Ureteroscopic Management of Lower Ureteral Stones: Two Years’ Experience

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A total of 140 ureteroscopies in 119 patients done between January 1992 and December 1994 at the Department of Urology, Hacettepe University Hospital, were reviewed. Factors such as previous ESWL therapy, previous surgery and use of in situ lithotripsy were noted. Success was defined as complete removal or disintegration and partial removal of the lower ureteral stones. All successes were confirmed by plain abdominal X-rays postoperatively.

Of 140 stone manipulations attempted in 119 patients 106 (75.7%) were successful (in 80 by retrieval and in 26 by disintegration using electrohydraulic or laser). Perforation occurred in 4 of 13 cases where electrohydraulic lithotripsy was used for disintegration of stones. Extraction by ureteroscopic manipulation following extracorporeal shock wave lithotripsy (ESWL) was successful in all of the 12 cases of lower ureteral calculi. The success rate was found to be low for lower ureteral stones in patients with previous open surgery (2/9). A total of 43.2% of the patients were medically indicated to be hospitalized following the procedure with a mean hospitalization time of 5 days (ranging in between 1 to 7 days).

Ureteroscopy is an effective method for management of lower ureteral stones. Use of the electrohydraulic lithotriptor may be associated with a high percentage of complications. Previous ESWL may be associated with a high rate of success. Results in patients with previous open surgery are not encouraging. Although all patients can be subjected to the procedure on an outpatient basis, a significant percentage need a short hospitalization.

Introduction

Endoscopic examination of the ureter was first performed earlier in this century. Since Pérez-Castro Ellendt and Martinez-Pineiro first described a rigid endoscope for the ureter [1], the ureterorenoscope has been increasingly used in the management of ureteral calculi. Optical and technical improvements resulted in new ureteroscopes with smaller diameters which helped a great deal to a widespread use of the technique. In addition, ultrasonic and laser lithotripsy and electrohydraulic technology were adopted for disintegration of large and impacted stones. These all have made ureterorenoscopy a feasible, efficacious and low-risk technique. We report our two years’ experience with ureterorenoscopy as an outpatient therapeutic tool.
Materials and methods

Between January 1992 and December 1994, 140 ureteroscopies were performed. A total of 134 patients (41 women and 93 men aged 21 to 65 years) were evaluated retrospectively. All of the patients were selected from outpatient clinics and the procedures were carried out under general anaesthesia. A total of 140 ureteroscopies in 119 patients were performed for ureteral stone disease, including 6 patients with secondary and 3 with tertiary stones following open surgery. Of the calculi 90% were smaller than 1 cm. Twelve patients had already had unsuccessful ESWL therapy for their calculi. In 15 patients (11%) ureteroscopy was done as a diagnostic or therapeutic procedure for other than calculus disease. All of the patients had intravenous urography (IVU) before the procedure. Every patient was given preoperative parenteral single dose broad-spectrum prophylactic antibiotics. Prophylaxis was continued for at least three days with an oral antibiotic after procedure. The ureteroscopes used were standard 45 cm long, 12.5 F calibre 5-degree instruments with 5 F working channel (Storz). Indications for ureteroscopic stone manipulation were:

1. patients with lower ureteral stones who had upper urinary tract deterioration on IVU,
2. nonsymptomatic patients with normal urogram who had not had spontaneous passage of stone after 6 weeks of conservative follow-up,
3. patients with pain whose symptoms were not relieved by conservative measures.

Endoscopic technique

A preoperative plain film of the abdomen was obtained before starting endoscopy to confirm the presence and location of the calculus. Under general anaesthesia the patient was placed in the lithotomy position and the ureterorenoscope was introduced into the ureter under fluoroscopic control, either alone (64%) or by the help of a guide wire (21%) or by dilatation of the ureteral orifice (15%). According to stone size and configuration, basket catheter, forceps, electrohydraulic or laser were used for the retrieval or disintegration of the stone. Ureteral stents were not left in place routinely after stone extraction. Stents were placed when the surgeon believed that significant ureteral trauma required a period of drainage.

Patients were followed by plain abdominal films, ultrasonography and in some cases IVU. The average follow-up period was 4.5 months, ranging from 1 to 21 months.

Success was defined as complete removal or disintegration and partial removal of the lower ureteral stone in patients who were shown to be stone-free on their control visits with plain abdominal X-rays.