

## Giant vesical calculus with its complications: The first case to be reported in an adolescent female

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### ABSTRACT

Urinary bladder stones weighing more than 100 g are considered giant. Here, we are reporting a case of giant vesical calculus weighing 1050 g in an adolescent female presenting with lower urinary tract symptoms and renal insufficiency. Giant vesical calculus is reported in the middle to old age, more commonly in male patients.

**Key words:** Adolescent female, Huge vesical calculus, Hypertension, Renal insufficiency

Urinary bladder stones account for around 5% of all urinary stones and more than 100 g are considered giants [1]. There are two types of urinary bladder stones, primary and secondary. The primary bladder stones are common in children of low-socioeconomic status with dietary protein and phosphate deficiency [2]. The secondary bladder stones are usually associated with bladder outlet obstruction, neurogenic bladder, bladder diverticulum, prolong catheterization, and intravesical foreign body. Males are more affected than females in adults as well as in pediatrics [3,4]. In our knowledge, this is the first case reported in an adolescent female with such a huge bladder stone, leading to renal insufficiency and hypertension.

### CASE REPORT

An 18-year-old female patient of low-socioeconomic status came to the surgical clinic with the chief complaints of lower abdominal pain, terminal hematuria, terminal dysuria, and burning micturition for 5 years. She also complained of decreased urine output for 15 days. There was no history of fever, flank pain, back pain, lower limb weakness, trauma, per urethral catheterization, and constipation.

On examination, the patient was cachexia and pale. In the pre-anesthetic checkup, she was found hypertensive with a blood pressure (BP) of 150/90 mmHg. On local examination, a smooth, hard lump with well-defined margins of size about 8×6 cm was palpable in the suprapubic region. On digital rectal examination, the anal tone was normal, the rectum was empty, and a hard lump was palpable anteriorly.

Her blood urea was 154 mg/dl, serum creatinine was 5.4 mg/dl, and hemoglobin was 9.2 g/dl. The ultrasonography abdomen showed a large hyperechoic structure with a post-acoustic shadow of size 9×7×6 cm, with bilateral gross hydroureteronephrosis.

X-ray of kidneys, ureters, and urinary bladder (KUB), a large radiopaque shadow was seen in the pelvis (Fig. 1).

A diagnosis of urinary bladder stone with bilateral hydroureteronephrosis with obstructive nephropathy was made and open cystolithotomy was planned. A transurethral catheter was placed by the attending clinician. The patient was optimized for hypertension with low salt diet and amlodipine 5 mg once in a day and advised to get dialysis before surgery. After 1 week of treatment, the patient was reviewed and posted for surgery. Pre-operative BP was 132/74 mmHg, serum urea was 84 mg/dl, and serum creatinine was 2.0 mg/dl.

In the operating room, the subarachnoid block was given with 26-gauge Quincke's needle in L2-L3 intervertebral space, 0.5% bupivacaine 2.5 ml with 25 mg fentanyl was given. After confirmation of the effect of spinal anesthesia, surgery was started. After painting and draping, a 5–6 cm long Pfannenstiel incision was made and reached up to the bladder. Then, a transverse incision was made over bladder and stone was delivered in toto (Fig. 2). A 16 Fr per-urethral catheter, a suprapubic catheter (SPC), and a pelvic drain were inserted. On weighing, the stone was of 1050 g (Fig. 3).

The drain was removed on post-operative day 3, per-urethral catheter was removed on day 5, and drain SPC was removed on day 6. Renal function was monitored serially in the post-operative period and found to be in a decreasing trend. She was discharged on the 6<sup>th</sup> post-operative day with blood urea of 25 mg/dl and serum creatinine of 0.9 mg/dl. She was advised to continue follow-up for low salt diet, antihypertensive medication, renal diet, and recurrence.

### DISCUSSION

Giant vesical calculus is an uncommon finding in the modern era. Developing countries like India, cases are still reported,



**Figure 1:** X-ray kidney, ureter, and bladder showing large radiopaque shadow in the pelvic



**Figure 2:** Suprapubic cystolithotomy showing large calculus



**Figure 3:** Large vesical calculus showing the weight of 1.05 kg

especially in the rural areas, where patient's awareness and the medical facilities are lacking, leading to delayed diagnosis and treatment. Men are more commonly affected than women with giant vesical calculus causing renal failure.

Diniz *et al.* [5] reported two cases of women with giant vesical calculus causing renal failure. This review study also concluded that boys are 8 times more affected than girls, and the most commonly presented at the age of 2–5 years, while renal insufficiency due to

giant vesical calculus reported in three male children. Joseph *et al.* [6] reported a case of giant vesical calculus of 700 g in a 48-year-old male without associated complications. Dorsey [7] also reported a case of giant vesical calculus with bilateral hydronephrosis in a 35-year-old male. A giant vesical calculus weighing 400 g in a 45-year-old female was reported by Garg *et al.* [8]. Shakil [9] reported a case in a 44-year-old man with a complaint of the lower urinary tract symptoms (LUTS) for many years and suprapubic tenderness; a stone weighing 250 g was removed.

There are cases on giant vesical calculus reporting mainly about the size of the stone, but pre-operative optimization, serial measurement of serum urea and creatinine, complications related to giant bladder stone, and post-operative management and follow-up of the patient regarding recurrence should be considered. Our patient was having suprapubic lump, obstructive uropathy associated with renal failure and hypertension. Diagnosis of urinary bladder stone was made after excluding other causes of a suprapubic lump such as benign adnexal cyst, leiomyoma, dermoid cyst, and endometriosis.

Preoperatively, she was managed with early transurethral catheterization, dialysis, antibiotics, and antihypertensive. After 1 week, an open cystolithotomy was performed, and she was evaluated for post-operative complications such as hypertension and neurogenic bladder and discharged with normal renal function. After 6 months of follow-up, she became normotensive with normal renal function and free of LUTS.

## CONCLUSION

Primary bladder stones are usually presented in early childhood, but due to lack of health awareness and medical facilities, it may present in adolescent age with added complications.

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