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Retrograde ureteroscopic intrarenal surgery (RIRS) in patients with renal stone size larger than 2 cm

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Introduction: Retrograde intrarenal surgery (RIRS) for the management of renal stones is becoming more and more popular thanks to technological progress, such as new generation flexible ureteroscopes, Holmium laser and Nitinol baskets

Materials and Methods: From June 2013 to May 2014 we performed RIRS for renal stones larger than 2 cm on 42 patients. We treated isolated stones in 32 cases (10 lower calyx, 3 medium calyx, 5 upper calyx and 8 renal pelvis) and multiple stones in 10 cases. The mean size was 25.94 mm (r: 21-45).

We performed the surgery with a ureteral access sheath (13-11Fr.), a flexible ureterorenoscope (third generation, 7.5Fr.), Holmium laser 20W (200 and 365 micron fibers) and Nitinol baskets (1.7Fr.).

The stone-free rate by CT was defined as the absence of stones in the kidney or residual stone fragments smaller than 3 mm, after a mean follow-up of 6 months

Results: There were no intraoperative complications. The mean operating time was 98 min (r: 68-190). The overall stone-free rate was 91.6%. The mean hospital stay was 2.3 days (r: 1-7). There were 4 minor complications (9%) and 1 major complication (1%) (Sepsis). Two patients needed a second treatment (5%). No ureteral stenosis due to the use of the ureteral access sheath was observed.

Conclusions: This procedure is safe and feasible, with a high success rate and a low complication rate. Besides being an alternative to ESWL and PCNL, in selected cases, RIRS may be the treatment of choice for renal stones.