DOI: 10.7860/JCDR/2016/22493.8958

Original Article

Surgery Section

Transurethral Cystolithotripsy of Large Bladder Stones by Holmium Laser as a Day Care Procedure

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ABSTRACT

Introduction: Bladder stones constitute around 5% of bladder stones in the developed countries. Holmium laser lithotripsy has revolutionised the treatment of urinary lithiasis.

Aim: The aim of this study was to report the outcome of transurethral cystolithotripsy with Holmium Laser under Local Anaesthesia (LA) as a day care procedure in patients with bladder stones.

Materials and Methods: Patients with bladder stone greater than 1.5cm attending urology Outpatient Department underwent transurethral cystolithotripsy with Holmium Laser under LA as day care procedure. The results were analysed on aspects of peri-operative pain, completion of procedure, stone clearance, hospital stay, complications and patient compliance.

Results: A total of 85 patients with bladder stone ≥1.5cm underwent transurethral cystolithotripsy LA. The mean age of the patient was 52±7 years. There were 80 males. The mean size of stone was 3±1.2cm. Mean operation time was 40±10 minutes. Complete stone clearance was achieved in all the patients. None of the patients required hospital stay following the procedure.

Conclusion: Transurethral holmium laser lithotripsy is an effective and safe procedure for large bladder stones. This procedure can be easily performed as a day care procedure.

Keywords: Cystoscopy, Endo-urological treatments, Urinary lithiasis

INTRODUCTION

Bladder stones constitute around 5% of bladder stones in the developed countries [1]. Open surgery has the maximum effectiveness, but leads to more morbidity to the patient [2,3]. Endourology procedures for bladder stone treatment have resulted in minimal morbidity and more effectiveness [3]. Endo-urological treatments can be done by either percutaneous or transurethral. Percutaneous lithotripsy has low rate of complications with regard to urethral complications. Bladder carcinoma and history of abdominal surgery are the main limitations for percutaneous lithotripsy [2-6]. Holmium laser lithotripsy has revolutionised the treatment of urinary lithiasis [7-9].

MATERIALS AND METHODS

Between January 2015 and May 2016, 85 patients with bladder stones who attended the Urology clinic, Department of Urology RIMS Hospital, Imphal, Manipur, India, underwent transurethral cystolithotripsy with Holmium under LA. Ethical clearance and written informed consent for the procedure was taken from all patients for the study. If patient age is greater than 18 years and stone size ≥1.5cm were included in the study. Those patients who had urethral stricture, active urinary infection, urinary tracts cancers and benign prostatic hyperplasia were excluded from the study. All routine investigations were done. Urinary tract infections were treated before the procedure.

Before beginning the surgeries, a single dose of 300mg of Inj. Netilimicin and 100mg tramadol were given intravenously. 20cc of 2% lidocaine gel were instilled for 5 minutes. All the surgeries were performed in standard lithotomy position. Semi-rigid, 19 Fr cystoscope (Karl Storz Germany) was used for the procedures. Complete cystoscopy was done before starting the procedure. Holmium laser was set at 1.2J and 8 Hz, and 365 micrometers end fire fibres were used. Stone fragments were evacuated by Ellik evacuator. At the end of the procedure, cystourethroscopy was performed for detection of any stone residues. All the patients were discharged from hospital on operation day. No folley's catheter was inserted in the patients. Oral Levofloxacin 500mg once daily was given for 5 days.

Demographic characteristics of patients, operation time, stone clearance, intra-operative and post-operative complications, VAS during the procedure were recorded.

RESULTS

[Table/Fig-1] shows the patient demographics. There were 80 males and 5 females. The mean size of stone was 3±1.2cm. Mean operation time was 40±10 minutes. Complete stone clearance was achieved in all the patients. Mild haematuria was observed in 20 patients who were treated conservatively on OPD basis. No major complications occurred during the procedure. VAS was mild in 50 patients, moderate in 30 and severe in 5 patients. There were no stone recurrences at 3 months follow-up.

Mean age (Years)	52±7
Male : Female	80:5
Mean size of stone (cm)	3±1.2
Mean operation time minutes	40±10

[Table/Fig-1]: Pateints demographics

DISCUSSION

Bladder stones are classified as primary and secondary stones. The primary stones are also known as endemic stones, prevalent in developing countries and are closely related with diet and nutrition [10,11]. Secondary bladder stones are more common in developed countries and due to urinary stasis in bladder outlet obstruction patients [3,12].

In the past, open suprapubic cystolithotomy was the procedure of choice [2,3]. Endo-urological procedures can be achieved either by percutaneous cystolithotripsy or transurethral cystolithotripsy. Percutaneous cystolithotripsy is a very useful procedure for large and multiple bladder stones but limited by previous abdominal surgery and bladder carcinoma [2,4,5]. Holmium laser has been

successfully used in the treatment of large bladder stones larger than 3cm [7,11]. In the earlier studies, patients were discharged at 2.3 days [7] and 6.5±1.3 hours [13]. In our set up, we discharged the patient after 30 minutes of observation in the post-operative room. There were no major post-operative complications.

Transurethral cystolithotripsy with holmium laser has been reported to be associated with minimal complications [7,9,13]. The use of the small cystoscope 19Fr with the laser has resulted in very less stricture urethra; otherwise use of bigger cystoscope like 25Fr with Litho bridge for pneumatic lithoclast would have resulted in more stricture urethra. Transurethral cystolithotripsy with flexible cystoscope under local anaesthesia is also a safe and effective technique which can be used as an alternative treatment option [14].

CONCLUSION

Transurethral cystolithotripsy with Holmium laser is an effective and safe procedure with large bladder stones. This procedure can be easily performed as a day care procedure.

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FINANCIAL OR OTHER COMPETING INTERESTS: None.

Date of Submission: **Jul 01, 2016**
Date of Peer Review: **Aug 27, 2016**
Date of Acceptance: **Sep 06, 2016**
Date of Publishing: **Dec 01, 2016**