CAIR Case of the Month

Case Courtesy of Drs. M. Connolly, G. Oreopoulos,
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University of Toronto

Patient Background

- 64 year old female with LLQ living related donor kidney transplant 1 month earlier for ESRD due to PCKD
- Presented to clinic visit with few day history of left leg swelling and pain with oliguria
- Blood work shows increase in Cr to 559 (from 124 fours days prior)
- Patient had presented two weeks earlier for insertion of percutaneous drain for perinephric lymphocele
- Patient had maintained excellent graft function

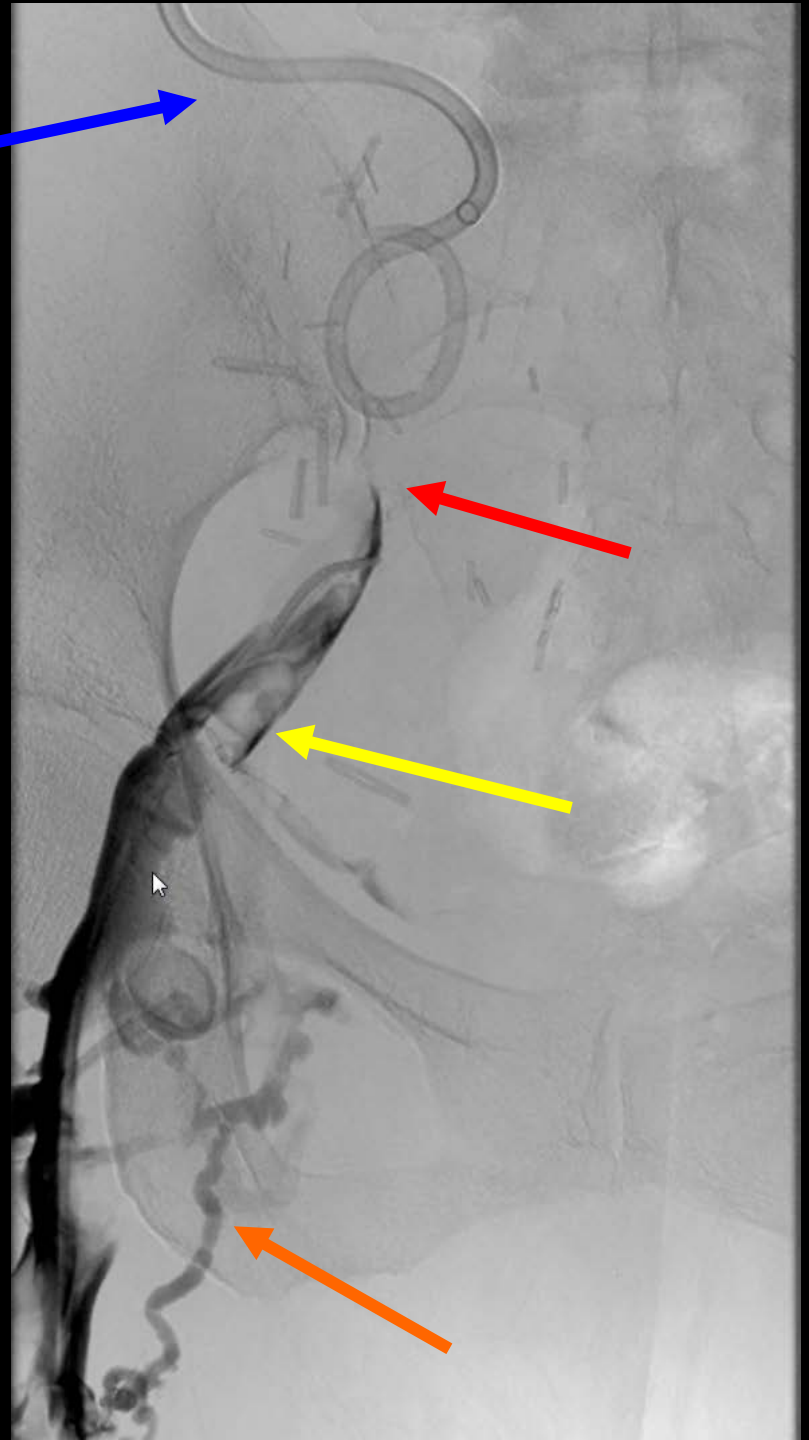
Ultrasound

- Left iliofemoral DVT with occlusive thrombus from left external iliac vein above and below the renal vein anastomosis into the left calf
- Non-occlusive thrombus in main renal vein of transplant
- Visualized IVC was patent
- Patent arterial vascularity with increase in RI to 0.81, 0.82 and 0.80 (from 0.71, 0.68 and 0.68)

Treatment Options

- Multidisciplinary consensus for endovascular-guided thrombolysis and thrombectomy
- Secondary options included:
  - Surgical exploration and open thrombectomy
  - Systemic anticoagulation

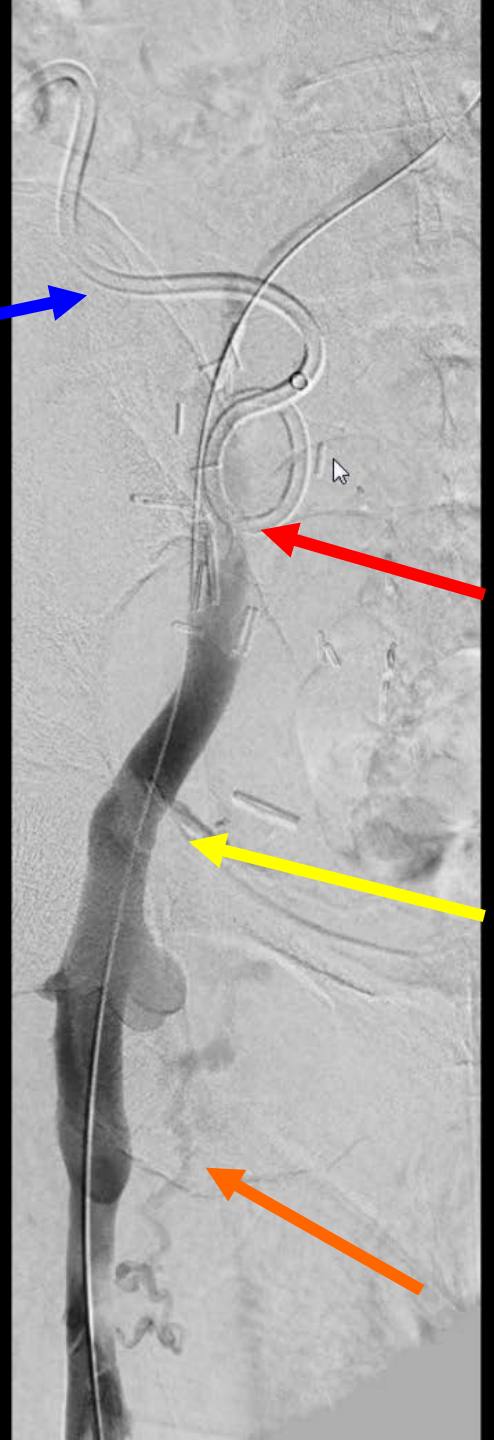
Left



Patient prone
Venogram from left popliteal vein demonstrating thrombus (yellow), venous collateral (orange) and possible narrowing at the anastomosis (red)
Perinephric lymphocele drain in situ (blue)

Left Leg Venous Pharmacomechanical Thrombectomy

- Patient prone, via left popliteal vein approach
- 8 French sheath
- Pharmacomechanical thrombectomy and thrombolysis performed by lacing thrombus with 15 mg of tPA for 15 minutes followed by suction thrombectomy with Angiojet Zelante device



Left

Post thrombolysis images of the left iliofemoral veins demonstrating reduction in thrombus (yellow) and collaterals (orange) with resolution of the questionable narrowing at the anastomosis

Persistent non opacification of the left common and external iliac vein

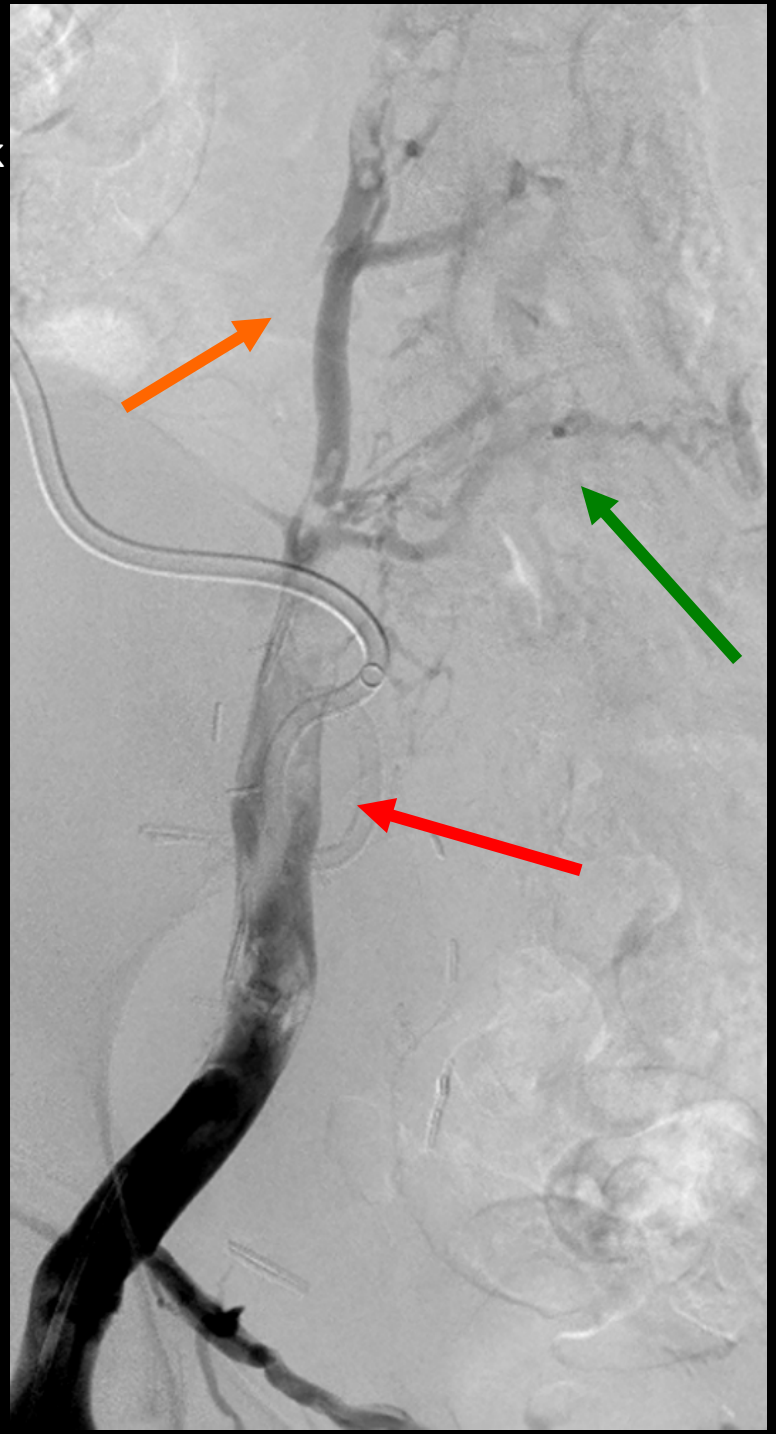
Thrombolysis

- 4 French 20 cm long infusion length catheter left across external iliac vein
- t-PA infused via infusion catheter and left popliteal vein sheath (0.75 mg/hr each for total of 1.5 mg/hr)
- Low dose heparin nomogram via peripheral IV

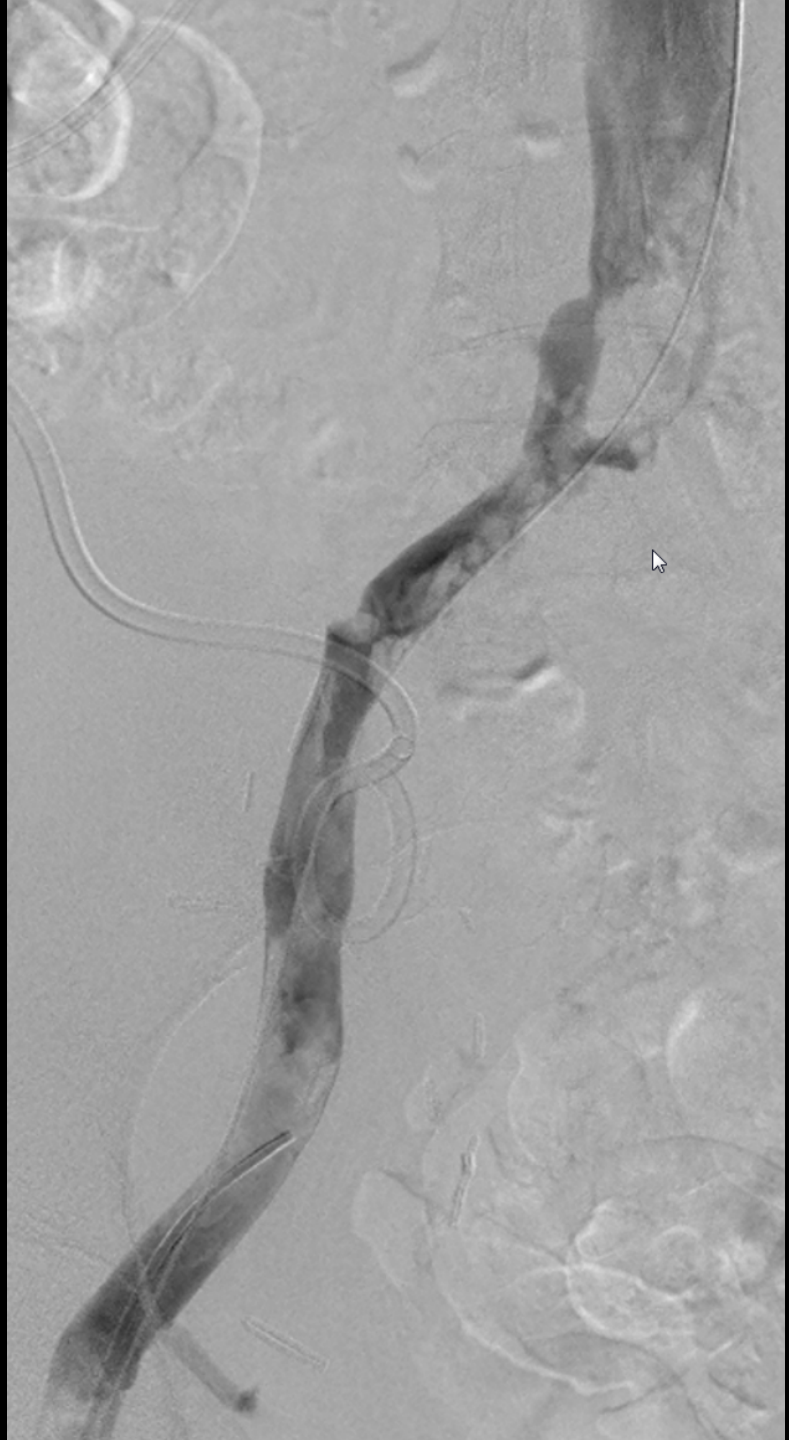
Thrombolysis Check

- After 15 hours of thrombolysis, patient returned for check

Post thrombolysis check demonstrates patency at anastomosis (red) with evident severe stenosis (green) and lumbar collaterals (orange) at the left common iliac vein



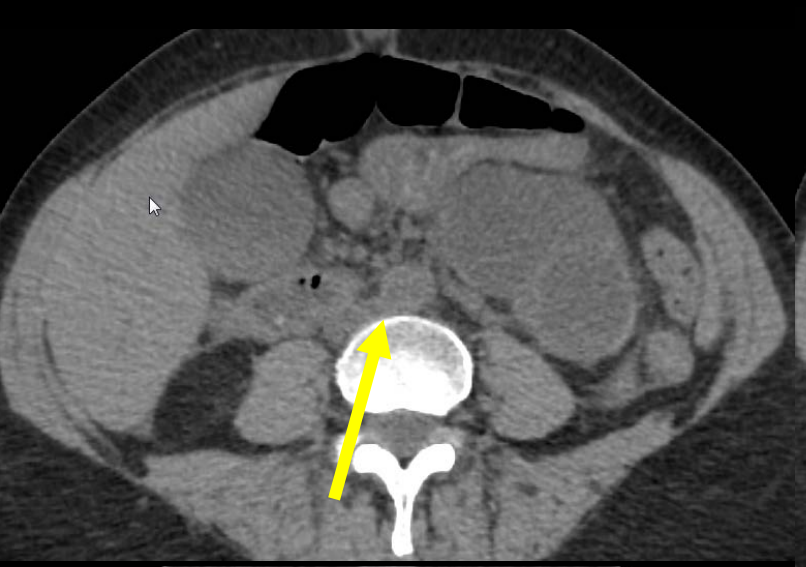
Post angioplasty with overlapping inflations with 8 mm x 40 mm balloon
Infusion catheter left in situ with ongoing thrombolysis due to residual thrombus

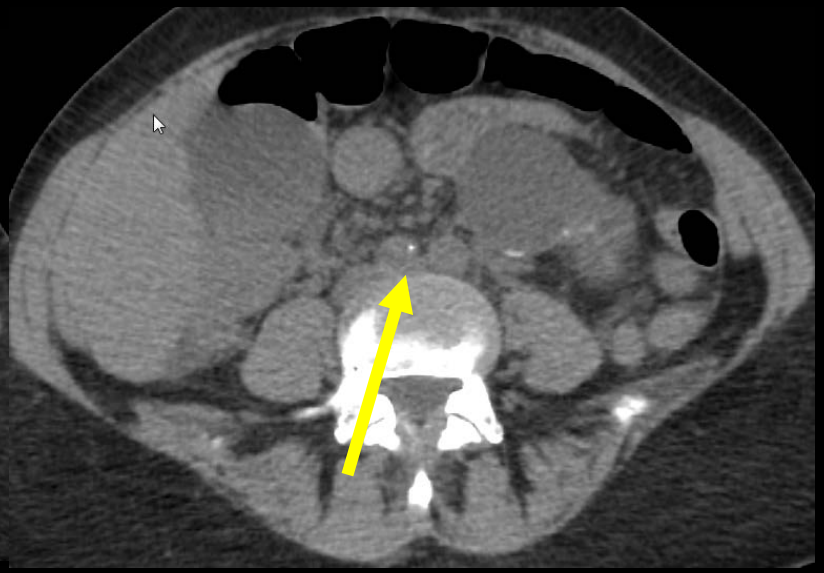


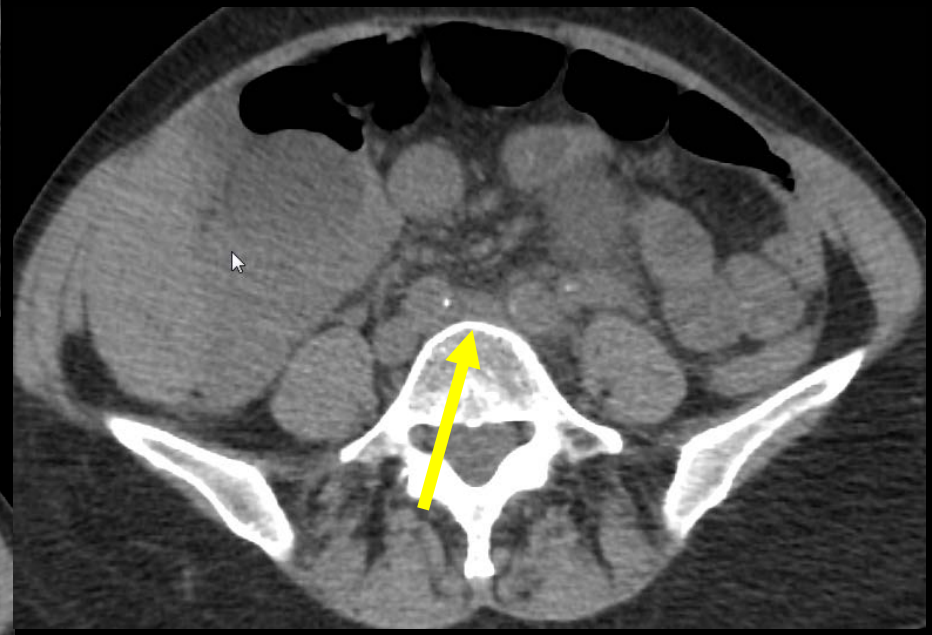
Thrombolysis

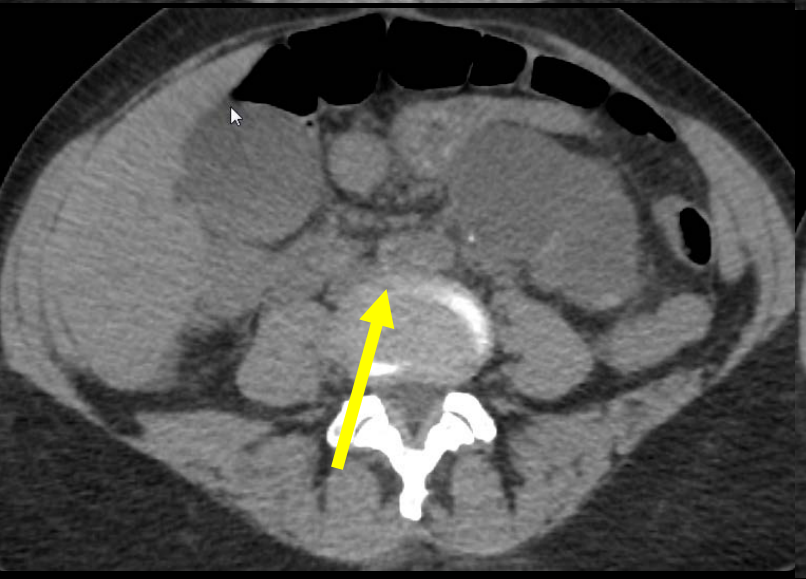
- 4 French 20 cm long infusion length catheter left across external and common iliac vein
- tPA infused via infusion catheter (1 mg/hr) and left popliteal vein sheath (0.5 mg/hr), total of 1.5 mg/hr
- Low dose heparin nomogram via peripheral IV

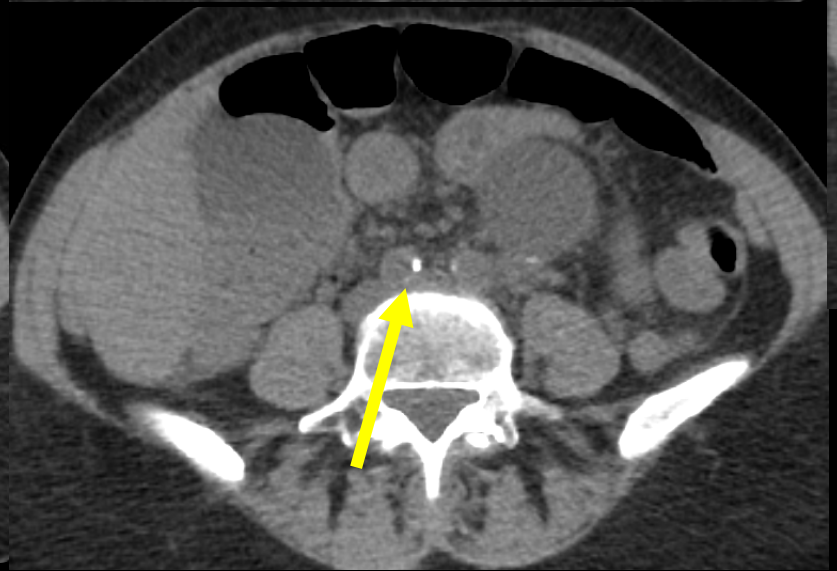
Review of Prior Imaging (CT from 3 years prior)











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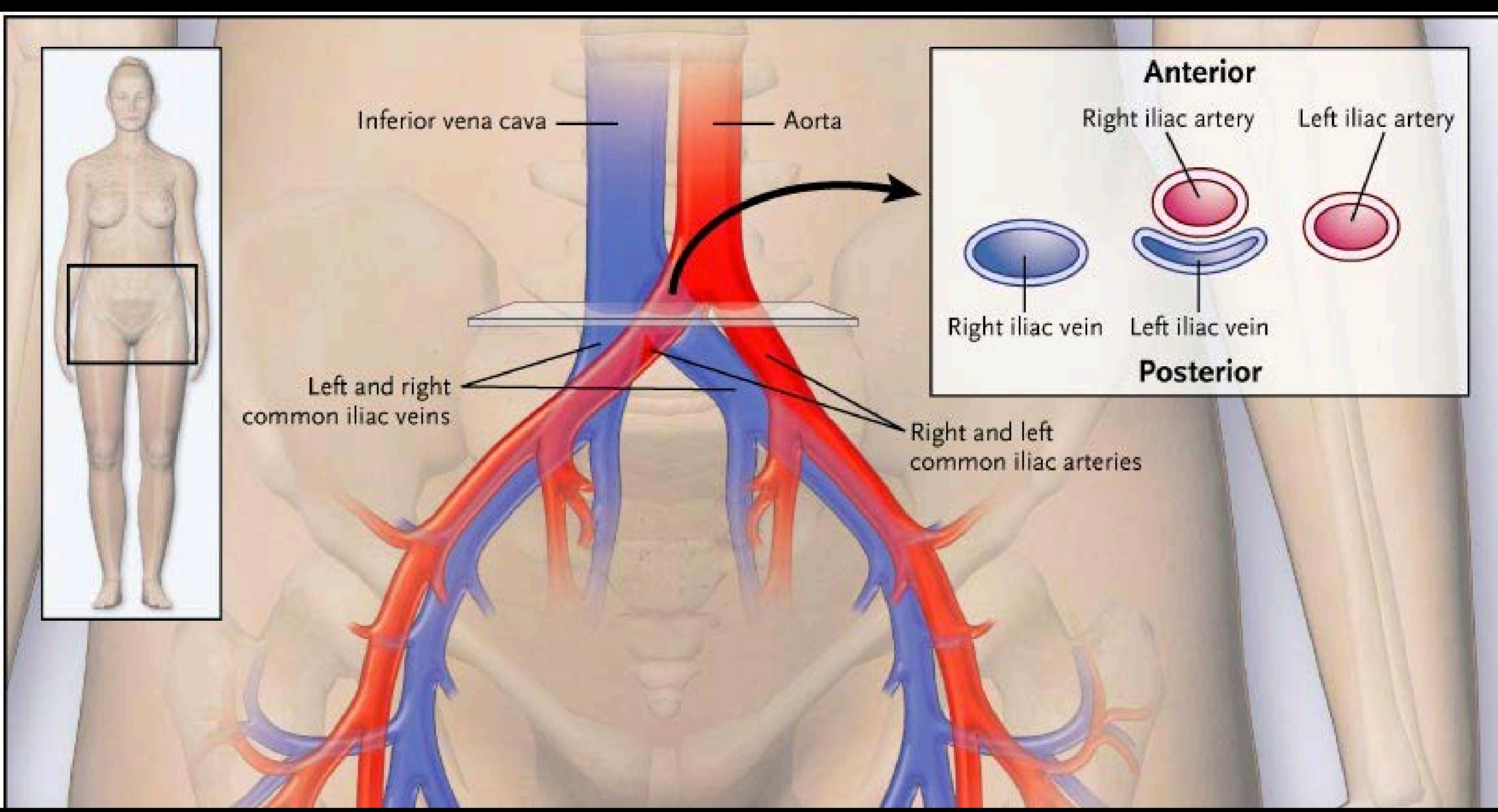
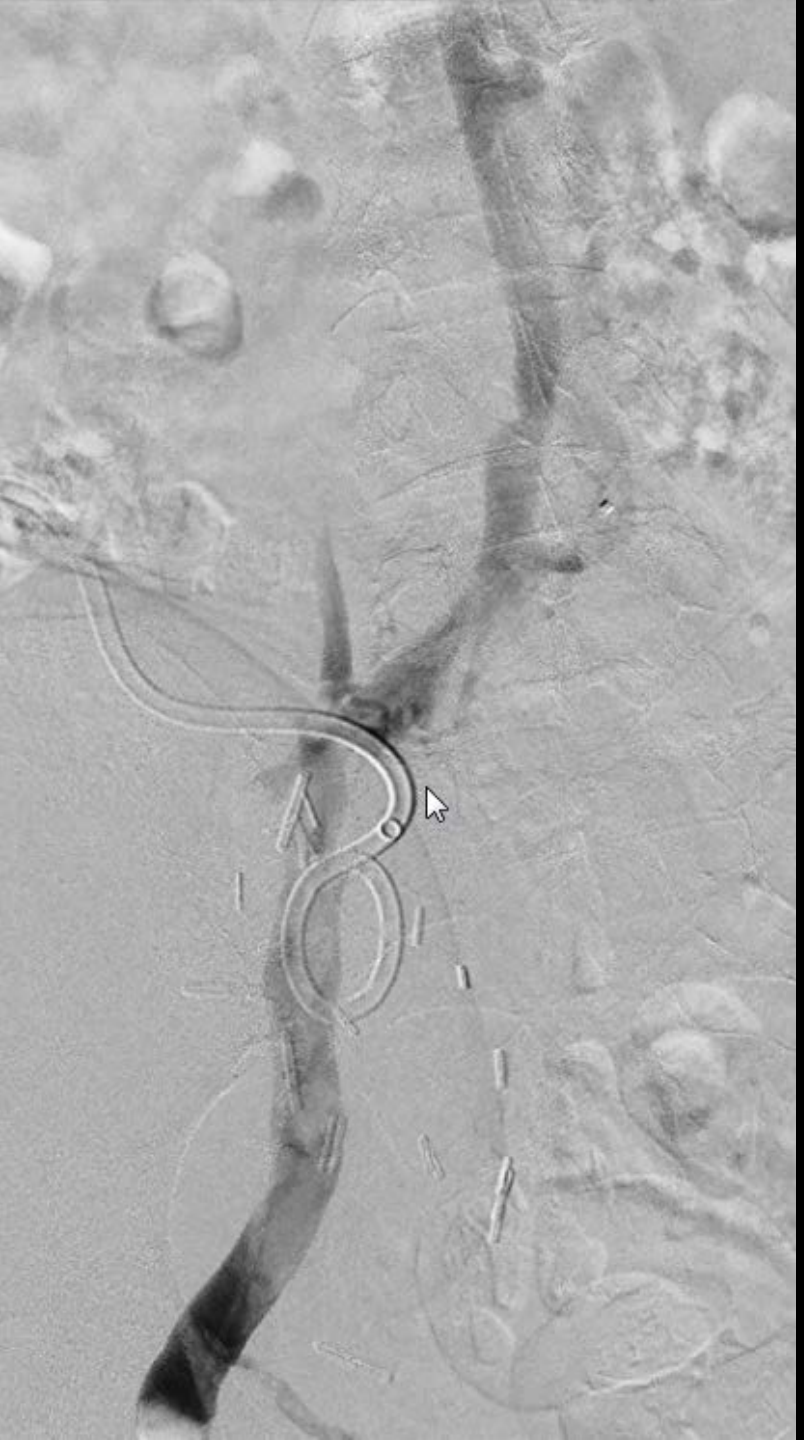
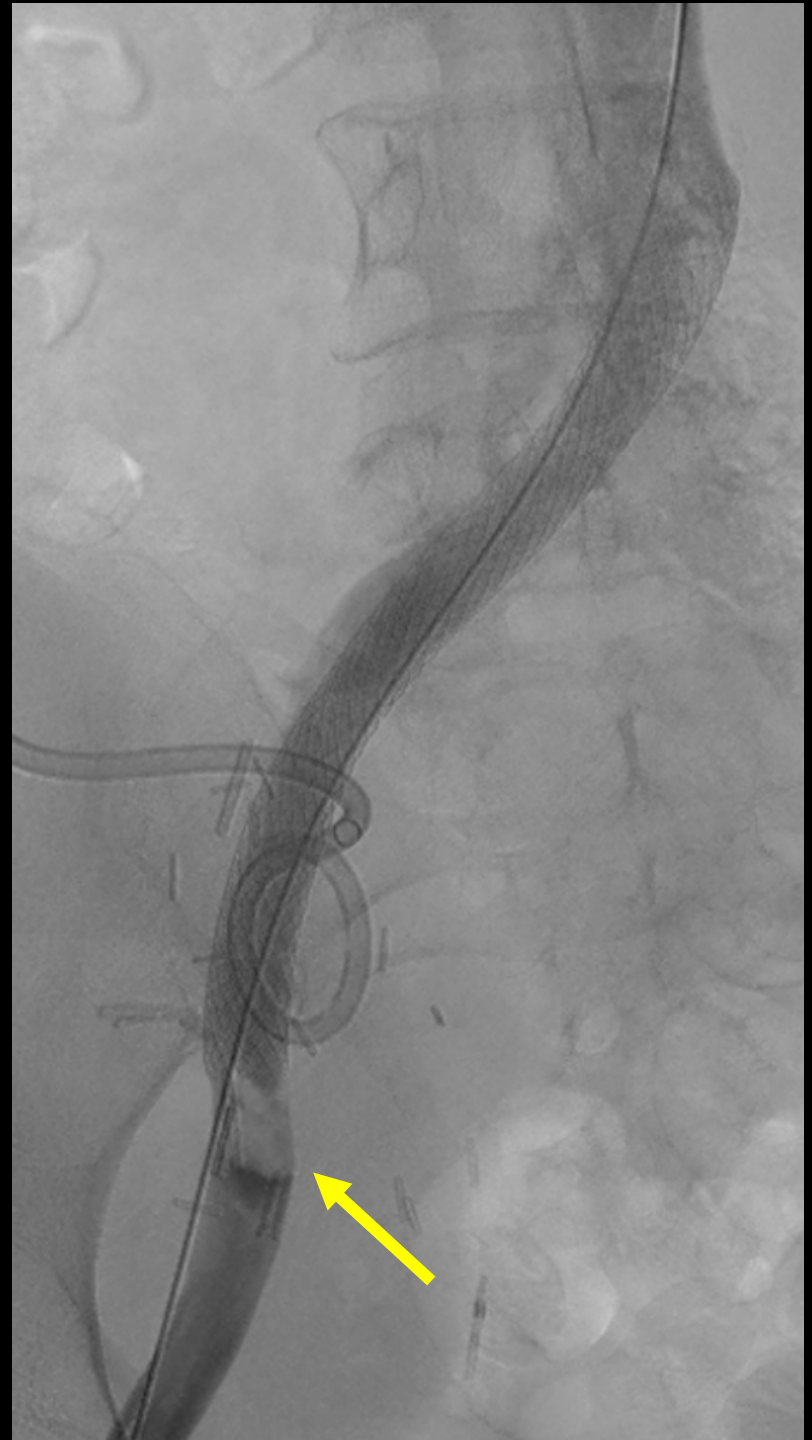
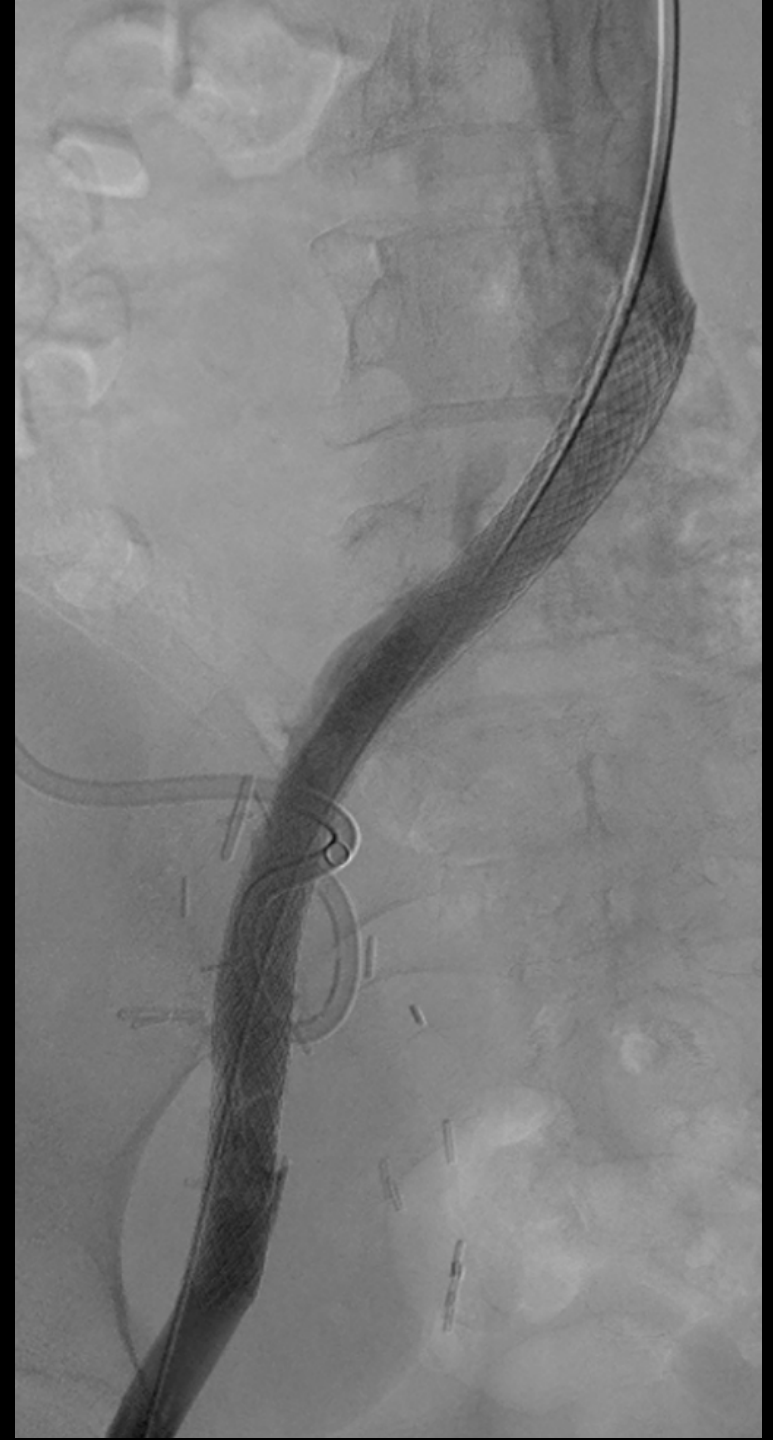
May-Thurner Syndrome

- Symptomatic compression of left common iliac vein between overlying right common iliac artery and L5 lumbar vertebra
- Damage to the vein intima leads to mural spurring and webs acting as lead points for thrombus formation


Inferior vena cava
Aorta
Left and right
common iliac veins
Right and left
common iliac arteries
Anterior
Right iliac artery
Left iliac artery
Right iliac vein
Left iliac vein
Posterior

Thrombolysis Check

- After 10 additional hours of thrombolysis (total of 25 hours), patient returned for check and stenting

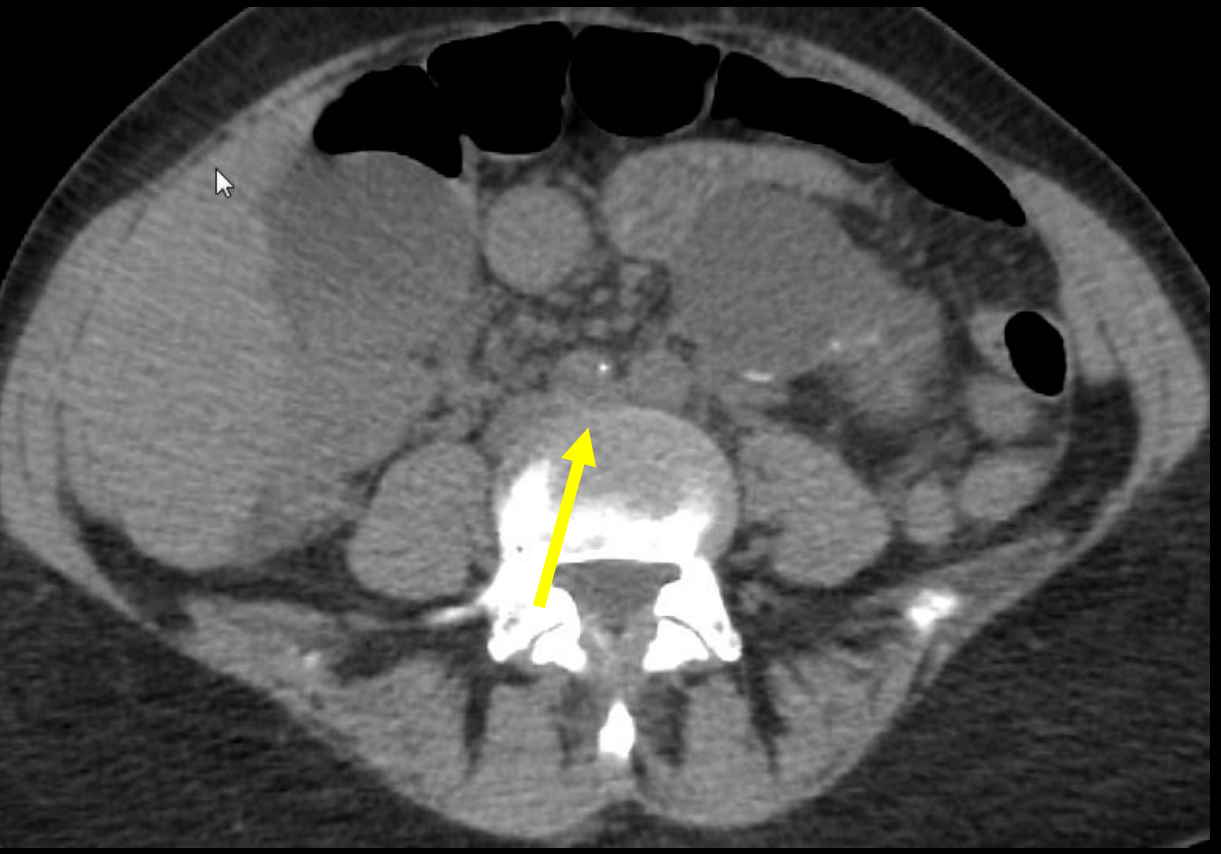
Left Common Iliac Stenting

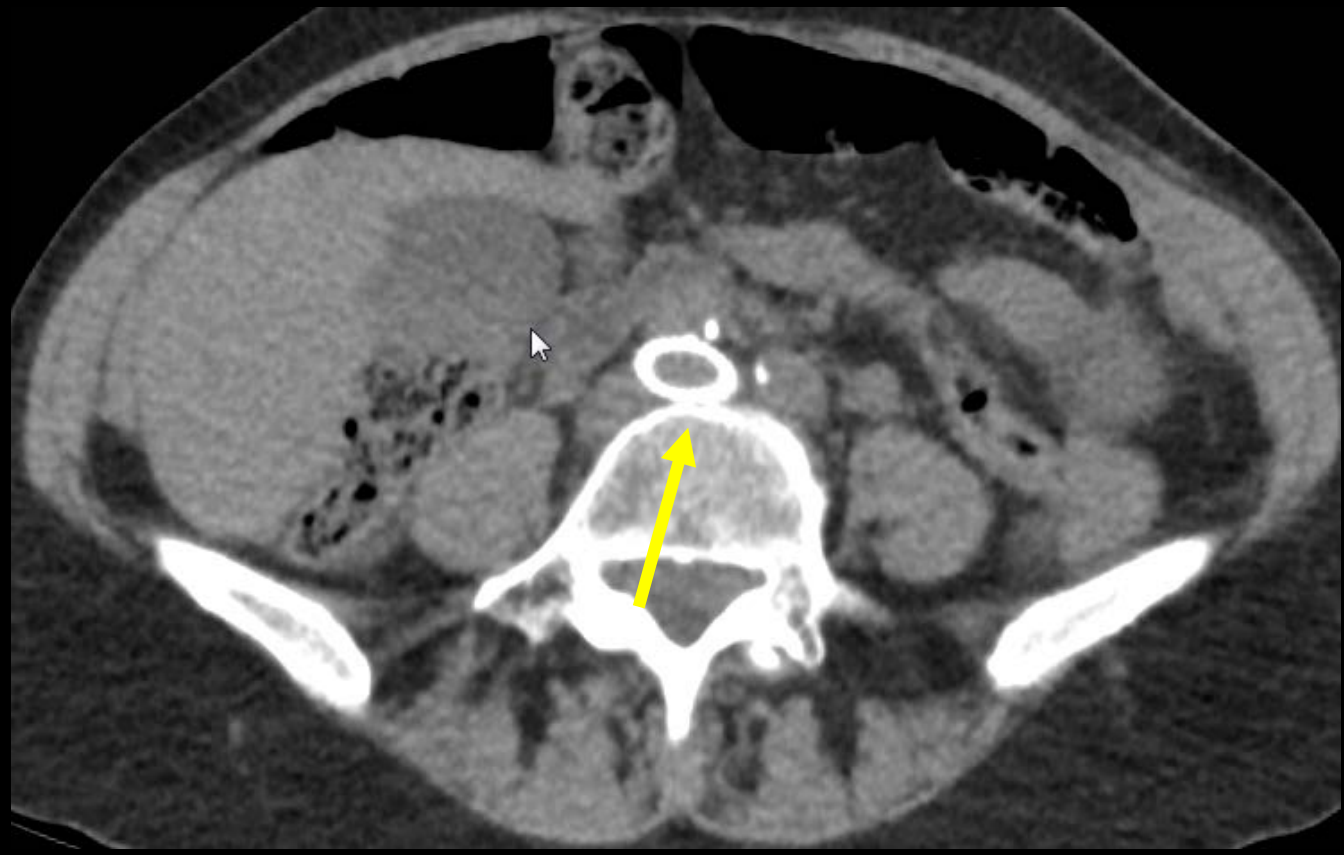
- Overlapping 16 mm x 90 mm and 16 mm x 40 mm Wallstents deployed from IVC into left external iliac vein

Post Thrombolysis and Stenting

- Ultrasound on patient's transplant renal vein performed with patient on the table immediately post stenting and noted to be patent
- Formal ultrasound performed the next day confirmed patency as well as increasing urine output and decreasing creatinine

Pre and Post Left Common Iliac Vein Stenting





Summary

- Presumed May-Thurner Syndrome in 64 year old female, 1 month post LLQ renal transplant, causing iliofemoral DVT and LLQ transplant renal vein thrombosis
- Successfully treated with pharmacomechanical thrombectomy/thrombolysis, balloon angioplasty and left iliac vein stenting

Follow-Up - 5 months Post Procedure

- Renal transplant functioning well with renal vein patency, Cr 79 umol/L
- Patient remains on warfarin with complete resolution of leg symptoms and resolution of DVT on ultrasound
- Patient to remain on anticoagulation for prolonged period due to increased inflammation following a renal transplant

Discussion

- Venous complications after renal transplantation are rare but morbid
- May-Thurner anatomy present in ~30% of the population
- 18-49% of left lower limb DVT have May-Thurner Syndrome
- Balloon angioplasty and stenting for May-Thurner Syndrome have high primary and secondary patency rates

Discussion

- Asymptomatic patients may become symptomatic after renal transplantation
- ? Mention May-Thurner Anatomy on pre-transplant CT
- ? Duration of anticoagulation
- ? Antiplatelet agent and compression stockings