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Transarterial Embolization of Renal Vascular Lesions after Percutaneous Nephrolithotomy

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Abstract

Introduction: Percutaneous nephrolithotomy (PCNL) represents a safe and efficient procedure in the surgical management of renal lithiasis. Nevertheless, surgeons have to face specific complications during and after the procedure, hemorrhage being one of the most common. In most cases the injuries are self-limited and do not need a surgical intervention. Renal arteriography with selective angiographic embolization is needed in patients with massive hemorrhage or continuous hematuria. Our objective was to evaluate the effectiveness of percutaneous transarterial embolization for the treatment of renal arterial post-PCNL bleeding.

Material and method: This retrospective study was performed between March 2007 and October 2012 and included 22 patients who had undergone renal embolization due to significant post-PCNL renal artery bleeding. The site, number, and type of bleeding lesions, and the result of the embolization procedure were recorded. We report on the incidence, treatment, radiological and clinical results of these serious vascular injuries at our institution.

Results: Our study has included a large group of patients, the 95.45% angiographic success rate confirming that percutaneous transcatheter embolization is a valuable treatment for most renal vascular injuries. Renal angiography revealed pseudoaneurysm in 15 patients, arteriovenous fistula in 5 and arterial laceration in 2 patients. Significant risk factors on univariate analysis for severe hematuria requiring superselective angiography were multiple/staghorn calculi, upper calix puncture and history of pyelonephritis. The severity of the hematuria after PCNL is influenced by many factors, including mean stone size and mean operative time and is correlated with duration of hospitalization and mean hemoglobin drop.

Conclusions: Percutaneous transarterial embolization of the injured vessel is an effective, minimally invasive and relatively easy procedure in experienced centers, with high rate of success and immediate benefits, thus saving the patient from the morbidity that results from severe renal bleeding.

Key words: kidney calculi, percutaneous nephrolithotomy, hemorrhage, therapeutic embolization

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