



## Case Report

# ENDOSCOPIC REMOVAL OF VESICAL CALCULUS THROUGH SUPRAPUBIC ROUTE: A CASE REPORT

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### Abstract :

For decades, vesical stone has been removed by traditional cystolithotomy. It gives a big scar and adds considerable morbidity to the patient. Here we tried a new indigenous technique to remove the bladder stone with a laparoscopic grasper . The aim was to minimize the morbidity and an almost invisible scar to the patient.

### Introduction :

Vesical calculi are a common clinical problem since ages. Anthropologic history provides evidence that urinary calculi existed as long as 7000 years ago and perhaps more because more than 7000 years old stone has been found in the pelvis (presumably bladder) of an Egyptian mummy.<sup>1</sup> The specialty of urologic surgery was even recognized by Hippocrates who in his famous oath for physicians, stated "I will not cut, even for the stone, but leave such procedures to the practitioners of craft".<sup>2</sup> So at that time the surgical treatment of the bladder calculi was left to the wandering lithotomists for centuries. In 17th and 18th century many of them were well trained famous individuals and they started improving the technique for removal of bladder calculi.<sup>3</sup> Sir Henry Thompson first suggested the possibility of the treatment of bladder stone by dissolution. Celsius, Franco and Cheselden had a great contribution in the development of improved lithotomy techniques in early 19th century.<sup>2</sup> About half century later the development of practical lithotripsy and litholopaxy techniques

developed by Civiale and Bigelow are still in use.<sup>2,3</sup> In modern era of urology, the treatment of vesical calculi comprises of Open suprapubic lithotomy, Percutaneous suprapubic litholapaxy, Endoscopic litholapaxy, Electro hydraulic lithotripsy, and Extra corporeal shock wave lithotripsy (ESWL).<sup>4,5</sup> Various types of Endoscopic lithotrites (e.g. Electro hydraulic Lithotripsy, ballistic, holmium/YAG laser) can be employed to fragment the stones that are too large to be crushed with manual mechanical devices.<sup>6</sup> Conventional open cystolithotomy is widely used as first line of treatment in Bangladesh due to limited availability of endoscopic equipment and experience in endoscopic surgery. So we tried a new technique to remove the bladder stone with a laparoscopic grasper . The aim was to minimize the morbidity and to get an almost invisible scar.

### Case Report:

Shahidul Miraz, 10 yrs S/O Azizul Hoque from Pekua, Cox's Bazar was admitted to the department of pediatric surgery CMCH with the chief complain of retention of urine & pain in the lower abdomen for – 1 day. Plain x-Ray KUB region & USG of urinary system was done. Ultrasonogram showed a single tiny stone in bladder with no other abnormality in the urinary tract. The X-ray detected impacted stone on the membranous part of urethra which was pushed to urinary bladder while introducing catheter. Urine routine examination and culture Chittagong Medical College sensitivity revealed no growth. We decided to go for cystoscopy guided endoscopic removal of the stone under general anesthesia. Initially by using a 7.5 Fr pediatric cystoscope, we visualized the stone in the bladder. Then inflation of the bladder was done with normal saline in way that we can easily palpate the bladder in suprapubic region. Then a 5mm port was made by the help of the trocar and bladder

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penetration was done carefully . As confirmation of bladder penetration was done by the view in monitor , stone was located. Then by this port laparoscopic grasper was introduced and the stone was taken out along with cannula. Then a stitch was given on the bladder . The postoperative period remained uneventful, Penile catheter was kept for 7 days .The patient was discharged on 8<sup>th</sup> postoperative day . The patient came back again after 1 month for follow up & had no complain at all. The stay in the hospital after the surgery was prolong as patient came for far away , the patient wanted to go back home after removal of the catheter.



**Fig.-1:** Cystoscopic view of stone in bladder



**Fig.-2:** Tiny incision in suprapubic region



**Fig.-3:** Stone held by forceps and taken out through suprapubic port

#### **Discussion:**

Vesical calculi is a common urological problem in Bangladesh About 25% of the patients with urinary stones have a family history of urinary stones.<sup>7</sup> About three males are affected for every female. Until twentieth century it was one of the most prevalent disorders among the poor class, and the incidence was especially high in childhood and adolescent.<sup>8</sup> This decrease in incidence of bladder calculi is attributed mainly to dietary and nutritional progress especially in children.<sup>2</sup> A solitary bladder calculus is usual, although multiple stones are found in 25% of cases.<sup>6</sup> Vesical calculi are either primary or secondary. Primary bladder stones develop in sterile urine, it often but not necessarily originates in the kidney and then passes to the bladder. They may be associated with nutritional deficiency and are common in children.<sup>2,6</sup> Secondary bladder calculi are commonly associated with bladder outlet obstruction (BOO) and infection. Majority of the patients presented with irritative bladder symptoms. Frequency and dysuria were the most common presenting complaints.

Bladder stones are managed by monotherapy or combination therapy with extracorporeal or endocorporeal lithotripsy, endoscopic extraction via a retrograde or antegrade approach, and open Vesico lithotomy.<sup>8</sup> Endourology and extracorporeal shockwave lithotripsy (ESWL) are the first line of management for majority of urinary calculi. ESWL is preferably performed in children and in patients with small contracted bladder in whom endourological procedures may be difficult and hazardous.<sup>9-10</sup> Open

surgery is undoubtedly still the most appropriate treatment for large and hard bladder stones. Although optical transurethral cystolithotripsy is a safe and accurate treatment of bladder stones but injuries to bladder and urethra are common complications. Problems with visual cystolithotripsy include heavy and large instruments, unsuitability for large and hard stones, inability to be used in children, impairment of visual field by fine stone fragments and blood and a greater degree of skill required by operating surgeon.

Bladder stones in patients after augmentation intestine-cystoplasty, and in children with closed bladder neck, small caliber or surgically reconstructed urethra are difficult to manage due to limited access to the bladder. No definite treatment plan is available for this group of patients. Transurethral endocorporeal cystolithotripsy procedures have high complication rate. Percutaneous vacuum vesicolithotomy for stones less than 15mm in this group of patients has recently been reported.<sup>11</sup> Large and hard stones in these patients are managed by open cystolithotomy.

Laparoscopic instruments are now widely available and laparoscopic procedures are now being carried out in district hospitals and even in upzilla hospitals. A young surgeon who is trained in laparoscopic surgery can easily adopt our technique. Therefore, the patient becomes enormously benefited by this minimal invasive surgery both financially and with reduction of morbidity.

#### Conclusion:

Besides the other procedure for treating vesical calculi, endoscopic removal of vesical calculi in small stones can be an alternative procedure. It reduces hospital staying, decreases morbidity and increases patient's satisfaction.

#### References:

1. Riches E. The history of lithotomy and lithotripsy. *Ann R Coll Surg Engl* 1968;43:185.
2. Menon M, Resnick MI. Urinary lithiasis; etiology, diagnosis and medical management. In: Relik AB, Vaughen ED, Wein AJ'(ed) *Campbell's Urology* 8th edition Saunders London, 2002;3229-35.
3. Wangenstein OH. lithotomy and lithotomist: Progress in wound management from Franco to Lister. *Surgery* 1969;66:929.
4. Diamond DA. Clinical patterns of Pediatric Urolithiasis. *Brit J Urol* 1991;68:195-8.
5. Bukhari AQS. Urolithiasis: Its incidence in Pakistan, Its prevention and treatment. *J Coll Phy Surg Pak* 1993;3(4):129-32.
6. Qureshi K, Oakley N, Hastie K. Management of urinary tract calculi. *Surgery International*, 2003;60:285-90.
7. Curhan GC, Willett WC, Rimm EB, Stampfer MJ. Family history and risk of kidney stones. *J Am Soc Nephrol* 1997;8:1568-73.
8. Song TY, Denstedt JD. Comparison of ultrasonic, electro hydraulic and mechanical lithotripsy for vesical calculi. *J Endourol*, suppl. 1990;(4):S95, abstract
9. Smith JM, O'Flynn JD. Transurethral removal of bladder stone: the place of litholapaxy. *Br J Urol* 1977;49:401-3.
10. Okeke Z, Shabsigh A, Gupta M. Use of Amplatz sheath in male urethra during cystolitholapaxy of large bladder calculi. *Urology* 2004;64(5): 1026-7.
11. Van Savage JG, Khoury AE, McLorie GA, Churchill BM. Percutaneous vacuum Vesico lithotomy under direct vision: A new technique. *J Urol* 1996;156:706-8.