Renal Artery Thrombosis after EVAR

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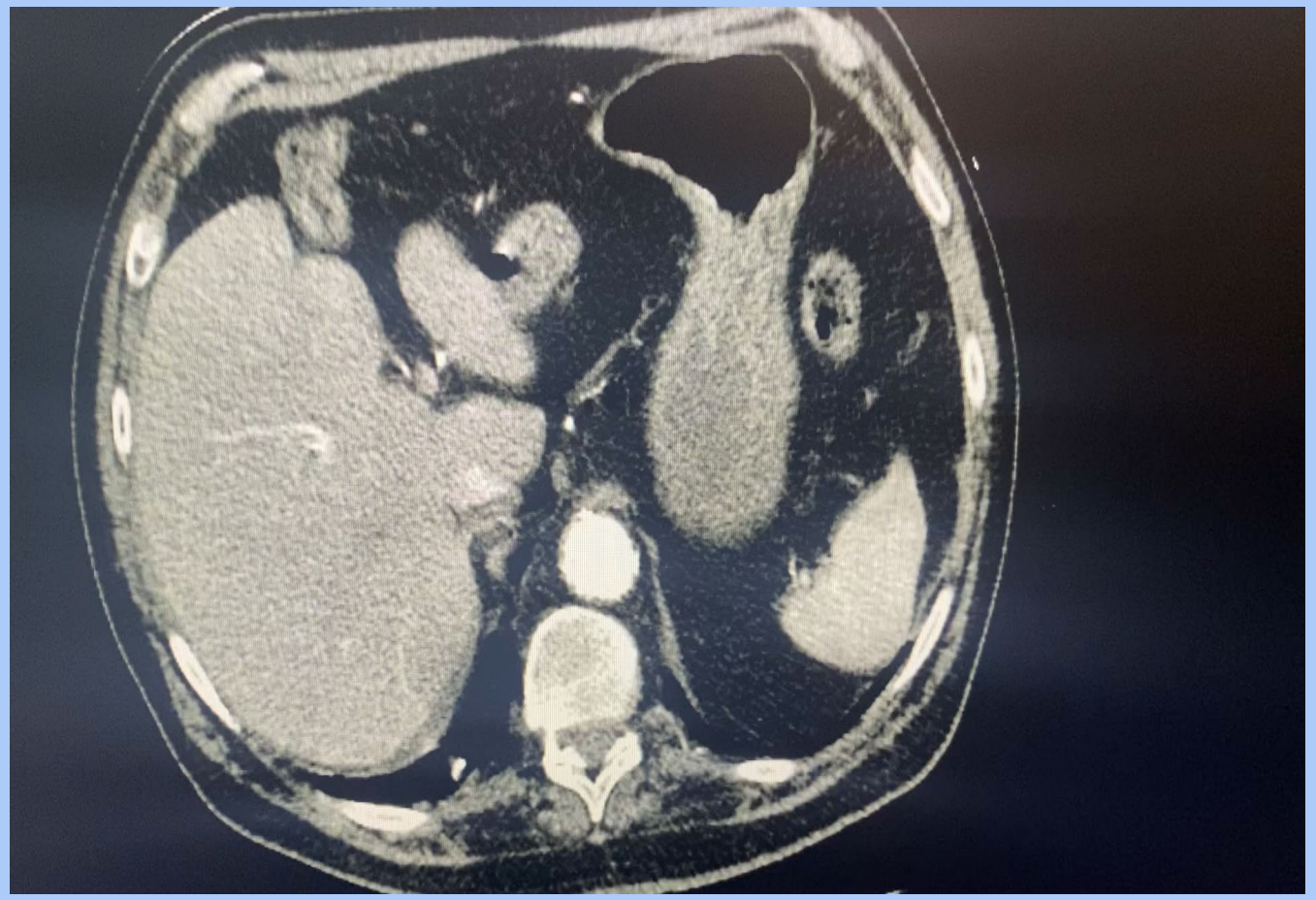
Patient HPI

- Patient is a 72 year old male presenting with severe bilateral flank pain (Left>Right) 10 days after EVAR for 6.2cm infrarenal AAA
- CT scan on admission showed partial left renal artery thrombus with multiple small renal infarcts
- Vitals and labs within normal limits on admission, including serum Cr



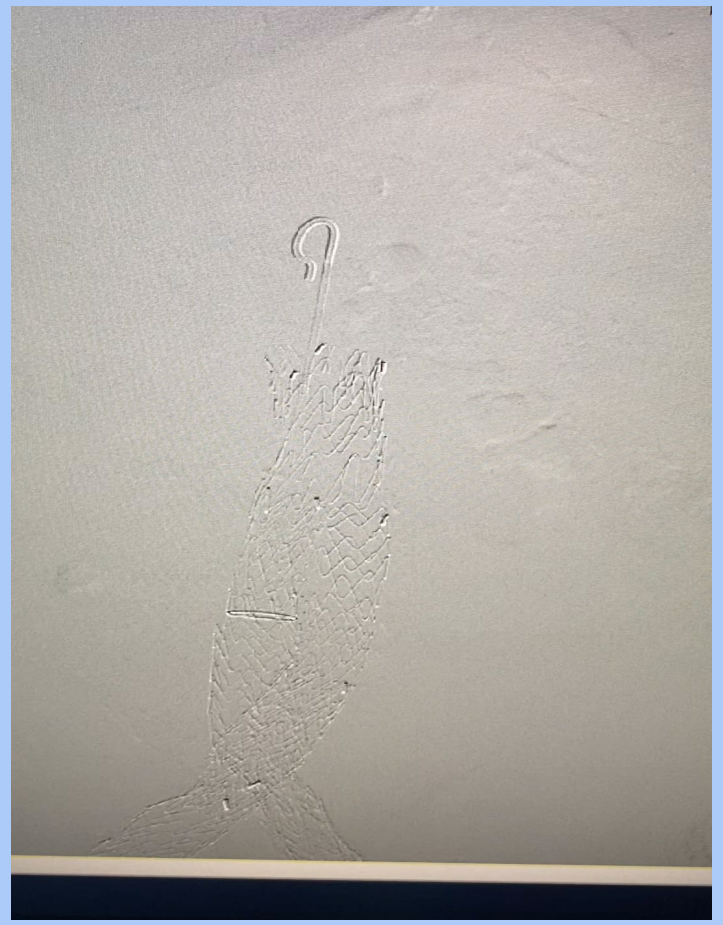
Original EVAR

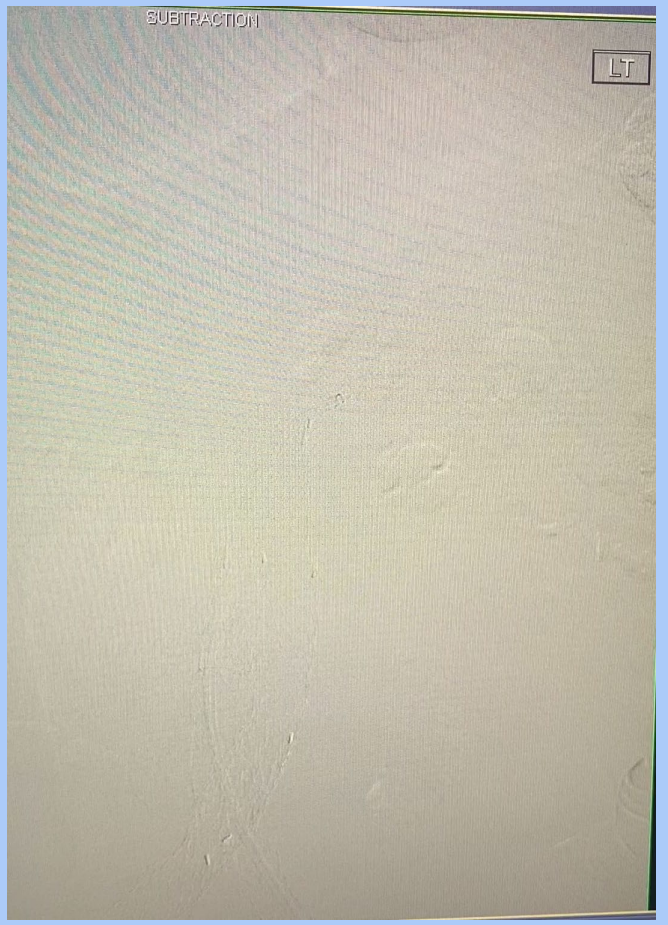
- 23x14x12mm Gore Stent Graft
- 12mm x 12mm contralateral L limb
- 14mm x 7mm extender R Iliac

- Stent graft impinging on left renal artery
- Left hypogastric artery covered

Intervention

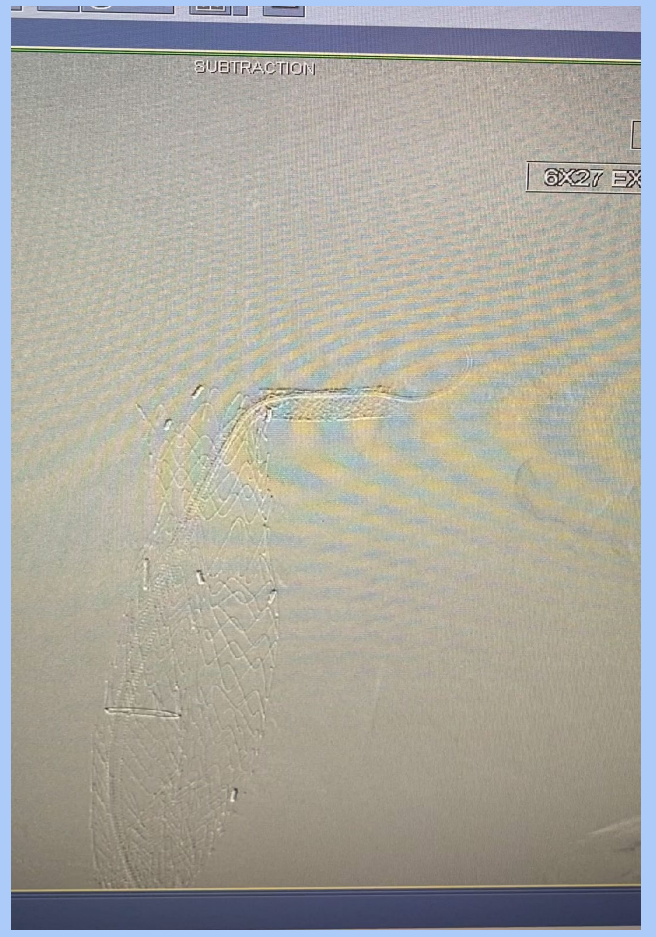
- Initial aortogram and nephrogram demonstrates partial occlusion of left renal artery consistent with increasing left sided flank pain
- Decision was made to proceed with mechanical thrombectomy utilizing lightning penumbra device followed by placement of a balloon expandable stent





Intervention

- After performing left renal arteriogram, multiple passes of lightning penumbra device significantly improved flow to left kidney
- Due to slight encroachment of EVAR stent on left renal artery, decision was made to proceed with 6x27mm balloon expandable Express renal stent
- Final arteriogram demonstrated excellent flow to left renal artery
- By post operative day 2 flank pain resolved and patient was discharged home on aspirin and Plavix. Subsequent follow up revealed normal serum creatinine and complete resolution of pain



Literature

- Renal artery occlusion after EVAR can occur through three main mechanisms
  - Most commonly the aortic stent graft covers one or both renal arteries. In a series of 204 patient Kalliafas et al. a rate of 2-3% unilateral or bilateral renal artery occlusion on initial graft deployment
  - Intraoperative rupture and embolization of cholesterol plaque, reported at a rate of 3.3% in a series reported by Hausegger et al.
  - Remodeling of irregular aneurysmal neck during stent graft deployment
- Renal artery occlusion and subsequent strategy for patients presenting after the immediate post operative period is not well documented

Literature

- Two case reports of prolonged renal artery occlusion after EVAR decribed by Hedayati et al.
  - Both patients arrived one week after the operation and presented with classic symptoms of pain, severe hypertension, and elevated serum creatinine
  - Technique utilized was similar to this case in which a non covered balloon expandable stent (Express stent) was placed in the renal artery with portion protruding into aorta left longer (4 mm)
  - Both patient demonstrated complete renal salvage with improvement in pain, return to baseline renal function, with no long term effects
- Harris et al. studied 197 patients who underwent renal artery stenting for atherosclerotic renal artery stenosis and found 8.3% developed restenosis in covered stent group vs 23% for bare metal stents concluding that covered stents superior for atherosclerotic disease