

ORIGINAL ARTICLE

Efficacy and Safety of Percutaneous Cystolitholapaxy in Children Under 5 Years of AgeTARIQ AHMAD¹, FARMAN ULLAH KHAN², SAJJAD ALI³, MUHAMMAD ASIF AMMAR⁴¹Assistant Professor Urology, Department of Paediatric Urology Institute of Kidney Diseases Hayat Abad, Peshawar²Medical Officer Urology, Timergara, Teaching Hospital³Senior registrar Pediatric surgery Khyber Teaching Hospital Peshawar⁴Assistant Professor Urology, CMH Kharian Medical College, KharianCorresponding author: Sajjad Ali, Email: sajjadbuneri@gmail.com**ABSTRACT****Objectives:** To assess the efficacy and safety of percutaneous cystolitholapaxy in children under 5 years of age**Study design:** Retrospective study**Place:** Department of Paediatric Urology Institute of Kidney Diseases Hayat Abad Peshawar**Methodology:** Retrospective descriptive study was conducted in Institute of kidney diseases Peshawar between Jan 2020 and January 2022. After applying the inclusion and exclusion criteria all patients in the mentioned period were include in his study. Results were inferred as frequency and percentages.**Results:** Without observing any difference for age and gender 100% clearance was achieved in all patients with the most prominent complication being supra pubic catheter leakage which was treated conservatively.**Conclusions:** Percutaneous cystolitholapaxy is safe and efficient for the management of bladder stone under 5 years**Keywords:** Bladder Calculi, Percutaneous Cystolitholapaxy, Urolithiasis, Lithiasis**INTRODUCTION**

Bladder stones are the most frequent type of lower urinary tract calculi. In non-endemic areas they are commonly found in adults and are usually associated with other disease process. In areas where stones are endemic, the calculi are seen frequently in children in absence of urinary tract anomalies¹.

In developed countries bladder calculi are rare in children as compared to developing countries² where they are rarely found.

irrespective of stone size ,open cystolithotomy is the most classical procedure used for retrieval of bladder stones. Although the results are satisfying in terms of clearance but complications like post operative pain, ugly scars, prolonged hospital stay and catheterization, surgical site infection.

Transurethral cystolitholapaxy is another option but special instruments are required for that which is not an option in developing countries and the risk of urethral trauma and subsequent stricture is there especially in children³.

In 3rd Century B.C Hippocrates was the first to introduce open cystolitholapaxy which remained the only treatment of treatment till the advent of blind lithotrites. It was Since then work on cystolitholapaxy⁵ progressed.

In adults, Transurethral Optical litholapaxy is the procedure of choice for the treatment of bladder stones. However, due to disparity between size of urethra and available instruments it is potentially risky procedure. Moreover transurethral cystolitholapaxy cannot be safely employed for larger and hard stones⁶ in children particularly.

Currently, the different modes of treatment for bladder stone include the historical open and ,percutaneous suprapubic litholapaxy, endoscopy, electrohydraulic lithotripsy and ECSWL⁷. Literature reports similar technique for percutaneous treatment of bladder lithiasis as is applied for percutaneous nephrolithotomy⁸.

Several urologists in Mexico who used the percutaneous techniques, did it by using laparoscopic trocar and cannula to form a tract for access to the bladder for retrieval of bladder stones⁹.Others did it by creating tract with the help of ordinary trocar with cannula for suprapubic litholapaxy¹⁰.

MATERIALS AND METHODS

This retrospective study of 74 children (59 boys and 15 girls) with vesical calculus with an average of 3.5 years (range 1-5 years) were included in this study.

Patients with stones greater than 20mm were not included in the study because the reported success of the clearance with the procedure mentioned is poor as compared to open procedure. Also

patients with age above 5 years, patients with congenital anomalies and urethral stones were also excluded from our study.

Diagnostic workup included, renal function tests, Urine R/E,KUB Xray, and ultrasonod of the KUB. All Procedures were performed with general anesthesia. All patients underwent Cystourethroscopy to confirm the presence of stones and exclude any anomaly of bladder. Bladder was filled with normal saline pre procedure in each case. Bladder was punctured with TLA needle guided by cystoscope. Sequential dilatation of the tract was guided by Guide wire passed. 16-20 Fr Amplatz sheath placed. Stones were fragmented with lithoclast. And retrieved via amplatz sheath using the classical flushing technique. And thus under vision clearance was achieved. This was followed by closure of wound was closed with prolene 2/0. Per urethral catheter placed to drain the bladder.

RESULTS

As per operational definition complete clearance was achieved in all cases and the stones were completely fragmented to smaller insignificant pieces and were retrieved. No intraoperative complication was recorded in any of these cases. No serious post-operative complication was recorded except supra pubic urinary leakage in 4 cases and mild hematuria in 5 cases which resolved spontaneously. Wound infection was observed in only one case for which culture and sensitivity was done and treated accordingly. We did not encounter any complication that would have needed conversion or re-do procedure. Mean operation time was 15 minutes from the time of introduction of scope (ranging from 10 to 30 minutes). Catheter was kept for 5-7 days. Mean Hospital stay was 1-3 days.

Table 1: Per Operative Complications

Type of Complications	No. of patients	Percentages
Supra pubic urinary leakage	04	5.4%
Hematuria	05	6.7%
Wound infection	01	1.3%

DISCUSSION

Bladder stone is not uncommon in developing countries like Pakistan¹¹. Up to 25 % of patient have positive family history¹².

Different modalities of treatment are being used for bladder stone surgery trans urethrally like pneumatic, hydraulic, electrohydraulic and ultrasonic lithotripsy¹³, but all these requires trans urethral approach which is potentially dangerous to urethra and may cause urethral injury. Furthermore all these procedures require delicate and expensive instruments which are not appropriate for every stone.

Open surgery has own complications like an ugly scar, extended catheterization, and prolonged stay as well as a higher rate of infection¹⁴.

CONCLUSION

Based on our observation we conclude that in age specific patients with bladder stone with age less than 5 years per cutaneous cystolitholapexy is safe, convenient and efficient option for the management of bladder stones with acceptable complications.

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