



Original Article

To Determine the Outcomes of Transurethral Nephroscope For the Treatment of Large Vesical Stone With Using Pneumatic Lithoclast

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ABSTRACT

Objective: To study the determine the outcomes of transurethral nephroscope for the treatment of vesical stones using pneumatic lithoclast **Methods:** The detailed study was conducted in Department of Urology, Islam Medical & Dental College/ Islam teaching/Central hospital Sialkot, from March 2019-March 2020. A total of 25 males and 5 females with vesical stones greater then 4 cm that was fragmented using the through transurethral use of a nephroscope via 26F amplatz sheath were enrolled. History from medical cards was obtained and physical examinations, lab tests, urine culture and ultrasonography of urinary tract were conducted. Then the X-Ray KUB film for stone clearance was used. The mean age, operation time, presenting symptoms, complications and the post operative status of the stone clearane was calculated and conducted analysis using SPSS version 21 **Results:** The mean age \pm SD was noted to be 48.79 \pm 12.499 years and male to female percentage being 89% to 11%. The mean stone size was 4.53 \pm 0.38 cm and mean operation time was 48.79 \pm 8.73 minutes. Thirty-one patients (31%) developed retention of urine and straining during micturition in (17%), dribbling of urine (15%), hematuria (10%), frequent urination (10%) and abdominal pain was reported in 15% patients. Ninety-six (96%) patients achieved the stone-free status and had no complications while only 1 patient had an intravesical bleeding. **Conclusions:** The treatment of large stone using a nephroscope via a transurethral amplatz sheath is an effective procedure and quick too. The Amplatz sheath helps in pneumatic lithotripsy is indeed an effective and safe procedure to be carry out in patients with large bladder stones.

INTRODUCTION

Incidents of bladder stones has been recorded since old times in medical texts back in Egyptiam mummies and doing surgeries of bladder has been the most earliest of choosen form of surgery [1]. Commonly bladder stones are found in underdeveloped or poorly resourced areas and about 12% of stone in adults are urinary tract stones [2]. New and new methods have been developed from open cystolithotomy to endourologicaal treatments from optical cystolitholapaxy, cystoscopic or percutaneous

cystolithotripsy and extracorporeal shock wave lithotripsy [3]. The most common symptoms of bladder stones are changes in urine color, hematuria, frequent urination, pain while males are found more than females being affected with vesical calculi [4-13]. Presently techniques like transurethral lithoclast for the removal of stones in the bladder has been most commonly utilized by surgeons. Its observed that transurethral nephroscope is faster and effeicient for larger stones [5-16]. Ultimately the many

tehncique of stone clearance aim to fragment the stone and make an easy passage with nominal morbidity and complications to the patient. In our study we will be assessing the outcomes of the transurethral using nephroscope for lрге bladder stones.

METHODS

The comprehensive work was carried out in Department of Urology, Islam Medical & Dental College/ Islam Teaching Hospital and Islam cental Hospital Sialkot from 1st April 2019 to March 31st 2020, 25 males and 5 females presenting with vesical stones greater then 4 cm of age above 30 and less than 75 years were included. Medical history was talem from medical cards and conducted physical examinations, lab tests and urine culture and ultrasonagraphy of urinary tract. Then KUB film was used post operatively for stone clearance. We noted the mean age, operation time, presenting symptoms and complications and the post operative status of the stone and conducted our analysis using SPSS version 21. Exclusion Criteria was past history of pelvic radiotherapy, abdominal surgery, distressed with hydronephrosis, severe renal problems and bladder tumors. The gender, mean age, operation time, stone size and presenting symptoms prior to surgery of the patients was recorded and also the resulting complications and stone-free status by periodical followups and analyzed the data using SPSS Version 21.

RESULTS

Out of the overall population the mean age ± SD was noted to be 48.79±12.499 years and with maximum and minimum age being 75 and 30. However it was mostly male dominated with male to female percentage being 89 to 11%. The mean stone size was 4.53±0.38 cm and mean operation time was 48.79±8.73 minutes (Table 1).

	Variable	Total Population
Demographics	Mean Age ± SD	48.79±12.499
	Max	75
	Min	30
	Male : Female(%)	89% :11%
Operation Statistics	Stone Size-(cm)	4.53±0.38
	Operation time (minutes)	48.79±8.73

Table 1: Demographics & Operation Statistics of Patients

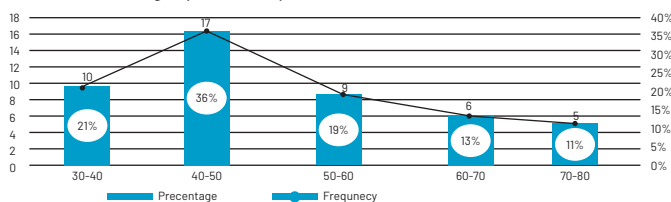


Figure 1: Peak Age Group in bladder Calculi Patients
Amongst the patients most patients fell in the 40-50 age - range about 36% followed by 21% in 30-40 years and 19% in

50-60 and 13% in 60-70 and 11% 70-80 years' age group. (Figure 1).

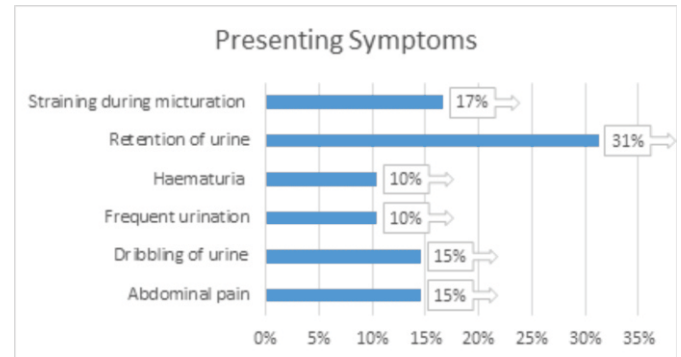


Figure 2: Presenting Symptoms of Patients
The most frequent symptoms were retention of urine observed in 31% of patients while most patients shared the lower urinary tract symptoms (LUTS) with straining during micturition in 17% while dribbling of urine in 15%, haematuria in 10% and frequent urination in 10% while 15% patients presented with abdominal pain.

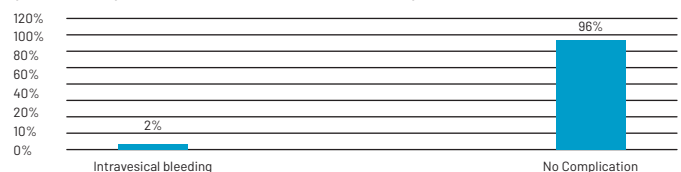


Figure 3: Post-Operative Status
Largely 46 (96%) patients achieved the stone-free status and had no complication while only 1(2%) patient had an intravesical bleeding (Figure 3). However no complication lasted for long.

DISCUSSION

Vesical stones usually affect men and according to a study and amount to about 5% of urinary stones. Mainly occurring due to bladder obstruction, infection or foreign bodies invasion [5,6]. Considering the development in this modality, many methods have been used to manage the stones in the bladder for instance Open cystolithotomy, extracorporeal shockwave lithotripsy, transurethral cystolithotripsy and percutaneous suprapubic systolithotripsy however it highly depends on the surgeon and patients physical and medical history of presentation and test as to which method to be used. Yet transurethral nephroscope is the common method used worldwide as it allowed other devices like laser and pneumatic lithotripter for fragmentation and we have used pneumatic in our study [7,8]. In our research of 30 subjects consisting of primarily males, i.e 89% male and 11% females (min 30 and maximum 75 years) with the mean(SD) age of 48.79±12.499 years while Abdul Mannan and his fellows reported 80% males and 20% females with a mean age of 55 years (minium age 18 and maximum 73 years) [9,10]. The mean (SD) stone size was

4.53±0.38 cm in our study while Ahmet et al. reported a mean age of 49.58 ± 9.50 years and stone size of 4.34 ± 0.78cm [7]. Similar local study of 146 patients showed a mean age of 40.1 years and stone size of 2.7 cm [11,12]. Most of the patients fell in the age bracket of 40-50 years and similar findings were reported by with age of patients falling between 11 to 70 years. In our study the average time taken for fragmentation was 48.79 minutes while Rai et al. [9] took 58 minutes. As such no particular aetiology can be associated for bladder calculi as supported by Okeke and his fellows in their study too [10,14]. Most patients achieved the stone-free status about 96% and had no complication while only 1 patient had an intravesical bleeding while shaikh and friends reported urethral in 7.5% and bladder bleeding 6% and only 3.5% had incidents of infection [15,16]. Ahmed Rasheed showed a stone did not break in 3.3%, 2.69% had partial fragmentation making a 84% stone free status while in our study stone free status was 96% [17,18]. Similarly Msihra and colleagues conducted their research using transurethral lithotripsy and reported no complications in all patients proving nephroscopy to be more effective [19,20]. However we also showed that large fragments of stones can be prevented various entries to the urethra and the damage to the tract is also minimum [21,22].

CONCLUSIONS

Thus we conclude that vesical stone removal using nephroscope transurethraly is safe and effective and only minor complications were witnessed in our data and can be safely performed.

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