

## STONE DISEASE

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### **Combined retrograde flexible ureteroscopic lithotripsy with holmium YAG laser for renal calculi associated with ipsilateral ureteral stones**

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*J Endourol. 2009; 23: 253-7*

**Purpose:** The purpose of this study was to evaluate the effectiveness of combined ureteroscopic holmium YAG lithotripsy for renal calculi associated with ipsilateral ureteral stones.

**Materials and Methods:** Between August 2002 and March 2007, retrograde flexible ureteroscopic stone treatment was attempted in 351 cases. Indication for treatment was concurrent symptomatic ureteral stones in 63 patients (group I). Additional operative time and perioperative complication rates were compared to a group of 39 patients submitted to ureteroscopic treatment for ureteral calculi exclusively (group II).

**Results:** Mean ureteral stone size was  $8.0 \pm 2.6$  mm and  $8.1 \pm 3.4$  mm for groups I and II, respectively. Mean operative time for group I was  $67.9 \pm 29.5$  minutes and for group 2 was  $49.3 \pm 13.2$  minutes ( $p < 0.001$ ). Flexible ureteroscopic therapy for renal calculi increased 18 minutes in the mean operative time. The overall complication rate was 3.1% and 2.5% for groups I and II, respectively ( $p = 0.87$ ). Mean renal stone size was  $10.7 \pm 6.4$  mm, overall stone free rate in group I was 81%. However, considering only patients with renal stones smaller than 15 mm, the stone free rate was 88%. Successful treatment occurred in 81% of patients presenting lower pole stones, but only 76% of patients with multiple renal stones became stone free. As expected, stone free rate showed a significant negative correlation with renal stone size ( $p = 0.03$ ;  $r = -0.36$ ). Logistic regression model indicated an independent association of renal stones smaller than 15 mm and stone free rate (OR = 13.5;  $p = 0.01$ ).

**Conclusion:** Combined ureteroscopic treatment for ureteral and ipsilateral renal calculi is a safe and attractive option for patients presenting for symptomatic ureteral stone and ipsilateral renal calculi smaller than 15 mm.

### **Editorial Comment**

The authors are to be commended for the high stone-free rate obtained with the stringent criteria based on CT scan imaging. One might consider that it could be difficult to standardize instrumentation and technique across three continents and across a 5-year time period - this may impact the interpretation of results especially if a larger bulk of the flexible ureteroscopies were conducted in the later portion of the study period when the authors had more experience and better instrumentation. It would be helpful for the authors to define their criteria for using a ureteral access sheath - it is our practice to use it routinely during intrarenal stone extraction to improve stone free rates and minimizes the risk of ureteral injury.

The authors importantly define the upper limit of stone size to tackle ureteroscopically - 15 mm. Beyond this size one must inform patients of the risk of requiring staged ureteroscopies to render stone-free. Another important consideration is that all patients were stented after the surgery. As 60% of these patients had distal ureteral calculi, they could have been offered the alternative of no stent if intrarenal calculi were not treated at the same setting. Often patients who have had significant stent discomfort in the past will elect to leave the intrarenal stone untreated so as to avoid the ureteral stent.

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### **Percutaneous versus transurethral cystolithotripsy**

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J Endourol. 2009; 23: 237-41

**Purpose:** To compare transurethral cystolithotripsy (TUCL) and percutaneous cystolithotripsy (PCCL) modalities performed during simultaneous transurethral resection of the prostate (TURP) in patients with prostate hyperplasia and large bladder stones.

**Patients and Methods:** Sixty-three patients with prostate volume > 40 cc and aggregate stone size > 2.5 cm were enrolled in the study between August 2003 and February 2007. TUCL (n = 38) or PCCL (n = 25) procedures were performed during simultaneous TURP. In the TUCL group, the stones were removed after fragmentation through a 23F cystolithotripter with pneumatic lithotripsy. This was followed by TURP, performed with a 26F continuous-flow resectoscope. In the PCCL group, the stones were removed through a suprapubic 30F Amp-latz sheath after fragmentation. TURP was then performed with the suprapubic sheath providing continuous drainage.

**Results:** Mean age and prostate volumes of the groups were similar. Mean aggregate stone sizes were significantly larger in the PCCL group. The operative time for stone removal was significantly less in the PCCL group while time needed for TURP was statistically similar in the two groups. In the TUCL group, three patients had residual stones necessitating repeated TUCL and urethral stricture developed in three patients.

**Conclusion:** The smaller caliber of the working channel during TUCL, compared with PCCL, necessitates disintegration of the stones into smaller fragments. This elongates the duration of the intervention and results in increased urethral and bladder trauma. Combined TURP and PCCL is a safer, more effective, and much faster alternative to combined TURP and TUCL in patients with large bladder stones and prostate hyperplasia.

### **Editorial Comment**

The study is limited in its retrospective nature, but provides important support for the empiric approach utilized by the authors. It is clear that transurethral approach carries a higher risk of urethral stricture - this may be related to the duration of instrumentation during stone extraction or it may be related to the size and duration of post-operative catheterization. The authors emphasize the importance of stone extraction prior to TURP as bleeding from the prostatic fossa may obscure the identification of residual stone. The authors also emphasize the importance of leaving the Amplatz sheath in place during the TURP as premature removal of this may lead to extraperitoneal extravasation of irrigation fluid. Another advantage of a percutaneous approach not mentioned by the investigators would be the use of an ultrasonic lithotripter through a rigid nephroscope as a more efficient means of stone clearance. Lastly, it is important to note that these recommendations are specific for men - though less common, larger stones in women can be effectively addressed cystoscopically with a rigid nephroscope and ultrasonic lithotripter.

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