



Endourology

Ex Vivo treatment of stones in living donor kidney by flexible ureteroscopy: Time challenge (case report)

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A B S T R A C T

The discovery of a kidney stone in a living kidney donor is rare. The managing technique of this situation and the timing of the treatment of the stone is not well codified.

Should it be treated before the removal of the kidney or in ex-vivo after nephrectomy and in cold ischemia ?

We report a case of a 60-year-old mom who donates kidney willingly to her son. The decision of the transplant team was for the removal of the left kidney (upper calyx stone of 9 mm) and the treatment of the stone in ex-vivo by flexible ureteroscopy.

Introduction

Kidney stones seems rare in kidney grafts. The existence of stones in a donor or in a kidney transplant should not be a contraindication to donation or transplantation. It should, if possible, be removed before transplantation (ex vivo).¹

The general consensus is to remove upper tract stones within renal transplants because obstructing stones can cause significant morbidity and has the potential of impairing graft function.²

At our knowledge, there are a few cases in literature of ex vivo ureteroscopy in a dead kidney transplants, this is a mother's kidney gift willingly to her son.

Case report

In June 2019, we admitted a 60-year-old mother to our urology department, a voluntary kidney donor to her 22-year-old son who suffers from chronic renal failure secondary to acute glomerulonephritis. The CT scan of the mother showed an upper calyx stone of the left kidney of 9 mm in diameter and 1100 HU in density (Fig. 1), left nephrectomy was performed laparoscopically; after preparation of the graft, a flexible ureteroscopy-laser was performed with fragmentation of the calculus and complete cleaning of the kidney that was kept cold in an iced preservation solution bath (Fig. 2). It took 17 min to finish the flexible ureteroscopy and to split the stone.

The kidney was grafted with a vascular anastomosis with the

external iliac vessels and a typical Leich Grégoire uretero-vesical reimplantation protected by a 'double j' stent into the left iliac fossa of the receiver that was discharged 15 day after the operation in a good general condition, his serum creatinine level became normal in a 3 days after the transplantation. The "double-J" stent were left indwelled for 20 days. The duration of cold ischemia was 50 min.

Discussion

Stones located in the pelvicalyceal system of kidney donor are a rare clinical problem and present a relative contraindication to kidney transplantation, because of their complications like oliguria, hematuria, or rising creatinine in the receiver. Because of the grafts shortage and the development of contemporary endourological techniques, successful management has been achieved.^{3,4}

After our bibliographic research, there are a few dozen cases in literature of ex vivo treatment of kidney stones in dead donors by flexible ureteroscopy.

Our case, it is a voluntary gift from a mother for her son who remains a sacrifice and which is not something we see every day.

There are no diagnostic and therapeutic standards to detection and treatment of nephrolithiasis in donor kidneys.⁵ In clinical practice, CT of the abdomen is the best exam to detect nephrolithiasis. Removing calculi after transplantation is associated with some potential complications due to immunosuppressive therapy. The recommended method of stone removal is endoscopic treatment, which may be conducted ex

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Fig. 1. Upper calyx stone of the left kidney.



Fig. 2. Ex Vivo flexible-ureteroscopy in living donor kidney.

vivo before the organ transplantation.⁵ The method of treating renal

calculi depends on the size and location of calculi. In kidney donors stones smaller than 4–5mm can be monitored. The stones 0.5–1.5 cm must be treated by extracorporeal lithotripsy (LEC) with ureteral stent JJ. Stones larger than 15mm can be treated by ureteroscopy or percutaneous surgery, these are the recommendations of the french association of urology.¹ The authors concluded that these donors can be accepted, but in selected cases: absence of metabolic abnormality, non-infectious calculus and small calculus.^{1,5}

Conclusion

The ex vivo treatment of kidney graft stones by flexible ureteroscopy seems to be a good alternative, it is technically feasible to render a stone-bearing kidney stone-free, this technique can expand the kidney donor pool and give the chance to patients with chronic renal failure. The challenge is not to prolong the time of cold ischemia.

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