P011 Percutaneous nephrostomy-assisted ureterorenoscopy (PAU) for an impacted ureteral stone: A clinical study of super-minimally invasive endourology

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Introduction & Objectives: Ureterorenoscopy (URS) for an impacted ureteral stone has high perioperative risks, including fever, decline of renal function, and ureteral injury. In our facility, endourology through a percutaneous or transurethral approach, depending on the case, is used to reduce this risk. In this study, we retrospectively investigated the background and surgical outcomes of cases with an impacted ureteral stone treated with percutaneous nephrostomy-assisted URS (PAU), in which the surgeon judged the indication during surgery.

Materials & Methods: The subjects were 17 patients (mean age 60.2 years old) with an impacted ureteral stone (18 ureters), including 15 males (16 ureters) and 2 females (2 ureters) who were treated with PAU between November 2008 and October 2018. The mean stone size was 18.4 mm (major axis) and the mean volume was 2.24 cc. In the PAU procedure, percutaneous nephrostomy was performed and lithotripsy was retrogradely applied using a ureteroscope, a Ho: YAG laser, and basket forceps during perfusion with saline, followed by litholapaxy. Postoperative fever, SIRS score, renal function, hydronephrosis, additional surgery required to become stone-free, and recurrence of the stone were examined in the subjects.

Results: Body temperature did not exceed 38°C after surgery in any of the 17 cases. The mean SIRS score was 0.33 and no case had a score of 2 or higher. Twelve (66.7%, mean volume: 2.01 cc) of the 18 ureters became stone-free after the first PAU. In the other 6 ureters (33.3%, mean volume: 2.53 cc), URS and URS-assisted percutaneous nephrolithotomy were added, and the final stone-free rate was 100%. Thirteen cases were followed for one month or longer after surgery (72.2%, mean duration of follow-up: 18.5 months) and no decline of renal function, aggravation of hydronephrosis, or recurrence of the stone occurred in any of these cases.

Conclusions: PAU is a minimally invasive endourological treatment that is effective for an impacted ureteral stone due to its low risk for reduction of renal function, fever and an increased SIRS score after surgery.