i-MEET

NEXT GENERATION

Multidisciplinary European Endovascular Therapy

CHALLENGING ILIAC ACCESSES AND THROMBOSIS PREVENTION

ARMANDO MANSILHA MD, PhD, FEBVS

UNIVERSITY HOSPITAL - PORTO

Disclosure of Interest

Speaker name: ARMANDO MANSILHA

- I have the following potential conflicts of interest to report:
- Consulting
- Employment in industry
- Shareholder in a healthcare company
- Owner of a healthcare company
- Other(s)

- **I do not have any potential conflict of interest**

Iliac endograft thrombosis

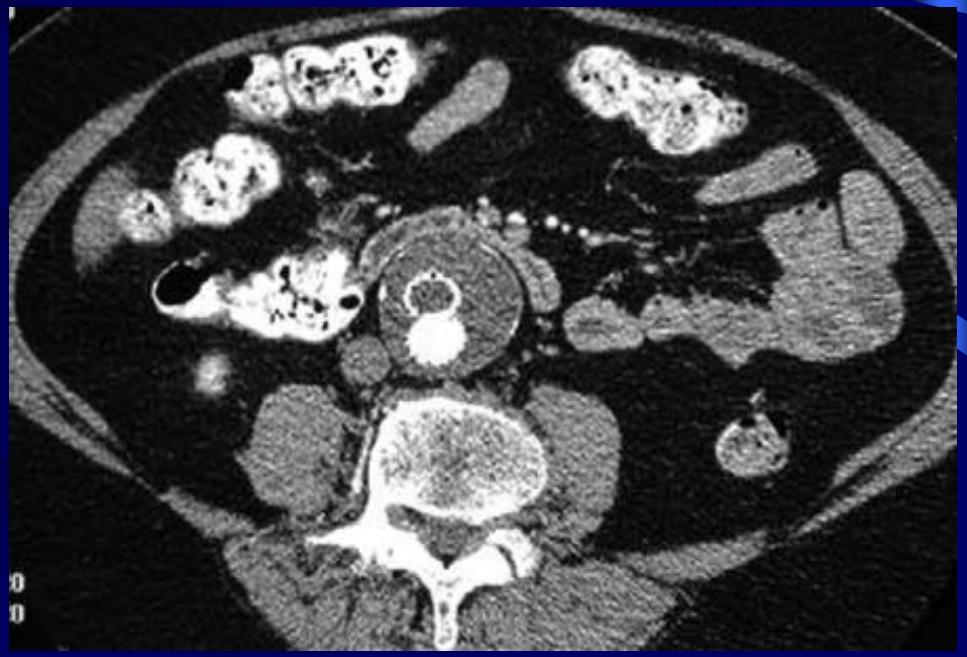
- Incidence: 0 – 7.2% of EVAR cases[1]
- Occlusion-related mortality: 0-3%[1]
- >50% in the first 2m; >90% in the first year[1]
- Risk factors[2]:
  - Female gender
  - Reduced size of the iliac vessel
  - Extension to the external iliac artery
  - Arterial dissection
  - Compromised run-off

1-Van Zeggeren et al; J Vasc Surg 2013, 57:1246-54

2- Oshin et al.; J Endovasc Ther 2010, 17:108-14

Iliac endograft thrombosis

- *Technical error* present in the majority of the cases
  - 73% of early occlusions (≤ 60days PO)
  - 60% of all occlusions



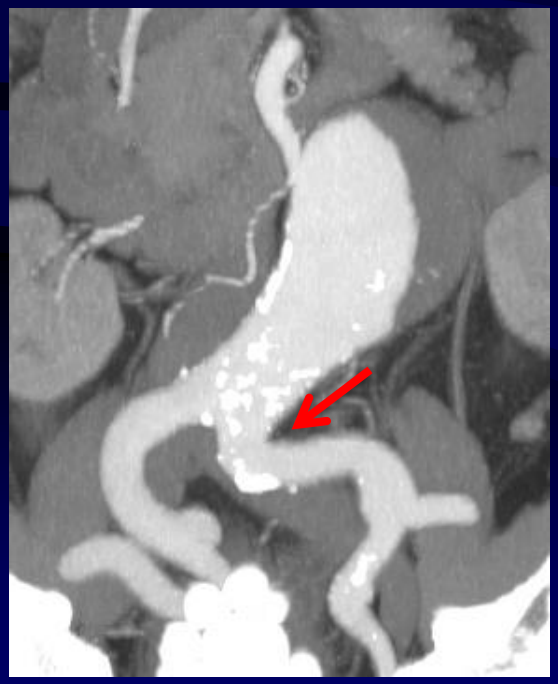
Van Zeggeren et al; J Vasc Surg 2013, 57:1246-5

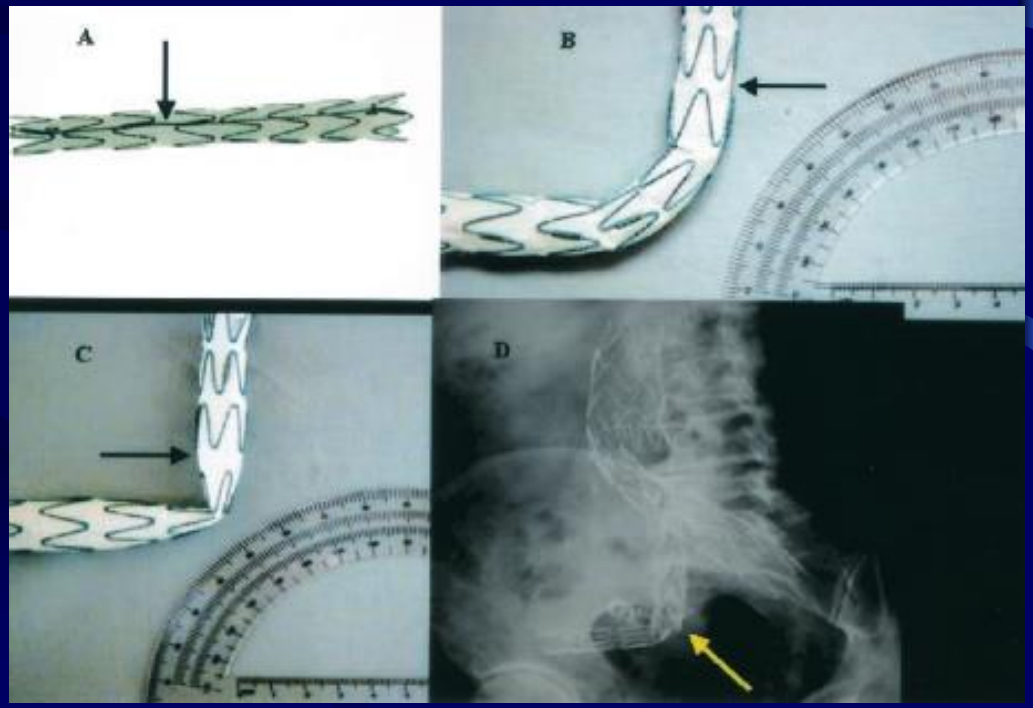
Iliac endograft thrombosis

Technical error

- Angulation, kinking or stenosis of the iliac limbs
  - Narrow and/or calcified aortic bifurcation
  - Difficult iliac anatomy
  - Segments of graft fabric without stent

Consider performing completion angiograms with different angulations



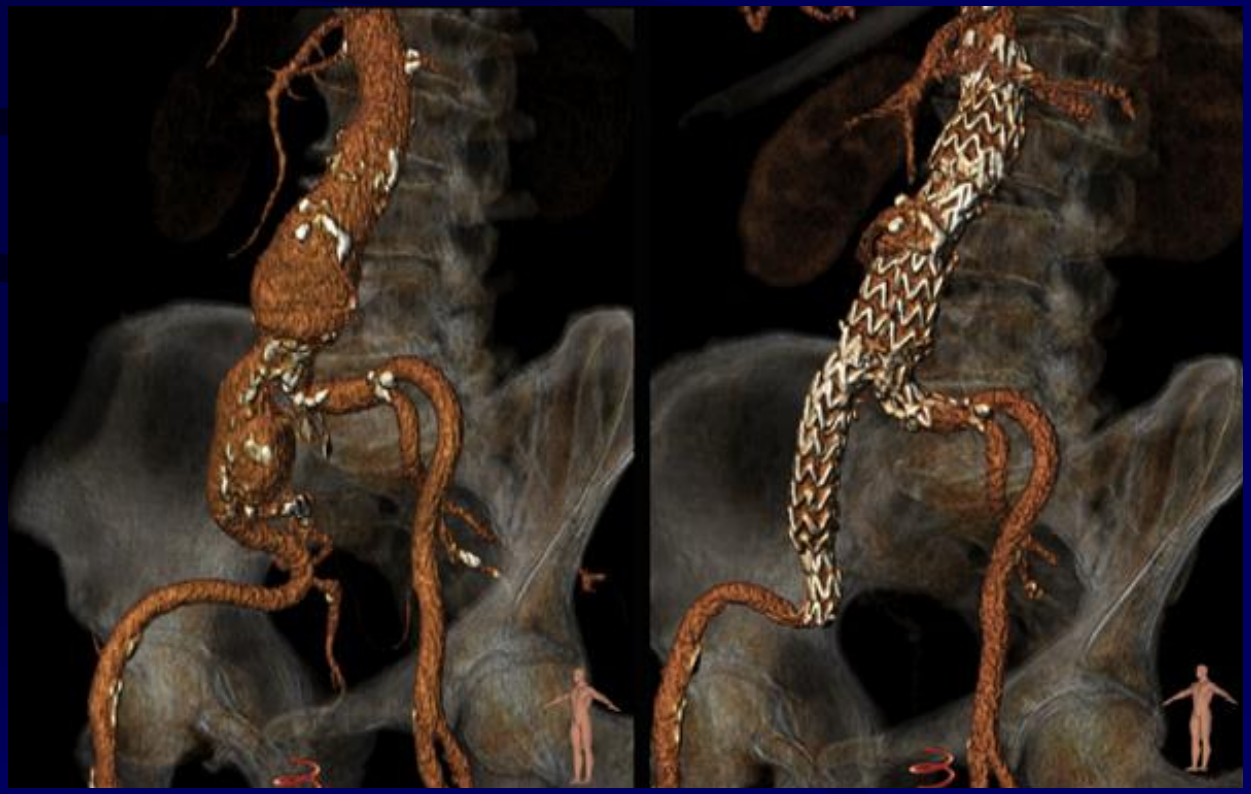


Adapted from Carroccio et al; J Vasc Surg 2002; 36:679-84

Iliac endograft thrombosis

Technical error

- Extreme oversizing
- Distal landing zone in a kink of the artery



Adapted from Van Zeggeren et al; J Vasc Surg 2013, 57:1246-5

Iliac endograft thrombosis

Technical error

- Completion angiogram performed without removing the stiff guidewire

- Overlooked indication for PTA/Stenting
  - Within the endograft
  - In the external iliac artery

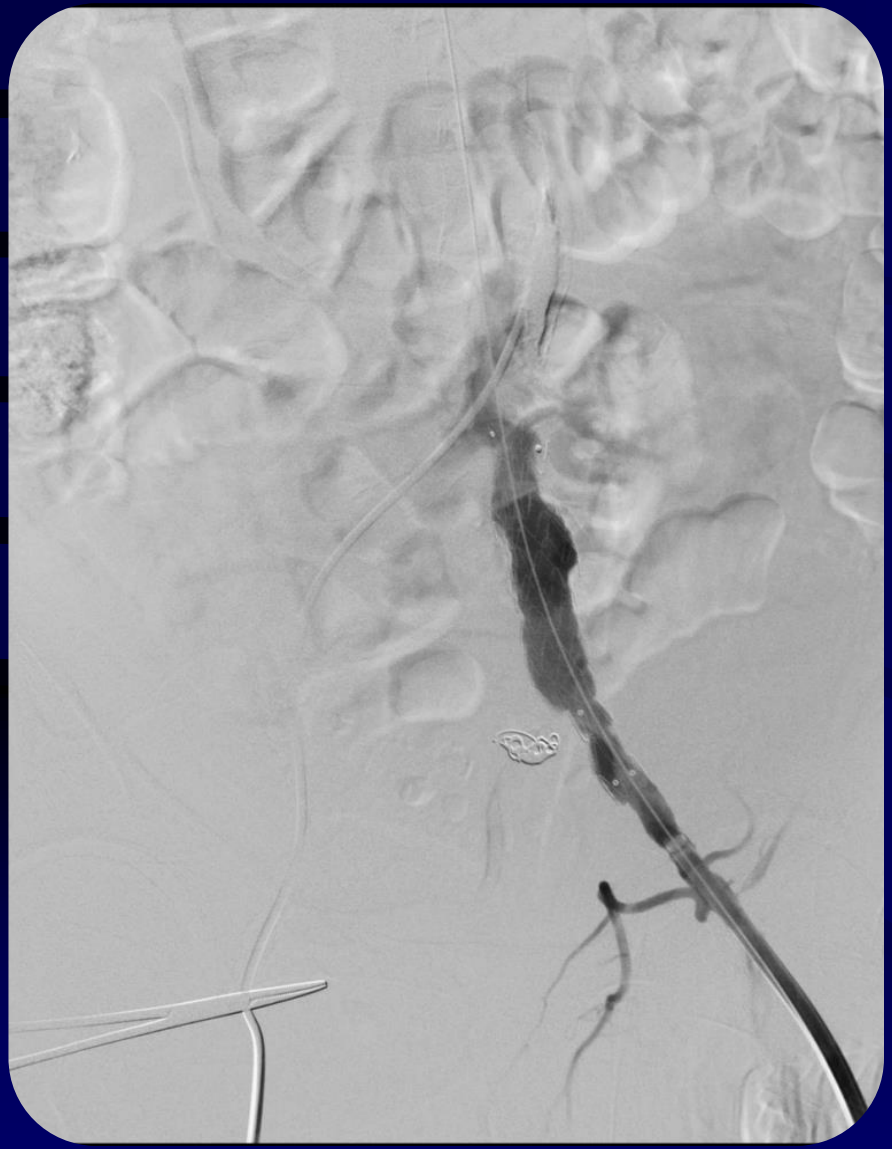
Iliac endograft thrombosis

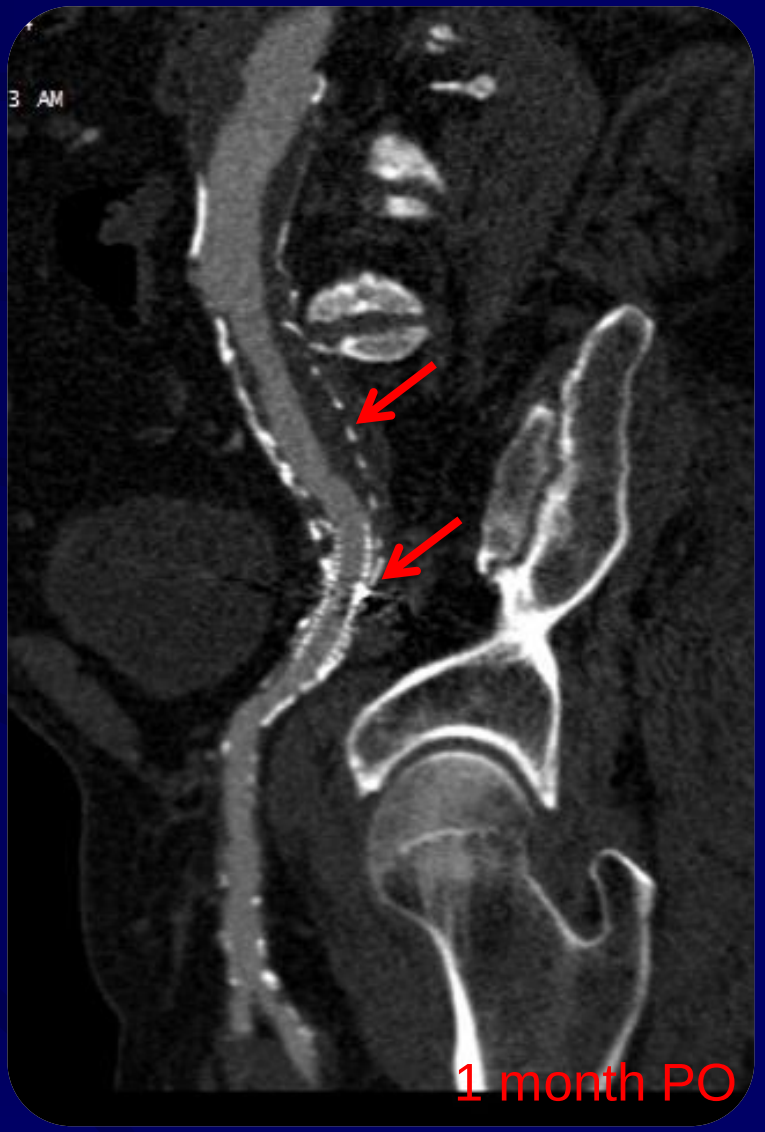
Clinical presentation:

- Acute limb ischemia (>50% of the cases)[1]
- Intermittent claudication
- Asymptomatic (diagnosis during regular follow-up)
  - Relevance of progressive thrombus formation
    - May increase iliac limb occlusion
    - Consider
      - oral anticoagulation
      - endovascular treatment

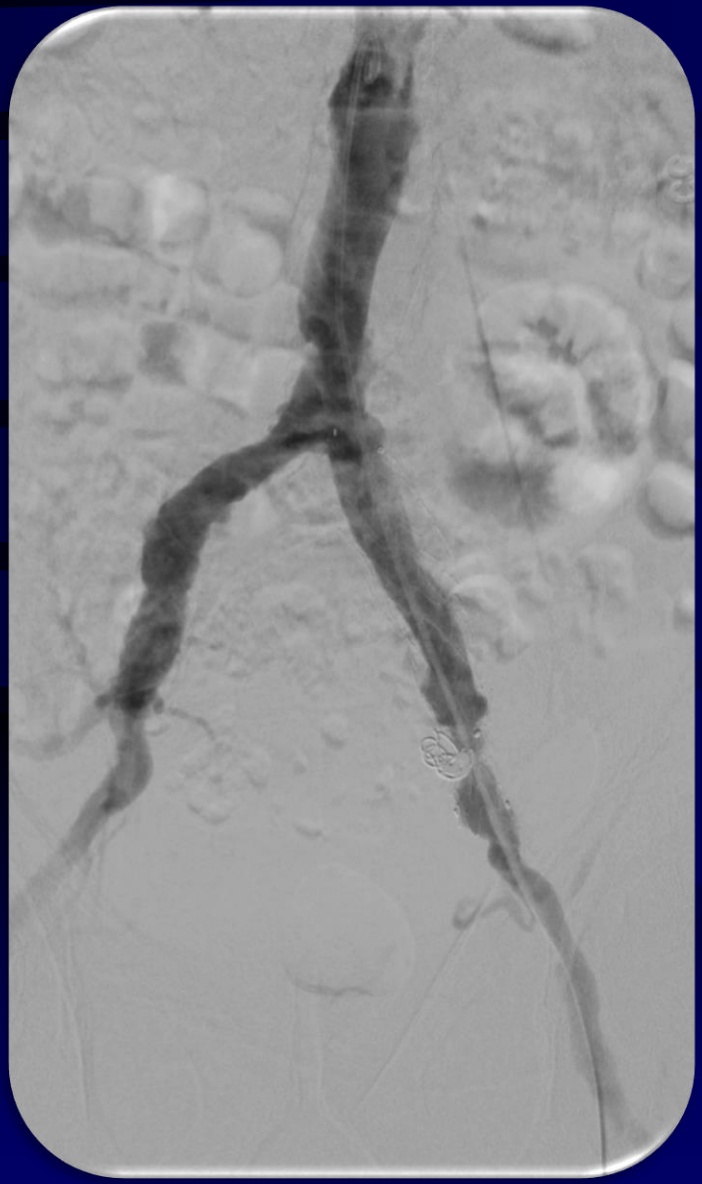
1- Van Zeggeren et al; J Vasc Surg 2013, 57:1246-54

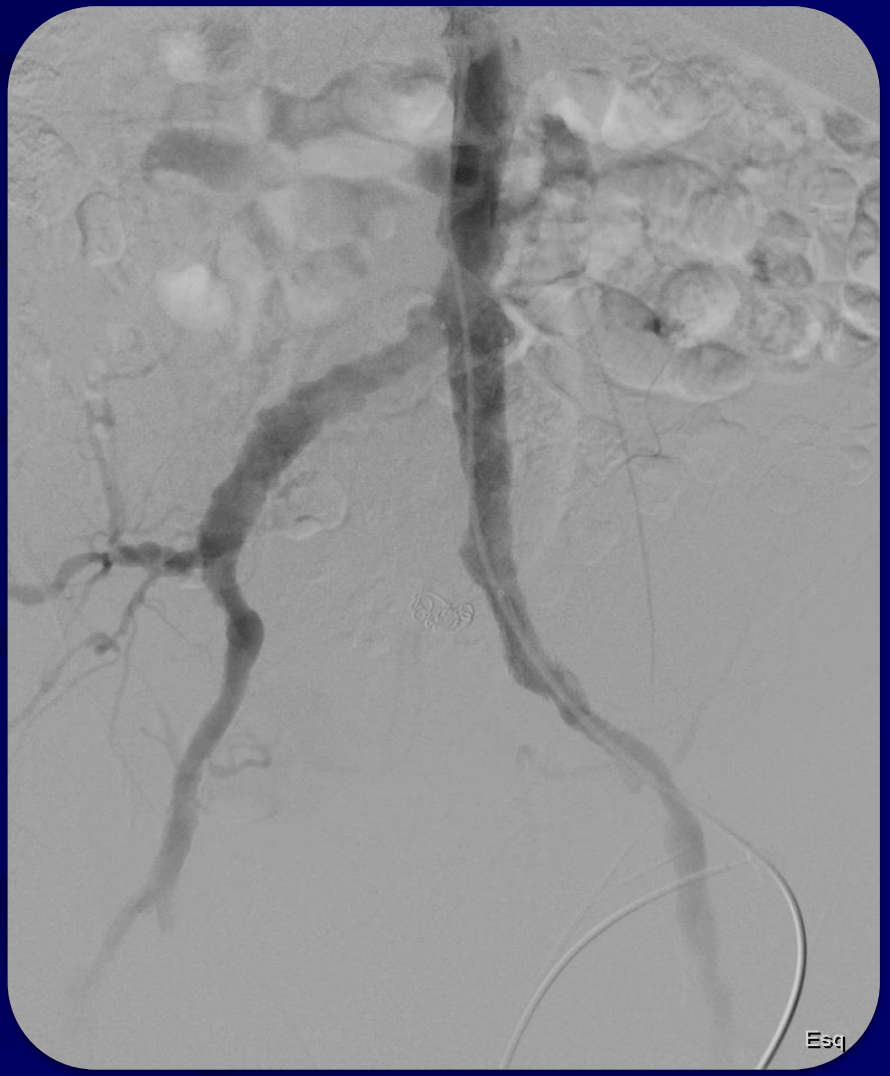
Iliac endograft thrombosis





Iliac endograft thrombosis



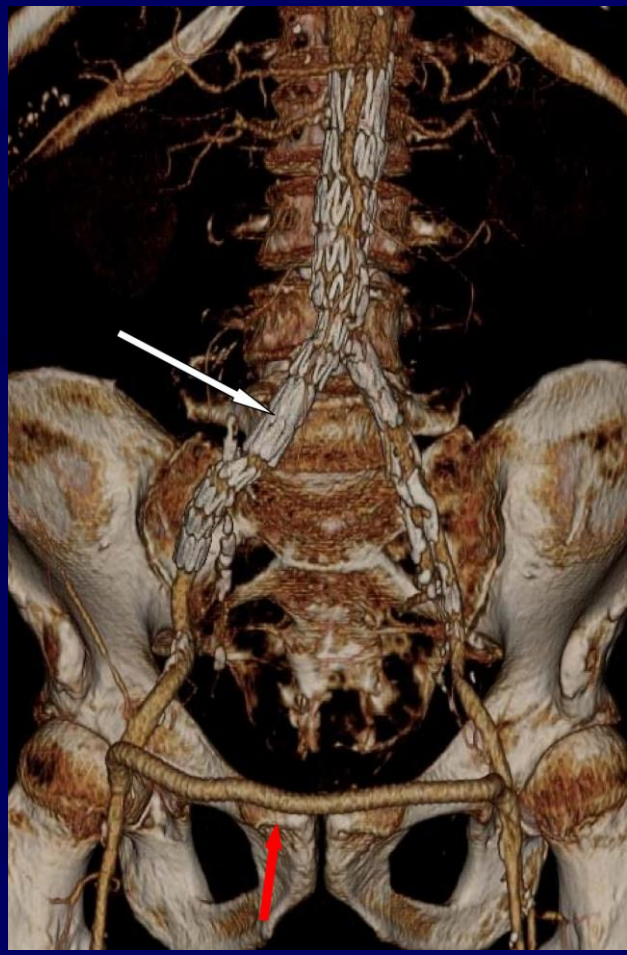


Iliac endograft thrombosis - Treatment

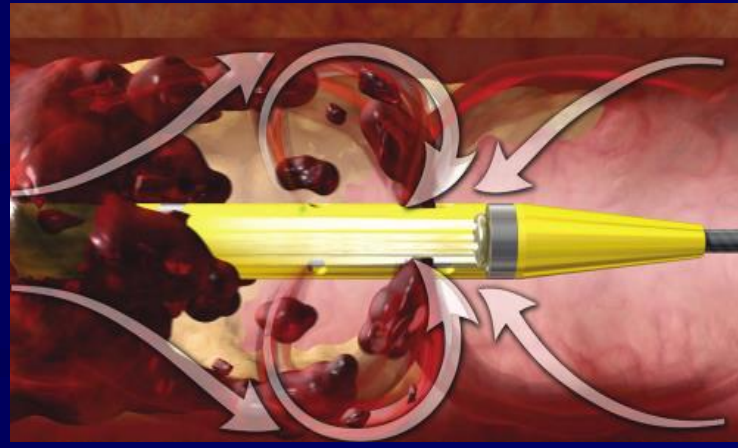
- Depends on the initial clinical presentation
  - Asymptomatic
    - Consider conservative treatment
  - Claudication
    - Elective procedure
  - Acute limb ischemia
    - Urgent procedure
- Etiology
- Early *versus* late

FemoroFemoral Bypass

- Most classic approach for iliac limb occlusion
- Downsides:
  - Insertion of a prosthetic device
  - extra-anatomic repair
  - remaining patent iliac limb serving as inflow to the femoral-femoral graft can also be compromised by stenosis or kinking.
    - Bilateral limb ischemia



- Open surgical treatment
  - Thrombectomy
    - May lead to graft migrration/disruption
      - Consider using Fogarty balloon with radiopaque contrast medium;
      - avert inflation of the balloon to any degree when it appears to be actively engaging the walls of the stent-graft limb;
    - May result in internal iliac artery embolization
    - Underlying occlusion cause may remain unclear
    - More efficient in recent thrombosis
  - Axilofemoral bypass (thrombosis of both limbs)

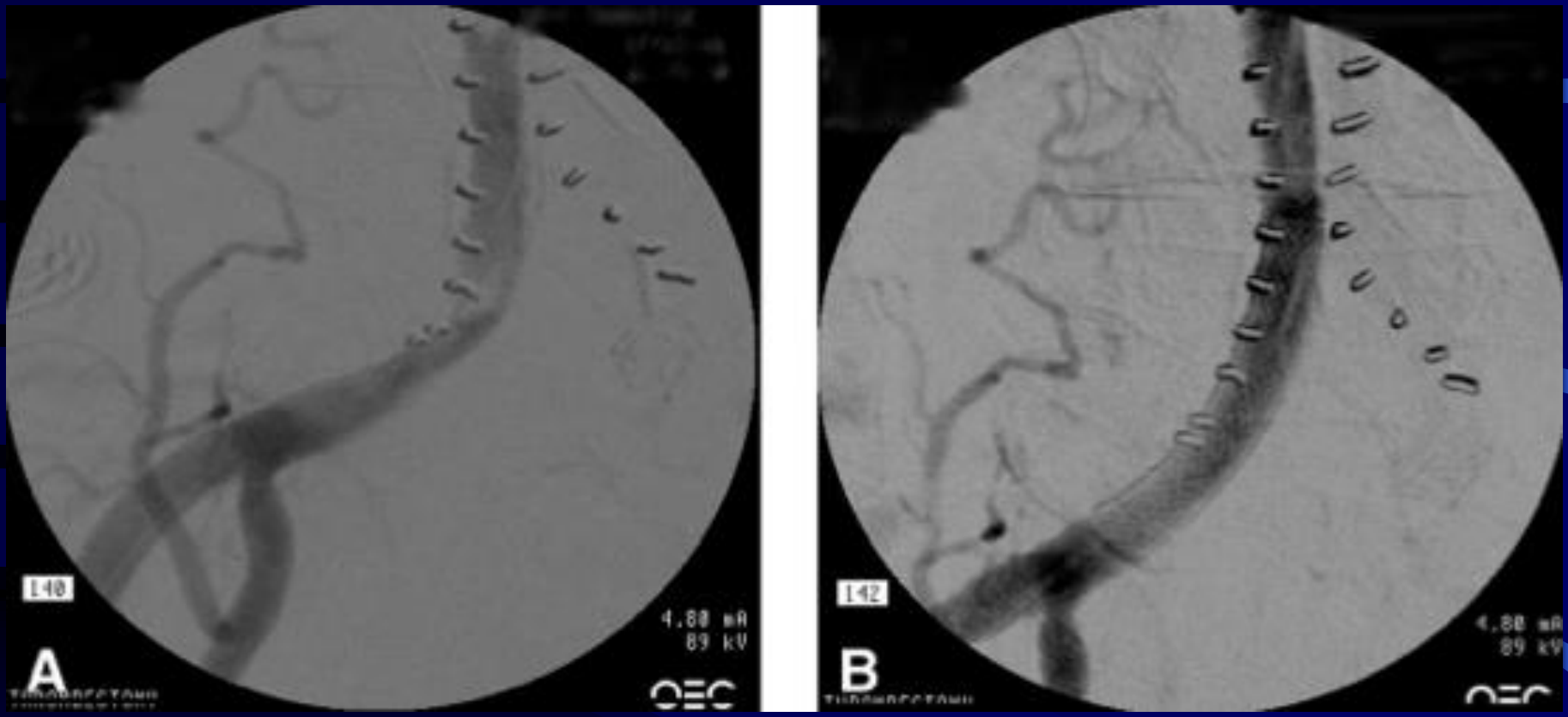


- Endovascular therapy
  - Catheter directed thrombolysis
  - Catheter-based thrombectomy
    - Angiojet
    - Other devices
  - Aspirative thrombectomy
  - **Add** PTA/Stenting

Still, the best therapy is...

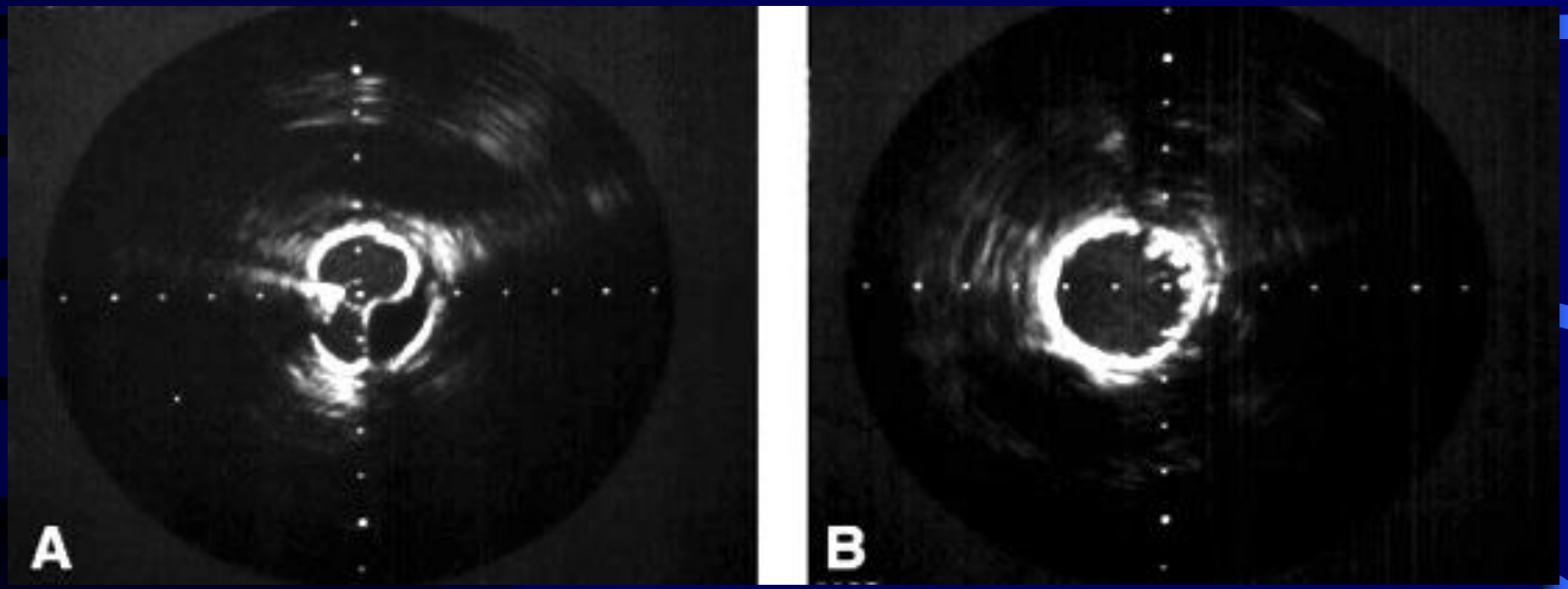
- **PREVENTION !**
  - High index of suspicion
  - Through completion evaluation (soft GW)
    - Multiplanar angiography
    - IVUS
    - Pullback pressure measurement
  - Liberal use of angioplasty ± stenting

    (avoid compromising a previously normal contralateral limb)



Adapted from Woody JD et al, Semin Vasc Surg 2004, 17:262-7

IVUS



Adapted from Woody JD et al, Semin Vasc Surg 2004, 17:262-7

Conclusions

- Iliac limb occlusion after EVAR is still an important complication even in newer-generation devices
- The risk of occlusion is highest within the first 2 months after EVAR, rarely occurring after 1 year
- Technical justification for occlusion can be found in 60% of patients.
  - Responsible for the vast majority of early events

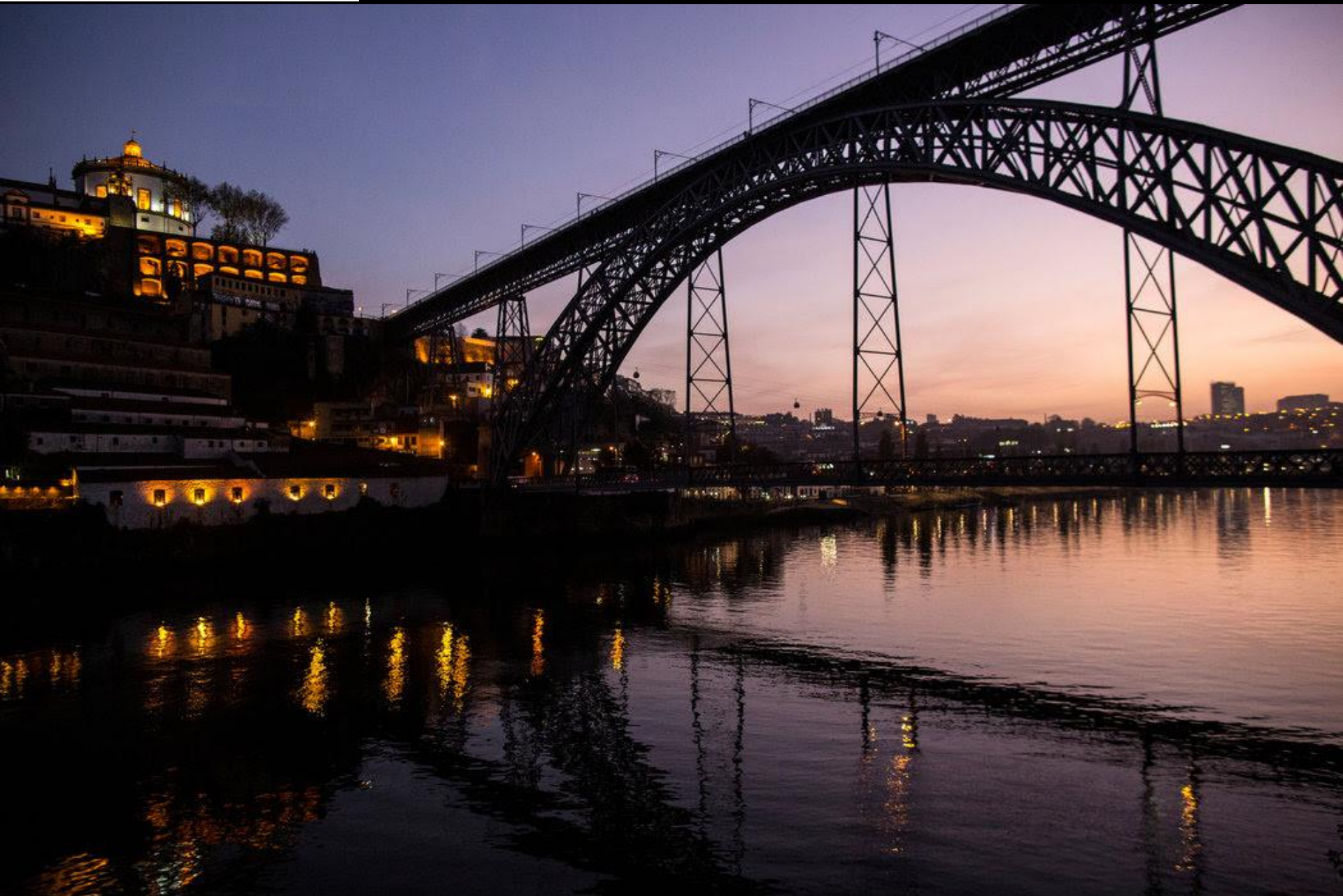
Conclusions

- Can be potentially prevented by adopting a more aggressive strategy for identification and treatment of intraoperative and early postoperative signs of kinking, stenosis, or irregularities

- Endovascular techniques have been overcoming more classic open surgery solutions

EUROPEAN VENOUS FORUM

PORTO 2017



i-MEET

NEXT GENERATION

Multidisciplinary European Endovascular Therapy

CHALLENGING ILIAC ACCESSES AND THROMBOSIS PREVENTION

ARMANDO MANSILHA MD, PhD, FEBVS

UNIVERSITY HOSPITAL - PORTO