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Flexible ureterorenoscopy and Holmium laser lithotripsy for renal stones >15mm

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Objectives: Despite comparable outcomes with percutaneous nephrolithotomy (PCNL) the efficacy of flexible ureterorenoscopy and holmium laser lithotripsy (FURSL) as first line treatment for renal calculi >1.5cm is under discussion. This prospective study analysed the clearance rate of FURSL for all renal stones 1.5 – 3cm in size at a single centre.

Materials and Methods: Between May 2011 and December 2013, patients choosing FURSL as first line therapy for stones >1.5cm were included in our prospectively kept database. All procedures were performed by the same surgeon using modern flexible ureterorenoscope, ureteral access sheaths, Holmium laser and ureteric stents inserted post fragmentation. Outcomes measured included stone size and position, stone free rate (SFR), number of procedures to achieve clearance and complications, classified by Clavien-Dindo grade.

Result: 34 patients were included (Male:female = 23:11). Mean stone size was 2cm (range 1.5 – 3cm). Stone size was significantly related to SFR $P<0.01$ and the number of operations required to clear the stone $P=0.02$. Renal stones position: 2 in the upper pole, 18 in the renal pelvis and 14 in the lower pole. Statistically stone position was not significantly related to outcome measures. Mean operating time was 90minutes. SFR after one session was 52% (n=16) with overall SFR of 93% (n=29). On average, 1.5 procedures were required to achieve clearance. Mean length of stay was 1 night in hospital. 4 patients (13%) suffered minor complications (Clavien-Dindo grade I or II). There were no major complications.

Conclusion: In experienced hands, FURSL is safe and effective for all renal stones >1.5cm with a high SFR and low complication rate, even in a district general hospital. Despite the need for staged procedures, it represents a suitable alternative to PCNL.