

Video can be found at <http://www.ceju.online/journal/2021/renal-transplantation-ureteroscopy-urolithiasis-2134.php>

Utilization of single-use flexible ureterorenoscope for ex-vivo stone extraction in living kidney donors

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After the introduction of computed tomography (CT) angiography for living donor kidney evaluation, surgeons have begun to encounter donor candidates more frequently, who are otherwise suitable but have small asymptomatic unilateral kidney stones. In order to overcome this problem and expand the donor pool, ex-vivo ureterorenoscopy has become a rational approach for the clinician. However, ureteroscopes pose a risk factor in terms of transmission of infection because they are in direct contact with the mucosa. Thus, re-usable ureterorenoscopes must be sterilized prior to the procedure. Nevertheless, some studies revealed that, sterilization or high-level disinfection do not properly eliminate the risk of contamination in re-usable devices. Although the clinical reflection of this contamination has not been demonstrated clearly, minimization of this likely risk of infection is paramount regarding the use of heavy immunosuppression including induction agents in the perioperative and early postoperative period in renal transplant patients. Single-use flexible ureterorenoscopes (su-FU) seem to be a prudent solution to minimize the risk of iatrogenic urinary tract infection during ex-vivo donor kidney stone removal. Here, we present the surgical technique and outcomes of our ex-vivo su-FU stone removal experience in this video.

All potential kidney donor candidates are thoroughly evaluated for any signs or findings suggesting recurrent urinary tract stone disease.

Small, non-obstructive unilateral kidney stones were detected in two of our donor candidates during the preoperative evaluation with CT scan. Metabolic evaluation revealed no pathological findings and these two patients proceeded to kidney donation.

After laparoscopic harvesting, the donor kidneys were flushed with cold histidine-tryptophan-ketoglutarate solution and routine bench surgery was performed. Then, the grafts were prepared for stone removal. Ex-vivo ureterorenoscopy was performed by Uscope PU3022A (Pusen Medical, Zhuhai, China) using ice cold saline irrigation solution. After all stones were removed by basket catheter, both kidneys were transplanted. A 4.8 Fr 16 cm transplant ureteric JJ stent was placed and removed 6 weeks postoperatively. All recipients received tacrolimus/mycophenolate mofetil/prednisone immunosuppression treatment after kidney transplantation. Stone analyses were performed by Fourier transform infrared spectroscopy technique.

Two female patients aged 28 and 23 years old underwent left and right laparoscopic donor nephrectomy, respectively. There were 5 mm lower calyx and mul-

tiple 2 mm stones in the first patient and 6 mm upper calyx and 2 mm mid-calyx stone in the second patient. All of the stones were removed en-bloc with basket catheter without using HoYAG laser fragmentation. Operative times of the procedures were 24 and 12 minutes, respectively. There were no peri- and post-operative complications including urinary tract infections (UTIs) in neither donors nor recipients and both recipients were discharged with functioning grafts. Stone analyses revealed mixed type of calcium oxalate (whewellite and whedellite) in the first patient and pure whewellite in the second patient.

Ex-vivo ureterorenoscopic stone removal in donor kidneys with su-FU seems to be a safe and feasible procedure without any deterioration of renal al-

lograft function and adverse consequences to the recipients. To the best of our knowledge, these are the first reported cases being treated by su-FU.

INFORMED CONSENT

Authors have received and archived patient consent for video recording/publication in advance of video recording of procedure.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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