

## **A Prospective Study- Management of Impacted Ureteric Calculus Using Ureteroscopy and Pneumatic Lithotripsy**

**Dr. Vinodhkumar, Dr. Natarajan**  
*Meenakshi Medical College, Enathur, Kanchipuram*

---

**Abstract :** 1. To assess the outcome of ureteroscopy and pneumatic lithotripsy for impacted ureteric calculus  
2. To analyse the factors influencing success of ureteroscopy and pneumatic lithotripsy for impacted ureteric calculus  
3. To evaluate the immediate complications of ureteroscopy for impacted ureteric calculus.

---

### **I. INTRODUCTION**

- All patients who came to the our outpatient department between SEP 2013 to march 2015
- History of loin pain and a diagnosis of ureteric calculus were evaluated for the study and taken up for ureteroscopy after obtaining informed consent.
- Patients in whom, the guide wire could not be negotiated beyond the calculus at initial attempts were included in the study.
- Patients with retrocaval ureter, previous history of ureteric stricture, or obstructive megaureter, or diabetes and patients with recent evidence of urosepsis were excluded from the study.
- Patients were analyzed with a devised proforma and the clinical findings and investigation findings were recorded.
- Diagnosis of ureteric calculus was confirmed in all patients with USG, x ray KUB and IVP and patients were sub classified accordingly.
- Ureteroscopy was done with a Wolf 8-9.8 Fr ureteroscope with a 250W Halogen light source, with a single chip video camera. Pneumatic lithoclast, with 1 mm probe was used for lithotripsy.
- For those patients in whom ureteroscopy & lithotripsy was unsuccessful were subsequently managed with ESWL or Open ureterolithotomy.
- 5 F double J stent was kept as and when necessary, and it was removed at the end of 2 weeks after ensuring complete stone clearance.

### **TECHNIQUE**

- A plain x-ray film of the abdomen was obtained on the morning of the procedure to confirm presence and location of the ureteric calculus. We performed the procedure under spinal anaesthesia. The patient is placed in modified lithotomy position with hyper flexion of the contra lateral leg to facilitate the introduction and manipulation of the ureteroscope
- Cystourethroscopy is performed to exclude concomitant disease using 21 Fr sheath / 30 deg scope. A 0.032 inch floppy tip guide-wire is introduced through the cystoscope and passed through the ureteric orifice, under fluoroscopic guidance. Initial attempt of passing guide wire past the calculus were unsuccessful in all cases.
- We routinely dilated the ureteric orifice before URS using 5 Fr, 80cm long, 5mm x 4cm, balloon dilator. Balloon dilator passed over the previously placed guide wire.
- After completion of dilatation, cystoscope is removed and the ureteroscope is introduced adjacent to the guide wire, into the ureter till the level of the stone. We use 8 – 9.8 Fr, semi rigid ureteroscope, with 6 Fr working channel (Richard Wolff). The lithoclast probe is introduced through the straight working channel, and brought in contact with the stone and it is fragmented into small pieces.
- As soon as stone gets disimpacted or stops fragmenting, we pushed our guide wire past the stone into the proximal ureter as a safety measure. We removed the larger fragments with a 3-pronged grasper or a Dormia basket and keep them in the bladder.
- Stone fragments smaller than 2 mm in size (less than twice the size of the guide wire) are left behind. We kept DJ stent only if the stone load was more than 1cm or if the procedure was traumatic.
- Peri-operative antibiotic prophylaxis was given. Stone clearance and stent position was confirmed by xray KUB, on the next morning. Follow up is done at 2 weeks and if required at 4 weeks for stone free status.

## II. CONCLUSION

- Ureteroscopy with pneumatic lithotripsy is efficacious in the management of impacted ureteric calculus.
- Size and location of the stone are the factors, which influence the success of ureteroscopy
- Ureteroscopy is safe with minimal complications, in the management of impacted ureteric calculus.

## References

- [1]. Young HH, McKay RW: congenital valvular obstruction of the prostatic urethra. Surg. Gyn Obs 1929, 48:509.
- [2]. Marshal VF: fibreoptics in urology; J Urol; 1964; 91:110.
- [3]. Tagaki T, Go T, Takayasu T et al: Fiberoptic pyeloureteroscopy, Surgery, 1971,; 70: 661.
- [4]. Bush IM, Goldberg G, Javadpour N et al.; ureteroscopy and renoscopy: A preliminary report: Chicago med. Journ. 1970; 30:46.
- [5]. Good man TM: ureteroscopy with pediatric cystoscopes in adults. Urology 1977; 9: 394.
- [6]. Lyon ES, Kyker JS, Schoenberg HW.; trans urethral ureteroscopy in women; a ready addition to urological armamentarium; J Urol. 1978; 119:35.
- [7]. Hopkins HH: Patents 954, 629.
- [8]. Lyon ES, Banno JJ, Schoenberg HW: trans urethral ureteroscopy in men using juvenile cystoscopic instruments. J Urol. 1979; 122:152.
- [9]. Huffman JL, Bagley DH, Lyon ES et al: Treatment of distal ureteric calculi using rigid ureteroscope; Urology; 1982; 20: 574.
- [10]. Peres castro EE, trans urethral ureteral scopy –a current urological procedure. Arch. Esp. Urol. 1980; 33: 445.
- [11]. Huffmann JL: experience with 8.5 Fr compact rigid ureteroscope; Semin. Urol. 1989; 7:3
- [12]. Dretler SP, Cho G.; Semirigid ureteroscope: a new genre. J. Urol 1989; 141:1314.
- [13]. Selmy GI, Hassouna MM, Khalaf IM et al: Effect of verapamil, prostaglandin F2 alfa, phenylephrine, and noradrenaline in the upper urinary tract dynamics. Urology; 1994, 43: 31- 35.
- [14]. Campbell's Urology, 10th edition, Patrick C Walsh et al, 99, 3380
- [15]. Ueno a, Kawamura t, Ogawa A et al : Relation of spontaneous passage of ureteric calculi to size.