Renal arteriovenous fistula associated high-output heart failure treated with embolization

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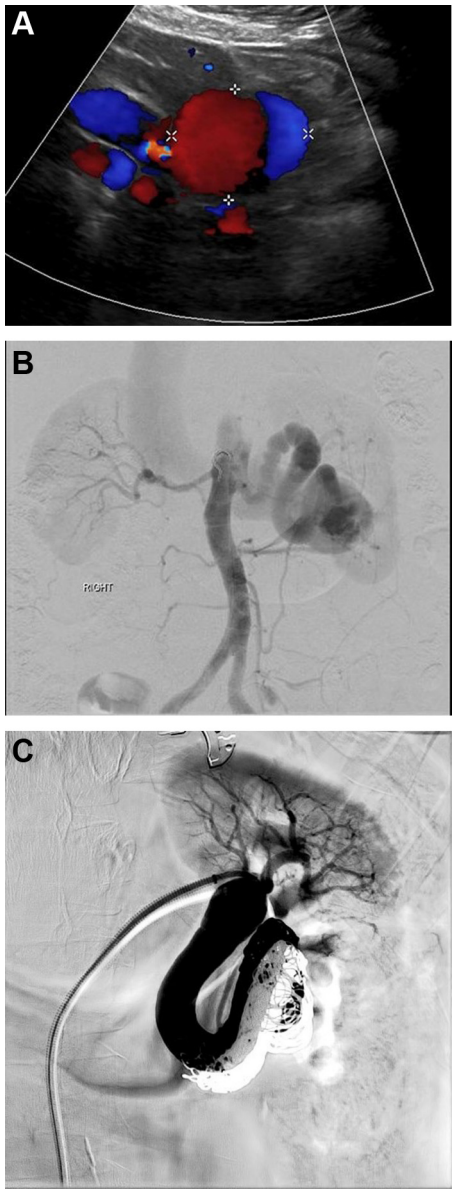
Renal arteriovenous fistulas (AVFs) are rare, with an incidence of 0.04%, and can be congenital or acquired.[1,2] Patients present with hematuria, flank pain, flank bruit, hypertension, perirenal hematoma, and high-output heart failure.[1,3] The majority of renal AVFs are acquired and associated with invasive procedures, malignancy, inflammation, or trauma.[3] The incidence of renal AVFs associated with fibromuscular dysplasia (FMD) is unknown, with few cases reported. Renal artery aneurysms have been reported in approximately 5.6% of patients with FMD, which can lead to AVF formation by rupturing into the renal vein.[4,5] We report a case of a patient presenting with symptoms of high-output heart failure owing to a large AVF associated with FMD that was successfully treated with embolization. The patient has consented to this publication.

A 69-year-old woman with history of hypertension, hyperlipidemia, and atrial fibrillation presented with dyspnea on exertion. A computed tomography scan of the abdomen showed a left renal AVF. Duplex ultrasound examination demonstrated a 4.0 × 4.0-cm renal vein aneurysm with shunting between the renal artery and vein suggestive of an AVF (*A*). Based on imaging and symptoms, high-output heart failure owing to renal AVF was suspected and angiography with possible embolization was recommended.

Vascular access was established via the right common femoral artery using a 5F sheath. The angiogram showed a string-of-beads appearance of the renal artery consistent with FMD and a large venous aneurysm and AVF arising from the hypertrophied branch of renal artery (*B*/Cover). A single communication between the artery and the vein was identified and detachable embolization coils (Penumbra, Alameda, CA) and 0.2 mL 50% Trufill n-BCA glue (Cerenovus, Miami, FL) were used to embolize arterial branch feeding the fistula. Coils have the low risk of migration, but are challenging to clot off in a high-flow vessel. Therefore, glue was used to fill the interstices and completion fluoroscopy demonstrated fistula occlusion and intact flow to the kidney (*C*). Catheterization of the fistula or concomitant venous access were not necessary.

The patient had normal renal function preoperatively and it was preserved after the embolization. Her shortness of breath resolved after the procedure.



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