

Successful removal of secondary renal stone formations and foreign body in collecting system with percutaneous nephrolithotomy : Case report.

Böbrek toplayıcı sistemindeki yabancı cisim ve taşların perkütan nefrolitotomi yöntemiyle başarılı şekilde çıkarılması : Olgu sunumu

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ABSTRACT

Percutaneous nephrolithotomy (PCNL) is a widely accepted treatment for urinary calculi, but it is not without complications. Nephrolithiasis, ureteral stricture, and upper tract malignancies can often be managed using a variety of endourologic techniques and equipments. During PCNL, renal stone fragments are usually removed by alligator or other different forceps, or a small basket. Herein successful removal of foreign body stone formed around a piece of forceps which were broken and could not be removed from within the kidney during primary PCNL were presented with the review of the current literature.

Keywords: kidney stone, percutaneous nephrolithotomy, foreign bodies

INTRODUCTION

The minimally invasive management of urologic upper tract disease has progressed rapidly in recent years. Nephrolithiasis, ureteral stricture, and upper tract malignancies can often be managed using a variety of endourological techniques and devices. Percutaneous nephrolithotomy (PCNL) is considered to be the standard treatment for staghorn and large-volume renal calculi, as well as upper tract calculi refractory to other modalities, difficult lower pole stones, cystine nephrolithiasis, and calculi in anatomically abnormal kidneys. PCNL has been proven as a safe and well-tolerated procedure, but as with any surgical intervention, PCNL is associated with a specific set of complications(1,2). Complication rates for PCNL reportedly range from 20-83%(3). The true complication rates of PCNL are difficult to determine and compare because most contemporary reviews of PCNL outcomes report only rates of specific complications of the procedure.[4,5]Herein we present a to-date unreported PCNL complication which was managed successfully using PCNL technique with the literature review.

ÖZET

Perkütan nefrolitotomi (PCNL) üriner sistem taş hastalığında yaygın olarak kabul görmüş bir tedavi yöntemidir, ancak komplikasyonsuz değildir. Böbrek taşları, üreteral darlıklar ve üst üriner sistem malignansilerinin tedavilerinde çeşitli endoürolojik teknikler ve ekipman kullanılmaktadır. PCNL sırasında böbrek taşı parçacıkları alligator, daha değişik forsepsler veya basket kateter kullanılarak çıkarılmaktadır. Bu yazıda önceki PCNL operasyonu sırasında böbrek içinde kırılan ve alınamayan etrafı taşlaşmış forseps parçasının PCNL tekniği kullanılarak çıkarılması sunuldu ve güncel literatüre göre değerlendirildi.

Anahtar kelimeler: böbrek taşı, perkütan nefrolitotomi, yabancı cisim

CASE

A 52-year old female presented with complaints of right-flank pain, dysuria, and fever of 39°C. The results of urine culture determined E.coli and appropriate antibiotic therapy was administered. The patient history revealed diabetes mellitus, hypertension, a laparoscopic cholecystectomy 10 years ago, and a right side PCNL two years ago for kidney stones. After PCNL she required frequent antibiotic treatment for recurrent urinary tract infections. On computerized tomography (CT) without contrast (stone protocol) and on Intravenous urogram imaging (IVU), a stone formation in the right renal pelvis and a metallic opacity surrounded by stone formation within the lower pole posterior calyx were observed (Figure 1).

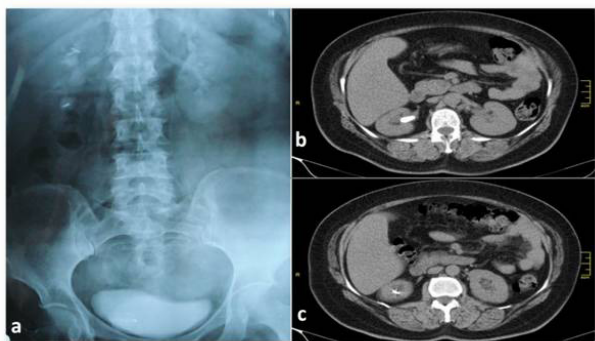


Figure 1(a-c). Stone formation in the right renal pelvis and a metallic opacity surrounded by stone formation within the lower pole posterior calyx

Technique

Under spinal anesthesia, in a prone position, percutaneous access was performed following a contrast media injection via an ureteral catheter which was placed transurethrally prior to the renal access. Safety guide wires were inserted after successful middle pole posterior calix access. Tract dilations were performed by Amplatz fascial dilators until 30 Fr and Amplatz sheath was placed. (Figure 2) A standard 26 Ch nephroscope was used. The stone in the renal pelvis was fragmented using an intracorporeal pneumatic lithotripter and the fragments were removed, then the renal stone which had formed around a forceps fragment was found in the posterior lower pole calyx and was removed successfully (Figure 3). Double J catheter was placed antegrade end of the procedure. The patient was discharged postoperative 1st day. Double J catheter was removed after 10 days using flexible cystoscopy. Intravenous urogram was done after six months. 1 year follow-up urinary tract infection was not observed.

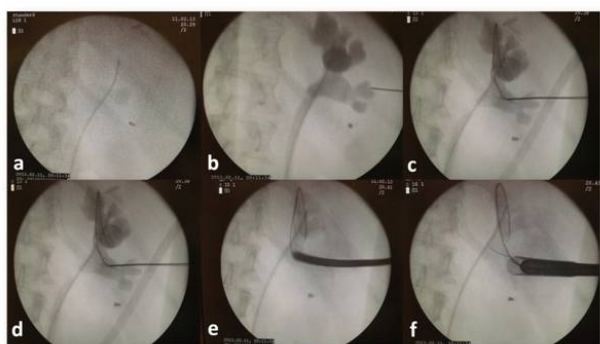


Figure 2. Tract dilations by Amplatz fascial dilators until 30 Fr and sheath insertion



Figure 3 The extracted renal stone which had formed around a forceps fragment

DISCUSSION

Renal foreign bodies present a challenge to both to the endourologist and the patient. Foreign bodies can present as a nidus for infection or stone formation or mimic a renal neoplasm(6-8). The diagnosis and extraction can be challenging. The foreign body and associated stone formation in the kidney can be successfully removed using PCNL. Coelho et al described a case of surgical gauze retained in the renal pelvis after an open renal surgery presenting as a renal calculus(9). They performed percutaneous nephrolithotomy and surprisingly considered the possibility of a calcified surgical gauze. They used 5 mm laparoscopic scissor through the working channel of nephroscope and the gauze was progressively cut and removed in small pieces. Retained foreign bodies in kidney after laparoscopic pyeloplasty are infrequent. During percutaneous nephrolithotomy, they discovered stone which have formed around a Hem-o-lok® clip, retained from a previous laparoscopic pyeloplasty. The Hem-o-lock clip migrated into the collecting system leading to stone formation. They successfully removed the clip and the associated stone burden by PCNL(11). Bissas et al presented a late complication of shotgun renal trauma in the form of renal colic secondary to calcium epitaxis on an overlooked cartridge's cap retained in the renal pelvis(11). After unsuccessful shockwave lithotripsy sessions, stone was removed by percutaneous surgery successfully, and the "calculus" was revealed to be a calcified plastic detonating cap. During PCNL renal stone fragments are usually removed by alligator or other different forceps, or a small basket. During the stone removal process in PCNL, when severe pressure is applied on the sensitive tips of the instrument where the movement

mechanism is located, they may be damaged and possibly because of metal fatigue, the end sections may break as in the case presented here. To avoid such a situation, spare instruments must be available on the surgery table and before the operation is terminated, the instruments should be checked and the renal area should be checked fluoroscopically and endoscopically. This appears to be the first report of a renal stone formed around a broken forceps fragment, which required removal by PCNL.

In conclusion, this rare complication of a broken forceps fragment in the kidney and its acting as a nidus for stone formation, and which may also then lead to recurrent urinary tract infections should be recognized.

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