Aspiration Thrombectomy of Acute Atrial Fibrillation-related Renal Artery Thromboembolism in a Patient with Horseshoe Kidney

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Background: Acute arterial thromboembolism to the renal arteries can be treated promptly by local thrombolysis, conventional surgical thrombectomy, or anticoagulation.
Methods: We report a patient who presented with acute loin pain as a result of atrial fibrillation-related thromboembolism to the right renal artery supplying his horseshoe kidney. He was already on warfarin treatment with international normalized ratio of 1.7 and had acute bleeding from malignant peptic ulcer disease, so thrombolysis was contraindicated.
Results: He underwent timely endovascular revascularization with aspiration thrombectomy, with good clinical and radiological consequence. He subsequently underwent curative partial gastrectomy and made a steady recovery.
Conclusion: Early endovascular target-directed therapy such as intra-arterial thrombolysis and mechanical aspiration in combination with intravenous heparin therapy will result in renal salvage.

Endovascular intervention is an established treatment modality for renal artery occlusive disease, and percutaneous transcatheter aspiration of thrombus with or without intra-arterial thrombolysis has been shown to be effective in restoring renal arterial flow.[1] Thrombolysis is effective in revascularization of renal arteries, but may be associated with hemorrhagic complications, distal emboli, and may require several hours with continuous angiographic monitoring. Many of the commercially available mechanical thrombectomy devices may not be appropriate because of the small renal artery diameter, with sharp angulations and short segmental branches.

We describe a patient with horseshoe kidney who suffered atrial fibrillation-related thromboembolism to his right-sided kidney, and was treated successfully with aspiration thrombectomy.

CASE REPORT

A 71-year-old gentleman with past history of atrial fibrillation on warfarin therapy presented with sudden onset of right-sided loin pain. Initial blood test showed acute deterioration in renal function with serum creatinine level raised from baseline (108 μmol/L) to 134 (μmol/L). Hemoglobin level was 8.2 g/dL and international normalized ratio (INR) 1.7 at the time of admission. An emergency computer tomography (CT) scan of the abdomen showed that there was an acute thromboembolism in the right renal artery supplying his horseshoe kidney (Fig. 1). Intravenous heparin was started in view of the suboptimal INR level.

Upper endoscopy was performed early next morning for the finding of anemia and possible intervention of

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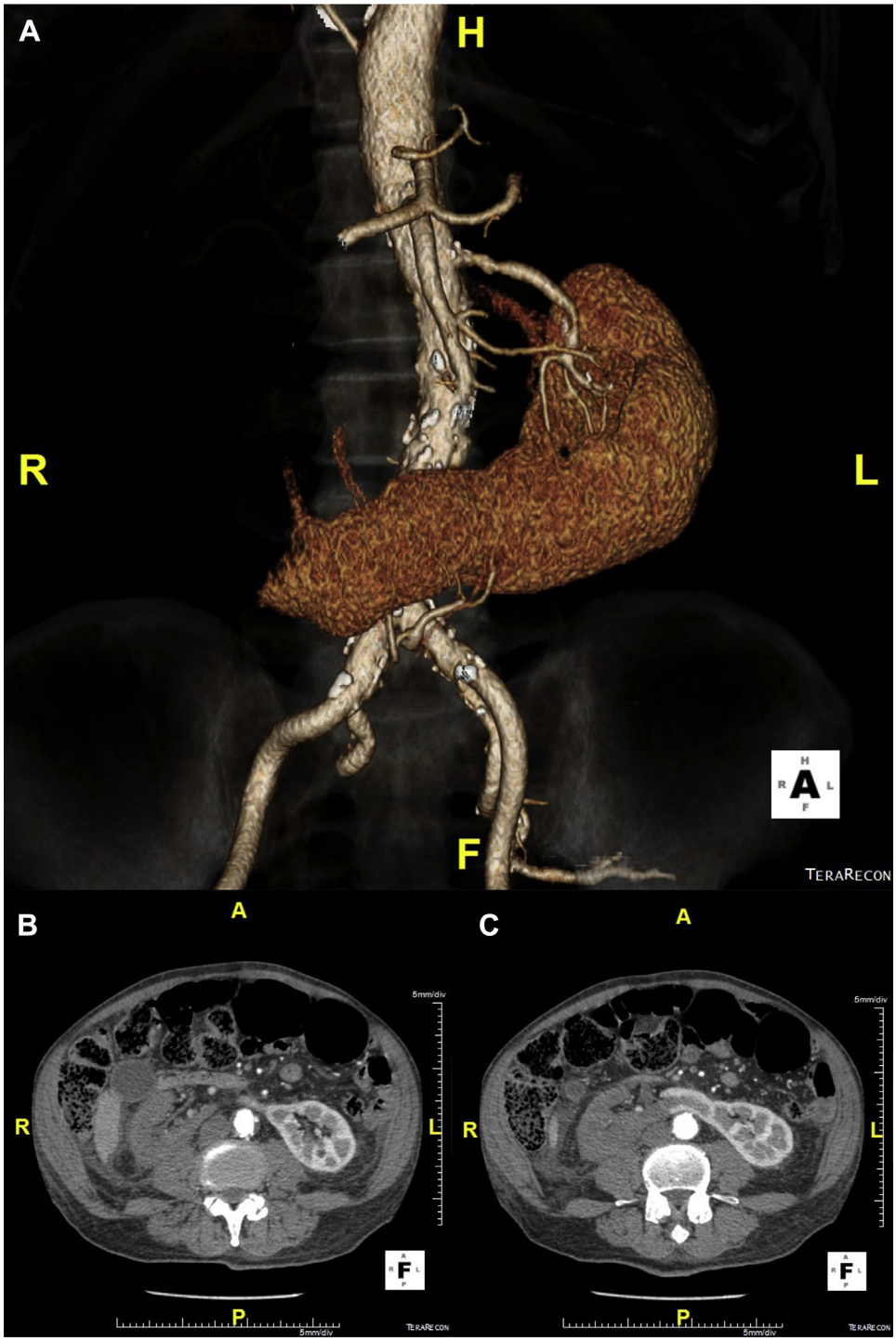

Fig. 1. Three-dimensional CT reconstruction **(A)** and axial **(B, C)** views showing acute thromboembolism in the right renal artery, with malperfusion of the right side of the horseshoe kidney. Central part of the kidney was supplied by a branch directly from the left common iliac artery.

the renal artery embolism. It showed acute bleeding from a malignant gastric ulcer, which on biopsy showed moderately differentiated adenocarcinoma.

Emergency renal angiogram was arranged around 14 hr after onset of symptoms. Right femoral access achieved with a 6F vascular sheath under ultrasound guidance. Angiogram through a 5F pigtail catheter in the aorta showed that the right renal artery was occluded. The left renal artery was present, and the mid-portion of the horseshoe kidney was supplied by a branch arising