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Massive Renal AVM: A Rare Cause of Congestive Heart Failure

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Disclosures:

The authors have no disclosures.

Case Presentation:

Presentation: 62 y/o male with chest pain, SOB and atrial fibrillation.

Physical Exam:

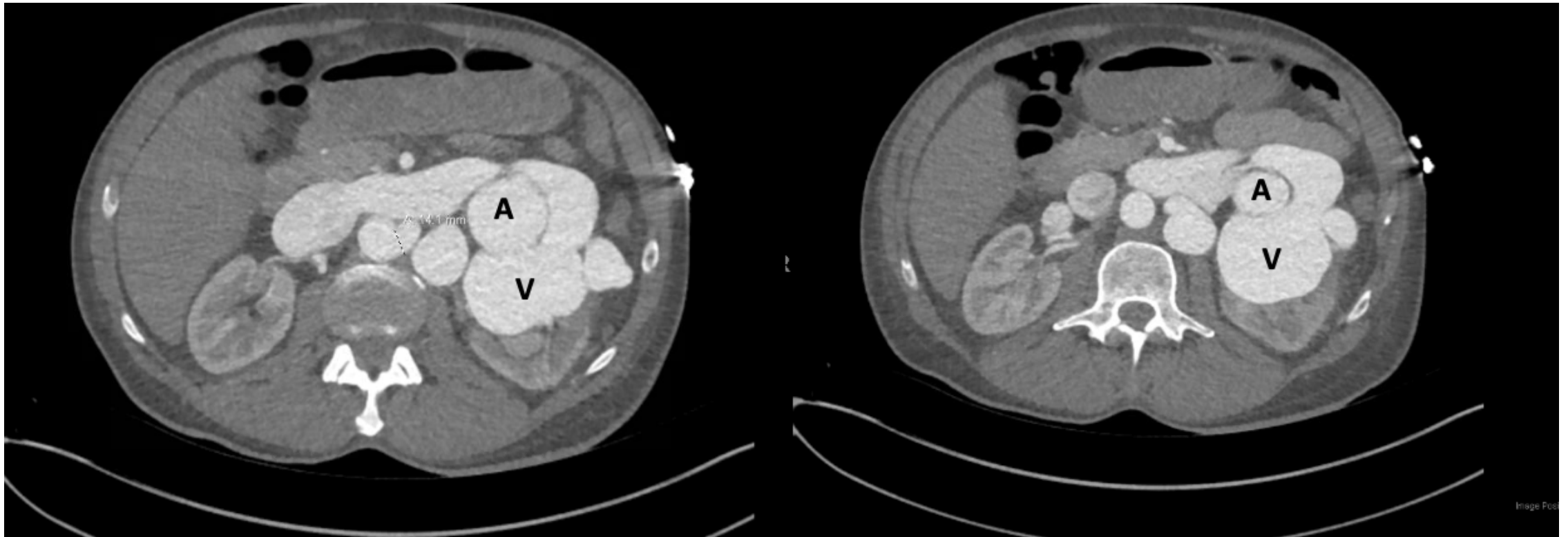
Abdomen: loud L sided bruit, palpable thrill

Extremities: 2+ peripheral edema

Over the course of 2 years:

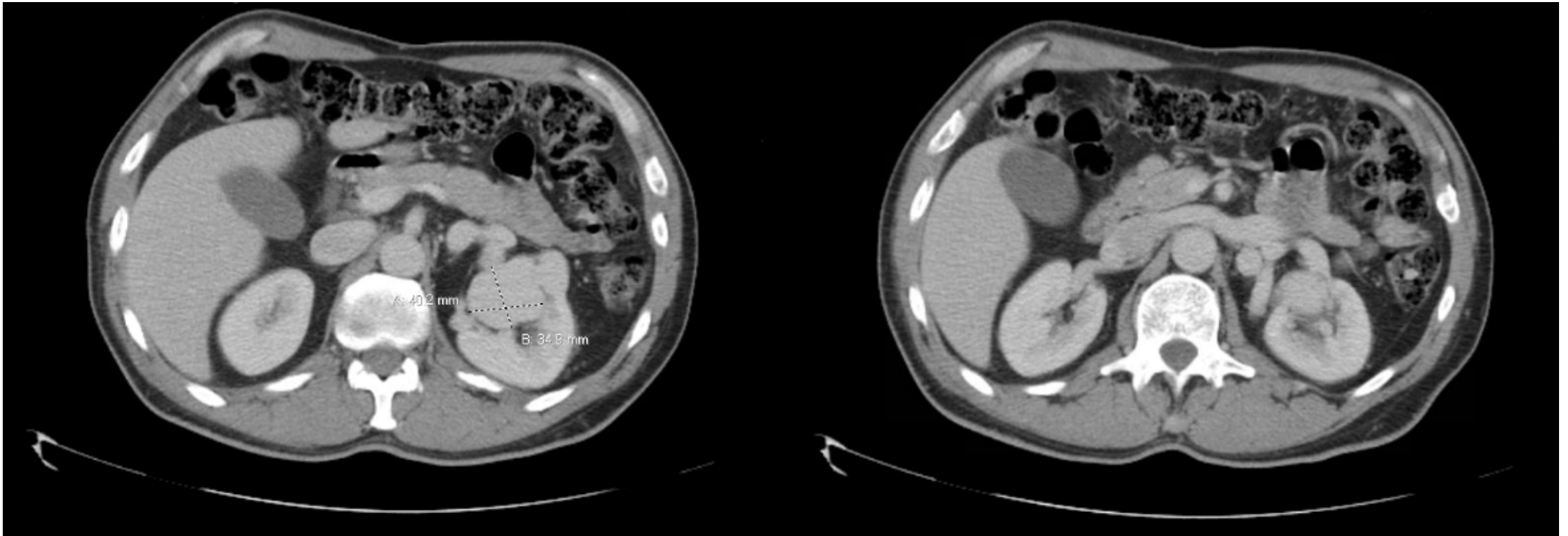
- Diagnostic evaluations at various hospitals:
 - U/S AAA
 - Coronary CTA
 - Stress testing
- S/p 2 ablative procedures for A fib

Im a g i n g :



CT scan demonstrating axial view of massive renal AVM.

Im a g i n g :



CT scan demonstrating axial view of renal AVM.

Treatment Summary:

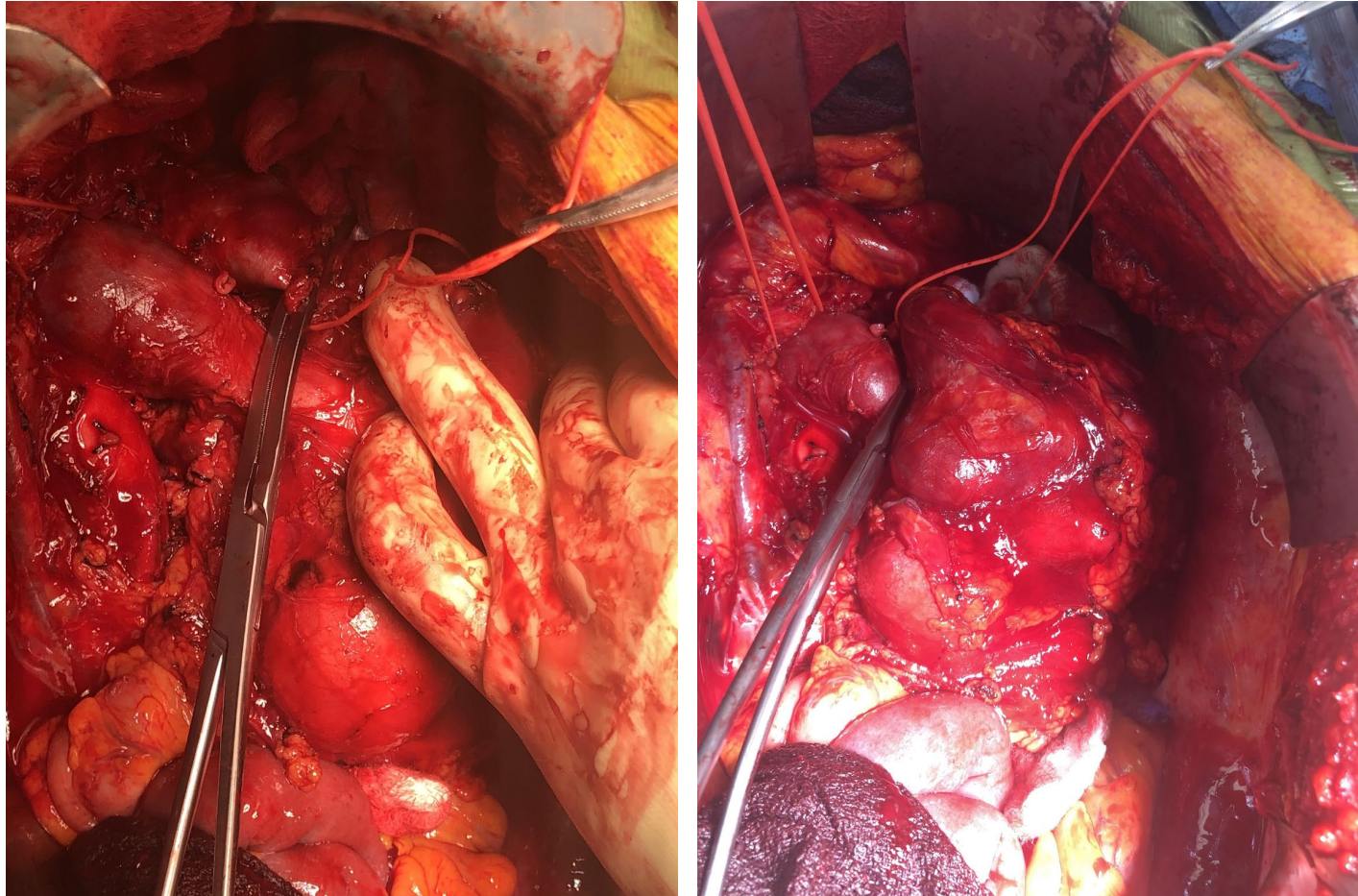
- Vascular consult: recommendation for endovascular treatment
- Initial attempt at embolization
- Second attempt at embolization with interval of 2 weeks
- Left nephrectomy

Endovascular Embolization:

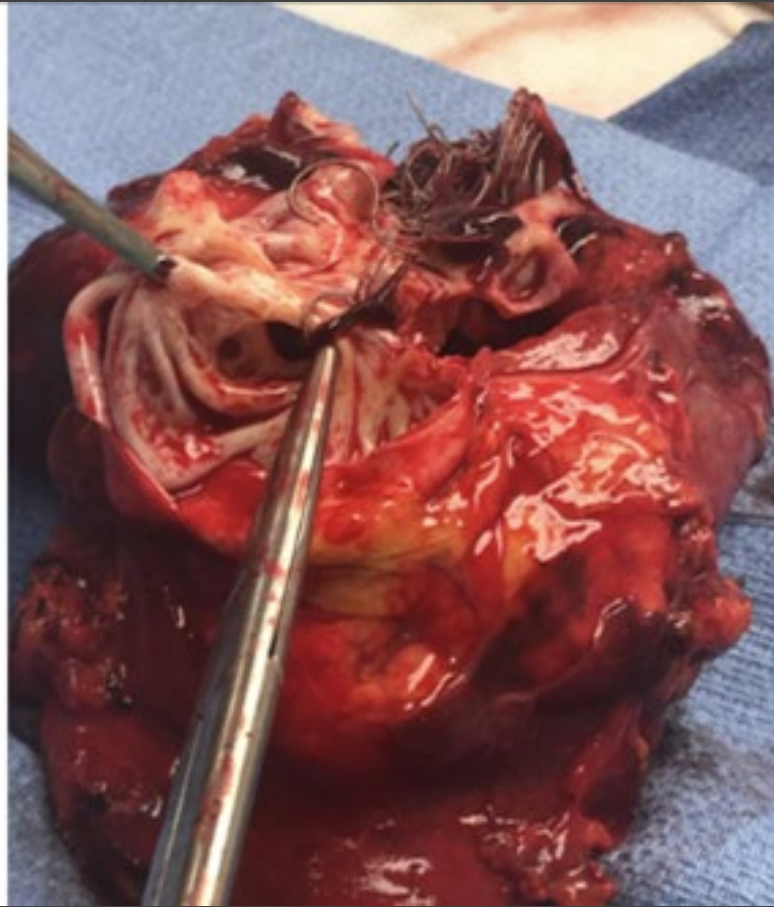
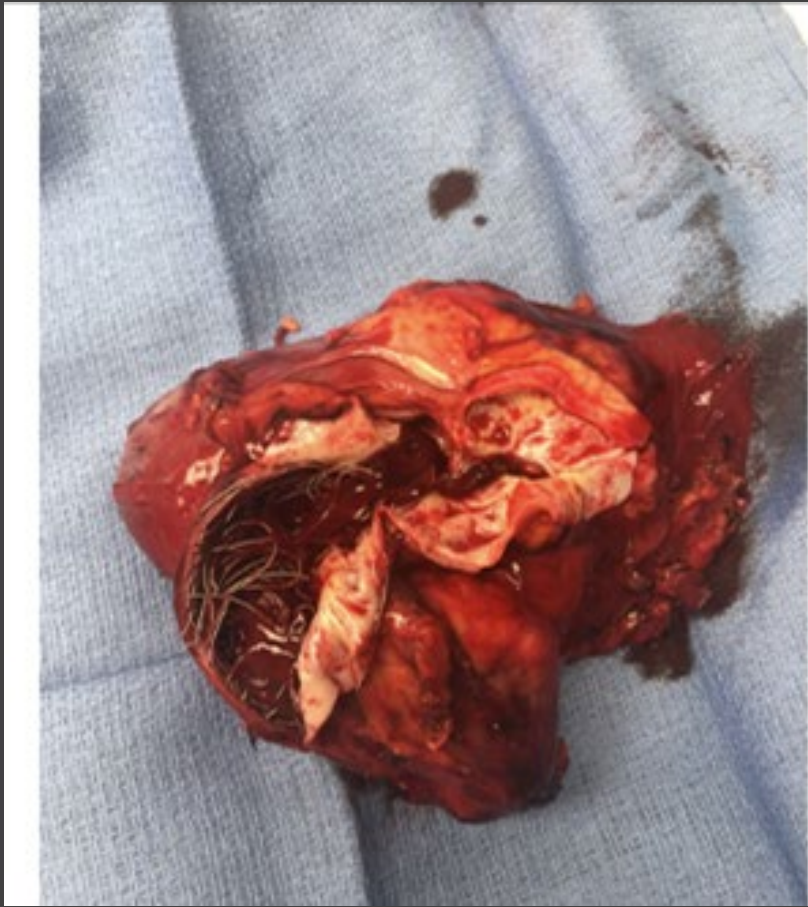


Renal arteriogram (left), post partial coil embolization (middle) and completion arteriogram (right).

Operating Room :



Intraoperative photographs of left renal AVM.



Post-operative gross examination of the resected left kidney and renal AVM. Middle photograph demonstrates multiple anomalous connections between the artery and vein.

Case Presentation:

Open left nephrectomy.

Renal AVM – Current Data

Incidence: <0.04% [75% traumatic].

3:1 women to men | right kidney most common.

No current data compares endovascular versus surgical intervention outcomes for these patients.

No size criteria for the use of endovascular intervention as a sole treatment modality.

Endovascular treatment:

- Stenting

- Embolization [coils, alcohols, glues, gelatin]

Surgical treatment:

- AVM excision

- Nephrectomy

Em b o l i c A g e n t s – C u r r e n t D a t a

Embolization Technique	Data	Conclusion
Gelfoam	None reported in the setting of RAVM.	Not permanent and generally not recommended for treatment of AVMs.
Alcohol	<p>Michel et al. 2006 questioned complications of cv collapse related to its use. After 92 procedures systolic BP and PAP were measured with minimal increase 1-2 mm Hg.</p> <p>Takebayashi et al. reported their experience in 30 patients with RAVMs using combined gelatin sponge, PVA particles and absolute alcohol. They achieved complete occlusion in 22 patient and partial in 8 patients with a mean percentage infarction 15.7%. Common effects: transient dyspnea/headache related to alcohol.</p>	Overall safe with dilution below 50% and injected at a rate of less than 2 ml/s.
Liquid Embolics	None reported in the setting of RAVM.	Use at provider discretion with knowledge of risk of venous migration and catheter complications.
Coils	Multiple case reports with successful embolization of 1-3 cm renal AVMs.	Accepted use in small renal AVMs with known risk of migration.

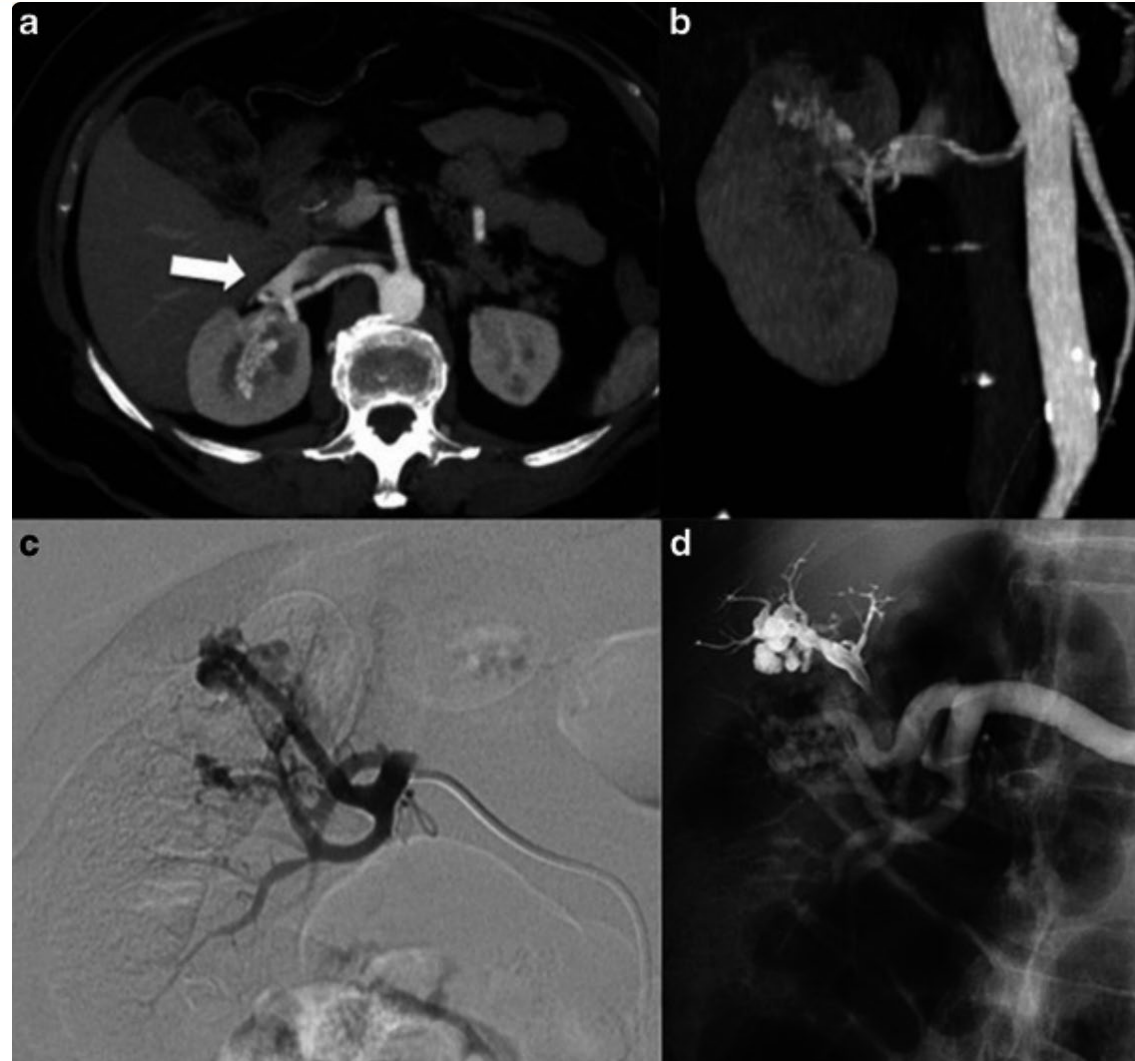
Case Report



Hatzidakis et al. reported a case of a patient presenting with hematuria who underwent coil embolization of a right renal upper pole AVM (<1 cm).

Case Report

Hatzidakis et al. reported a 27 y/o female who presented with R flank pain and hematuria. She underwent embolization with liquid embolic material (1cm).

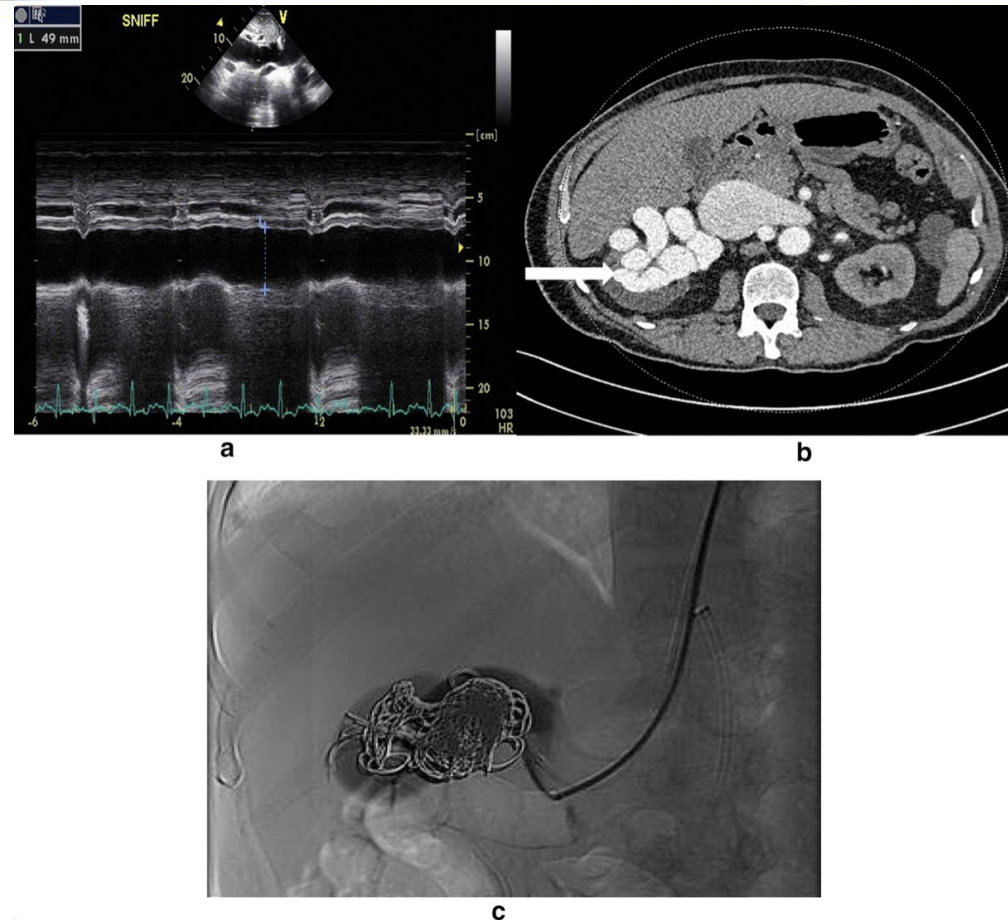


Case Report



Carrafiello et al. reports a 48 y/o female presenting with L flank pain and hematuria in the setting of a 1 cm renal AVM who underwent coil/alcohol embolization.

Case Report



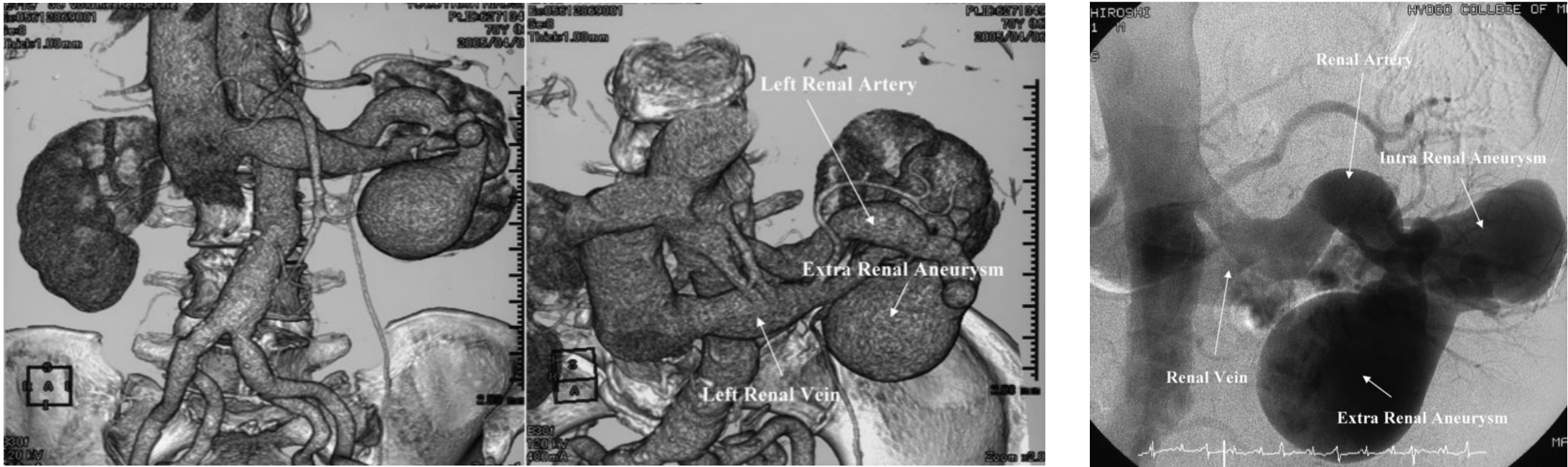
Albak et al. reported 75 y/o male with high output cardiac failure in the setting of a RAVM (2.1 cm) who underwent successful coil embolization. A: echo of distended IVC B: CT of the R RAVM. C: post-coil embolization.

Case Report - Large RAVM



Munoz et al. reported a case of 61y/o female with sxs of cardiac failure treated with laparoscopic right nephrectomy.

Case Report - Large RAVM

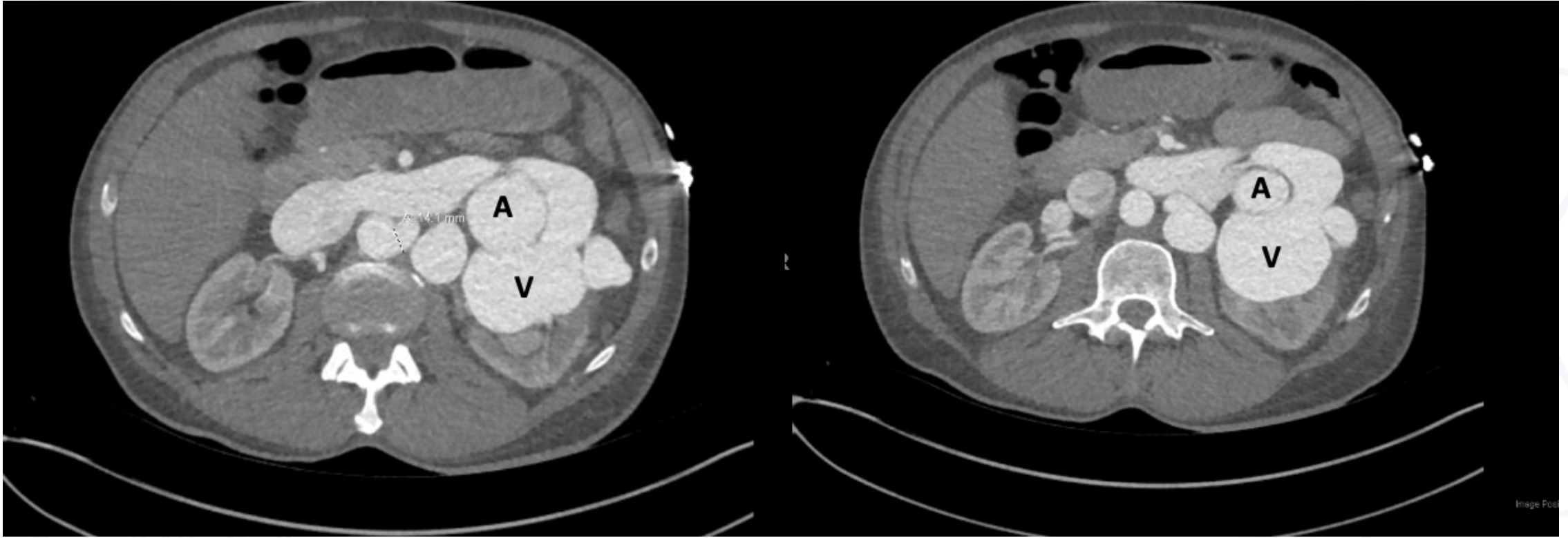


Sakoda et al. reported a case of a 64 y/o male presenting with high output cardiac failure who was treated with left nephrectomy. 3D reconstruction of renal vasculature (left) and arteriogram (right).

Case Report - Large RAVM



Sakoda et al. gross specimen left nephrectomy.



CT scan demonstrating massive renal AVM.

Thank you!

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