Tips and clinical pearls for successful intervention with deep venous stenting

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Medtronic
Further, Together

DISCLOSURES

Speaker name: Gerry O'Sullivan, MD

I have the following potential conflicts of interest to report:

- ☒ Consulting
- ☐ Employment in industry
- ☐ Stockholder of a healthcare company
- ☐ Owner of a healthcare company
- ☐ Other(s)
- ☐ I do not have any potential conflict of interest

FACTORS FOR ANY SUCCESSFUL MEDICAL INTERVENTION

- Good history and physical
- Accurate imaging
- Getting you and the patient on the same wavelength- expectations/practical factors
- Getting the intra-op technical stuff right
- Post op attention to detail including imaging
- Meeting patient again to discuss the above

SPECIFIC FACTORS FOR SUCCESSFUL DEEP VENOUS INTERVENTION IN POST THROMBOTIC SITUATIONS

- History and physical- DVT, PE, spontaneous abortions, “strokes”
- Choose best inflow to your stent
- Full anticoagulation before, during, and after
- IVUS
- Aggressive ballooning of entire zone to be stented- pre and post stent
- Choose a good stent
- Establish “flow to flow”

PREDICTORS FOR VENOUS STENT THROMBOSIS

Early

- Inadequate anticoagulation
- Poor Inflow
- Technical errors

Late

- Poor Inflow
- Stent crushing
- “Patient factors”

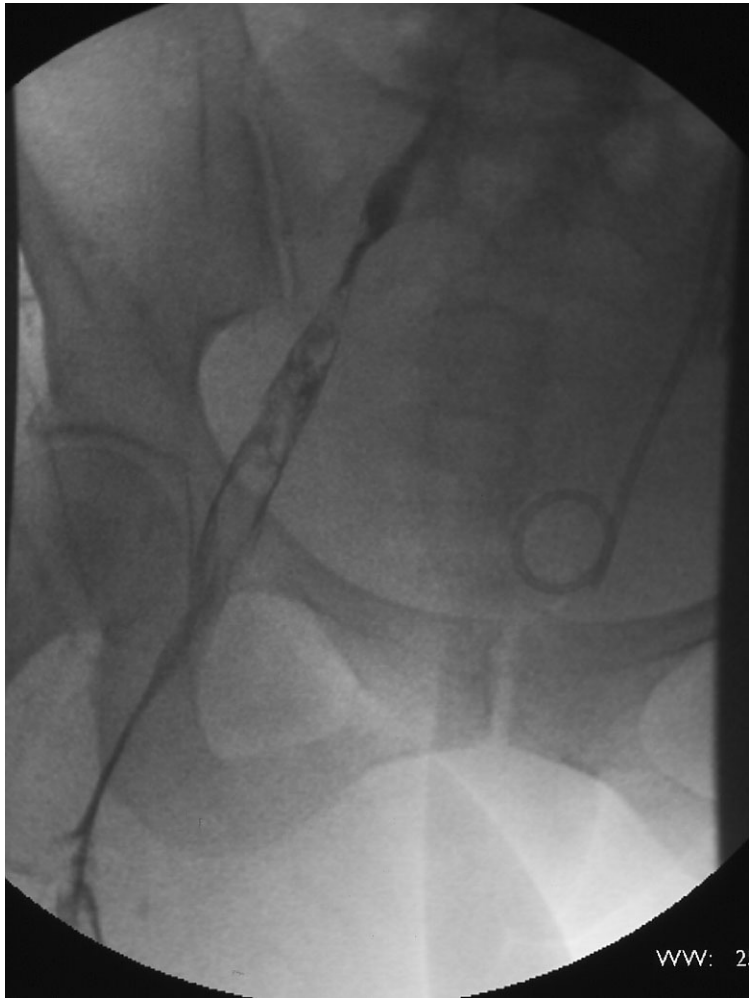
EARLY

- Inadequate anticoagulation
  - ACT measurement
  - Full AC before, during and after the procedure
- Poor Inflow
  - Estimate this- which is the dominant inflow vessel/use IVUS
  - IF INFLOW IS REALLY POOR DO NOT STENT
- Technical errors
  - Inadequate thrombus removal
  - Stents too short or too long
  - Poor quality fluoroscopy/lack of IVUS
  - Inadequate pre and post balloon dilatation
    - Due to patient pain
    - Due to operator applying arterial principles- 6/8 mm balloons ☹
    - Due to "expecting stents to do the work"
      - Balloons open occluded veins
      - Stents KEEP veins open
  - Not using pneumatic boots/stockings/CDUS day 1

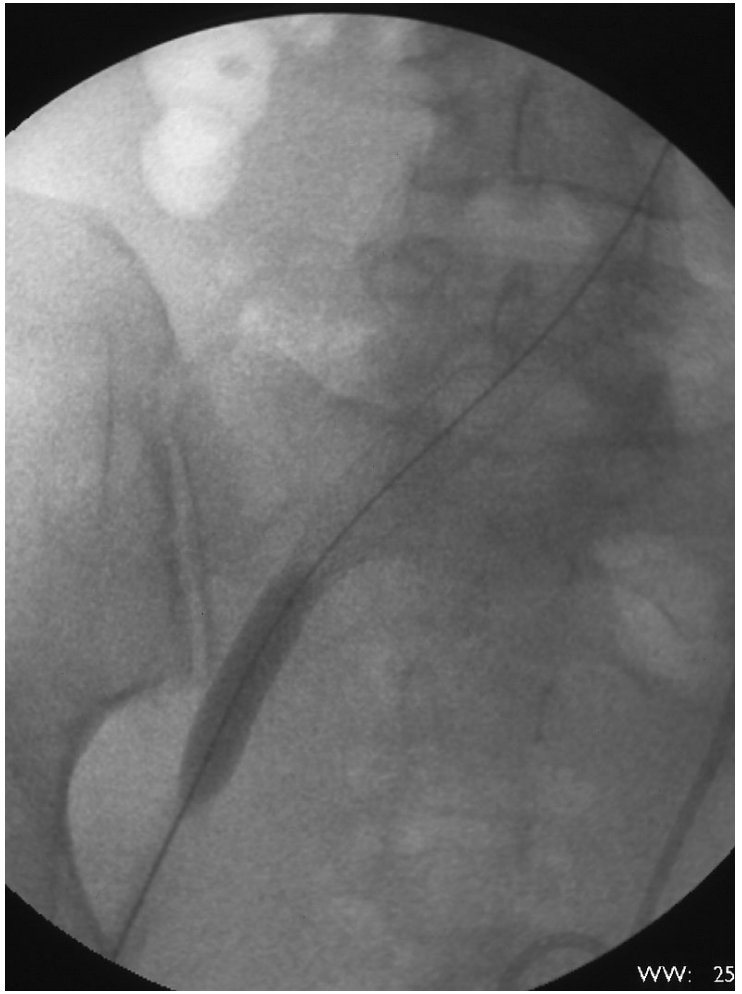
LATE

- Poor Inflow
  - Estimate this in advance
  - Choose the dominant inflow
  - Avoid patients with no or poorly defined inflow!!
- Stent crushing
  - Pubic ramus
  - Stent overlap position with respect to ramus/ligament
  - Tumour Progression
  - Stent choice
- “Patient factors”
  - Unable/unwilling to take regular anticoagulation

40+ YEAR-OLD CANCER PATIENT - DVT



Pre thrombectomy

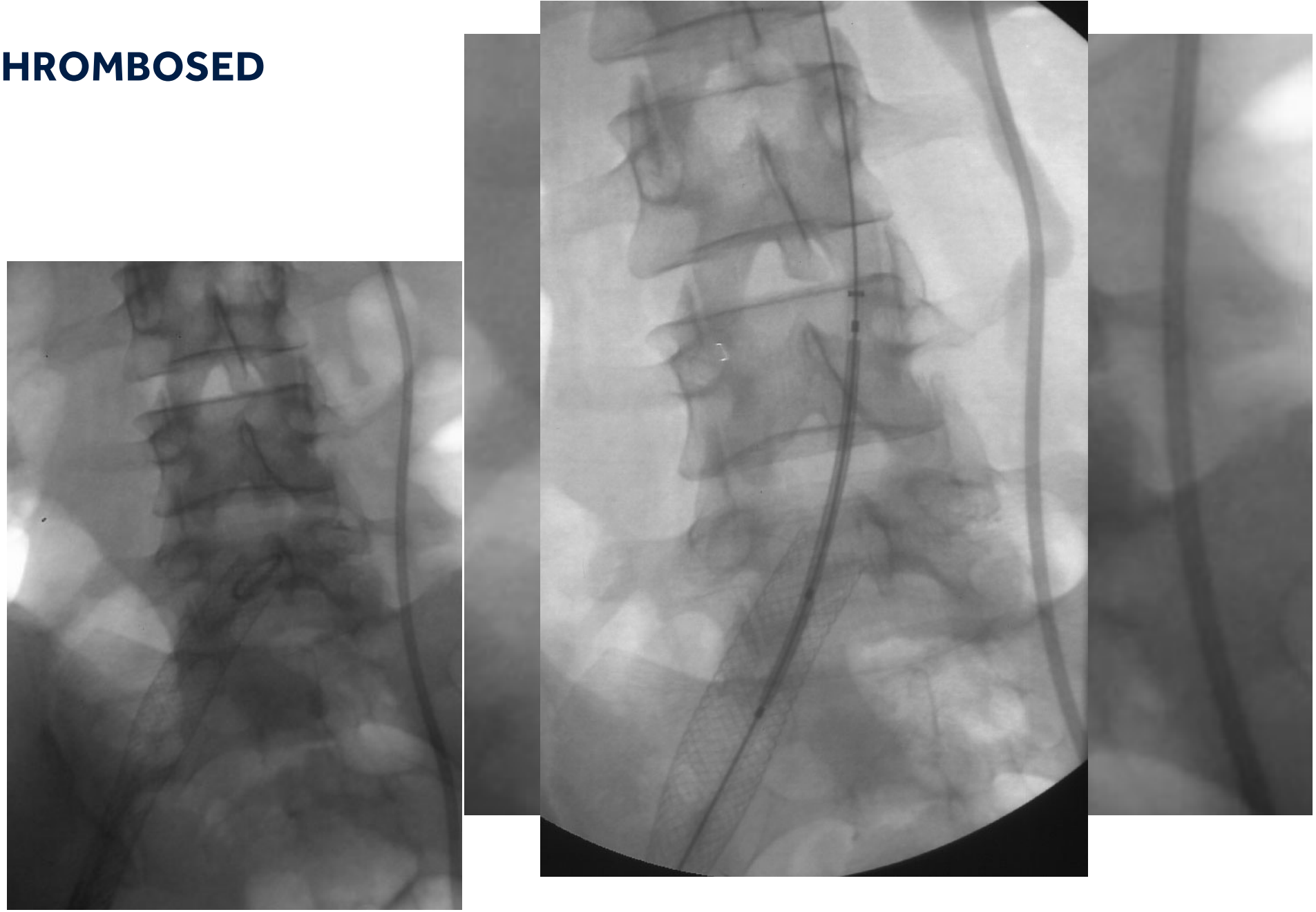


WS 16/90 position reasonable??

Images courtesy Gerry O'Sullivan, MD

DAY 1 CDUS THROMBOSED

Why????



Images courtesy Gerry O'Sullivan, MD

VENOUS STENTING IN MAY-THURNER PATIENTS

Aiming for the Bottom Corner: How to Score a Field Goal When Landing Venous Stents in May–Thurner Syndrome

Raazi Bajwa, Diane Bergin, Gerard J. O'Sullivan
August 27, 2019 DOI: https://doi.org/10.1016/j.jvir.2019.04.033

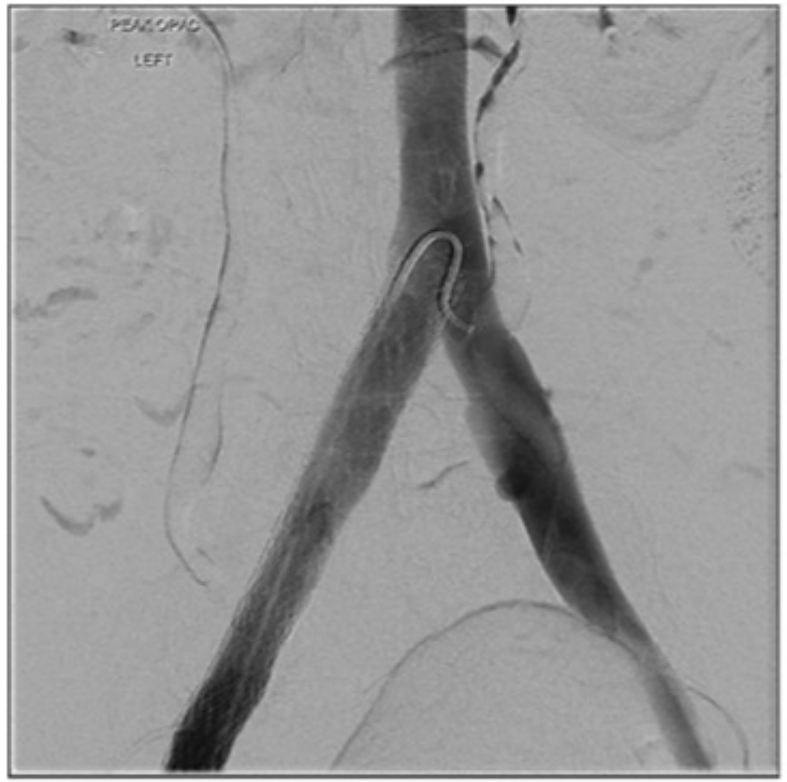
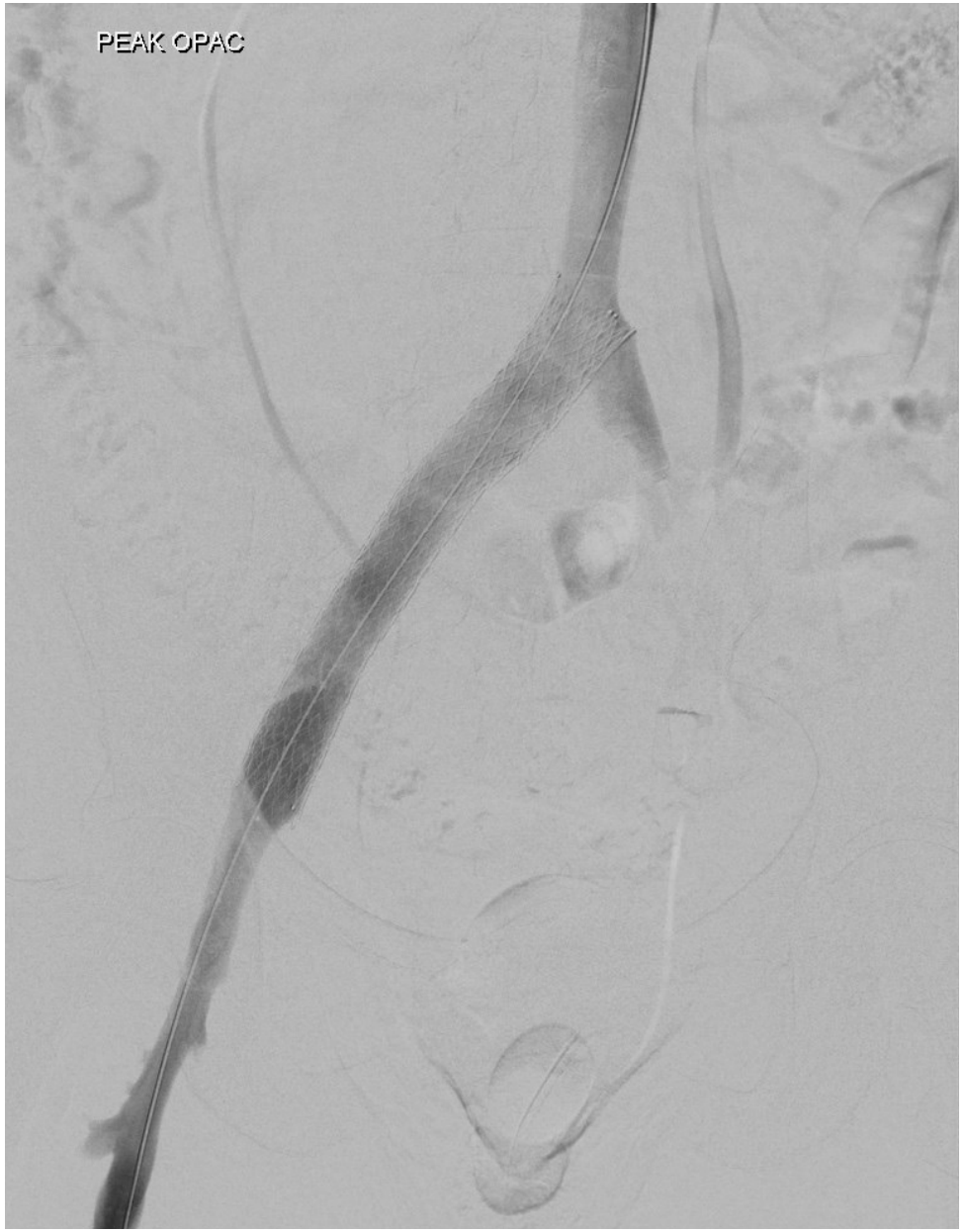


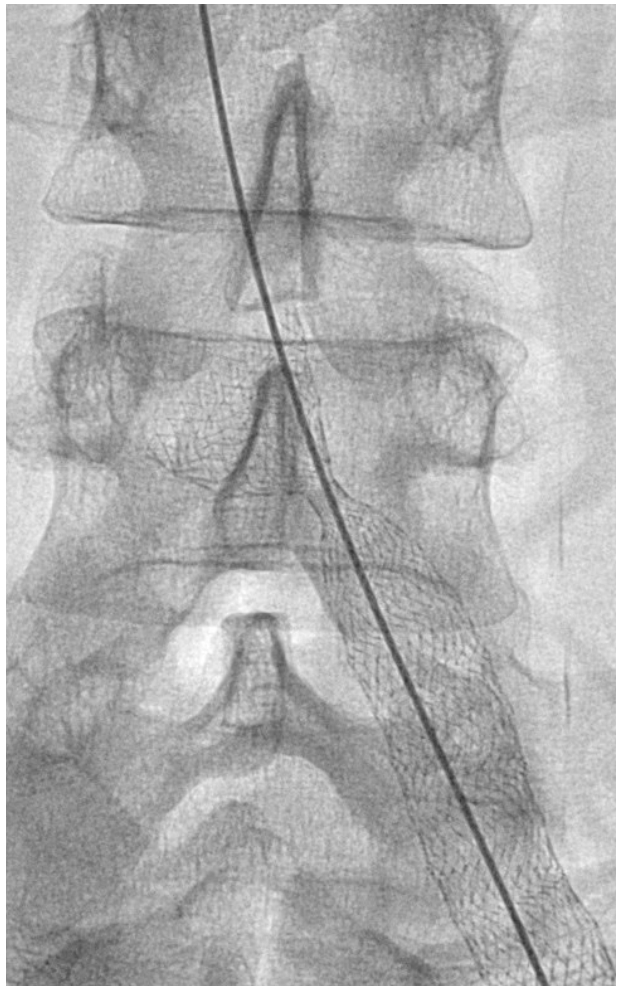
Figure 8. Prone AP fluoroscopy. The right lower corner of the cephalic end of the stent is positioned between the SP and right pedicle goal posts. Hand injections at the left popliteal vein and curved catheter at the right common iliac vein illustrate rapid drainage from both common iliac veins post the described stenting technique.

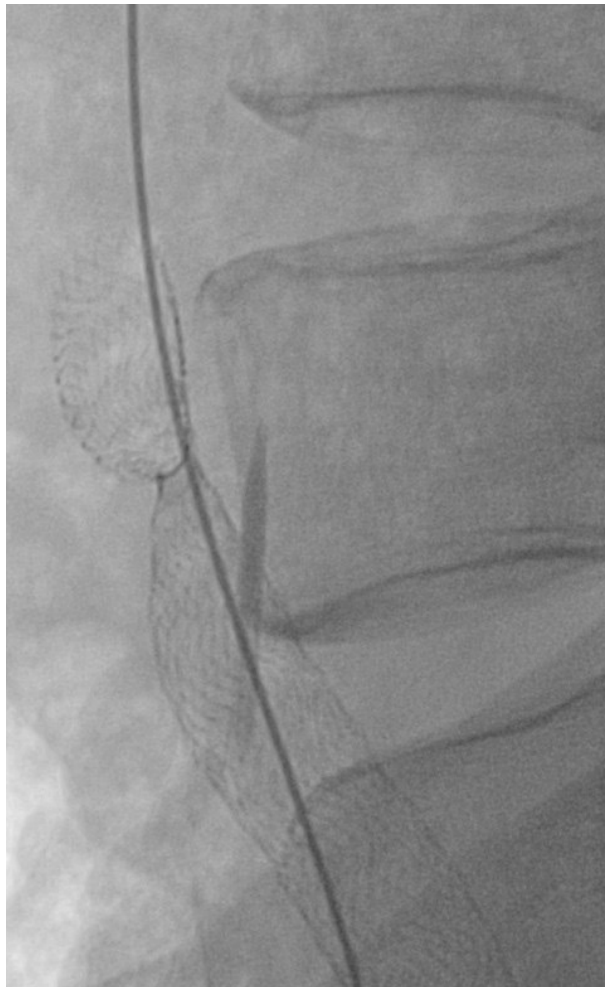


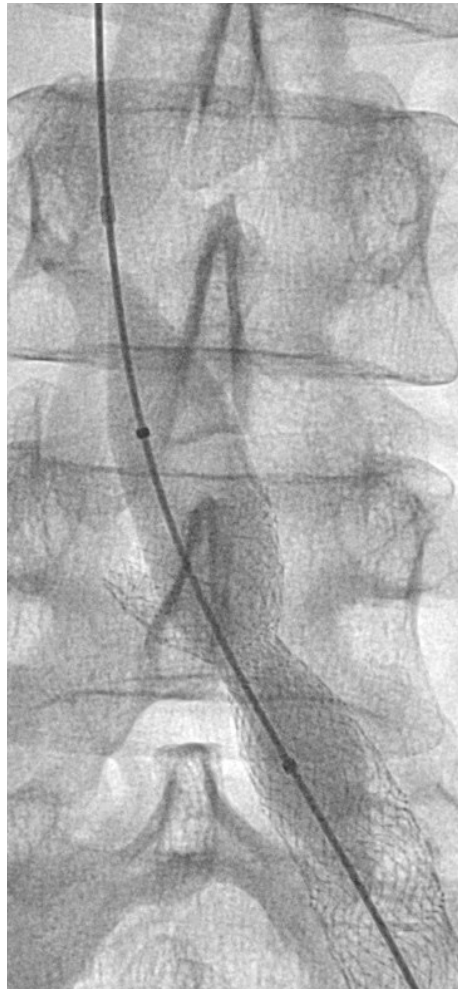
- Different patient
- I made a technical error here and landed the stent slightly too far
- My mistake
- Potentially might increase risk of contralateral venous thrombosis
- Murphy et al
  JVS 5:1, 8-17, 2017
- Khairy et al.
  EJVES, Vol 54:6, 745 – 751, 2019

Images courtesy Gerry O'Sullivan, MD

THIS LESION WAS PRE- TREATED WITH 14MM BALLOON @>20ATM FOR 20S!!!







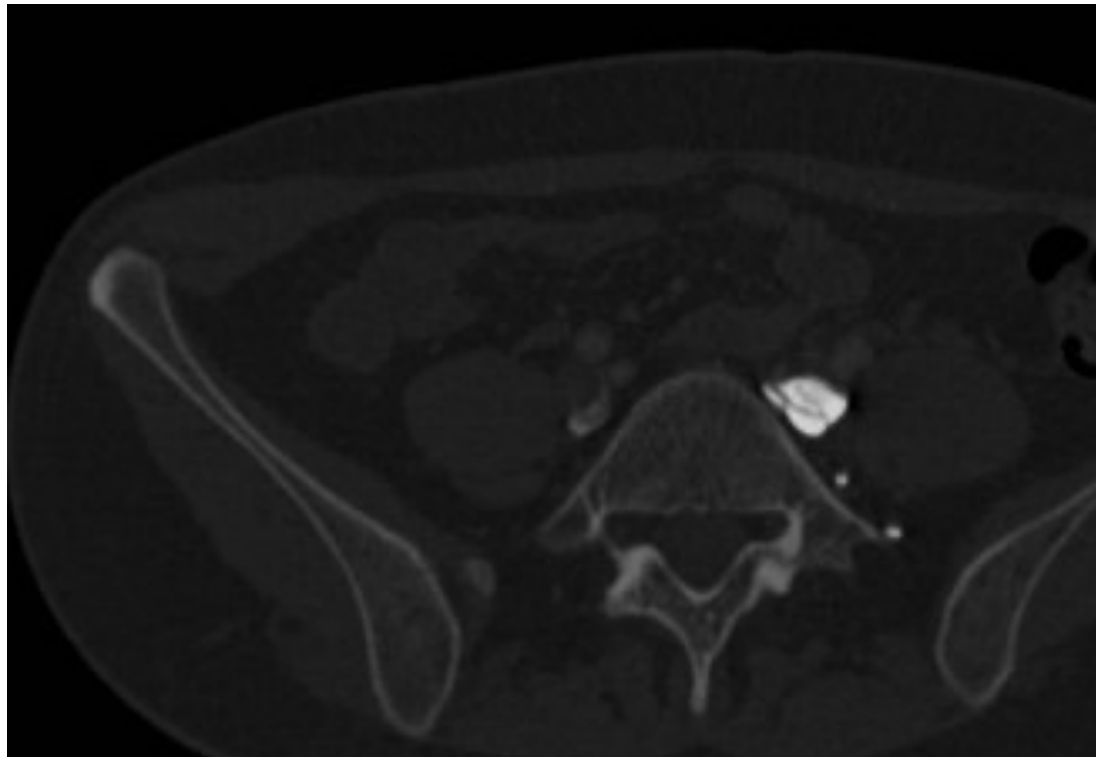
High quality fluoroscopy (or IVUS) needed to see this lesion
Moderate improvement post repeat 14mm PTA @ 20atm for >2 mins

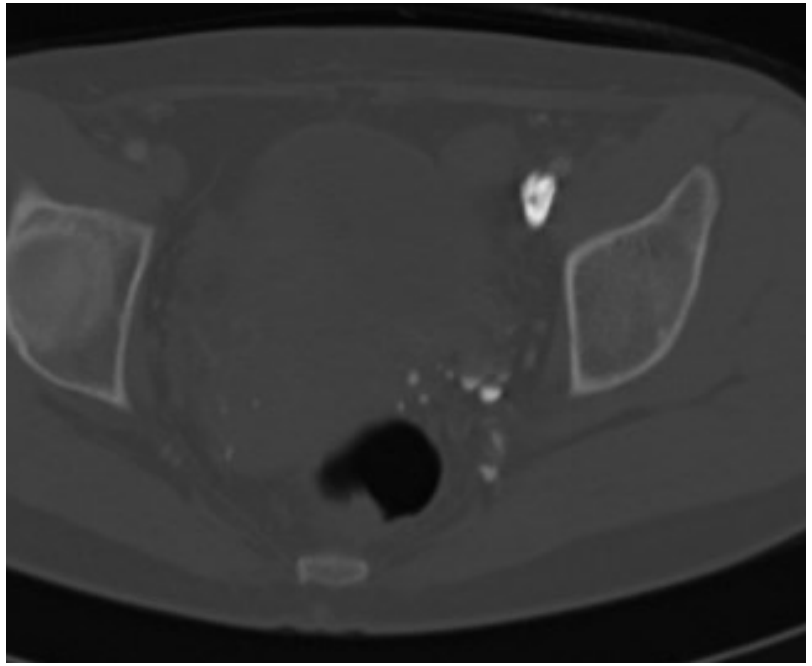
Images courtesy Gerry O'Sullivan, MD

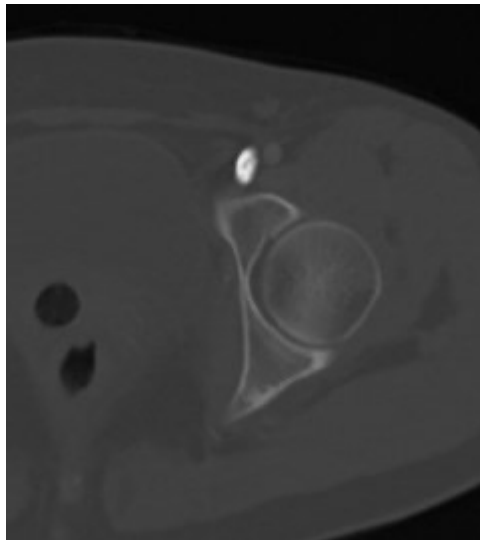
IMAGING FOR CHRONIC PTS

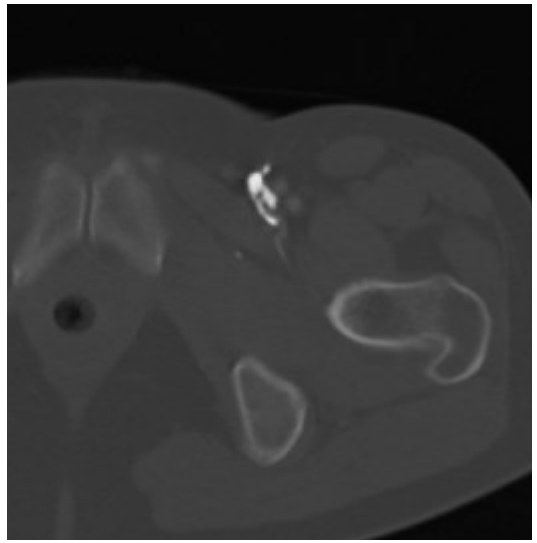
Usefulness of Direct Computed Tomography Venography in Predicting Inflow for Venous Reconstructions in Chronic Post-thrombotic Syndrome

Andreia Cohelho and Gerard O'Sullivan
Published Jan 9, 2019
DOI: 10.1007/s00270-019-02161-5









Note
1- the effect of windowing
2- synechiae in CIV CFV PFV

Images courtesy Gerry O'Sullivan, MD

OUR PRACTICE'S POST OP PROTOCOL

- Immediate Class 2 stockings
- Immediate Pneumatic Compression Boots
- Immediate Low Mol. Weight Heparin x 2/52
- Day 1/14 CDUS- after that depends....
- Review by phone 10 days
- Clinic within 3 weeks

POST THROMBECTOMY

A perfect example of when
NOT
to stent

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