

Complex Management of Extensive Perivisceral Aortic Thrombus and Associated Chronic Kidney Disease in a 70-Year-Old Female

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PURPOSE

- The objective of this case study is to present the challenges and outcomes in the management of patients with extensive perivisceral aortic thrombus.
- These patients often have complex pathology which can result in various sequelae such as worsening chronic kidney disease (CKD) due to ischemic nephropathy as in our patient.
- We discuss the complications and subsequent treatment strategies following the initial surgical intervention.

MATERIALS AND METHODS

- A 70-year-old female with a history of extensive perivisceral aortic thrombus and calcification, presented with worsening CKD, stage III to IV with eGFR 26-35, due to suspected ischemic nephropathy.
- Preoperative imaging and diagnostic angiography were performed to evaluate the extent of the thrombus and plan the surgical approach.
- Endovascular options for repair were not possible due to concern of possible embolic phenomenon into the distal renal arteries, visceral vessels, or lower extremities from wire or catheter manipulation.
- The patient was medically optimized for an open aortic endarterectomy.
- Postoperative recovery was monitored with serial laboratory tests, including serum creatinine levels.
- The patient was followed up with a CT angiogram of her chest, abdomen, and pelvis one-month post procedure.



Figure 1: Preoperative CT angiogram showing extensive perirenal thrombus

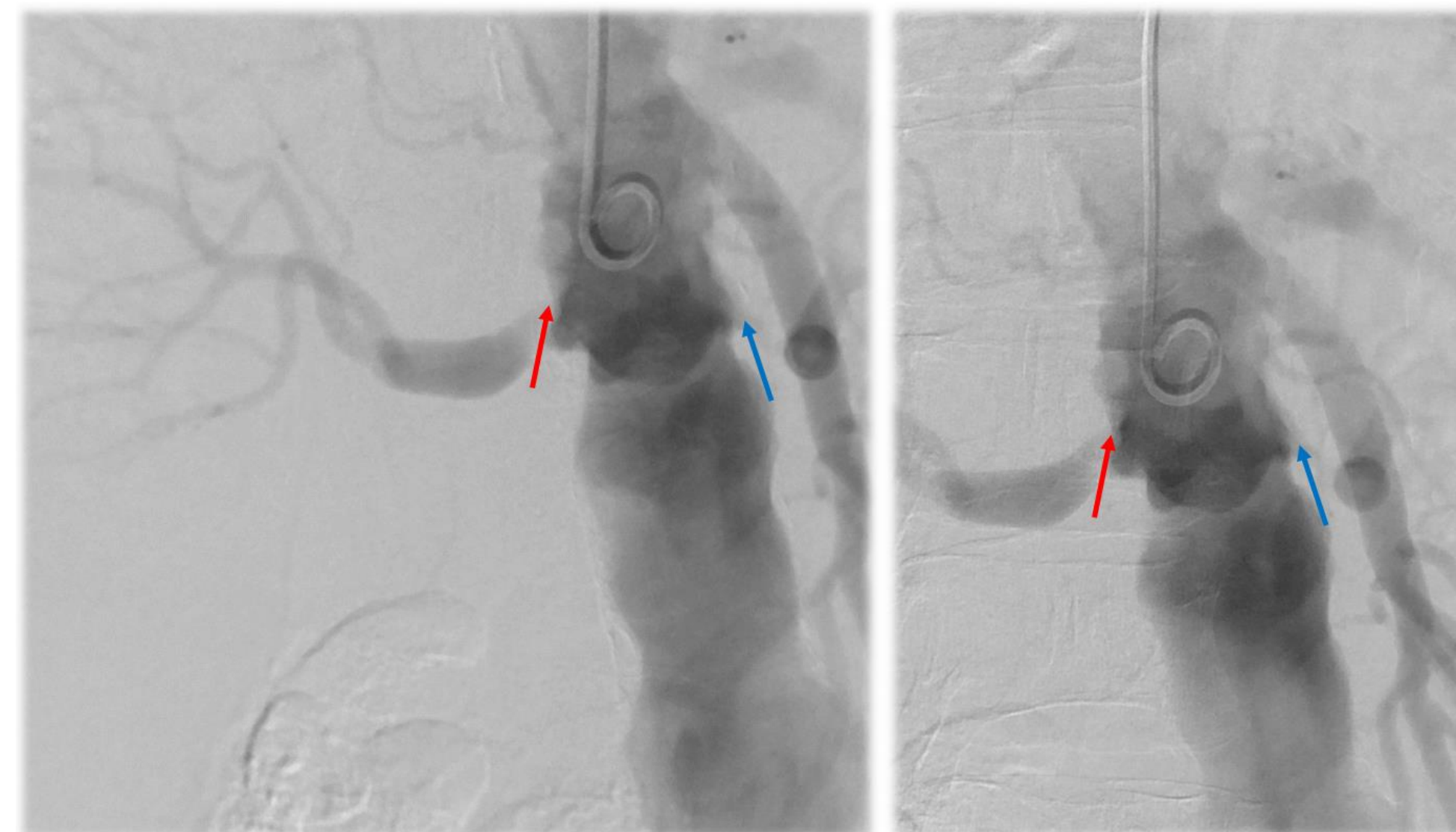


Figure 2: Preoperative angiogram showing extensive perivisceral aortic disease. Red arrow showing disease burden to right renal artery and blue arrow showing nearly completely occluded left renal artery.

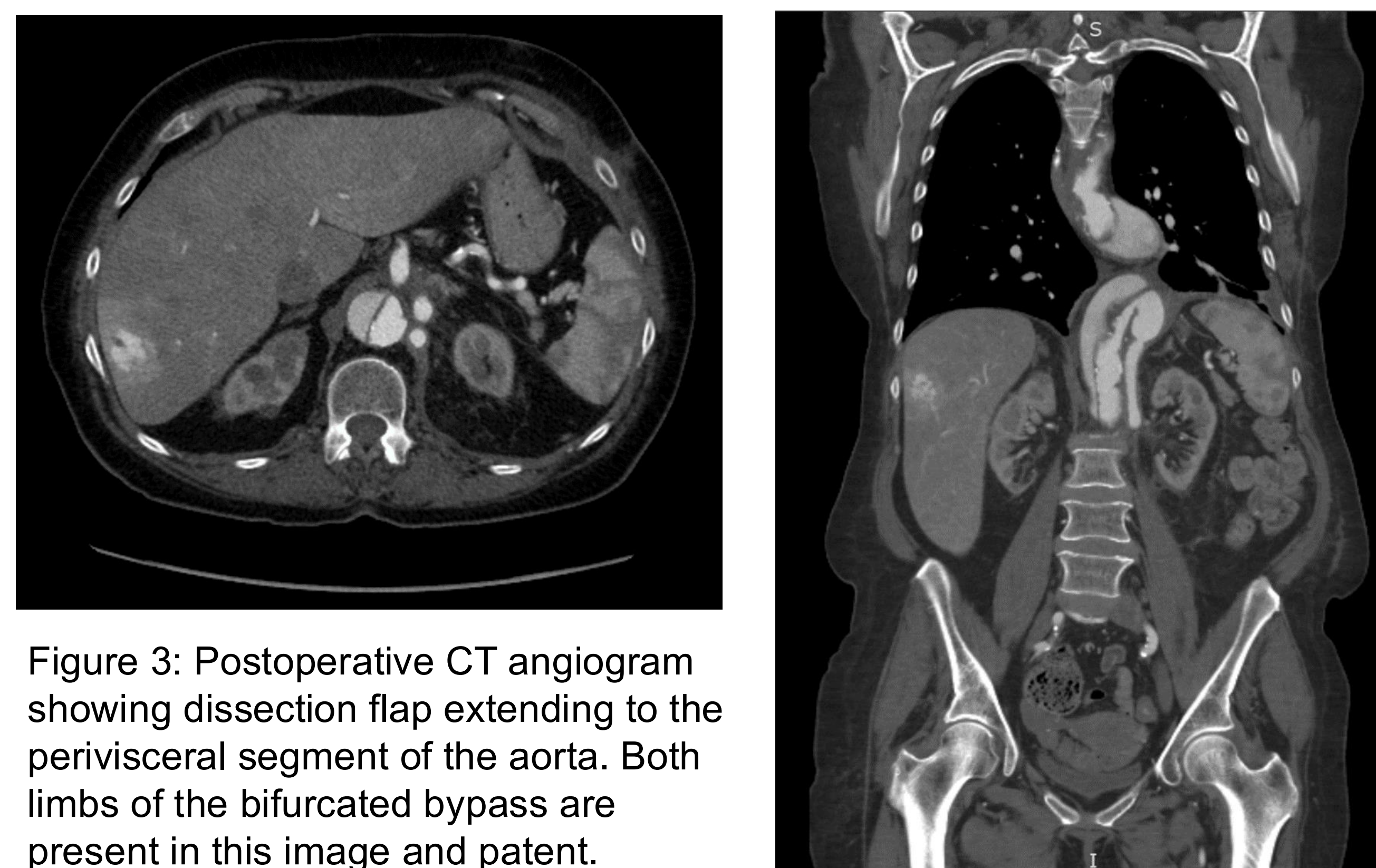


Figure 3: Postoperative CT angiogram showing dissection flap extending to the perivisceral segment of the aorta. Both limbs of the bifurcated bypass are present in this image and patent.

Figure 4: Postoperative CT showing aortic dissection and the proximal anastomosis of the bilateral renal artery bypass.

RESULTS

- A thoracoabdominal incision originating from the T8 level was performed to facilitate adequate exposure via a retroperitoneal approach for the planned aortic endarterectomy of the perivisceral region.
- During the operation it was determined that an endarterectomy alone was not sufficient enough to revascularize the kidneys.
- An intraoperative decision was made to perform a bypass originating from the descending thoracic aorta to the bilateral renal arteries using a 16x8 mm bifurcated Dacron graft as a conduit.
- The operation was successfully completed, and the patient was noted to have improvement in renal function on postoperative surveillance with GFR >60 and normalization of her serum creatinine values.
- Follow up CT demonstrated an aortic dissection originating from the descending thoracic aorta extending antegrade into the visceral vessels and retrograde into the proximal descending thoracic aorta.
- This likely originated from a flap created at the proximal anastomosis site, which had required a focal endarterectomy.
- The patient remained hemodynamically stable with controlled blood pressure and without any symptoms.
- An endovascular intervention is planned to address the dissection using the Petticoat technique. The patient is currently being prepared for this procedure.

CONCLUSIONS

- This case highlights the complexity of managing extensive perivisceral aortic thrombus and the associated risks of surgical intervention.
- The initial open aortic endarterectomy and bypass procedure resulted in significant improvement in renal function, as evidenced by the normalization of serum creatinine levels.
- However, the development of an aortic dissection underscores the need for careful intraoperative technique and vigilant postoperative monitoring.