

Giant urinary bladder calculus in 84-year-old man at Mbale tertiary hospital, Uganda: a case report.

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Abstract- Giant urinary bladder calculus has been defined as urinary bladder stone weighing more than 100g, a rare finding in current surgical practice. Additionally, the causes have been attributed to urinary tract infection, urethral stricture, benign prostatic hyperplasia, neurogenic urinary bladder and urinary bladder foreign body which are thought to create a nidus onto which stones form.

We report an 84-year-old man with hypertension presented with difficulty in micturition and suprapubic pain. All these urinary symptoms had been there for seven years. The plain radiograph showed a big stone measuring about 6cm×5cm, ultrasonography showed severe bilateral hydronephrosis and moderate prostate enlargement.

The stone was removed via open cystolithotomy without intraoperative or postoperative complication and patient markedly improved. The stone weighed 145g and this is the first case to be documented in Uganda. In conclusion, readily available and affordable diagnostic modalities like plain abdominal-pelvic X-ray and ultrasonography can be used to make diagnoses of giant urinary bladder calculus and associated hydronephrosis and can be lifesaving.

Introduction

Giant urinary bladder calculi categorized as stones weighing more than 100g are rare. Globally, less than 100 cases have been documented up to date [1]. A single case has been reported in six East African nations and none in Uganda [1]. Calculus formation takes a protracted course to form thus posing a challenge in diagnosis and management.

These stones are commonly associated with delay in diagnosis especially in low-income countries like Uganda. Giant urinary bladder stones commonly develop with other pathologic bladder conditions like urinary tract infection, urine retention, urethral stricture, prostate enlargement, prolonged catheterization, neurogenic bladder, and the presence of the foreign body in urinary bladder [2].

In this case an 84-year-old man with hypertension presented with difficulty in micturition and suprapubic pain. All these urinary symptoms had been there for seven years. The plain radiograph showed a big stone measuring about 6cm×5cm, ultrasonography showed severe bilateral hydronephrosis. The stone was removed via open cystolithotomy without intraoperative or postoperative complication and patient markedly improved.

The stone weighed 145g. Readily available and affordable diagnostic modalities like plain abdominal-pelvic X-ray and ultrasonography can be used to make diagnoses of giant urinary bladder calculus and associated hydronephrosis and can be life saving.

Case Report

Patient information: 84-year-old male patient, a peasant with 5 years history of hypertension presented at Emergency Department of Mbale Regional Referral and Teaching Hospital in August 2022 with worsened difficult in passing urine and suprapubic pain that began gradually about seven years ago.

In an attempt to relieve urine retention, both trans urethral and suprapubic catheterization were unsuccessful. Reported to have had an indwelling urethral catheter for 2 years which were changed every 14 days but he voluntarily discontinued the catheter due to discomfort and resorted to wrapping polyethylene bag around his penis into which foul smelling and cloudy urine would collect and later discarded for over 3 years.

Reported no urethral discharge, no blood in urine, no genital sores or swellings. He underwent abdominal surgery 7 years ago in a general hospital for unspecified reasons and reported to have lost documents.

Clinical findings:

These included: sick looking elderly male, a palpable tender, smooth and regular mass between the umbilicus and pubic symphysis measuring about 7cm× 6cm. Digital rectal exam revealed normal anal verge and anal sphincter tone, a palpable, smooth, regular, non-tender and non-boggy prostate. Soft fecal matter was noted on examining finger but no blood seen.

Timeline:

On 5th August 2022: patient admitted, catheterization failed, investigations done. On 6th August 2022: open cystolithotomy done, intravenous antibiotics and analgesics given, urethral and suprapubic catheters inserted. 9th August 2022: patient discharged with oral antibiotics and analgesics. 13th August 2022:

First follow up —suprapubic catheter and nylon sutures removed; all vitals found normal. 20th August 2022: Second follow up — urethral catheter removed; all vitals found normal. 20th September 2022: Third follow up: Vitals found normal.

Diagnostic assessment:

Blood tests revealed a total white blood cell count of $7.2 \times 10^9/L$ with normal absolute leucocyte values and hemoglobin: 12.7g/dl, Urea: 7.94mmol/L and creatinine: 144.5umol/l. Estimated Glomerular filtration rate: 44ml/min.

Prostate Specific Antigen (PSA): 10.84ng/ml. Urine analysis showed microscopic hematuria (25 RBCs/HPF) and pus cells (20 WBCs/HPF). The plain abdominal-pelvic X-ray showed giant intravesical stone measuring 6cm×5cm (Figure 1). The ultrasonography showed bilateral severe hydronephrosis and moderate prostate enlargement.

No further investigations were performed due to patient's financial difficulties. Biochemical tests were not performed on the stone due to financial constraints. Giant urinary bladder calculus, severe bilateral hydronephrosis and moderate prostate enlargement were diagnosed.

Therapeutic interventions:

The antibiotic (Ceftriaxone Sulbactam 2g once a day for three days) was started to control urinary tract infection. Then, the patient was admitted for urgent surgical intervention. Via spinal anesthesia in the supine position, open cystolithotomy being superior for large calculi was performed via lower umbilical midline incision, the bladder was opened, and large calculus firmly adhered to the bladder wall was observed and carefully removed.

There was no diverticulum or ulceration seen, but the bladder wall was thickened. About 100 ml of offensive concentrated urine was drained, urinary bladder was irrigated with 3L of physiological saline. Urethral and suprapubic catheters were inserted, and the bladder was repaired in two layers with vicryl 2/0 and skin was finally closed with nylon 2/0.

The stone was rough and rugged weighing 145g (Figure 3). Postoperative care included analgesics: intravenous paracetamol (1 g every 8 h for 3 days) and intravenous tramadol (100mg every 8 h for 3 days). Oral Cefixime 400mg once day for 7 days, Paracetamol 1g every 8 h for 3 days).

Follow-up and outcome:

Postoperative hospital course was uneventful. The patient was discharged with oral antibiotics on the third postoperative day, and the suprapubic catheter and urethral catheters were removed on the seventh day and fourteenth day respectively.

The patient inadvertently went off antihypertensive drugs, however on subsequent follow ups his blood pressure was found to be normal. Follow-up abdominal and pelvic ultrasound scan after 21 days revealed normal upper urinary tracts with no hydronephrosis.

Urine analysis after 14 days showed microscopic hematuria (9 RBCs/HPF) from (25 RBCs/HPF) and pus cells (12 WBCs/HPF) from 20 WBCs/HPF). Within three months of follow up, the patient remained symptom free.



A Radiograph showing a giant urinary bladder calculus



Intraoperative image showing extraction of giant urinary bladder calculus



A giant urinary bladder calculus weighing 145g after extraction.

Discussion:

Giant urinary bladder calculus is uncommon condition as the stone should be weighing 100g or more. A predilection has been noted in males [3]. A calculus can develop from a nidus of infected material or single ureteric calculus with a progressive layer wise accumulation of calcified matrix associated with factors causing urinary stasis such as bladder outlet obstruction [2].

There are several surgical options for such giant bladder stone, including open cystolithotomy, percutaneous endoscopic cystolitholapexy, extracorporeal fragmentation and cystolitholapexy [5]. Open cystolithotomy has been recommended as the superior option for large bladder calculi [4]. Similarly, our patient in this case report was underwent open cystolithotomy and had no complication.

Poverty, delay in seeking medical attention and poor health seeking behavior have been attributed to the most giant urinary bladder stones found in Africa [2]. Similar reasons were noted in our case as the patient had had urinary symptoms for seven years without proper investigations or management. Curative treatment of giant stone is both surgical and medical in which a stone is surgically removed and antibiotics administered to treat urinary tract infection [6]. This was the case in the management of our patient.

Prevention of possible recurrence in our case was not well achieved as we were unable to do cystourethrogram and other investigations to rule out urethral stricture and other possible causes due to financial constraints. Urinary tract infection was treated though we're unable to do urine culture and sensitivity to guide our antibiotic administration. Providing adequate mass health education especially in rural areas in order to reduce considerably the delays of seeking healthcare may reduce occurrence of giant urinary bladder calculi as they take time to form. Also, any urinary symptoms seen in hospital should be thoroughly investigated to promote early diagnosis and management.

Conclusion

Giant urinary bladder calculi are rare with non-specific clinical picture, numerous risk factors and causes thus readily available and affordable diagnostic modalities like plain abdominal-pelvic X-ray and ultrasonography should be optimized in investigating chronic urinary symptoms in order to make a diagnosis in time something which is life saving. Giant calculi diagnosis and management remains a major challenge in Africa where poverty is a major hindrance. Open cystolithotomy remains a superior surgical option in management of giant bladder stone.

Patient perspective: The patient was happy with the successful outcome of the surgery.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Authors' Contribution

Patient management: Abingwa John Patrick, Henry Kaggwa, Emmanuel Bua, and Mbale Regional Referral Hospital nurses. All authors contributed in literature review, manuscript writing and review.

Competing interest

The authors have no financial, consultative, institutional, and other relationships that might lead to bias or conflict of interest.

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