



Pan African Urological Surgeons' Association

African Journal of Urology

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Original article

Outcome of ureteroscopy for the management of distal ureteric calculi: 5-years' experience



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Received 9 April 2013; received in revised form 10 August 2014; accepted 12 August 2014

KEYWORDS

Ureteroscopy;
Outcome;
Distal ureter calculi;
Complications

Abstract

Objective: To review our 5 years' experience with ureteroscopy treatment of distal ureteric calculi.

Patients and methods: We reviewed the medical records of 136 patients who underwent ureteroscopic procedures for the treatment of distal ureteric calculi from February 2007 to October 2012. Patient and stone characteristics, treatment modality and outcome were assessed. Procedure's duration, status "stone free" and hospital stay were also evaluated. The mean clinical and radiological follow-up period was 31.8 months for 74.2% of eligible patients.

Results: The stone free rate following an initial ureteroscopy was 79.4. The ultimate success rate for stone removal after "second look" improved to 95.9%. The mean operative duration was 51 minutes.

The intraoperative complication rate was 8.6%, the postoperative complication rate was 7.5%, and the mean hospital stay was 1.1 days.

We could detect one ureteric stricture and one vesico-ureteric reflux (0.9% for each). A significant ureteric perforation was detected in 4.1% and ureteric perforation in 0.7% of the study group.

We could find that the longer the operative duration, the greater the complications.

Stone impaction and size were also found associated with higher morbidity.

Conclusion: Growing skills and experience of ureteroscopy will lead to a significant increase in the success rate and also reducing serious complications.

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Introduction

Significant advancement has been made in the medical and surgical management of urolithiasis over the past 20 years. Ureteral stones

often cause renal colic and, if left untreated, may steer to obstructive uropathy. Stone removal is indicated for pain, obstruction or associated infection [1].

Minimal invasive techniques for management of ureteric calculi include extracorporeal shockwave lithotripsy (ESWL), ureteroscopy (URS), and laparoscopic ureterolithotomy. The choice of the procedure depends on location and characteristics of the stone, patient's preference, as well as associated costs. According to

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Peer review under responsibility of Pan African Urological Surgeons' Association.

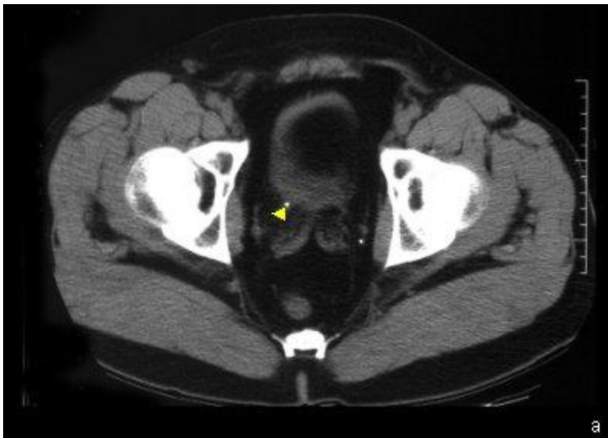


Figure 1 Ureteral stone/unenhanced CT scan shows stone distal ureter.

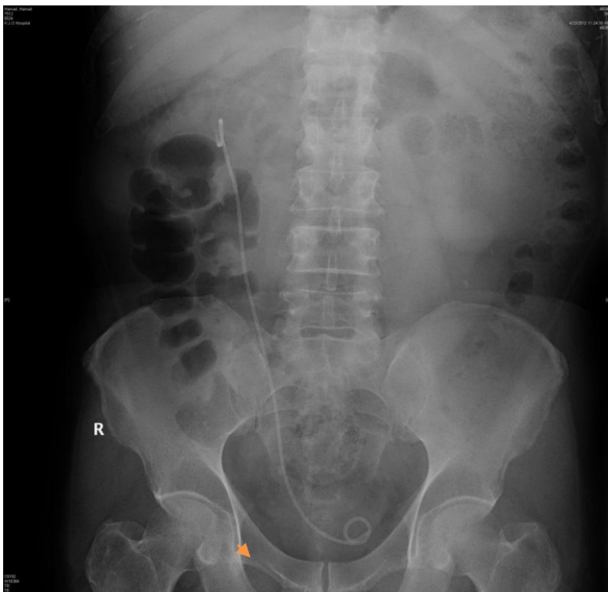


Figure 2 Postoperative ureteric stent with residual stone that passed spontaneously.

European Association of Urology 2007, ureteroscopy is an effective therapeutic modality for distal ureteric calculi [2] (Figs. 1 and 2).

The major technical improvements include endoscope miniaturization, enhanced optical quality plus the introduction of more refined tools and disposables. Therefore, the option of ureteroscopic stone extraction, although most patients require anesthesia, has become more attractive [3].

Ureteric stones should be treated in situ. Ureteroscopy may necessitate time stone clearance making repeated out-patient assessment and/or necessary re-treatment [4].

Ureteroscopy is used to treat ureteric calculi, particularly those that are either unsuitable for ESWL or refractory to that form of treatment [5]. Other treatments include Medical Expulsive Therapy (MET) for stone passage, antegrade ureteroscopy, laparoscopic and open ureterolithotomy [6].

Ureteroscopy remained superior to ESWL for treatment of stones <10 mm and >10 mm. This commendation was centered on the outcomes of stone free status, morbidity, and retreatment rates for each respective therapy. However, costs and patient satisfaction or preference were not addressed [7].

Currently, the morbidity of ureteroscopy has been significantly reduced. The overall complication rate is 9–25%. Ureteral avulsion and strictures used to be greatly feared [8].

Objective

To review our 5-years' experience with ureteroscopic management for distal ureteral stones and to look over the impact of the technique on the success and complications of the procedure.

Patients and methods

We reviewed the medical records of 136 patients who underwent ureteroscopic procedures for the treatment of distal ureteric calculi between November 2007 and October 2012 at urology departments of National Institute of Nephrology and Urology, Cairo, and hospitals in the private sector (Al Mana general hospital, Hofuf and KJO hospital, Khafji, KSA).

Patients presented with clinical features suggesting ureteric urolithiasis. They were considered eligible if the evaluation revealed single or multiple stone(s) measuring 7 mm or more in the lower ureter. The radiologic anatomy of pelvic ureter is defined to be at or below the level of the sacroiliac joint.

Those who showed obstructing stones/sepsis urgent decompression of the collecting system was done using either percutaneous drainage or ureteral stenting. Then definitive ureteroscopy had been delayed for 2 weeks until sepsis been resolved.

Patients enrolled when aged more than 18 years, failed expulsion medical treatment (EMT), have contraindications to ESWL, bleeding diathesis, uncontrolled and recurrent urinary tract infection, severe skeletal malformations and obesity, and anatomical obstruction distal to the stone.

The exclusion criteria comprised anesthesia difficulties, untreated urological infection, ureteric strictures, anatomical hip limitations that may prevent successful retrograde stone management, anti-platelet drugs, and stones size more than 2 cm.

The patients were subjected to preoperative work-up that include history taking, physical examination to detect anatomical or congenital abnormalities, urinalysis, colony count, urine for culture and sensitivity CBC& coagulation profile, kidney function tests, and imaging procedures of KUB/(IVU) or non-enhanced computed tomography (CT urography).

On the day of surgery, a prophylactic antibiotic was administered. Patients were sent to operating room and put in dorsal lithotomy position with legs supported in stirrups with minimal flex at the hips. The procedure was performed under general or spinal anesthesia.

The equipment included rigid ureteroscopy (semi-rigid ureteroscopy, Karl Storz, Germany), fluoroscopy (C-arm

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