PP-118

Efficacy of flexible ureteroscopy and laser lithotripsy for lower pole renal calculi

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Background: Lower pole renal stones are difficult to treat due to various anatomical factors. In addition due to its dependent position, stones in this area treated with extracorporeal shockwave lithotripsy are prone to failure. In recent years flexible ureteroscopes have become more durable and with distal tip deflection, access and treatment of lower pole stones by this modality has become a reality.

Objective: To determine whether flexible ureterorenoscopy and laser lithotripsy is efficacious and safe in treating lower pole renal calculi.

Patients and Methods: Patient, procedure and stone data of patients who underwent flexible ureterorenoscopy and laser lithotripsy at our referral center was collected prospectively between November 2005 and November 2011 and entered into a designated database. Two hundred and forty-two procedures were performed in 198 patients.

Intervention: Flexible ureterorenoscopy and laser lithotripsy.

Measurements: Stone clearance, defined as stone free or calculi < 3mm, was assessed by plain X-ray post procedure or where appropriate with ultrasound or computerized tomography.

Results: The mean age was 51.2 years. The mean calculi size was 10.51 mm (range 4-27 mm). Thirty-seven patients had more than one stone in the lower pole. An access sheath was used in 19 patients (9.6%). One hundred and seventy-one (86.4%) had a ureteric stent inserted after the procedure. One hundred and sixty five patients had a single procedure. Re-operation rate was 16.7%. Stone free rates after one procedure were 89%, 80% and 41% respectively for calculi measuring 4-10mm (n=107), 11-20mm (n=76) and > 20mm (n=15). The overall stone free rate was 83%, 91% and 95% after 1, 2 and 3 procedures, respectively. The commonest complications included infection and stent symptoms.

Conclusion: Flexible ureterorenoscopy and laser lithotripsy is a safe and effective minimally invasive treatment option for patients with 4-20mm lower pole calculi.

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