

Endovascular Therapy of Superior Vena Cava Syndrome In A Uremic Patient Who Had An Occcluded Bypass Graft To The Right Atrium

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Brief History (1)

- 33 y/o male, a case of uremia since 2006
 - Received peritoneal dialysis from 2006 to 2009
 - Shifted to hemodialysis via left forearm AVF since 2009
- 2011/5:
 - He suffered from SVC syndrome
 - Received bypass surgery with a 18 mm PTFE graft from SVC to right atrium auricle
- 2013/12:
 - He received surgery for stenosed AV fistula (AVF) over left forearm

Brief History (2)

- After AVF surgery in 2013/12:
 - Progressive dyspnea on exertion
 - Headache and facial swelling
- Recurrent SVC syndrome was impressed and then confirmed by chest CT.
- 2014/4:
 - Progressive chest wall edematous change and superficial venous engorgement were noted
 - He was admitted to receive angioplasty.

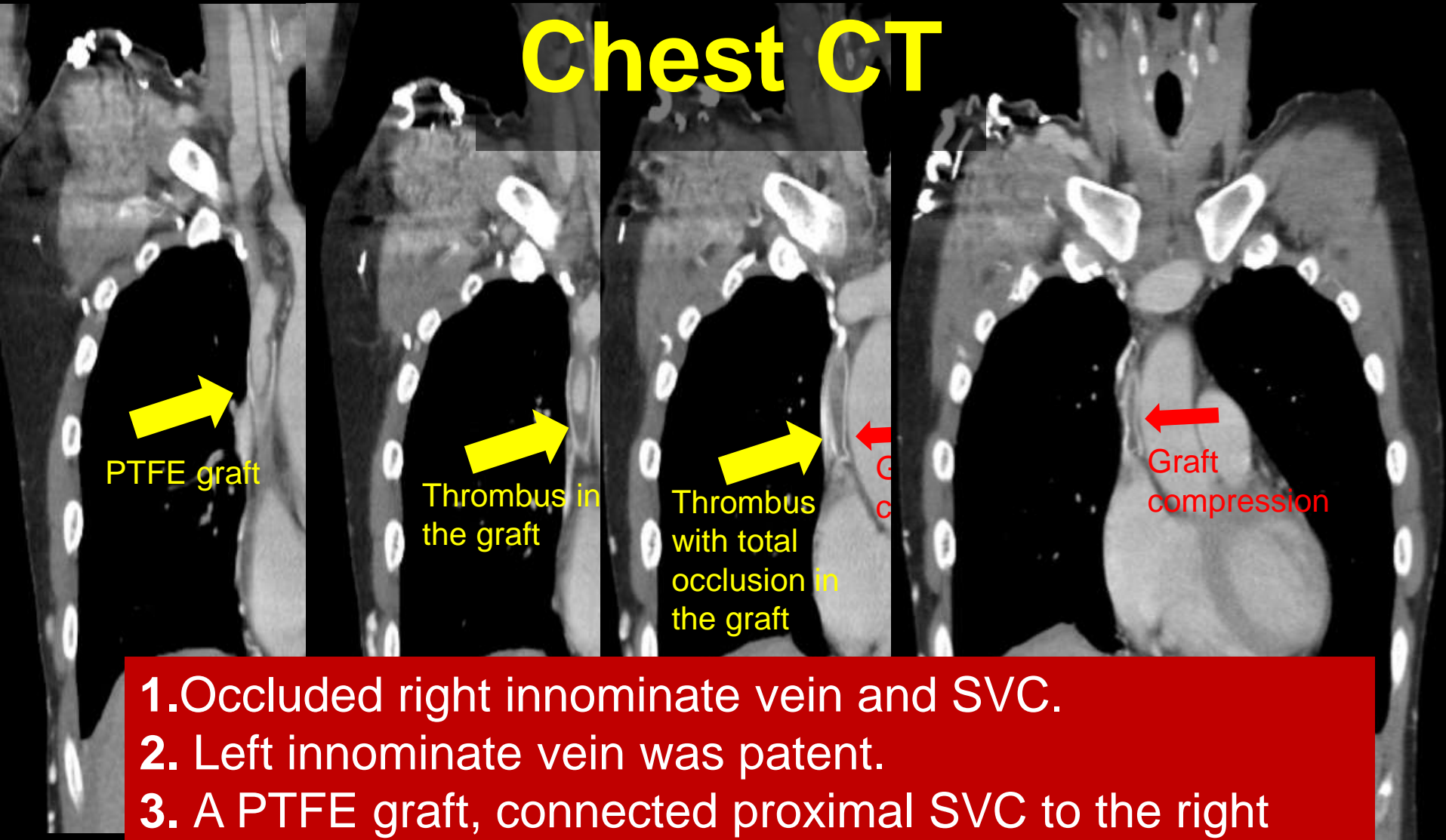
Left radio-cephalic AVF



Recurrent SVC syndrome with abundant collateral vein over chest wall

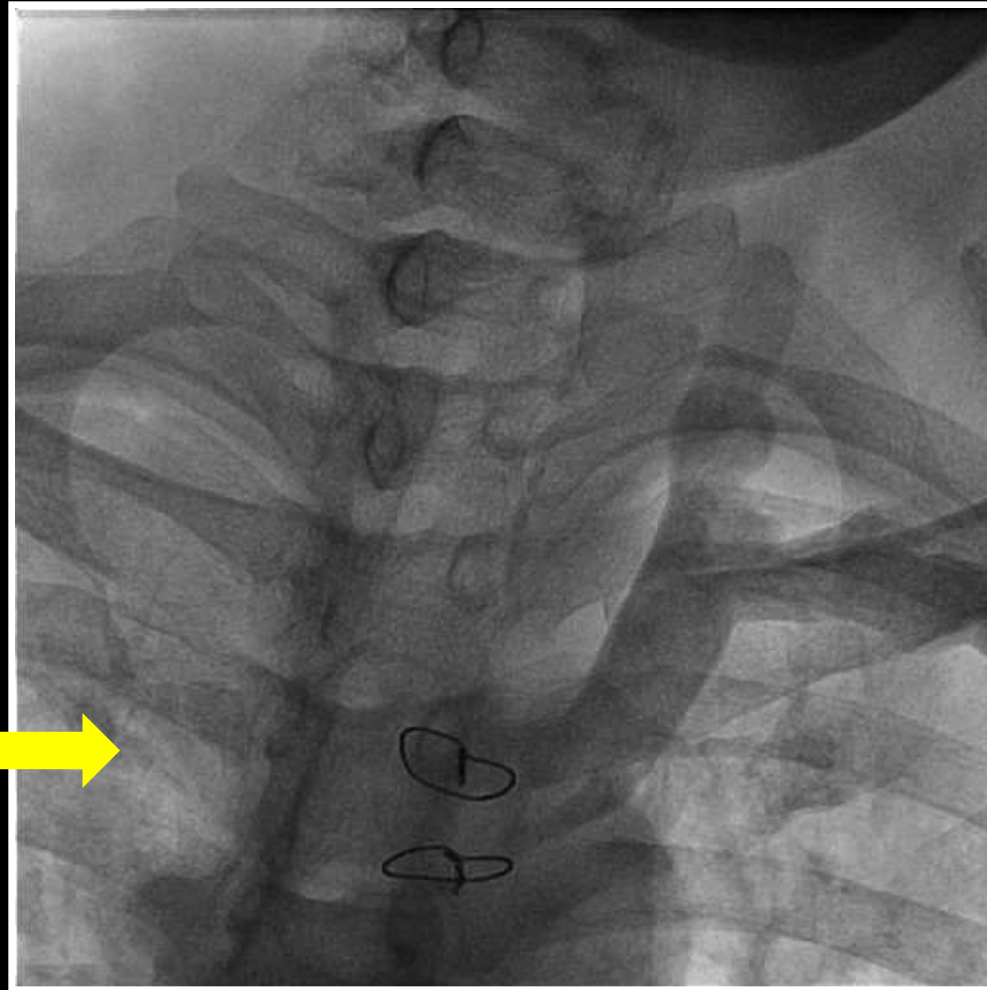


Chest CT



1. Occluded right innominate vein and SVC.
2. Left innominate vein was patent.
3. A PTFE graft, connected proximal SVC to the right atrium appendage.
4. The PTFE graft was compressed at its distal half and was completely occluded with much thrombus.

Venous Angiography (1)



Occluded R't
innominate vein

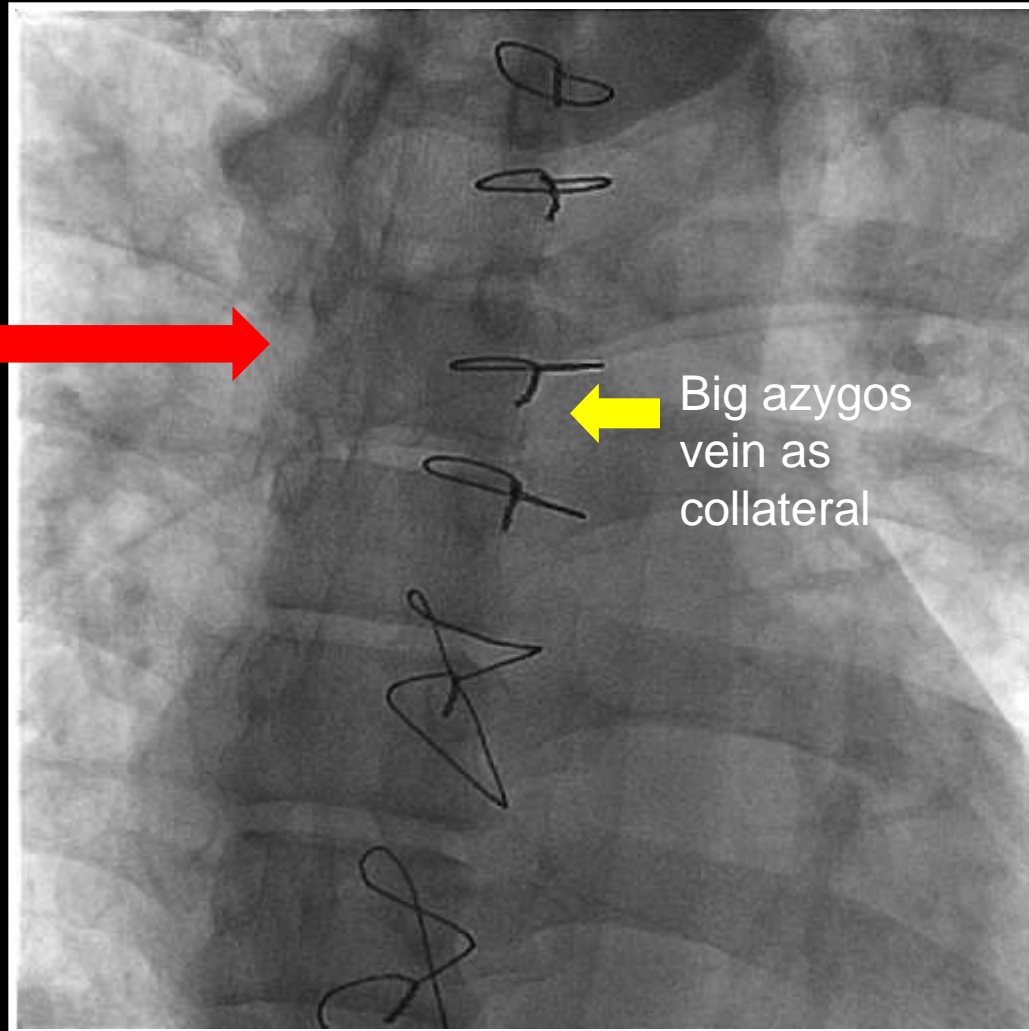
1. Left subclavian and innominate vein: patent
2. Right innominate vein: total occlusion

Venous Angiography (2)

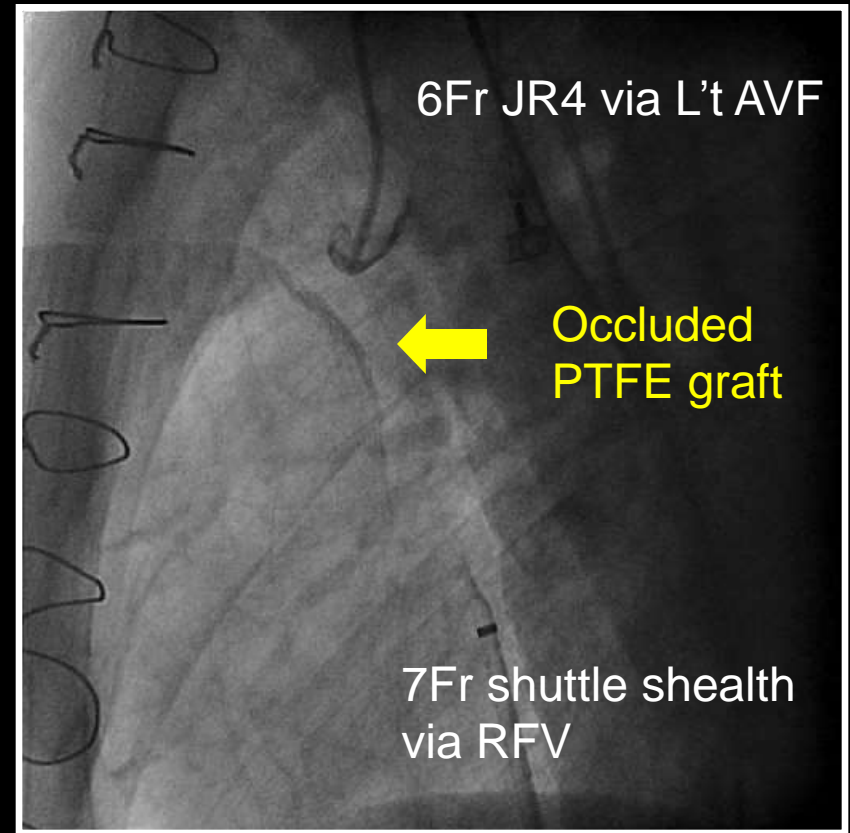
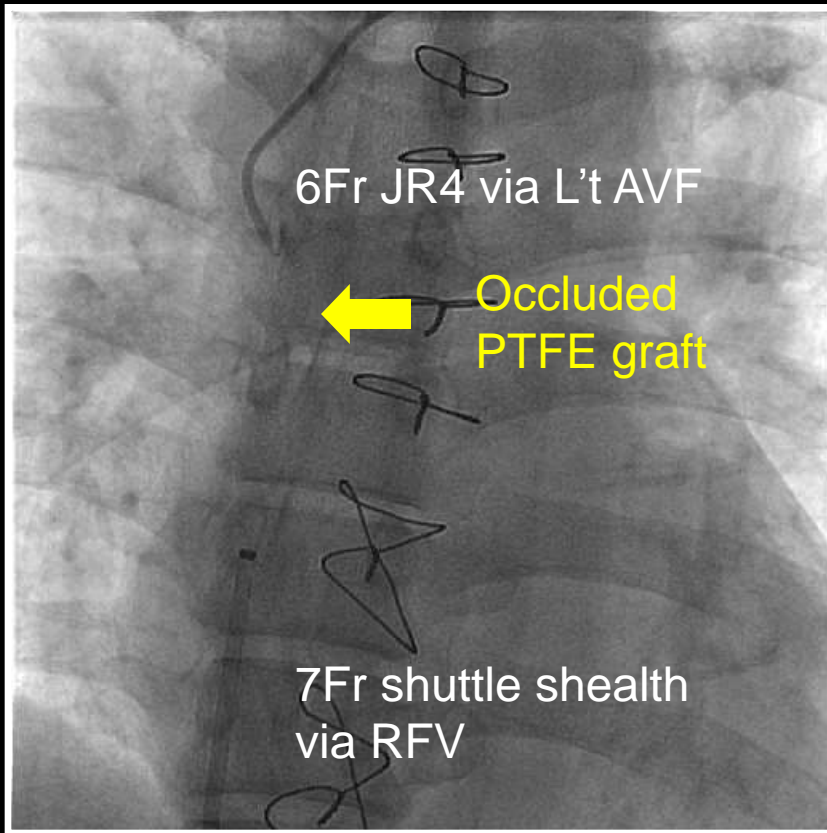
Occluded
PTFE graft



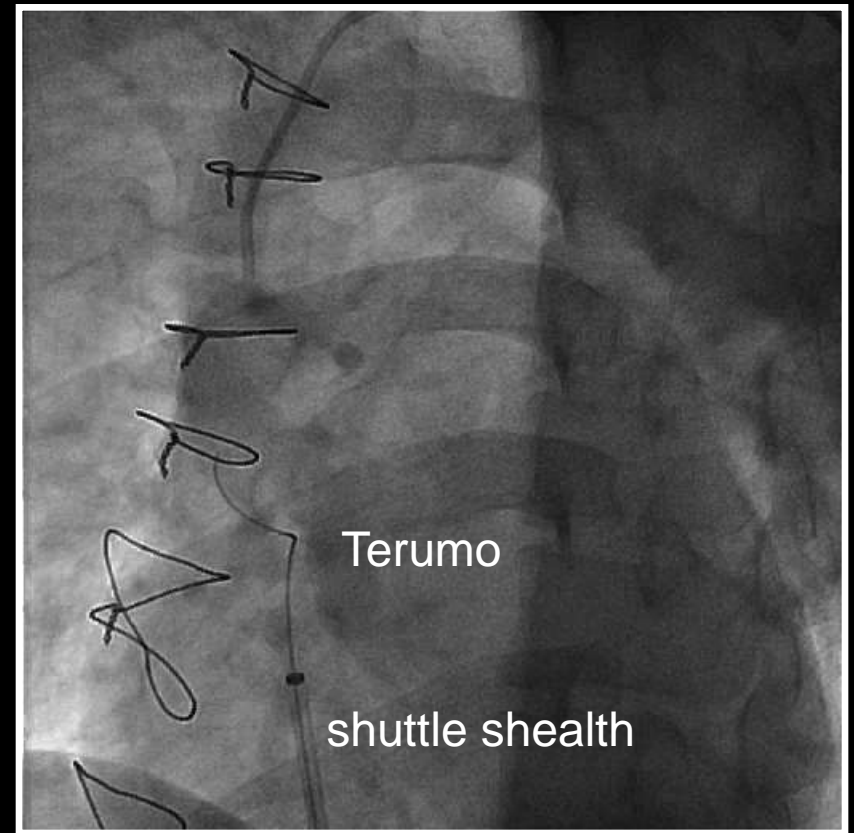
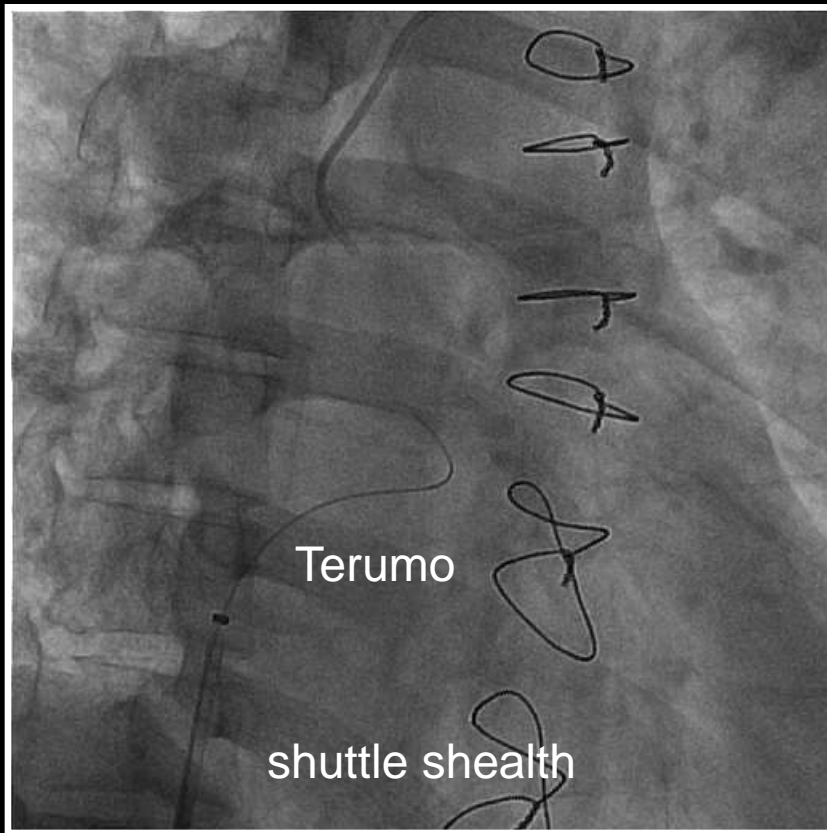
Big azygos
vein as
collateral



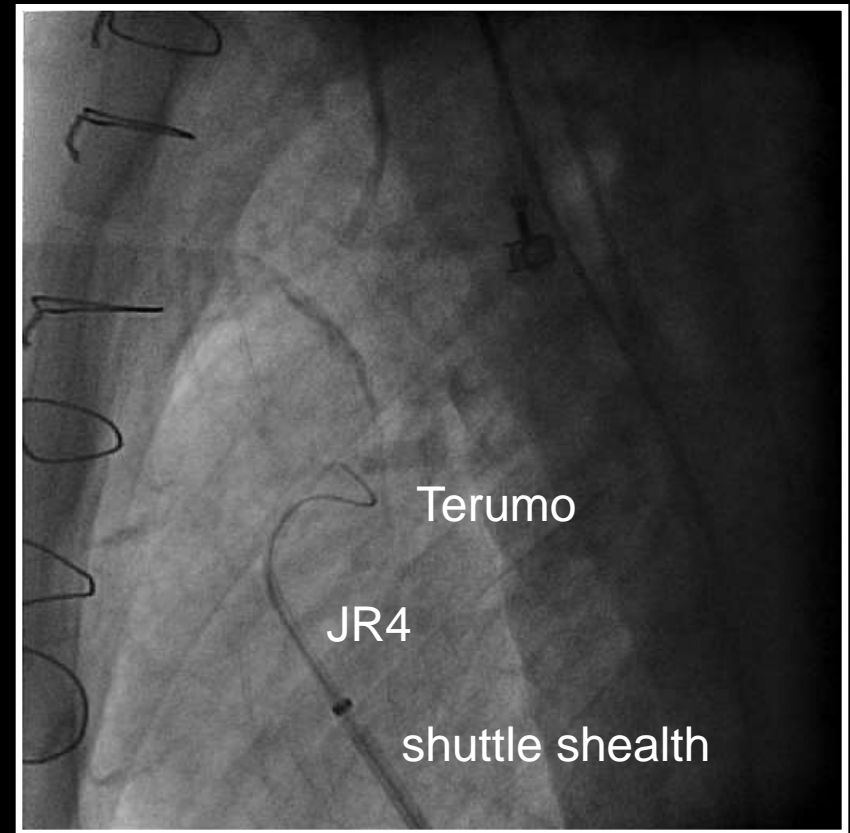
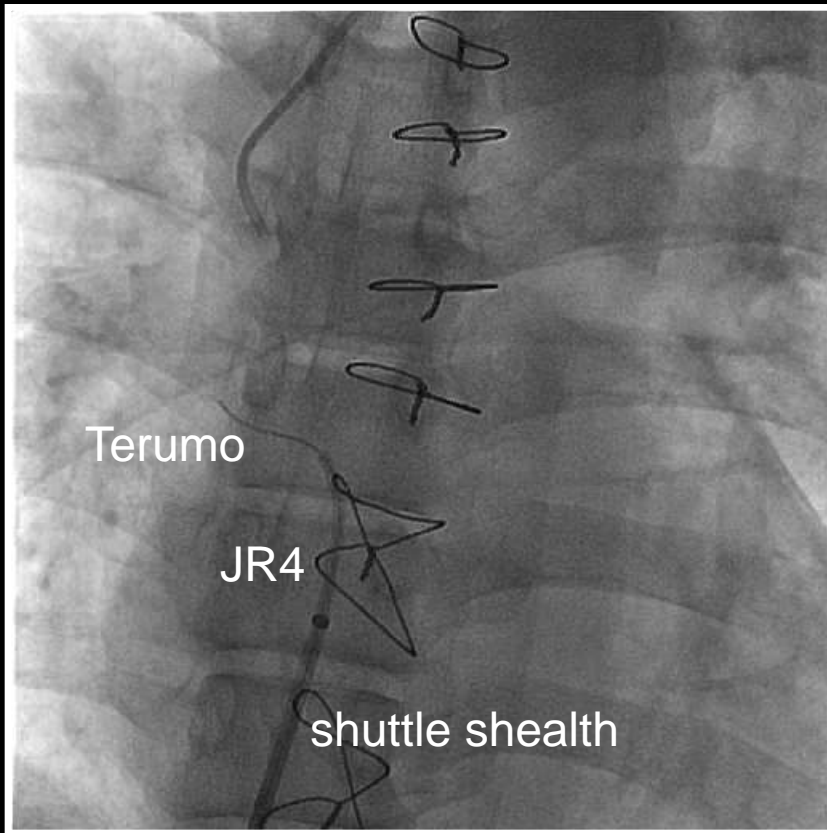
Venous Angiography (2)



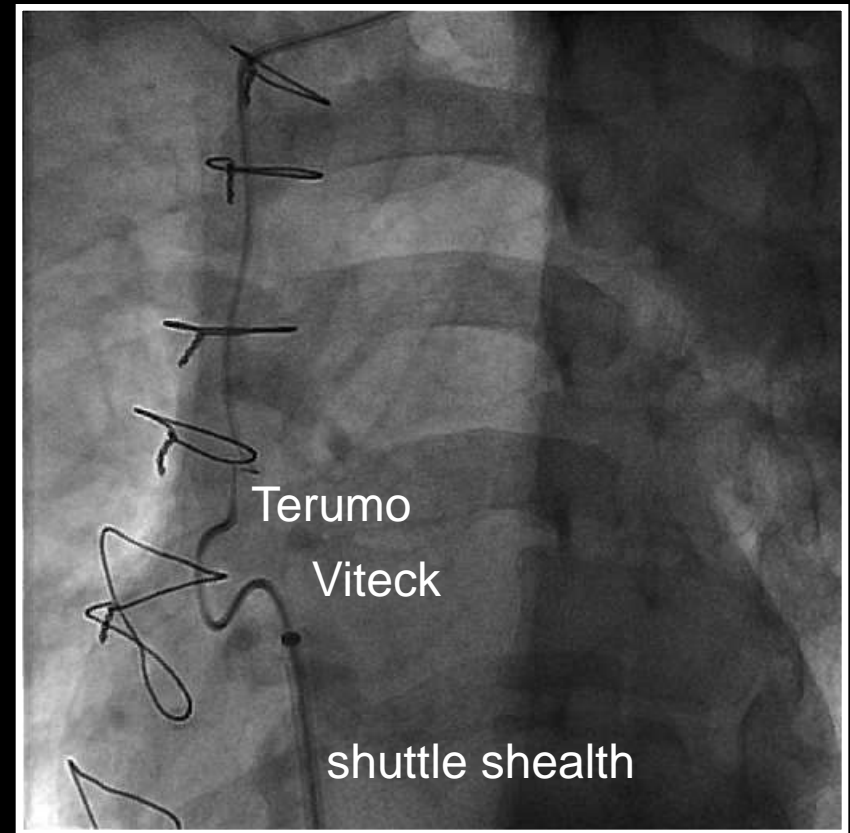
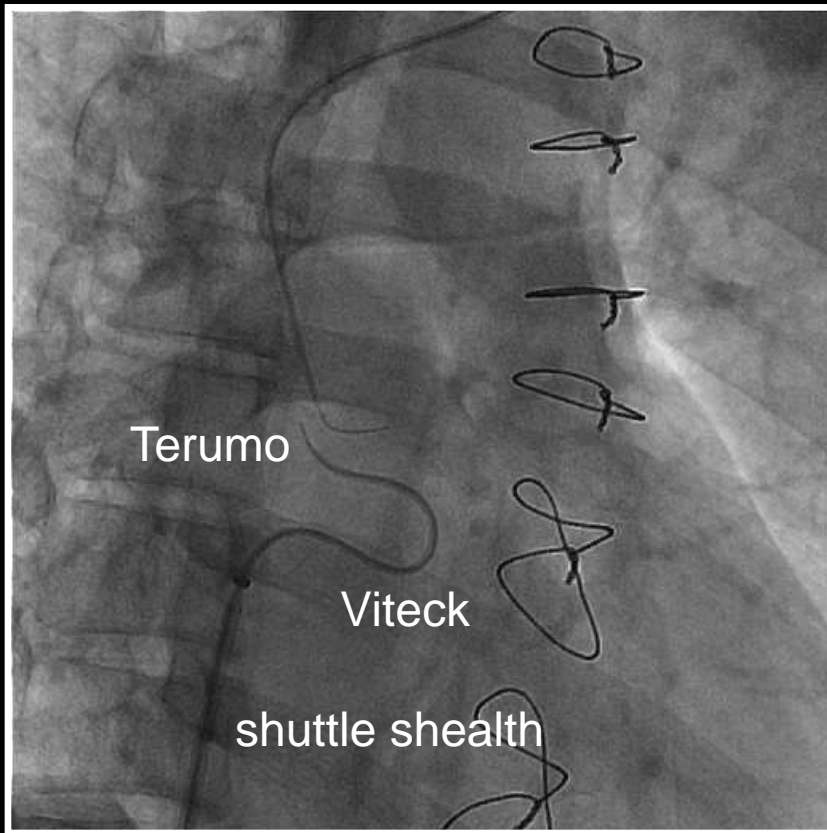
Retrograde wiring with .035" Terumo: failed



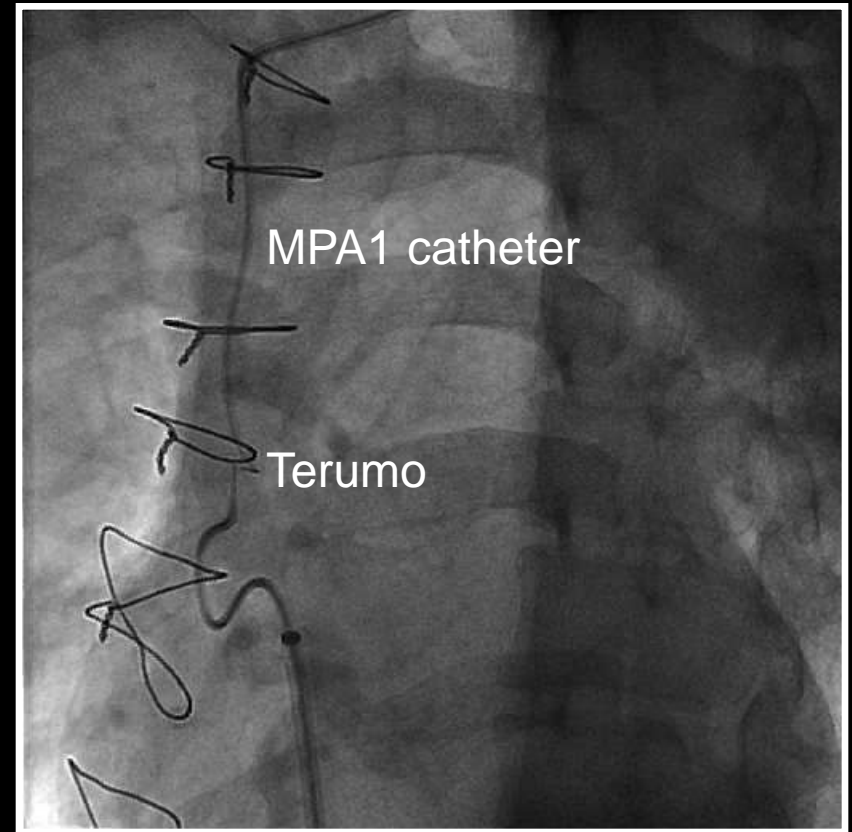
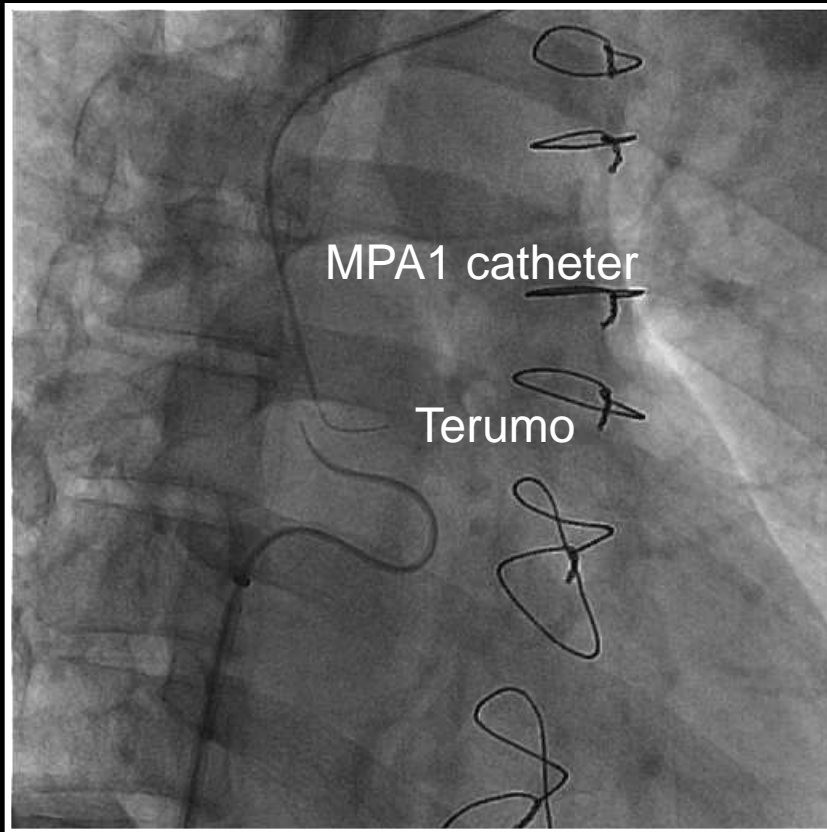
Retrograde wiring with .035" Terumo wire and 6Fr JR4 catheter: failed



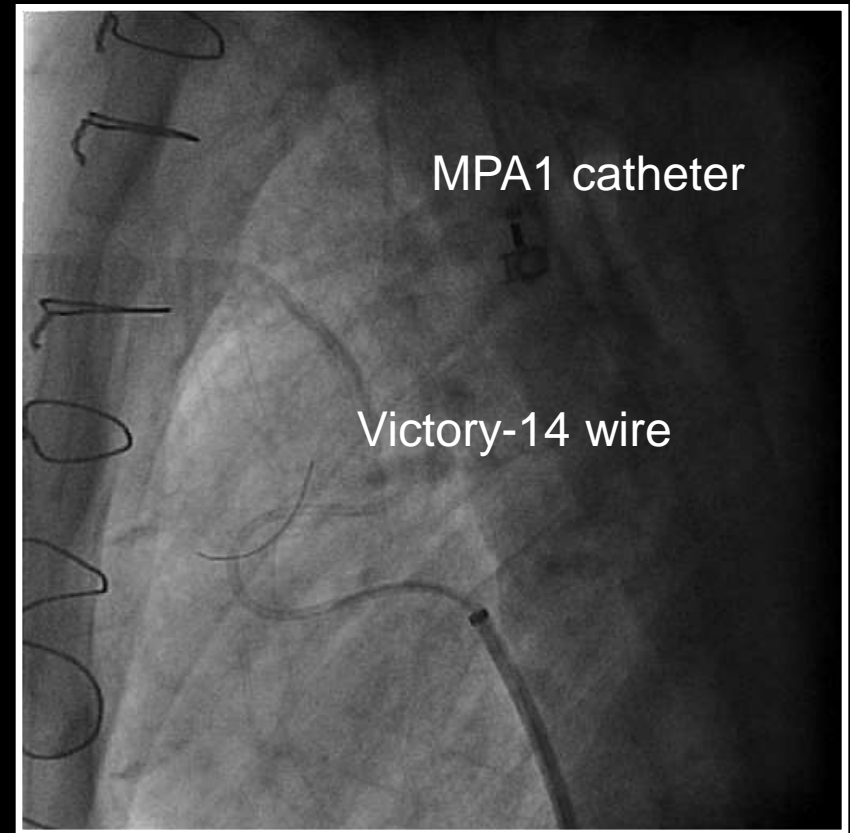
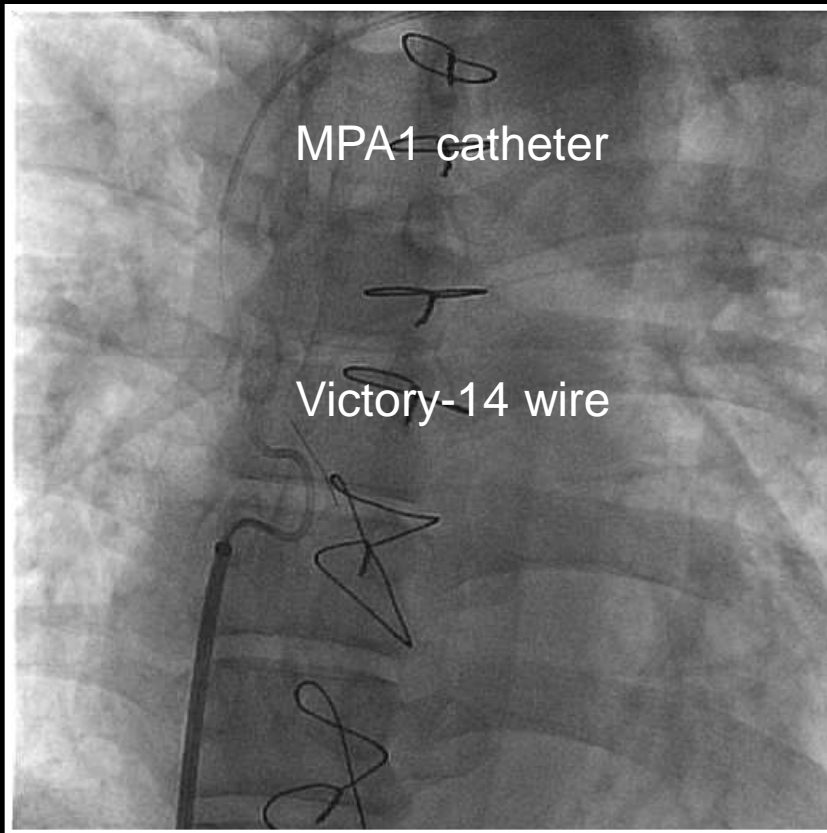
Retrograde wiring with .035" Terumo wire and Viteck catheter: failed



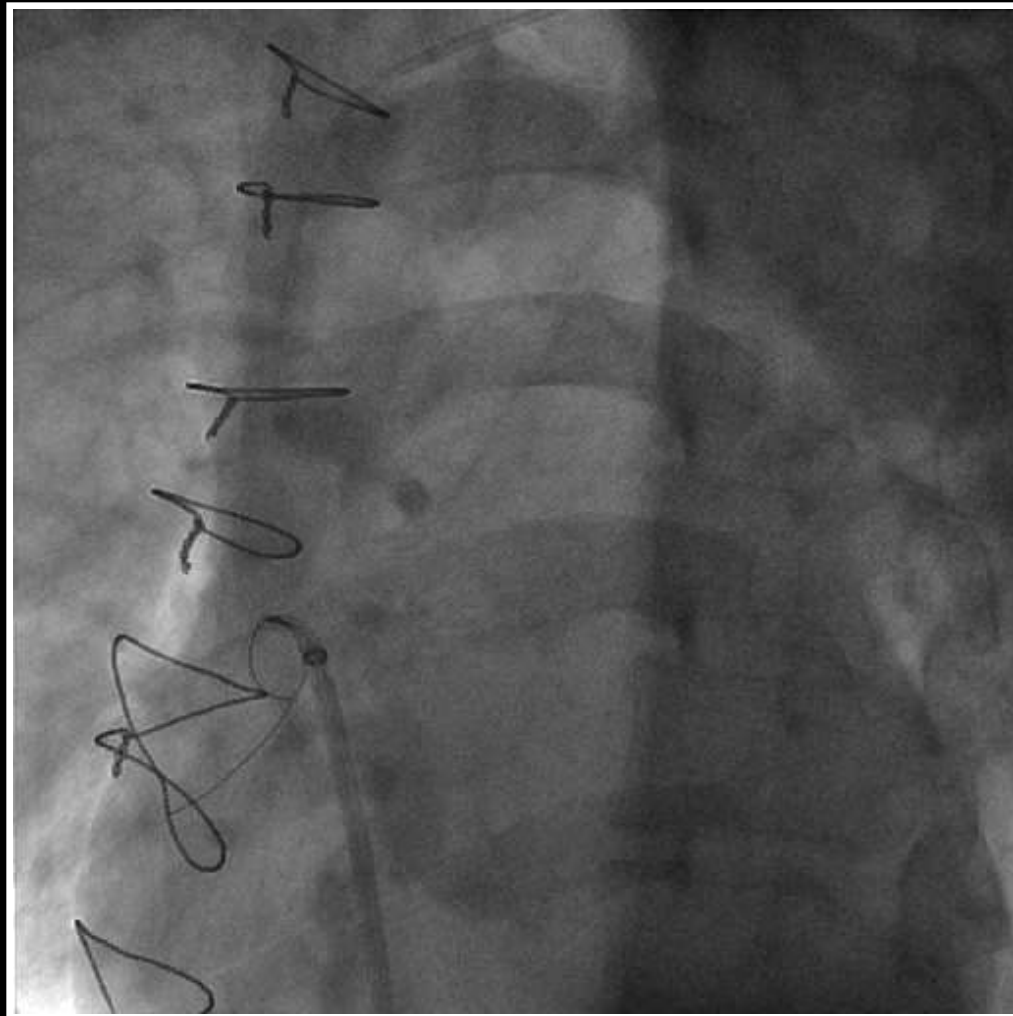
Antegrade wiring with .035" Terumo: failed



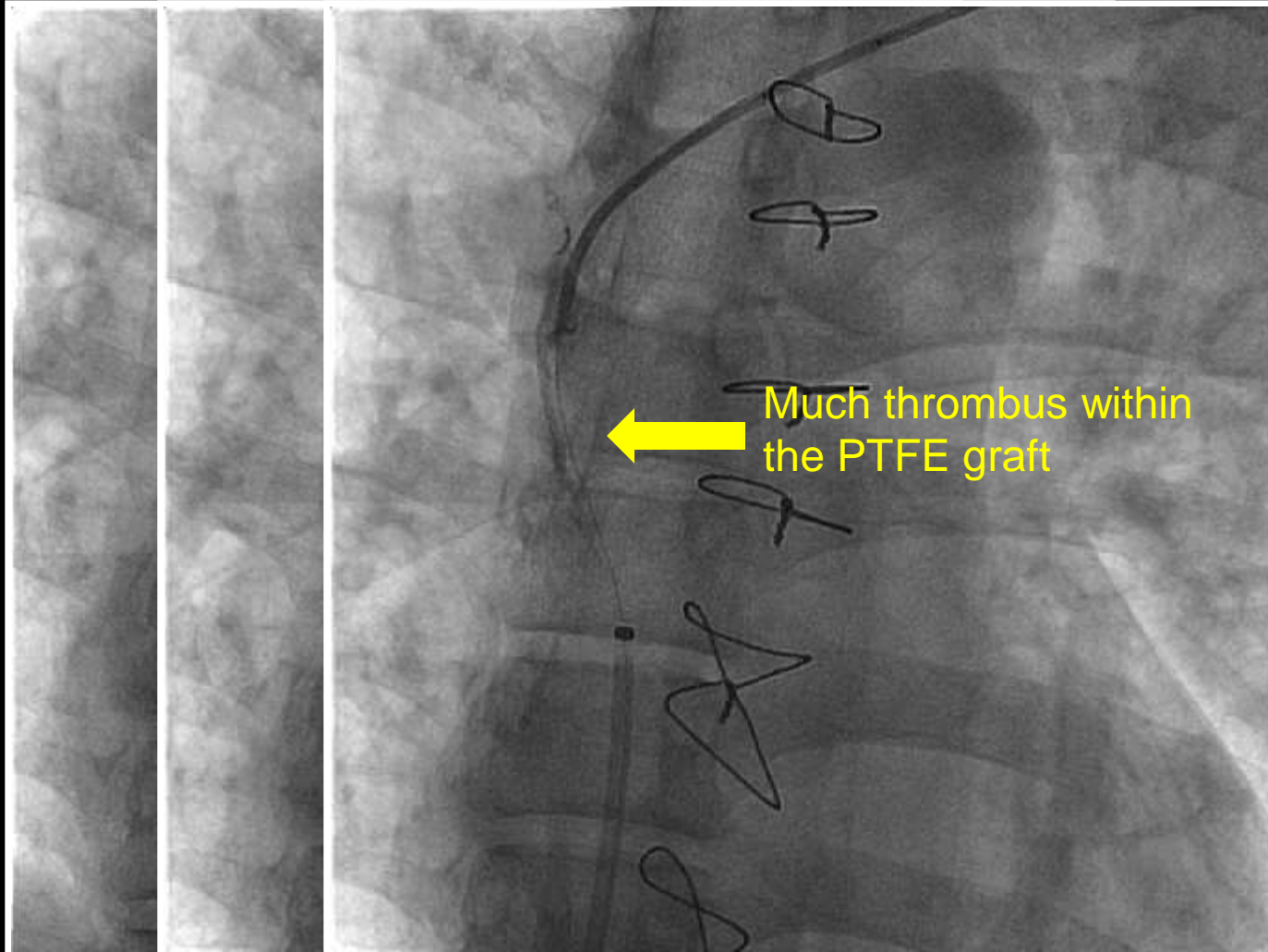
Antegrade wiring successfully with Victory-14(18gm) wire into RA



Antegrade wire was snared out by a 10 mm
Amplatz GooseNeck snare from RFV



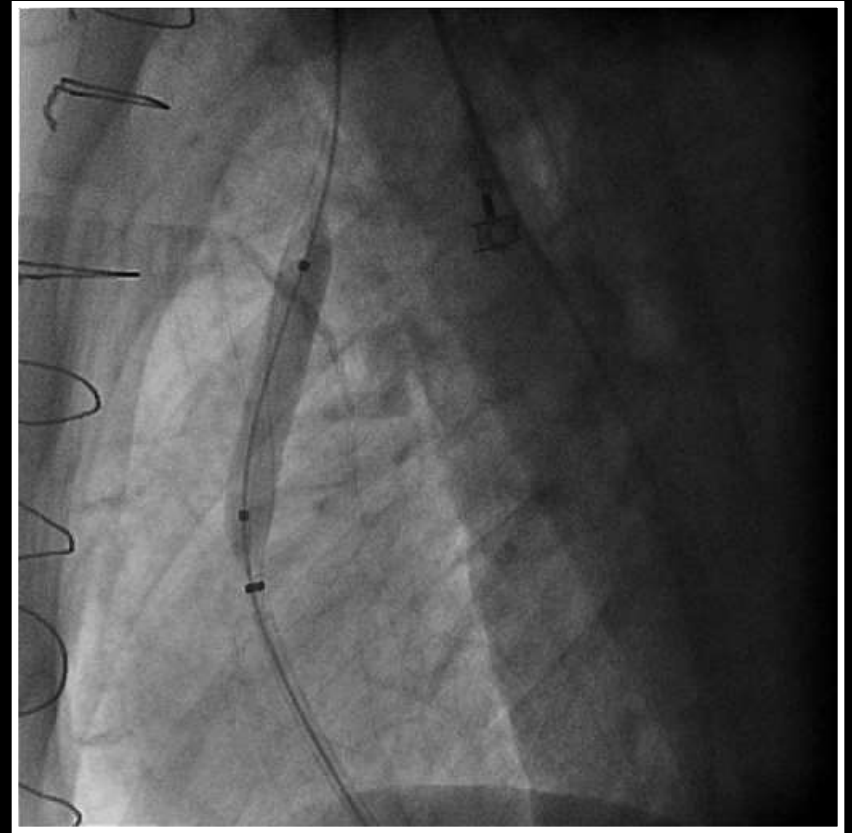
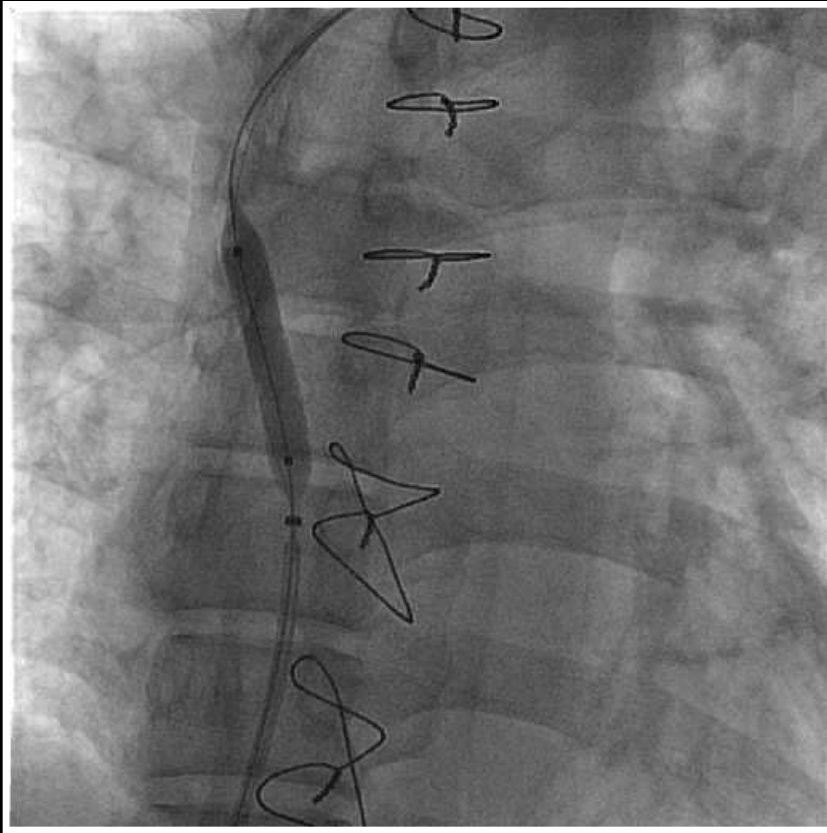
Predilatation with 2.0*20mm and 6.0*20mm balloon from Shuttle sheath



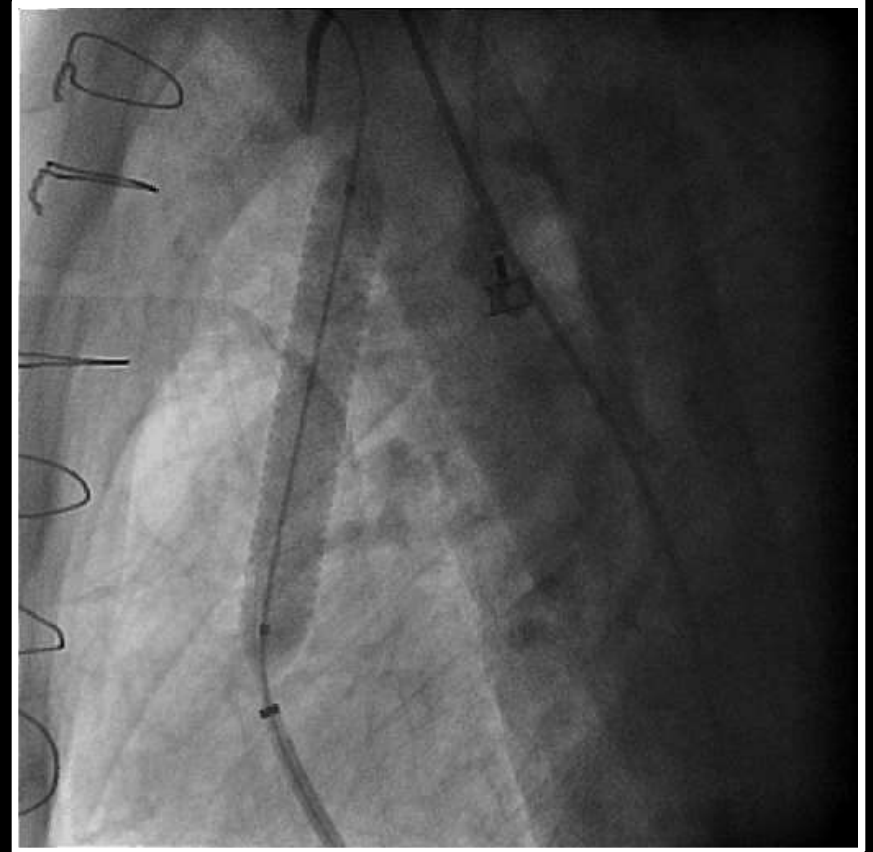
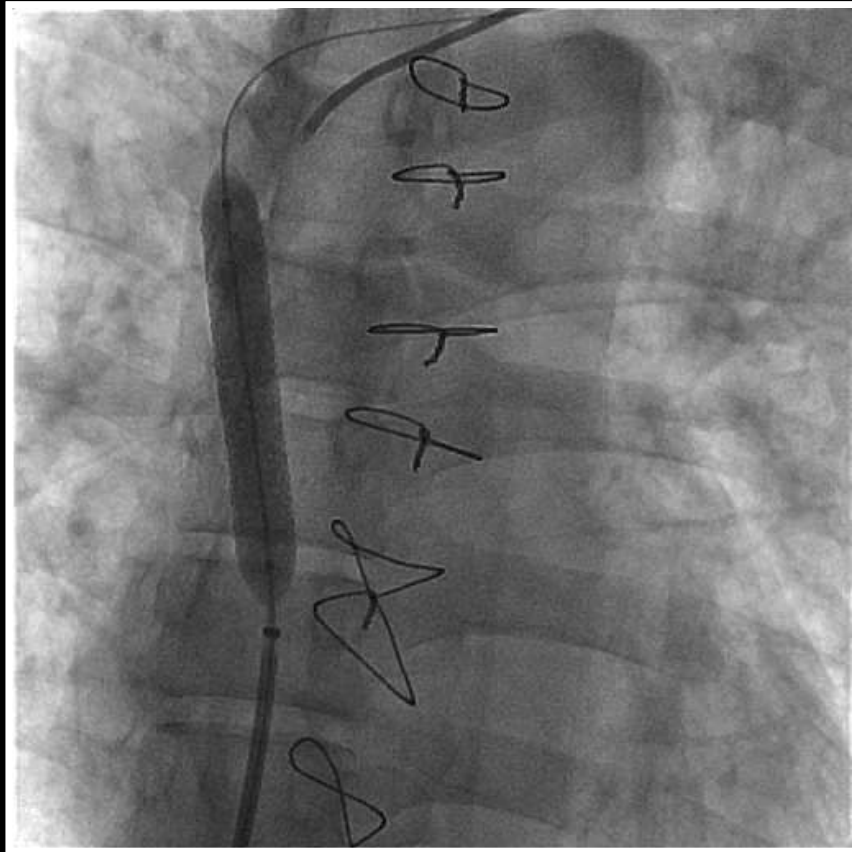
Much thrombus within the PTFE graft was suctioned out through the Shuttle sheath



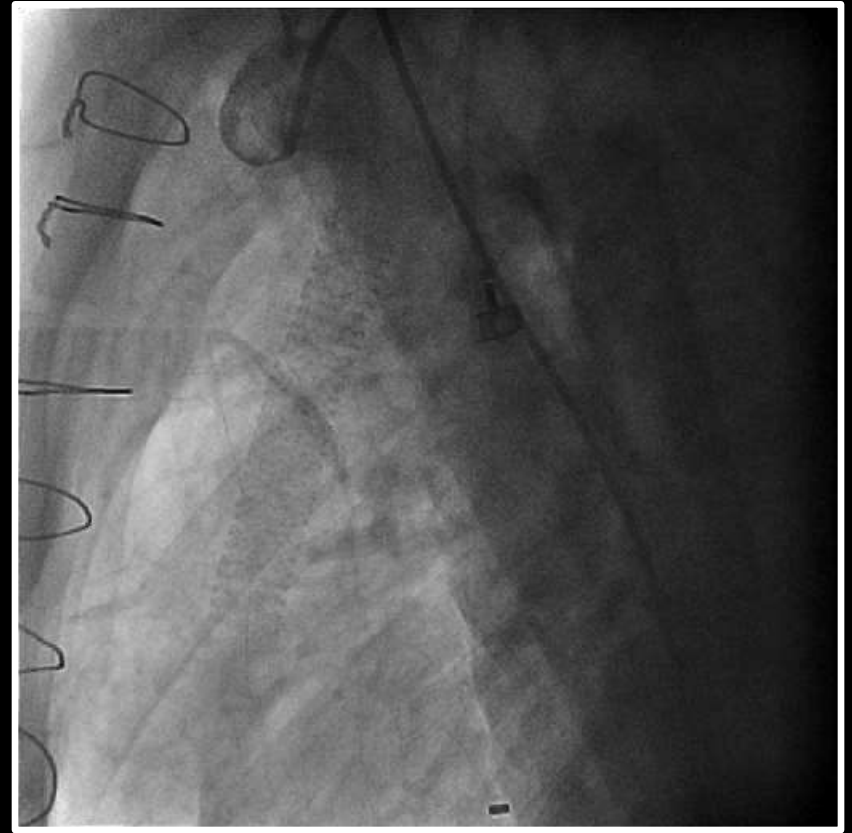
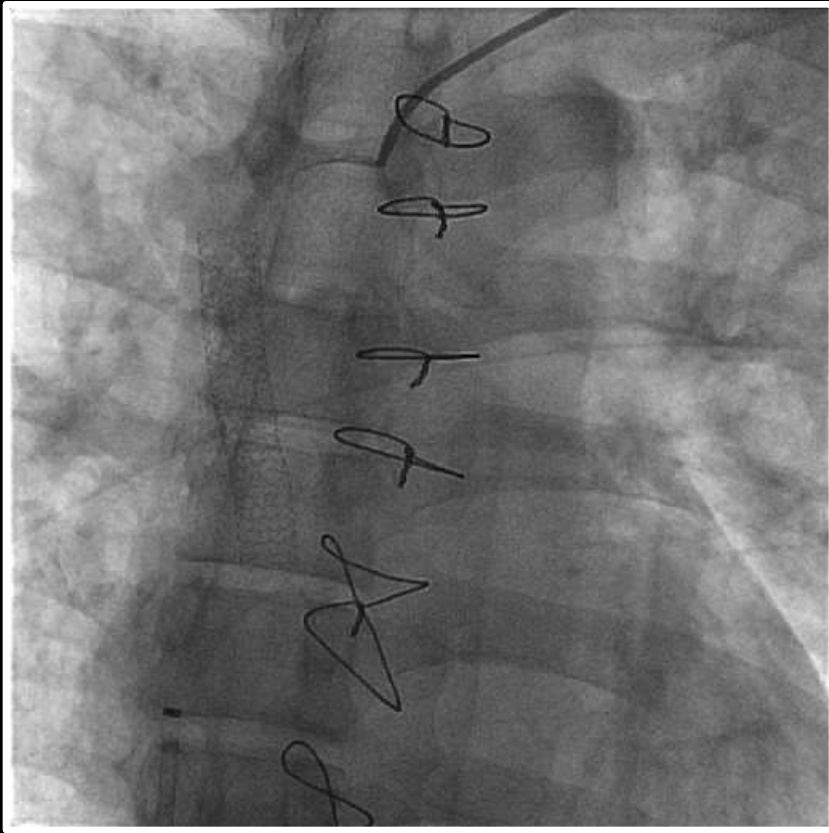
Further dilate the graft by a
8.0/40 mm Admiral Xtreme balloon



A 10.0/57 mm Express LD stent was deployed within the PTFE graft through the Shuttle sheath at 14 atmospheres



Final angiography



Treatment course

- After the procedure, the symptoms of SVC syndrome including superficial venous engorgement and facial swelling improved.
- Triple therapy with Aspirin, Clopidogrel, and Warfarin were prescribed for 1 month, followed by dual therapy with Aspirin and Warfarin for the next 6 months.

Discussion

- The SVC syndrome of uremic patients is different from that of the general population in several ways:
 - Usually had a history of indwelling dialysis catheter
 - Central venous occlusion was usually related to catheter induced injury.
 - Central venous occlusion symptoms may be exaggerated by high flow of the AVF over upper limbs.
 - The SVC syndrome occurred after surgery for stenosed AVF

Angioplasty to occluded SVC

- Re-open an occluded SVC is usually difficult
 - Significant risk of vessel perforation
 - Risk of injury to nearby structures.
- Recurrent central vein stenosis was often noted after PTA
- In this patient, the occluded PTFE graft served as a guide of wiring and a barrier of vascular injury.
 - The PTFE graft may be a good target for revascularization.
- Although his right innominate vein remained occluded, his symptoms improved remarkably because his AVF was left sided.