

Case report



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Chronic pyelonephritis secondary to a broken guidewire in the gerota fat during percutaneous nephrolithotomy: a case report

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Abstract

Percutaneous nephrolithotomy is the gold standard method for large kidney stones currently. It offers high success and low complication rates. There are only a few reports of fractured guidewires inside the pelvicalyceal system, removed with endourology and open surgery techniques, and this is a tour knowledge the first one presenting a broken guidewire in the gerota fat. A 60-year-old man is hospitalized in our department of urology, Mohammed IV university medical center for the management of a PCNL failure in a private clinic. A CT scan showed the presence of a metal device in the gerota fat, we performed an open nephrolithomy, the evolution was favorable. Some equipment used during percutaneous

nephrolithotomy can lead to severe issues (broken guidewire and laser fibers) and open surgery is the only way to resolve the situation.

Introduction

Percutaneous nephrolithotomy (PCNL) is the regular surgery for treating large or complex renal stones. It provides the highest stone-free rate after one session and low morbidity rates in cases of large or multiple renal calculi. It is a safe procedure but associated with specific complications, such as postoperative fever or urinary leakage. Major complications, such as renal bleeding, pleura, colon and liver injuries are rare but may be life-threatening to patients [1,2]. In this case, we are to report a very rare and strange complication, a broken guidewire in the gerota fat during a PCNL what leads to pyelonephritis. Rebellious to antibiotic treatment.

Patient and observation

A 60-year-old man comes to urological consultation for left lumbago and fever, during the interrogation it is understood that the patient has benefited in a private clinic five months ago of percutaneous nephrolithotomy (PCNL) attempt followed by a failure (technical difficulties according to the surgeon). At the clinical examination, the left flank is painful to palpation, the 8-month old abdominal CT scan shows a large left kidney stone of almost 5 cm and 520 uh of density. The cyto-bacteriological examination of the urine found an *E. coli* urinary infection, so we put the patient under cephalosporin 3rd generation. The patient was admitted to our urology department of the Mohamed VI Oujda University Hospital Center to take care of his condition. A new abdominal CT scan was requested which showed the kidney stone of 5 cm with a retro renal device (Figure 1). Given these conditions, it was decided to perform a left nephrolithotomy, at the time of the nephrolysis which was difficult, we found a tip of guidewire of almost 12 cm detached and left in the gerota fat and the psoas muscle used initially during the

percutaneous nephrolithotomy. The broken guidewire was removed (Figure 2) and the kidney stone was extracted in full, we left in place a surgical nephrostomy that will be removed 3 weeks after. Patient was discharged on the 5th day in a good general condition. The follow up of the patient was good, stone free and no urinary tract infection 6 months after surgery.

Discussion

For large kidney stones (>2 cm), PCNL is currently the gold standard treatment method, with high stone free success after surgery [2]. Foreign bodies in the upper urinary tract have presented a challenge for all the urologists. This is not only from the medico-legal side and implications that are associated with broken and retained material, but also from their management [3]. Some equipment such as guidewires, nephrostomy tubes, laser fibers, and Hem-o-Lock clips are being used by many urologists. Sometimes, the retention of a part of these external equipment has increased the incidence of Foreign Bodies in the urinary system. In the series of ERDAL ALKAN, in a total of 8 patient with foreign bodies (all causes: laser fibers, Hem o Lock clip, cut end of Foley catheter), two patient had a broken guidewire in the kidney after percutaneous nephrolithotomy (treated with endoscopic modalities) [4]. To the best of our knowledge there are only a few reports of fractured guidewires inside the pelvicalyceal system, successfully removed by endoscopy, and this is the first case presenting a tightly coiled in the gerota fat after fail of PCNL, open surgery was the unique solution to remove the stone and the broken guidewire. In his case report Manassero F, describes a case of broken guidewire tightly coiled in the renal tissue after a fail of nephrostomy in a patient with a kidney stone, patient underwent nephrectomy (a small-size kidney on the CT scan and presence of a “device” in the lower pole) [5]. It was reported that 92.5% of the foreign bodies of the upper urinary tract were related to previous urological surgery, especially percutaneous renal surgery (35%) and open stone surgery (30%) [6].

From the previous cases, we notice that PCNL has a very high technical success rate, but also unusual complications, guidewire fracture may occur, and we explain that by the perirenal fibrosis and the inappropriate angle between the needle of puncture and the lower calyx, they are likely the main causes of guidewire coiling and rupture during withdrawal [7].

Conclusion

PCNL is an effective and recommended treatment for large kidney stones, as in open surgery it is always necessary to check its endoscopic equipment at the end of the procedure, guides and broken laser fibers can cause problems (infection or mimic a renal neoplasm) for the patient and the urological surgeon, must be aware of that.

Competing interests

The authors declare no competing interests.

Authors' contributions

All the authors have read and agreed to the final manuscript.

Figures

Figure 1: CT scan showing a retro renal device

Figure 2: removal of the stone and the broken guidewire

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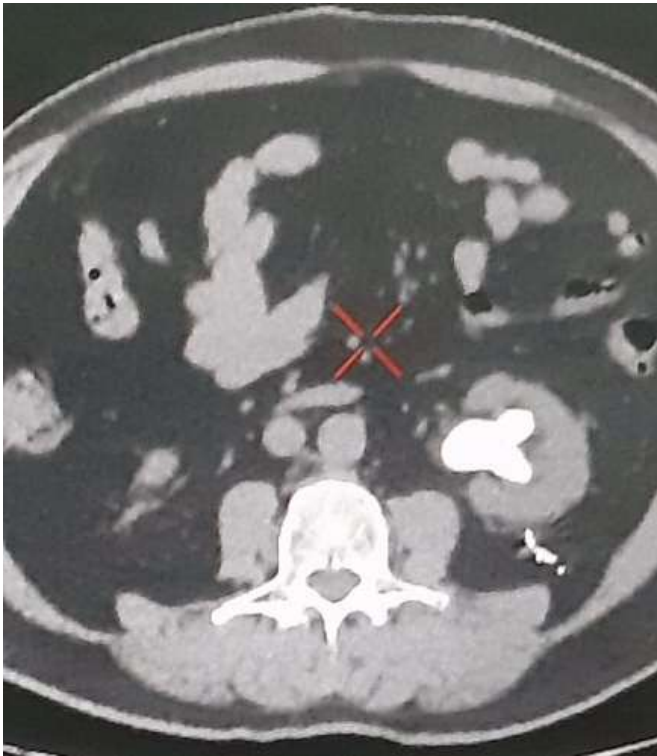


Figure 1: CT scan showing a retro renal device

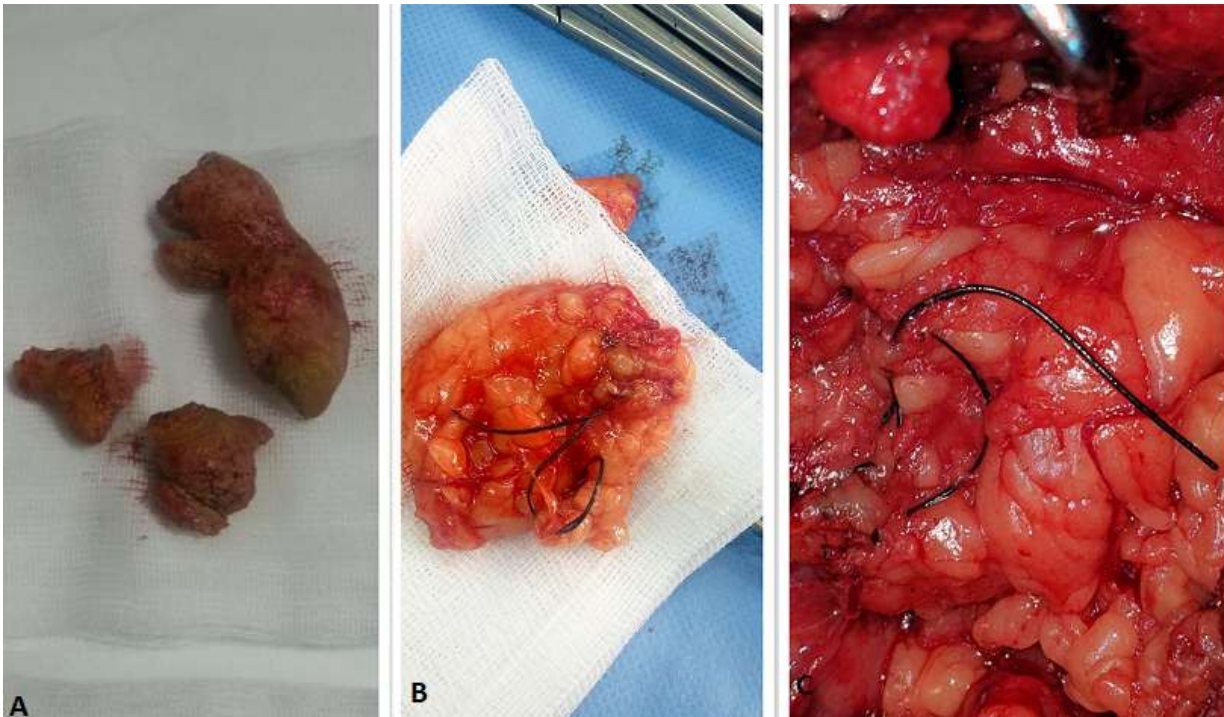


Figure 2: removal of the stone and the broken guidewire