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Olgu Sunumu / Case Report

Renal Pseudoaneurysm after Micropercutaneous Nephrolithotomy

Mikroperkütan Nefrolitotomi Sonrası Gelişen Renal Psödoanevrizma

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ABSTRACT

Postoperative bleeding due to pseudoaneurysm formation is the major cause of percutaneous kidney interventions. Micro percutaneous nephrolithotomy is a one step procedure that used mostly lower pole stones. There are small series that reports technical feasibility and safety of microperc using the All-seeing needle. Here we state the first report of pseudoaneurysm and its treatment after microperc in the literature.

Key Words: Nephrolithiasis, microperc, percutaneous nephrolithotomy, pseudoaneurysm

ÖZET

Perkütan böbrek girişimlerinden sonra kanamanın en önemli nedeni psödo anevrizmadır. Mikroperkütan nefrolitotomi böbreğin alt pol kaliks taşlarının tedavisinde kullanılan tedavi yöntemidir. Literatürde küçük serilerden oluşan ve mikroperkütan nefrolitotominin uygulanabilir ve güvenli olduğunu bildiren az sayıda makale mevcuttur. Bu yazıda; literatürdeki mikroperkütan nefrolitotomi sonrası gelişen ilk psödoanevrizma ve tedavisi sunulmaktadır.

Anahtar Kelimeler: Böbrek taşları, Mikroperk, perkütan nefrolitotomi, Psödoanevrizma

INTRODUCTION

Percutaneous nephrolithotomy (PCNL) has became a standard treatment method of large renal stones. Postoperative bleeding is a major morbidity of the procedure[1,2]. The most common cause of bleeding requiring treatment is renal pseudoaneurysm formation, and its incidences are about 1%. Micro percutaneous nephrolithotomy (microperc) is a one step procedure that used mostly lower pole stones. The procedure perform through a All-seeing needle which has an outer diameter of 4.85 Fr. Desai et al. reported the first technical feasibility and safety study of microperc using the All-seeing needle. They defined microperc as modified PCNL[3]. There are a few small series about microperc in literature, and they report the feasibility, effectiveness, efficacious of microperc. Although pseudoaneurysm formation is a well known cause of percutaneous kidney interventions, here we state the first report of pseudoaneurysm and its treatment after microperc in the literature.

CASE REPORT

33 years old female patient underwent microperc procedure due to the right kidney lover pole stone under spinal anesthesia. The patient was discharged on postoperative first day with no

complaints. One week later she admitted with macroscopic hematuria. Her hemoglobin level was dropped 12 mg/dl to 9 mg/dl, and 3 unit of erythrocyte suspension were given. Because of late onset macroscopic hematuria, we performed selective right renal angiography. Renal angiography showed a 5mm in diameter pseudoaneurysm that originates from lower pole interlobar artery (Figure 1). After diagnostic angiography we decided to perform coil embolization of pseudoaneurysm, and 0.16 inch micro guide wire and micro catheter were coaxially inserted. While trying to select posterior division lower pole inter lober artery severe vasospasm was occurred. The control angiography showed vasospasm on posterior division segmenter artery and total occlusion of lobar and interlobar artery and pseudoaneurysm (Figure 2). We decided to stop embolization procedure and follow up patient with hemoglobin levels, bed rest and urine analysis, because the pseudoaneurysm was very small and the parent artery was totally occluded. The patient was discharged after 3 day follow up with any complaints or laboratory abnormality.



Figure 1. Renal angiography showed a 5mm in diameter pseudoaneurysm that originates from lower pole right interlobar artery.



Figure 2. The control angiography showed vasopasm on posterior division segmenter artery and total occlusion of lobar and interlobar artery and pseudoaneurysm

DISCUSSION

The main limitation of PCNL is its invasiveness and associated morbidity. Postoperative bleeding is a major morbidity of the procedure[1,2]. The most common cause of bleeding requiring treatment is renal pseudoaneurysm formation, and its incidences are about 1% Clinical Research Office of the Endourological Society global data on PCNL showed the probability of bleeding complications was higher with larger sheath size[4,5]. The interest in reducing the tract size was to potentially reduce the invasiveness of the procedure and, therefore, attending complications. Three prospective comparative studies addressed the issues of efficacy and enhanced safety of reducing the tract size[6-8]. These studies demonstrated significant advantages of the miniperc procedure in terms of reduced bleeding and hospital stay while maintaining similar stone-free rates.

Microperc is a recently introduced minimally invasive percutaneous renal intervention. There are a few small series about microperc in literature, and they report the feasibility, effectiveness, efficacious of the technique[3,9]. The 'All-seeing needle' was described and presented by Bader et al. at the American Urological Association Annual Meeting, San Francisco, 2010[8]. The 'All-seeing needle' permits visualization of the entire tract during percutaneous access including the successful and correct calyceal entry into the pelvicalyceal system. The working hypothesis of the 'All-seeing needle' is that if the initial tract is perfect, then the tract-related morbidity can certainly be reduced. The perfect tract or the tract that causes the least amount of bleeding is the one

that provides access to the kidney in the shortest possible distance through the cup of the calyx. Desai et al. further extended the concept of 'All-seeing needle' to assess the technical feasibility of performing a one-step PCNL through a 4.85-Fr tract[3]. This could potentially avert the morbidity related to tract dilations during a standard PCNL with the obvious disadvantage of performing a small tract size of 16-gauge needle.

All-seeing needle has an outer diameter of 4.85 Fr is very small according to the 30 Fr sheaths which used in PCNL. Of course, the larger sheath size increases the risk of vascular injury, and reducing tract size will decrease bleeding complications.

We thought that not only small tract size but also using ultrasonographic and fluoroscopic guidance will minimize such complications. Pseudoaneurysm and arteriovenous fistula can also be seen after microperc procedure, and endovascular treatment is the treatment of choice of this complications.

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