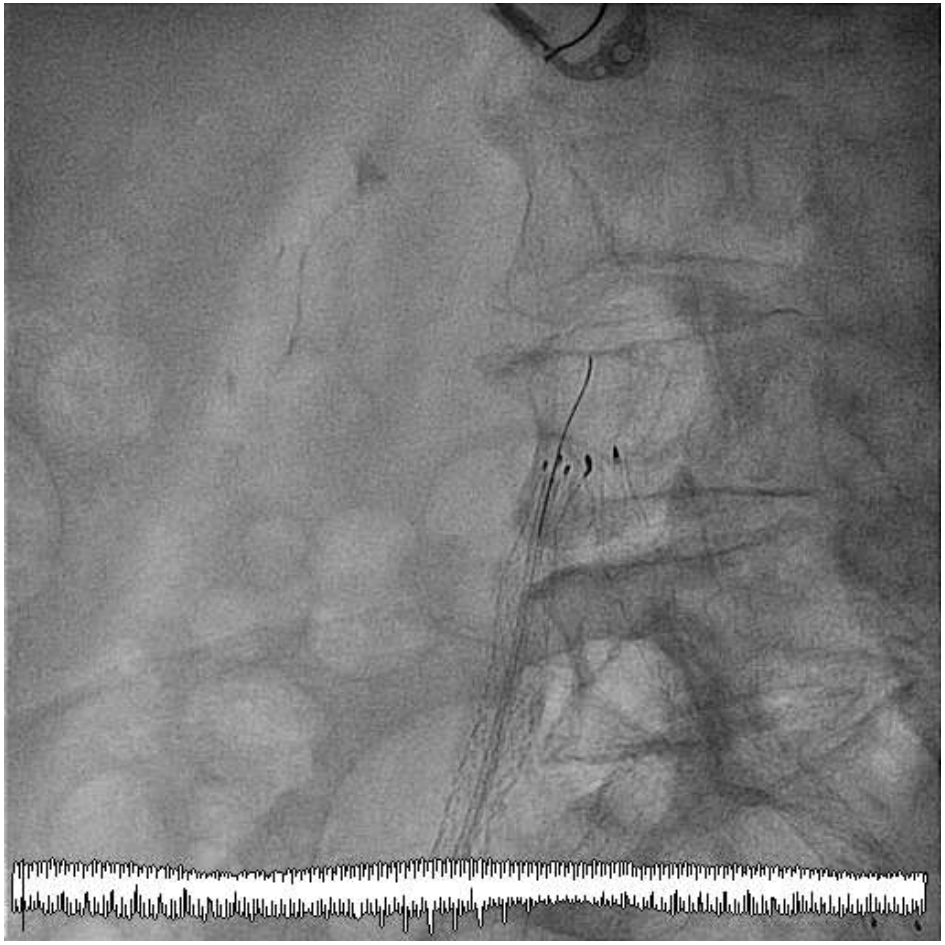


Small vessel size with moderate cacification

Post-dilatation



Final angiography



Predictors of Vascular Complication

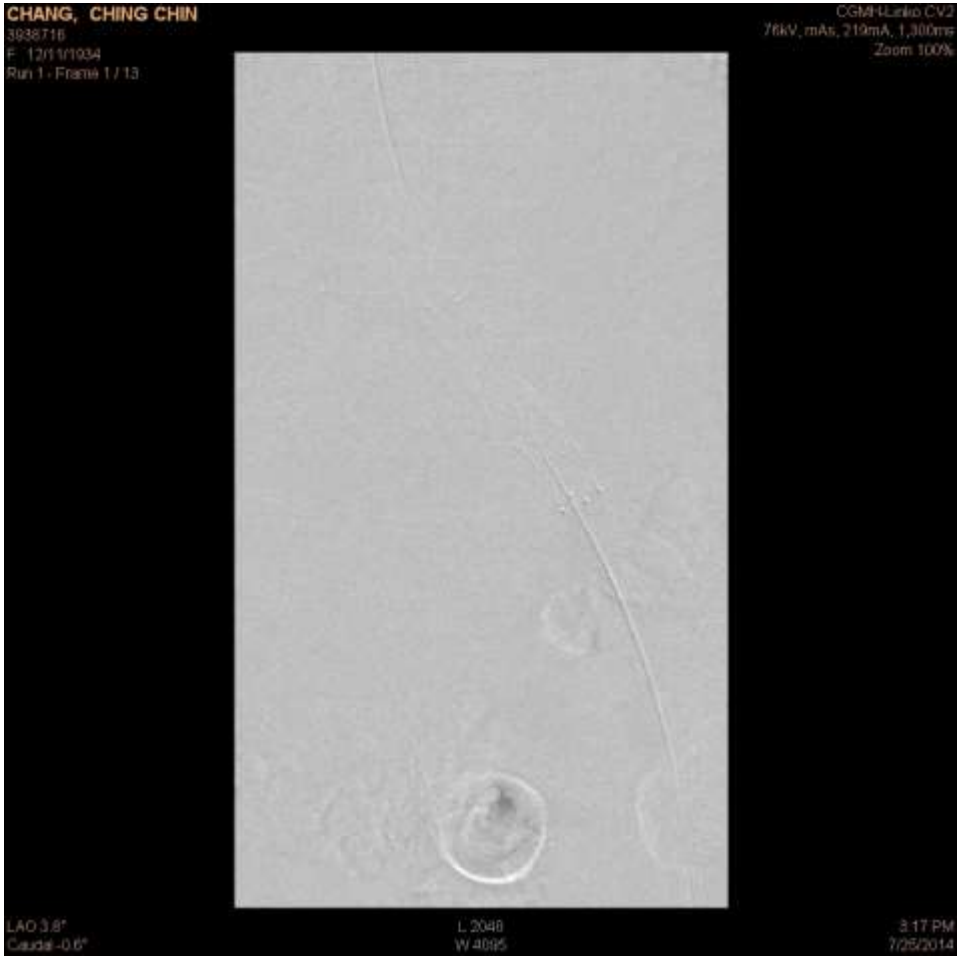
- High sheath/vessel size ratio is risky , but not really contra-inidicated
- Calcium load, and calcium distribution

Angioplasty Strategy before TAVI

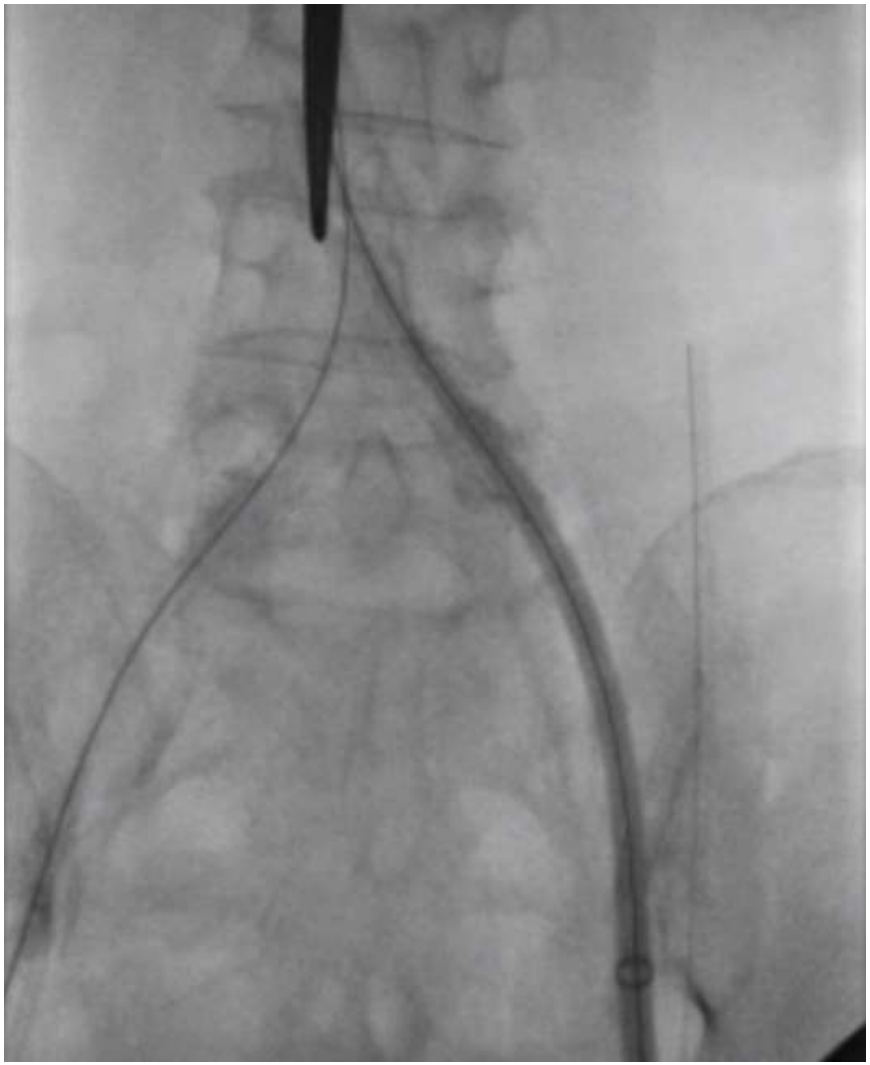
- Should we put the stent in diseased iliofemoral artery before 18F sheath insertion ?
- Answer: **NO !!**

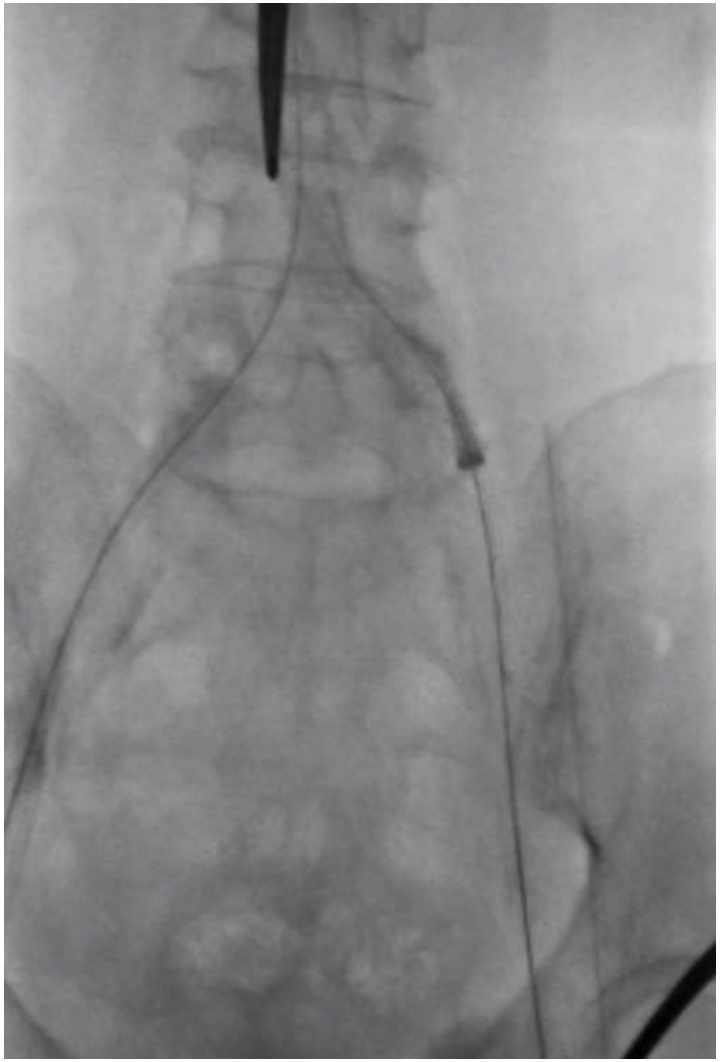
Iliofemoral Stenting before TAVI ??

After stenting & post-dilatation



18 F Cook sheath failed to pass, even sheathless



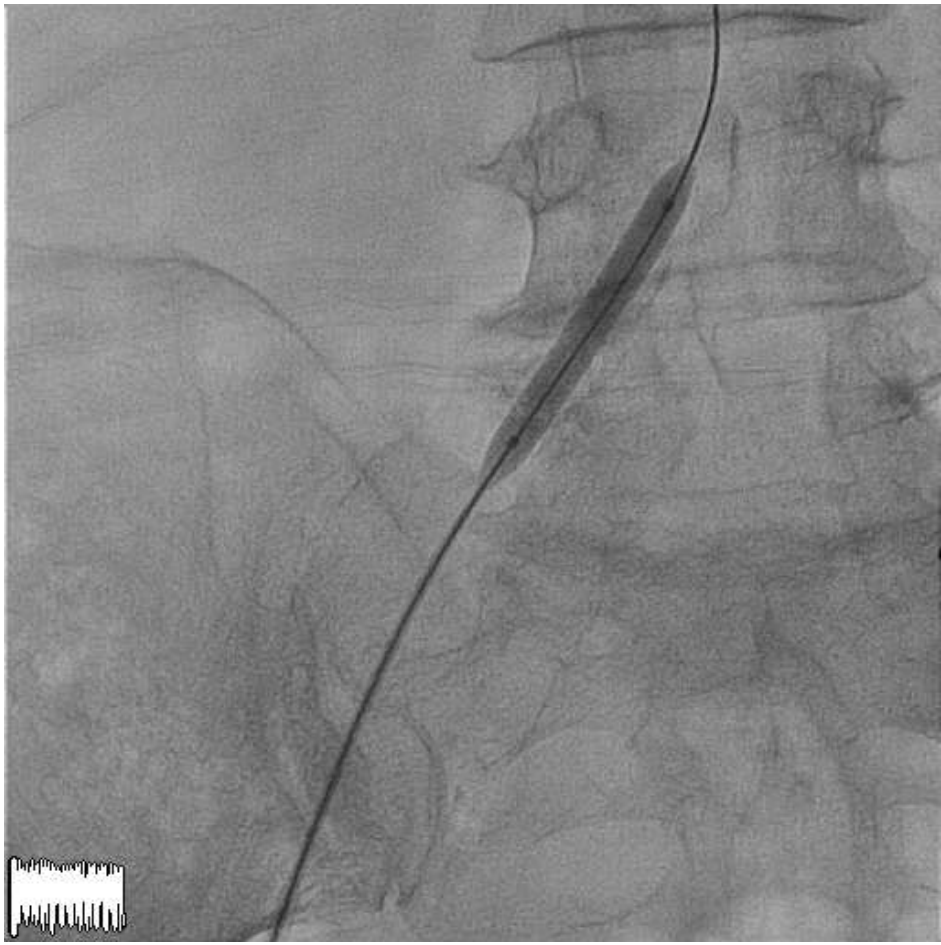


Iliofemoral Stenting before TAVI ?→ No!!

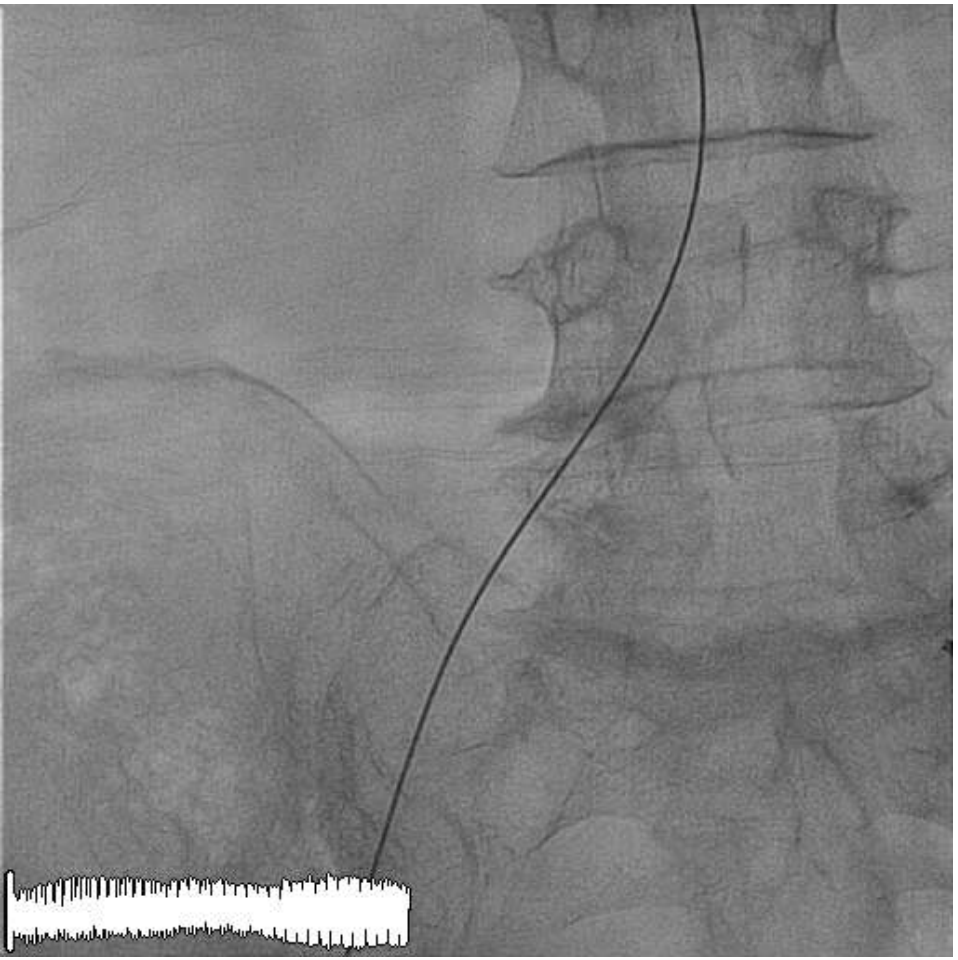
Femoral artery extravasation

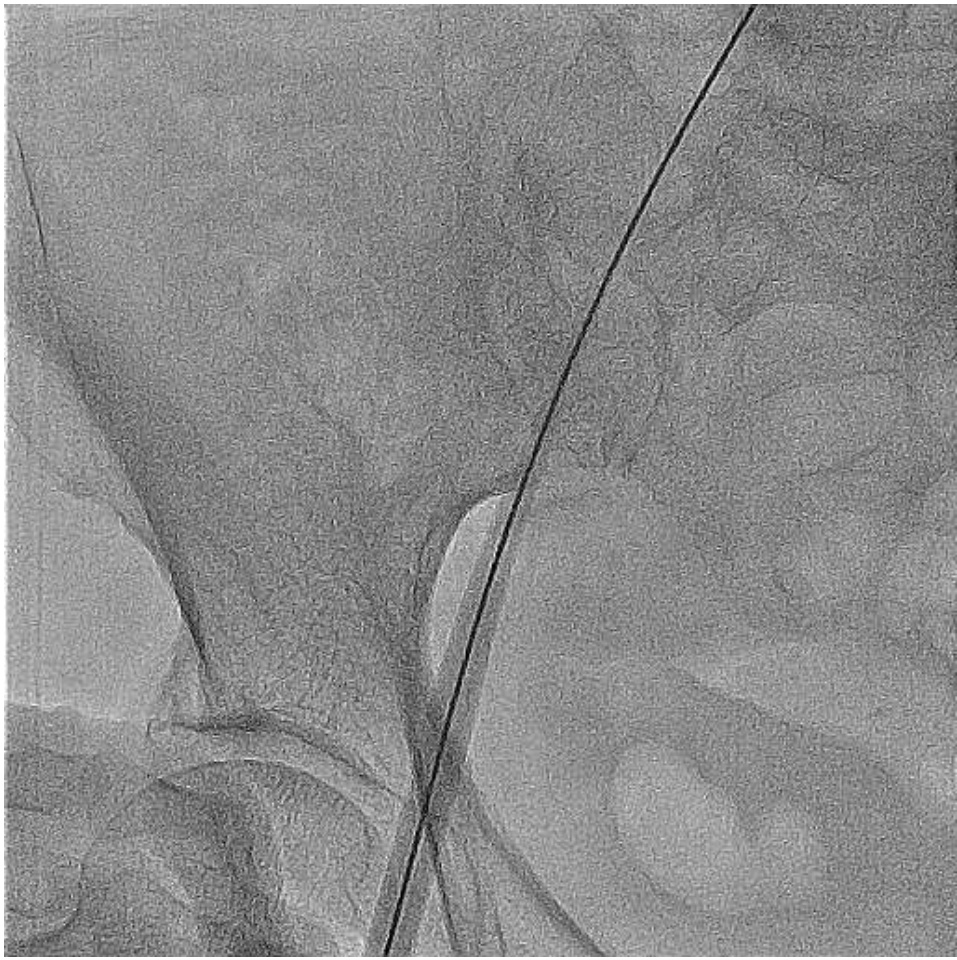
Sealed by stent graft

Balloon Angioplasty only



Balloon Angioplasty only





Balloon Angioplasty only

Angioplasty Strategy before TAVI

- Balloon angioplasty only before sheath insertion
- Provisional stenting after TAVI

New method: Iliac Artery Endoconduits

"Cracking and Paving": A Novel Technique to Deliver a Thoracic Endograft Despite Ilio-Femoral Occlusive Disease

Jacques Kpodonu, M.D.,* Julio A. Rodriguez-Lopez, M.D.,† Venkatesh G. Ramaiah, M.D.,† and Edward B. Diethrich, M.D.†

**Division of Cardiac Surgery, North Western Memorial Hospital, Chicago, I and †the Department of Cardiovascular and Endovascular Surgery, Arizona and Arizona Heart Institute, Phoenix, Arizona*

ABSTR
with
surgi
const
sistin
of an
tient
endol
Card

Morbidity and mortality after use of iliac conduits for endovascular aortic aneurysm repair

Prateek K. Gupta, MD,[a] Abhishek Sundaram, MD,[b] and **K. Craig Kent, MD,[c]** *Memphis, Tenn; Omaha, Neb; and Madison, Wisc*

iliac conduit for endovascular aortic aneurysm repair (EVAR) is generally felt to , published literature is scarce. Our objective was to assess 30-day outcomes after it using a multi-institutional database.
e EVAR (n = 14,339) for abdominal aortic aneurysm were identified from the Surgical Quality Improvement Program 2005 to 2011 database. Univariable and were performed.
n 231 patients (1.6%), and the remainder had femoral exposure or percutaneous ts with iliac conduits in contrast to 17% of those without iliac conduits. Patients a lower body mass index. Univariable analysis showed patients with open iliac perative pneumonia (3.0% vs 1.1%), ventilator dependence (4.8% vs 1.0%), renal myocardial infarction (5.2% vs 1.1%), return to the operating room (9.1% vs nd death (3.0% vs 0.9%). On multivariable analysis, the use of open iliac conduits y mortality (odds ratio, 2.7; 95% confidence interval, 1.2-6.0) and 30-day major nce interval, 1.6-3.3).
nduits for EVAR are more likely to be female and have higher postoperative th complex iliac artery disease, conduits are a viable alternative after EVAR to be These data do suggest the need for lower-profile grafts and other alternative rtery disease. (J Vasc Surg 2015;62:22-6.)

ClinicalKey®

BOOK CHAPTER

Iliac Artery Conduits for Endovascular Access

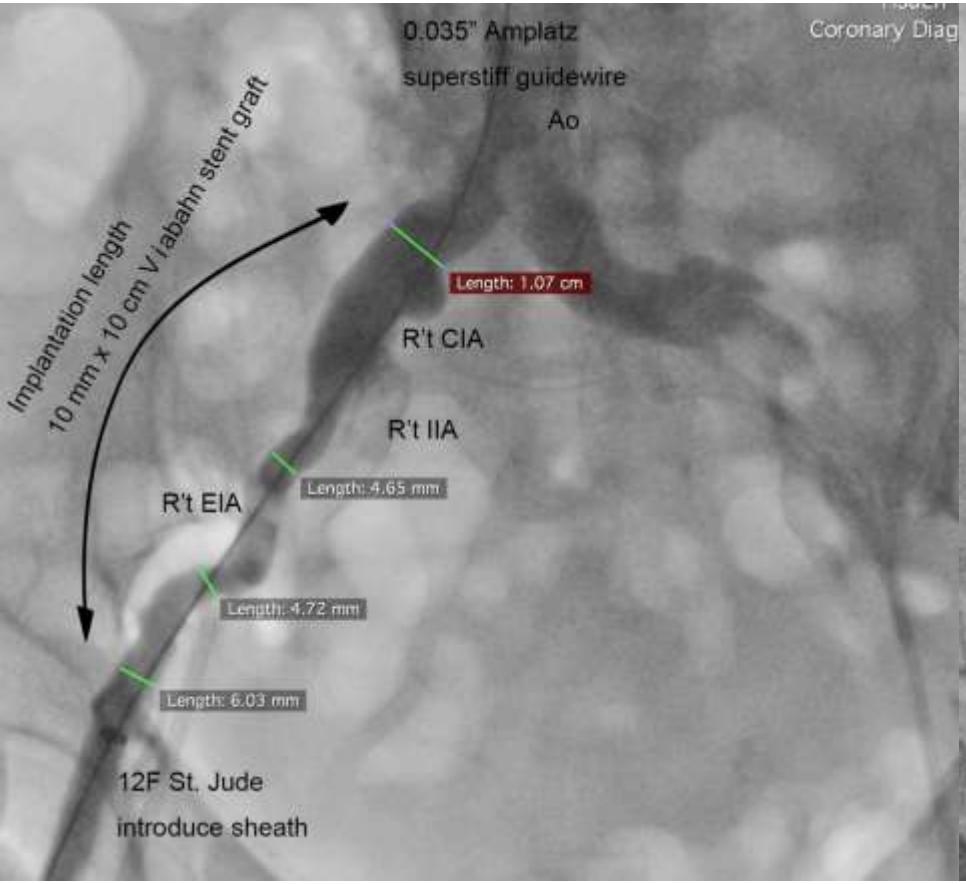
Brian G. Peterson and Jon S. Matsumura

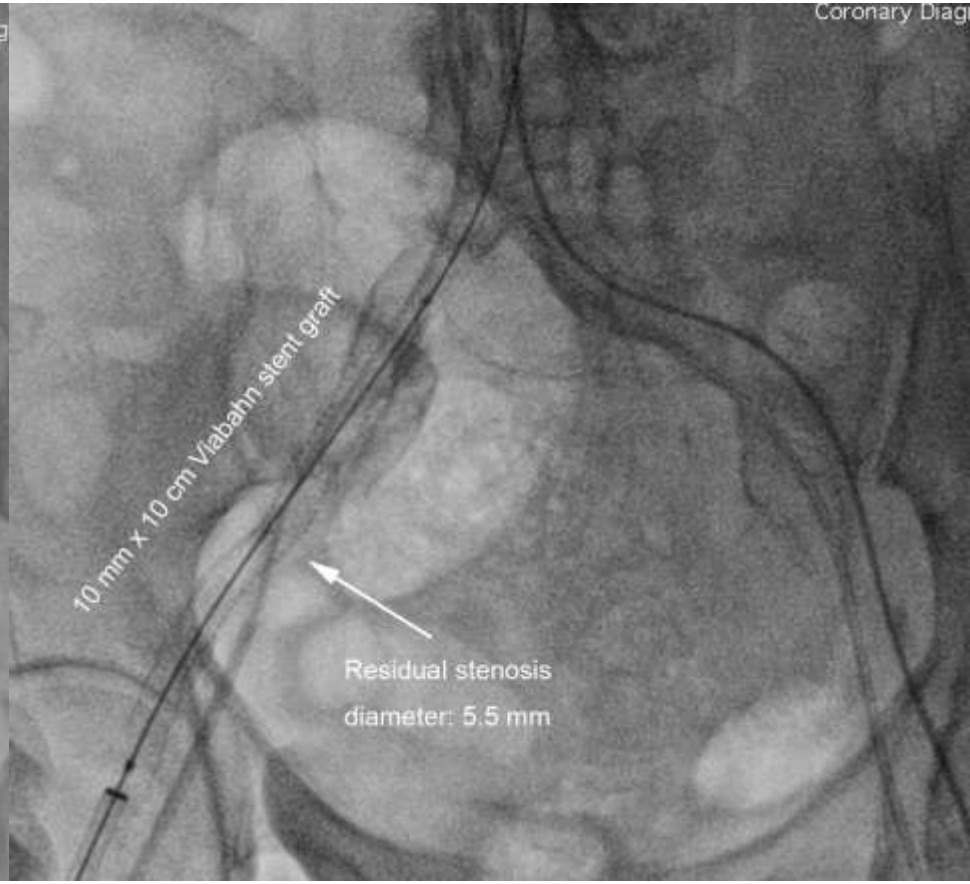
Current Therapy in Vascular and Endovascular Surgery, 258-260

Iliac artery occlusive disease or small-caliber vessels often make endovascular abdominal aortic aneurysm repair (EVAR) and thoracic endovascular aortic repair (TEVAR) from remote femoral access difficult. In fact, limitation in access was one of the most common reasons for conversion to open aneurysm repair in the European Collaborators on Stent-graft Techniques for Aortic Aneurysm Repair (EUROSTAR) registry of patients undergoing attempted EVAR, and access-related complications were seen in 13% of the registry patients. Likewise, iliac conduits were used in 9% to 21% of TEVAR patients in industry-sponsored trials owing to access limitations. Various adjunctive techniques have been developed to overcome access-related complications.

New method: Iliac Artery Endoconduits

Viabahn stent graft

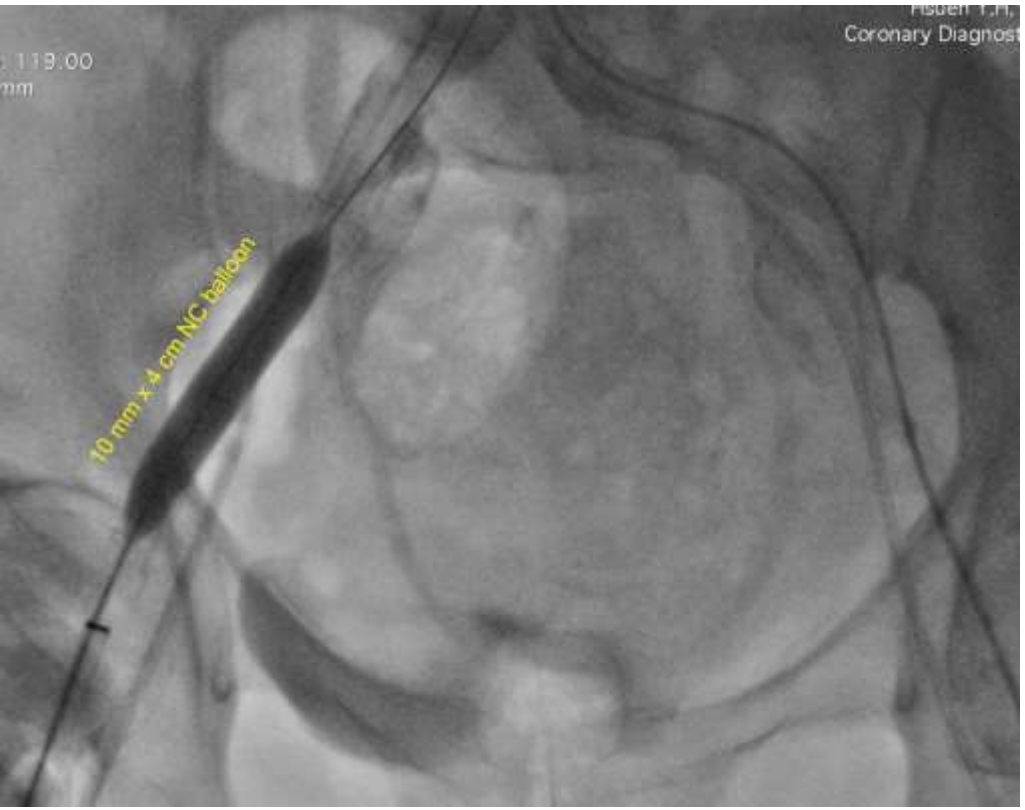




Provided by Cheng-Hsin General Hospital

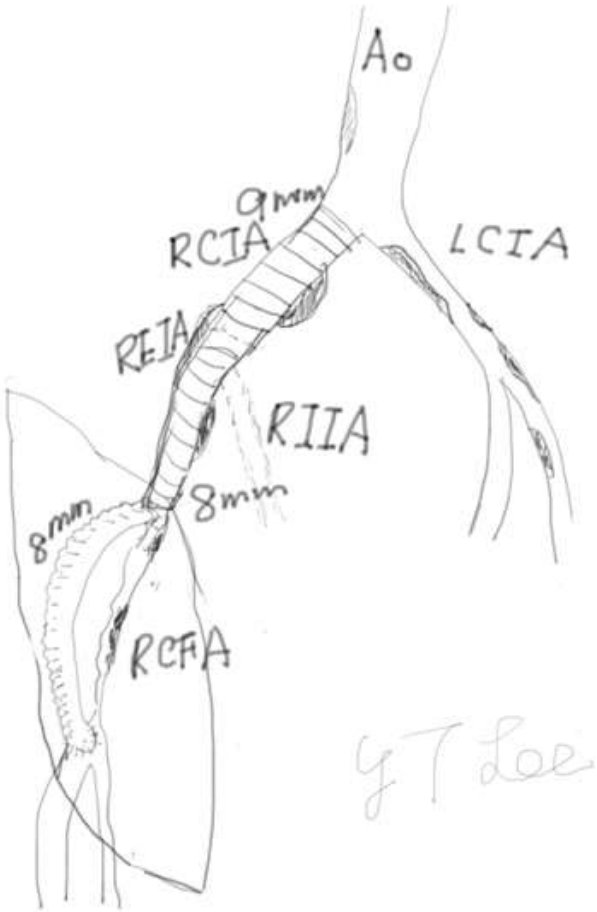
New method: Iliac Artery Endoconduits

High pressure & over-size dilatation

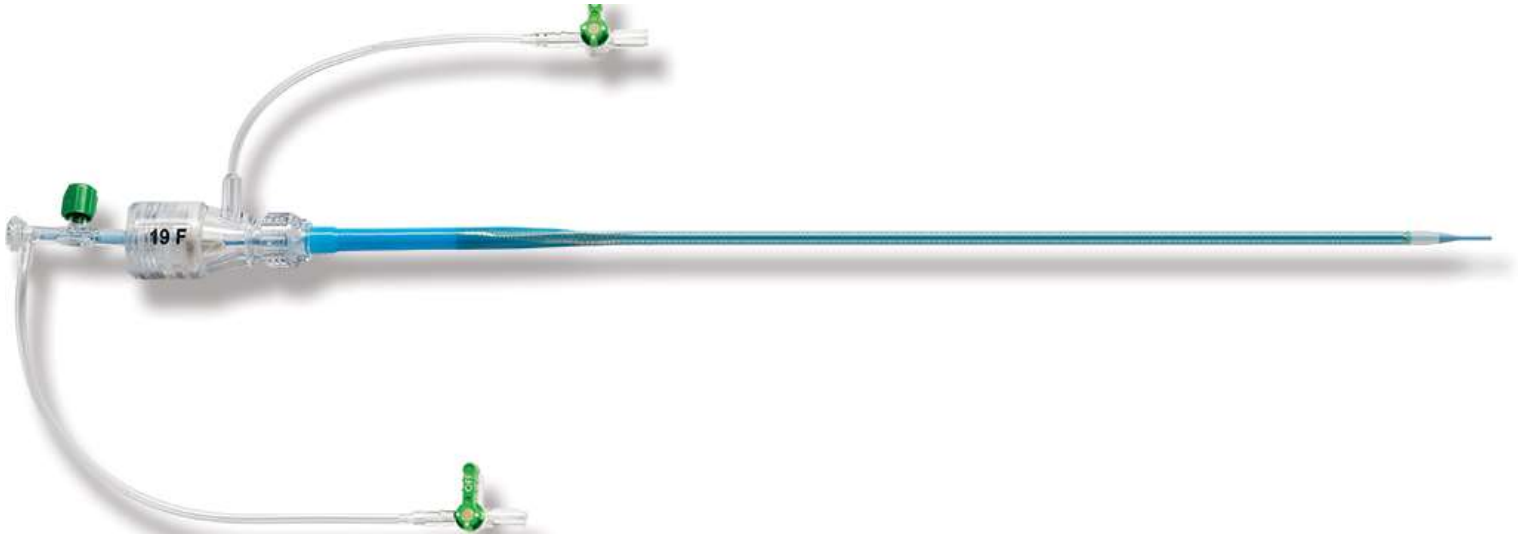


Provided by Cheng-Hsin General Hospital

New method: Iliac Artery Endoconduits



SOLOPATH® Balloon Expandable TransFemoral System

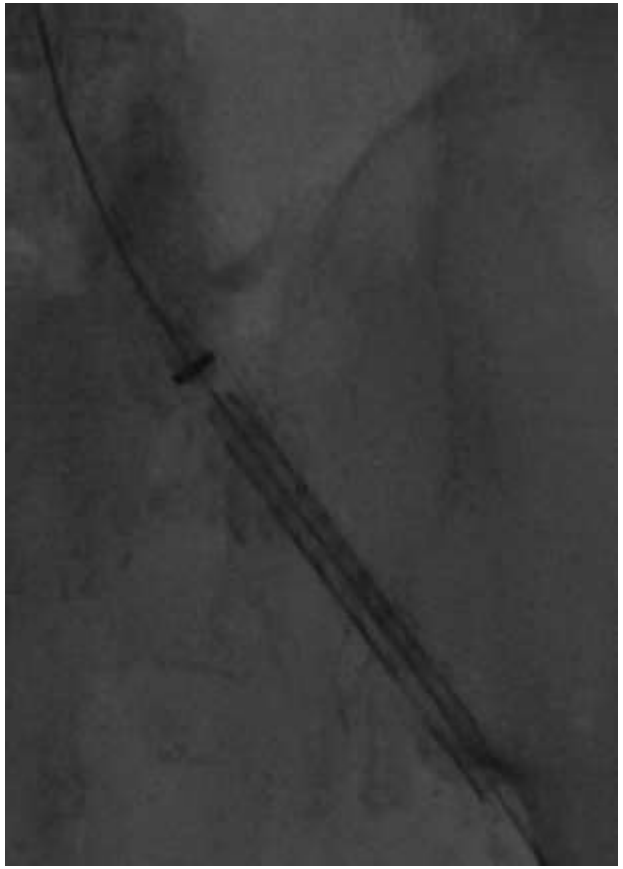


- **Balloon Expandable TransFemoral System is an expandable femoral access sheath designed to insert at a low profile and expand to a predictable operating profile.**

SOLOPATH® Balloon Expandable TransFemoral System

Solopath Inflated

Valve pass through sheath



Final angio

Conclusion

- Take care of predictors of major vascular complication
- Calium load, and calcium distribtion
- Always balloon angioplasty only before sheath insertion
- Try endoconduits
- Try new sheath