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On the Cover

What's the diagnosis? A 55-year-old man developed acute onset of left flank pain. Renal ultrasound and non-contrast computed tomography (CT) scan of the abdomen and pelvis were unremarkable. However, contrast-enhanced CT scan revealed left renal artery aneurysm and renal infarction. CT scan with reconstruction (upper panel) demonstrates the left renal artery aneurysm, while renal infarction is best seen on the non-reconstructed contrast CT scan (lower panel). The patient underwent renal angiogram with stent placement to exclude the aneurysm. On the inside cover just below the text are CT scan images with red arrows identifying the renal artery aneurysm and yellow arrows identifying the areas of infarction (upper left and right panels). The pre-stent angiogram has a red arrow identifying the aneurysm (lower left panel), while the post-stent angiogram has an arrow at the site of the excluded aneurysm (right lower panel).

Renal infarction is a complication that occurs primarily from thromboemboli originating from a cardiac or aortic aneurysm thrombus, and less commonly from an in-situ thrombus within the renal artery. Atrial fibrillation and endocarditis are common cardiac sources, while renal artery injury from spontaneous renal artery dissection, fibromuscular dysplasia, or Ehlers-Danlos syndrome with a thrombotic aneurysm is associated with renal thromboemboli. Renal infarction may develop when renal artery occlusion occurs following an aortic or renal endovascular intervention. It has been described with hypercoagulable states such as hyperhomocysteinemia, antiphospholipid syndrome, nephrotic syndrome, and hereditary thrombophilia. Finally, renal infarction also complicates classical polyarteritis nodosa and cocaine use. Renal infarction often manifests with acute onset of flank or generalized abdominal pain, along with nausea and vomiting. Hypertension commonly occurs. Laboratory abnormalities include leukocytosis, increased serum and urine LDH, and gross or microscopic hematuria. Contrast CT scan is diagnostic, but a radiisotope renogram can be used if contrast exposure is contraindicated. Therapy is directed at the underlying cause. In this case, renal artery stent placement to exclude the aneurysm and anticoagulation with heparin were employed. (Images and text provided by Mark A. Perazella, Yale University, New Haven, Connecticut)