Idiopathic Aortorenal Junction To Renal Vein Arteriovenous Fistula Managed With Fenestrated Endograft And Renal Artery Stenting

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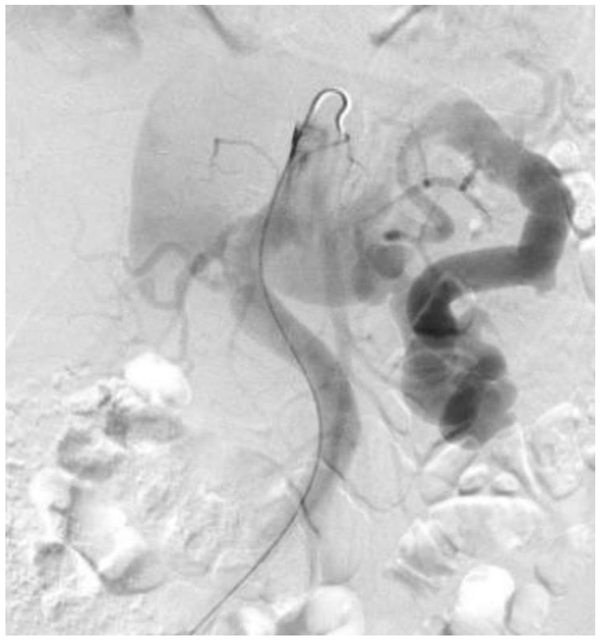
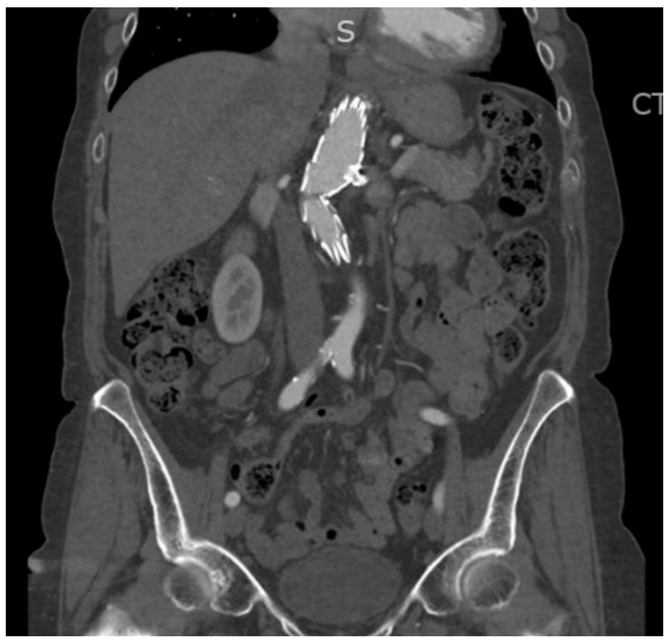
Introduction

Clinically significant idiopathic arteriovenous fistulas (AVF) between the aorta and the renal vein are infrequently encountered and challenging to manage. We present a case of spontaneous aortorenal junction to renal vein AVF and associated surgical management.

Case

A 74-year-old female presented for acute cardiac failure. During the workup, echocardiogram demonstrated high-output cardiac failure and labs were significant for hematuria. Computed-tomography imaging demonstrated a left aortorenal junction to renal vein AVF, and severe hydronephrosis secondary to associated compression of the renal pelvis. She had no history of prior surgery or trauma. Given the AVF location, surgical options were limited. Open surgery would risk significant morbidity given underlying heart failure. Neither simple embolization, renal stenting nor a standard endovascular aortic repair would adequately treat the AVF. Due to this complex pathology, we elected to use a custom fenestrated aortic endograft with a superior mesenteric artery scallop and bilateral renal stents to exclude the fistula.





Results

The fenestrated endograft was successfully deployed, and intraoperative imaging showed dramatically decreased flow of the AVF with preservation of renal and visceral perfusion. Serial surveillance with duplex ultrasound and computed-tomography angiography at up to 2 years follow-up showed no residual AVF, and widely patent aortorenal system. Clinically, the patient had resolution of heart failure symptoms, hydronephrosis and hematuria.

Conclusions

This case represents a unique and strategic approach to a challenging pathology. Advancements in diagnostic and surgical technology allowed this complex pathology to be treated via a minimally invasive approach with desirable long-term results.