Case Report

A long-standing external iliac artery pseudoaneurysm in a patient with a history of a failed kidney transplant

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Abstract

This is a case of a 66-year-old African American male with history of end stage renal disease due to polycystic disease and failed right kidney transplant. He presents with asymptomatic hematuria, and diagnostic angiography was performed which showed incidental anastomotic site pseudoaneurysm. Our patient had an unusual presentation of a pseudoaneurysm. Pseudoaneurysms associated with failed renal transplants are typically detected within weeks after transplantation and along with failure of the transplant. Our patient's anastomotic site pseudoaneurysm was detected 21 years after transplantation and 15 years after transplant failure. Rupture of a pseudoaneurysm can occur at anytime and treating it with a covered stent is a feasible option.

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Case summary

A 66-year-old African American man presented with a 4-month history of asymptomatic hematuria. Interventional radiology was consulted for embolization of bilateral native renal arteries in this patient on hemodialysis. His medical history is significant for end-stage renal disease secondary to polycystic kidney disease. The patient underwent right kidney transplantation 21 years ago, which ultimately failed 15 years ago. On angiography during the embolization, an incidental anastomotic site pseudoaneurysm was found. Stenting was performed. In the procedure, a 10 × 40-mm² covered stent was extended beginning just distal to the takeoff of the right internal iliac artery. An arteriogram after the deployment of the 10 × 40-mm² covered stent showed persistent blood flow within the pseudoaneurysm with takeoff near the distal aspect of the stent. An additional 10 × 80-mm² covered stent was then deployed beginning distal to the take off from the right internal iliac artery, landing proximal to the takeoff of the right inferior epigastric artery. Poststent deployment angiogram of the right external iliac artery demonstrated no flow into the pseudoaneurysm.

Imaging findings

Computed tomography of the abdomen and pelvis without contrast showed multiple avidly enhancing lesions of various sizes throughout bilateral native kidneys consistent with polycystic kidneys (Fig. 1). Subsequently, angiography was done to evaluate for embolization. A digitally subtracted

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oblique image of the right external iliac artery demonstrated a pseudoaneurysm in the superior aspect of the image (Fig. 2). Finally, a digitally subtracted image after covered stent placement showed no pseudoaneurysm filling (Fig. 3).

**Diagnosis**

Multiple bilateral hypervascular masses in the native kidney consistent with polycystic kidney disease were suspected to be the source of the hematuria. Angiogram also showed an incidental finding of a 3.9 × 2.3-cm pseudoaneurysm at the site of anastomosis between the right external iliac artery and graft renal artery.

**Discussion**

A pseudoaneurysm occurs due to a disruption in an arterial wall. The high-pressure arterial blood stretches the weakened arterial wall and creates a communicating sac within the lumen of the artery. The sac is surrounded by the adventitia and media of the vessel. There are many causes of pseudoaneurysms with the most common being due to inflammation, iatrogenic surgical or catheterization injuries, and trauma [1]. There have also been a few rare incidences where pseudoaneurysms have been discovered in patients with failed renal transplants. One particular study looked at 843 renal transplants performed over a 37-year period. Only 3, or 0.35%, of those patients developed a pseudoaneurysm at the anastomotic site [2]. This is the case in the patient presented in this report. The incidental pseudoaneurysm discovered in this patient was at the site of anastomoses of the right external iliac artery to the graft renal artery.

It is also important to note that this patient’s pseudoaneurysm was not associated with some of the common symptoms that are seen in patients with pseudoaneurysms. These common symptoms include but are not limited to pain, swelling, pulsatile mass, and symptoms associated with nerve and vein compression, such as venous thrombosis and neuropathy [3].

In the few instances that a pseudoaneurysm has been described at the anastomotic site of a failed renal transplant, the discovery of the pseudoaneurysm has been within several weeks of transplantation or at the time of failure. In one particular case, bruits were heard over an anastomotic site only 5 weeks after transplantation. Further investigation using arteriography in this particular study showed a 15 × 10-mm pseudoaneurysm on the end-to-end anastomosis between the internal iliac artery and renal artery [2]. In another case, a
pseudoaneurysm and transplant rejection were discovered in the internal iliac artery anastomosis 7 weeks after transplantation [4].

Our patient had a unique presentation in that the pseudoaneurysm was discovered 21 years after transplantation and 15 years after rejection. Due to his asymptomatic hematuria, angiography was performed showing an incidental anastomotic site pseudoaneurysm. Our patient did not have any signs or symptoms that were directly caused by the pseudoaneurysm. The most published research describes pseudoaneurysms and its complications being discovered within several weeks after transplantation or failure. There is no definitive way of confirming how long the pseudoaneurysm had been present in our patient because he was lost to follow-up after his kidney transplant along with multiple failed attempts to obtain charts from previous medical providers.

Thus, based on the literature where pseudoaneurysms were discovered along with the failure of the renal graft, it is to be assumed that the pseudoaneurysm was most likely present in our patient for 15 years, at the time of his failed transplant. However, we do not have any previous reports on our patient, so there is no definitive way of confirming this assumption.

There is debate on how or whether to treat asymptomatic pseudoaneurysms. In our case, a prompt therapeutic approach was undertaken due to lack of information surrounding our patient’s pseudoaneurysm. An important reason for pursuing treatment was due to the patient’s previous history of lack of medical follow-up. Pseudoaneurysm rupture could also occur at anytime, and although the patient was asymptomatic, preventative measures were taken because of his poor follow-up history. It was determined that a placement of a covered stent in the right external iliac artery would be the best option in this case.

**Conclusions**

Our patient had an unusual presentation of a pseudoaneurysm. Pseudoaneurysms associated with failed renal transplants are typically detected within weeks after transplantation and along with failure of the transplant. Our patient’s anastomotic site pseudoaneurysm was detected 21 years after transplantation and 15 years after transplant failure. Rupture of a pseudoaneurysm can occur at anytime and treating it with a covered stent is a feasible option.

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