

## Safety and efficacy of renal access establishment in percutaneous nephrolithotomy by an optical puncture system based on ultra-mini percutaneous nephrolithotomy platform under ultrasound guidance

Eur Urol Suppl 2019; 18(1);e20

Lei X., Wu X. , Xuan H. , Cao Y. , Chen Q. , Xue W.

Renji Hospital, Shanghai Jiaotong University School of Medicine, Dept. of Urology, Shanghai, China

**Introduction & Objectives:** The objective of the study was to evaluate the safety and efficacy of an optical puncture system based on ultra-mini percutaneous nephrolithotomy (UMP) platform for renal access establishment in percutaneous nephrolithotomy (PNL).

**Materials & Methods:** Sixty-eight patients who undergone PNL from December 2015 to June 2016 were retrospectively reviewed. The access to the pelvicaliceal system was obtained under US guidance using a 3.5-MHz probe. Then the puncture was confirmed by using an optical puncture system based on UMP platform before dilation (group 1). After adjusting to an optimal position, PNL was performed thereafter. Patients' demographic data, operative and postoperative data were compared with conventional approach (group 2).

**Results:** In group 1, visualization of the punctured kidney calyces was successful and the presence of the target calculi could be confirmed prior to guidewire placement and tract dilation. No significant complications were observed in group 1. The rate of failed access during dilatation and the drop in hemoglobin were significantly lower in group 1 than those in group 2. But there were no statistically significant differences in blood transfusion between the groups. The mean operative time was  $30.4 \pm 2.77$  min in group 1 and  $29.8 \pm 1.76$  min in group 2 ( $P=0.855$ ). 91.2% (31/34) and 94.1% (32/34) patients were rendered stone-free at the end of one month postoperatively.

**Conclusions:** The optical puncture system based on UMP platform combined with ultrasound guidance for renal access is a feasible and effective technique. It can be performed safely and was helpful for confirming the optimal percutaneous access to the kidney prior to dilation of the nephrostomy tract.