Spontaneous Resolution of Severe Hemorrhagic Intrarenal Pseudoaneurysm After Percutaneous Nephrolithotomy

Abbas Basiri, Vahid Najjaran Toussi, Mehrdad Mohammadi Sichani, Arash Ardestani Zadeh

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Urology and Nephrology Research Center, Shahid Labbafinejad Medical Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Corresponding Author:
Arash Ardestani Zadeh, MD
No 103, 9th Boustan St, Pasdaran Ave, Tehran, Iran
Tel: +98 21 2256 7222
Fax: +98 21 2256 7282
E-mail: ardestani_a@yahoo.com

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INTRODUCTION

Percutaneous renal procedures have become an established approach for diagnosis and treatment of a number of renal pathologic lesions. Hemorrhage and vascular lesions are the most serious complications. The reported incidence of postoperative hemorrhage requiring selective angio-embolization for bleeding control is 1.2%.[1] Delayed bleeding after percutaneous procedures is almost always secondary to pseudoaneurysms or arteriovenous fistulas.[2] We report a case of pseudoaneurysm following percutaneous nephrolithotomy (PCNL) that caused recurrent episodes of severe hematuria after the operation, requiring embolization, but it resolved spontaneously.

CASE REPORT

A 44-year-old diabetic man presented with a recurrent left renal colic. Ultrasonography and computed tomography (CT) without contrast showed a 2-cm calculus in the left renal pelvis with moderate hydronephrosis and a 1-cm calculus in the lower calyx of the right kidney without hydronephrosis. The patient had chronic kidney disease and his serum creatinine was 1.8 mg/dL.

Extracorporeal shock wave lithotripsy failed to fragment the left pelvic calculus, and therefore, the patient underwent PCNL in the prone position. The procedure was uneventful and the patient was discharged on the 3rd postoperative day. Fourteen days after the procedure, he was re-admitted due to severe gross hematuria. Bleeding and coagulation parameters were within the reference ranges pre-operatively. The patient was resuscitated with intravenous fluids and blood transfusions. Hematuria ceased with conservative management.

Patient underwent angio-CT, which revealed pseudoaneurysm arising from the lower polar segmental artery (Figure 1). Since the episodes of gross hematuria recurred several times during the conservative management, it was decided to perform angiographic embolization. Eighteen days after angio-CT, angiography was done for embolization, but it did not show further opacification of the pseudoaneurysm (Figure 2). Therefore, the embolization was not performed. Three days after angiography, the patient was discharged from the hospital, and during 1 year follow-up, he did not have any episodes of gross hematuria.

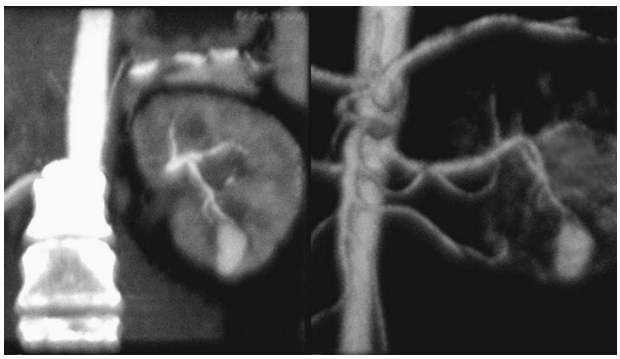

Figure 1. Left, Angio-CT demonstrates the pseudoaneurysm (arrow) in the lower pole of the left kidney. **Right,** 3-D Reconstruction following angio-CT shows the pseudoaneurysm (arrow) arising from the lower polar segmental artery.

Figure 2. Angiography done 18 days after angio-CT shows no pseudoaneurysm.

DISCUSSION

Blood loss is common during percutaneous procedures of the kidney. In the majority of patients, bleeding improves with conservative management. However, some lesions like pseudoaneurysm could be persistent, requiring specific treatment. Pseudoaneurysm is usually assessed by renal angiography,[3,4] providing the possibility of diagnosis and treatment at the same time. Clinical diagnosis can also be done through noninvasive methods such as angio-CT or Doppler ultrasonography. In this case, angio-CT was utilized for diagnosis, which revealed a perfect image of pseudoaneurysm. Angio-CT helps planning endovascular treatment thanks to the excellent quality of images.

Selective renal embolization is currently considered as the most appropriate technique in the treatment of renovascular complications with a success rate greater than 80% and a low complication rate.[4] In contrast to surgery, the endovascular management helps saving the kidney in many patients.

Spontaneous resolution, as seen in our patient, could be one of the natural outcomes of an intrarenal pseudoaneurysm. The mechanism is probably spontaneous thrombosis and occlusion of the pseudoaneurysm. This suggests that a conservative management could be an option for managing intrarenal pseudoaneurysm. These patients must be followed with serial color Doppler ultrasonography to look for any changes in the size and internal flow of the pseudoaneurysm. Spontaneous resolution of pseudoaneurysm after blunt abdominal trauma or stab wound has been reported by other authors, but to our knowledge, there is not any report of radiologically confirmed intrarenal pseudoaneurysm with massive hematuria disappeared spontaneously after PCNL.

It seems that although patients with persistent gross hematuria due to intrarenal pseudoaneurysms after PCNL are candidates for intervention, there are some cases of intrarenal pseudoaneurysm that may be resolved spontaneously with conservative management. These patients must be carefully followed up clinically and radiologically with serial color Doppler ultrasonography.

CONFLICT OF INTEREST

None declared.

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