CASE REPORT

Giant Bladder Calculus: Case Report and Literature Review

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ABSTRACT

Background: The existence of calculi in the urinary tract are well known urological conditions. A giant bladder calculus is one weighing more than 100g and is a rare finding in present-day urological practice. **Case summary**: The patient is a 58-year-old man who presented with a 20year history of progressive irritative Lower Urinary Tract Symptoms (LUTS) associated with poor stream which improves with change in posture. He had episodes of intermittent painful terminal haematuria and pyuria with occasional fever. About three months to his presentation, he developed progressively worsened constipation. He also had weight loss and anorexia. On examination, His vital signs were normal. There was a suprapubic mass about 6cm above pubic symphysis, smooth surface, hard, mobile and bi-manually palpable. The prostate was not enlarged on digital rectal examination. His Abdominopelvic ultrasound scan and KUB revealed a giant bladder calculus with bilateral hydronephrosis. Urine Microscopy, Culture and Sensitivity (M,C,S) showed numerous red blood cells, pus cells, and cultured Klebsiella *spp* sensitive to Ciprofloxacin. Serum Electrolytes, Urea and Creatinine were normal. He was treated for Urinary tract infection then had cystolithotomy. Intra-operative findings were a giant bladder calculus, thickened bladder wall and hyperaemic bladder mucosa. The bladder mucosal biopsy revealed chronic inflammation on histology. The calculus weighed 1000g. Post-operative recovery was uneventful, the catheter was removed and the patient was discharged home 2 weeks after surgery with resolution of all lower urinary tract symptoms. He had remained symptom-free in his last follow up visit which was 1year post operation.
Conclusion: A giant bladder calculus is a rare finding in contemporary urological practice.

Keywords: Giant bladder calculus, urolithiasis, cystolithotomy

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Introduction

Calculi in the urinary tract has been documented from time immemorial[1]. A Giant calculus is a calculus more than 100g in weight and or greater than 4 cm in its widest diameter[2, 3]. Recently, there is change in pattern of presentation of urinary calculi from lower urinary tract calculi to upper tract calculi. This trend is mainly observed in developed countries. Lower urinary tract calculus especially bladder calculus is still the commonest form of presentation in developing countries[4]. However, even in the developing countries, finding of a giant bladder calculus is not common. In our liter-

-ature search, no more than two hundred (200) cases of giant urinary calculi were reported and very few of them (less than 10%) were greater than 1 kilogram (kg)[5]. Management of these patients can be challenging, as most may be associated with complications such as urosepsis, surgical site infection, renal impairment or even malignant transformation. Many of the modern therapeutic choices may not be practicable and open cystolithotomy may be the only option, particularly in resource constraint populace. Post-operative period could be turbulent with sepsis, urinary incontinence and surgical site infection as some of the frequently encountered complications. We present the case of a 58-year-old man with neglected giant bladder calculus weighing 1 kg. Patient's consent and Hospital ethics clearance were obtained to report this uncommon bladder calculus.

Case Presentation

He is a 58-year-old man who presented with 20 years' history of difficulty in passing urine characterised by urinary frequency, urgency and occasional urge incontinence. Five years to his presentation, he developed poor urinary stream that improves with change in posture, straining at micturition and feeling of incomplete bladder emptying. He has occasional fever, intermittent painful terminal haematuria, pyuria but no history of lithuresis or necroturia. No upper urinary tract symptoms. He developed constipation three months to the presentation. No associated haematochezia, per anal protrusion or tenesmus. There was anorexia and significant weight loss. There was no history suggestive of urinary schistosomiasis, urinary tuberculosis or neuropathic bladder. Other systems not contributory. No significant comorbid history. He is married and has twelve children.

On examination, he was afebrile, not pale, no pedal oedema. His vital signs were stable. There was a palpable suprapubic mass about 6cm above the pubic symphysis with a smooth surface, hard and bimanually palpable. The external genitalia was normal, prostate not enlarged.

A diagnosis of bladder mass to rule out bladder calculus was made.

Abdominal and pelvic ultrasound scan showed bladder calculus with bilateral hydronephrosis. Prostate was not enlarged with a volume of 25ml (25g). X-ray of the region of Kidneys, Ureters and bladder revealed a huge radio-opaque shadow in the region of the bladder, no other opacity was seen along the urinary tract.

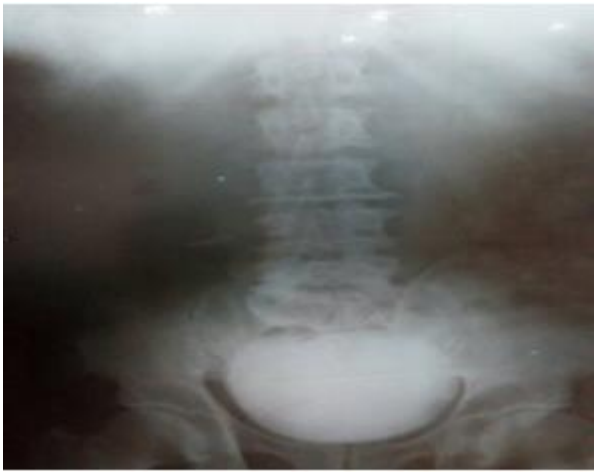

Figure 1. X-ray of the region of Kidneys, Ureters and bladder showing huge radio-opaque shadow in the region of the bladder

Urine microscopy showed numerous red blood cells and pus cells; while urine culture grew Klebsiella spp sensitive to Ciprofloxacin among other antibiotics. Electrolytes, urea and creatinine were within normal limit. Cystoscopy could not be done due to unavailability of its equipment.

He was treated for the Urinary tract infection and subsequently had Cystolithomy with intra-operative findings of a giant bladder calculus, (Fig. 2) thickened bladder wall, hyperaemic mucosal lesions, (Fig. 3) and a patent and adequate bladder neck. Multiple bladder mucosal biopsies were taken.

Figure 2. Intra-operative picture showing giant bladder calculus

Figure 3. Intra- operative picture showing thickened bladder wall, hyperemic mucosal lesions

The histology revealed chronic inflammation, no evidence of malignancy. The calculus weight 1kg.

Figure 4. The picture of the calculus weighing 1kg.

Post-operative recovery was uneventful, the urinary catheter was removed (12th days post operation), and the patient was discharged home 2 weeks after surgery with resolution of all lower urinary tract symptoms. He had remained symptom-free in his last follow up visit at 1year post operation.

Discussion

Giant bladder calculi are uncommon in modern urologic practice, particularly in the developed nations. This is due to worldwide advancements in healthcare delivery resulting in their early detection and timely intervention. There is still no consensus about the definition of giant urinary calculi. Most literature defined it as a calculus more than 100g in weight and or greater than 4 cm in widest diameter[2, 3], other authors considered 200g as the benchmark for this definition[6, 7]. Recently, there is a shift in the pattern of presentation of urinary calculi in affluent society from lower urinary tract calculi to upper tract calculi. However, the lower urinary calculi remain the commonest presentation in most developing countries such as ours[4]. Nonetheless, fewer than 20 bladder calculi were reported to weight up to 1 kg from our literature search using Pubmed, Google Scholar, AJOL and Scorpus. The biggest found was the one reported by Goumas et al in 2016 weighing 2.4kg[8].

Even though no age in the lifetime is entirety spared from acquiring urinary calculus, most giant bladder calculi are seen in middle-aged male patients as in the index subject[9]. The symptoms of bladder calculi which are predominantly irritative lower urinary tract symptoms (LUTS) may be noticed at the youthful age but were usually ignored or misdiagnosed as urinary tract infection until middle-age. This could be promoted by poor health-seeking behavior, poor access to adequate health facility and poverty. Our patient had irritative LUTS for 20yrs before he sought for medical attention. Even, the index presentation was facilitated by a free health care assistance funded by the government through a free health intervention program.

Obstructive LUTS which was a sequelae of bladder calculus began manifesting 15 years after the irritative symptoms in this patient. This is similar to many cases reported. [10, 11] However, some reports found LUT obstruction as the predisposing factor for the development of giant bladder calculi[12]. Few other reports had a foreign body in the bladder from past bladder surgeries or neo-bladder constructed from the bowel as the main etiological risk factors[13].

Diagnosis is usually established based on clinical assessment, X-ray of the region of Kidney, Ureters and Bladder (KUB). Additional investigations were customarily requested to establish the existence or absence of complications. Management of giant bladder calculi can be particularly challenging when there are certain complications such as UTI, renal failure or rarely malignant transformation. Our patient had UTI treated before surgery beside features of hydro nephrosis. Cystoscopy and biopsy are indicated to rule out malignancy, even though cystoscopy can be difficult when the calculus is large. Moreover, the calculus can reflect cystoscopy light making vision difficult. We couldn't do cystoscopy for this patient due to non-availability of the equipment in the center. In this instance, open cystolithotomy is the only treatment option available. However, there are few reports of

endoscopic and laparoscopic removal of giant bladder calculi, but these are usually calculi less than 500g[13, 14].

Multiple mucosal biopsies obtained at the surgery showed chronic inflammation. Nonetheless, there are very few reported cases of malignant transformation especially squamous cell carcinoma as synchronous bladder lesion from chronic irritation[15].

Conclusion

A giant bladder calculus is rare in modern urological practice. An appropriate evaluation to establish and exclude its complications is crucial in the patient's care. Surgical treatment option available in resource constraint populace is open cystolithotomy.

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