

# Pseudoaneurysm Following Percutaneous Nephrolithotomy

KARAMI H\*, HEIDARI F

*Department of Urology, Shohada-e-Tajrish Hospital, Shaheed Beheshti University of Medical Science, Tehran, Iran*

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## Introduction

Delayed hemorrhage following percutaneous nephrolithotomy (PCNL) is secondary to pseudoaneurysm or arteriovenous fistula, which happens in less than 1% of PCNLs. Predisposing factors are: medial puncture instead of posterolateral puncture, arteriosclerosis, and hypertension.

Definite diagnosis is made by angiography and embolization, as a definite treatment, can be done through the same angiography session. Open exploration and partial or total nephrectomy is rarely required. We report a case of pseudoaneurysm after PCNL, which was treated successfully using embolization.

## Case Report

A 54-year-old man was referred to our center with a right kidney (middle calyx) stone. The stone was completely extracted with PCNL and owing to minor manipulation of collecting system, nephrostomy tube was not placed. Only an external ureteral stent was inserted and removed 24 hours later. On the second postoperative day he was discharged, while he had no gross hematuria and had a good general condition. Hemoglobin (Hb) was 14 mg/dl. Nonetheless, three weeks postoperatively, he was back with gross hematuria, hypotension and Hb = 7 mg/dl. He received 4 units of whole blood and complete bed rest was ordered. After stabilization of vital signs, angiography was done. A pseudoaneurysm was seen in angiography (fig. 1) and embolization was done promptly (fig. 2). Hematuria was completely ceased and the patient was discharged two days later with Hb = 11 mg/dl.

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\*Corresponding author: Department of Urology,  
Shohada-e-Tajrish Hospital, Tajrish Sq., Tehran,  
Iran. Tel: +98 912 114 2080,  
E-mail: karami\_hosein@yahoo.com



Fig. 1. Angiography was indicative of pseudoaneurysm.

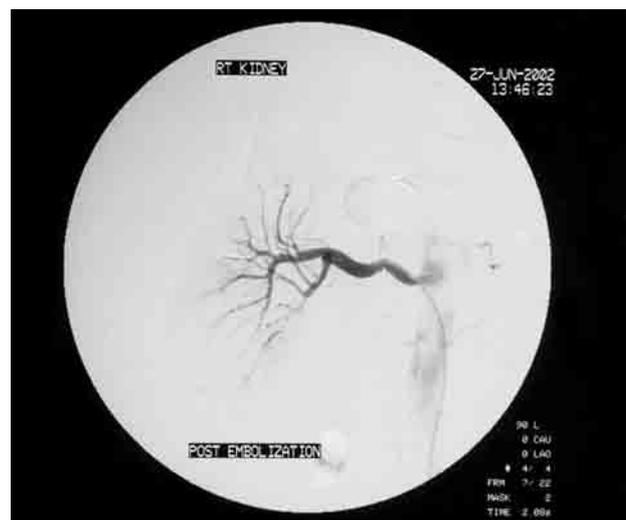


Fig. 2. Angiography after embolization

## Discussion

Gustore Simon Hidelberg performed the first percutaneous surgery of the kidney in 1871, applied for to sclerose renal cysts and drainage of hydronephrosis. He also proposed percutaneous extraction of renal stone.<sup>(1)</sup>

Since then, great advancements have been made in endourologic surgeries, so that its com-

plication rate has reduced to less than 1%.<sup>(2)</sup> Of more than 150 cases of PCNL performed in our center, only one was complicated with pseudoaneurysm.

Martin and colleagues reported eight cases with severe bleeding following percutaneous nephrolithotomy out of 808 PCNLs. Of these, 7 were treated by hyperselective embolization.<sup>(3)</sup> In another study, the reported rate of vascular complications after renal biopsy and percutaneous procedures were 7% to 17% and 1% to 3%, respectively.<sup>(4)</sup> Their common symptom was hematuria, mostly gross than microscopic. In rare cases, pseudoaneurysm is asymptomatic<sup>(5)</sup> or leads to late cardiac failure.<sup>(6)</sup> There is consensus that, the definitive treatment for pseudoaneurysm is embolization.<sup>(2,3,5)</sup>

## References

1. Zingg EJ, Futterlieb A. Nephroscopy in stone surgery. *Br J Urol.* 1980;52:333-7.
2. Patterson DE, Segura JW, LeRoy AJ, Benson RC Jr, May G. The etiology and treatment of delayed bleeding following percutaneous lithotripsy. *J Urol.* 1985;133:447-51.
3. Martin X, Murat FJ, Feitosa LC, et al. Severe bleeding after nephrolithotomy: results of hyperselective embolization. *Eur Urol.* 2000;37:136-9.
4. Lovaria A, Nicolini A, Meregaglia D, et al. Interventional radiology in the treatment of urological vascular complications. *Ann Urol (Paris).* 1999;33:156-67.
5. Okamura T, Tatsura H, Kohri K. Asymptomatic intrarenal arteriovenous fistula accompanying severe renal vein dilatation detected 30 years after percutaneous renal biopsy. *Urol Int.* 1998;61:261-2.
6. el-Rassi I, Jebara I, Khoury A, Kassab R, Tabet G. Cardiac failure caused by renal arteriovenous fistula fifty years after nephrectomy. A new case and review of the literature. *Arch Mal Coeur Vaiss.* 1997;90:1427-30.