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Stones and Endourology

Case report

Atypical presentation of an enormous vesical calculus: A case report



A.T. Lawal*, M. Ahmed, A. Bello, H.Y. Maitama, M. Awaisu

Urology Division, Department of Surgery, Ahmadu Bello University Teaching Hospital (ABUTH), Zaria, Nigeria

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Abstract

Giant vesical calculi, though rare, are still encountered in contemporary urologic practice despite the increased availability, accessibility, and affordability of modern imaging modalities and urologic care. This is the case report of a middle-aged man with an unusually large vesical calculus. He presented with symptoms atypical of this disease. After the diagnosis, he was subjected to open cystolithotomy, bladder neck dilatation and bladder biopsy, leading to the relief of symptoms and improved voiding. Chemical analysis revealed the stone to be of the struvite type. Histological analysis of the biopsy specimens showed features of non-specific chronic inflammation. The patient's further management will require regular follow-up examinations in order to ensure that possible recurrent bladder neck stenosis and/or bladder carcinoma are detected on time.

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Introduction

Urinary bladder stones (vesical calculi) are generally uncommon, however, they represent the most common manifestation of lower urinary tract lithiasis [1]. Although upper urinary tract calculi are more common world-wide, a high proportion of lower urinary tract stones are seen in developing societies. For example, they account for 44.4% of urolithiasis cases in Nigeria [2,3], compared to only

5% in North America [2]. This higher proportion of lower urinary tract stones in the developing world has been attributed to a high incidence of urinary tract infections (UTI) and infestations [2].

The term "giant vesical calculus" refers to any bladder stone weighing more than 100 g [2] or measuring more than 4 cm in its largest diameter [4]. It is a rare urologic condition [1,2]. This is increasingly so in contemporary urologic practice due to increased availability, accessibility and affordability of modern imaging modalities and urologic care. Primary vesical calculi are relatively uncommon in adults. The more common secondary bladder stones often occur in patients with bladder outlet obstruction (BOO) or as a consequence of epitaxy, and are often associated with hydronephrosis, urosepsis, renal impairment and surgical site infection when operated upon [1].

* Corresponding author.

E-mail address: atlvvisions@gmail.com (A.T. Lawal).

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We report this case because of the unusual presentation and the enormous size of the stone.

Case report

A 45-year-old man complaining of difficulty in micturition, lower abdominal pain and swelling of about 7 years duration was referred to the Urology outpatient department. He had both obstructive and irritative lower urinary tract symptoms (LUTS). He also complained of painful urination, occasional total hematuria and interrupted urinary stream which improved with change of posture. The lower abdominal swelling was slowly progressive, and there was also recurrent fever, which was relieved by intake of antibiotics. The patient had a history of untreated childhood hematuria suggestive of schistosomiasis. There were no upper tract symptoms and no previous history of urolithiasis, surgery or urinary tract instrumentation.

On presentation, the patient was febrile. He had a tender suprapubic mass extending up to 18 cm above the pubic symphysis and 14 cm in transverse dimension. It was hard, irregular and bimanually palpable. There were no signs of urethral stricture, and the prostate was not enlarged. A diagnosis of giant vesical calculus, with bladder cancer as a differential diagnosis, was taken into consideration.

Abdominopelvic ultrasound revealed a calculus in the bladder, but both kidneys and collecting systems were normal. A plain kidney–ureter–bladder X-ray (KUB) showed a huge rounded opacity of calcific density in the pelvis, measuring 14.5 cm × 13 cm. Urine microscopy demonstrated microscopic hematuria and pyuria. *Schistosoma* ova were not seen, and urine culture yielded no growth.

The fever was controlled after a course of antibiotics. The patient was subjected to open cystolithotomy (Fig. 1a and b), bladder neck dilatation and bladder biopsies. Intraoperative findings included a huge bladder calculus measuring 17 cm × 14 cm (Fig. 2) and weighing 1650 g, a smaller stone measuring 5 cm in its longest diameter, bladder neck stenosis and a thinned-out bladder wall with areas of indurated bladder mucosa. The patient's subsequent recovery was uneventful. The urethral catheter was removed on the 14th postoperative day, and the patient was discharged home, capable of satisfactory voiding. He was seen at the Urology outpatient department 6 weeks, 3 months and 6 months postoperatively. At the follow-up visits, the symptoms had abated and he was voiding freely. The histologic bladder biopsy report showed non-specific chronic inflammation.

Discussion

Bladder stones are relatively uncommon, and giant bladder stones are now very rare. A solitary bladder stone is the rule, but multiple stones are found in up to 25% of patients [5]. Bladder stones are often of small to moderate size, but occasionally an enormous (giant) stone may be encountered. The chemical composition determines the physical characteristics and size of stones. They may be smooth or multifaceted. Struvite stones are usually smooth and are commonly responsible for giant bladder calculi, while the multifaceted stones are typically composed of calcium oxalate. The bladder calculus in our patient was smooth and weighed 1650 g. On chemical analysis, it was confirmed to be a struvite stone. This is in keeping with the patient's past history of recurrent UTI.



Figure 1 (a) Stone being delivered from the bladder. (b) Stone delivered onto the anterior abdominal wall.



Figure 2 Dimension of longitudinal axis of the stone in centimeters.

In 1921, Randall reported on the removal of a giant bladder stone weighing 1815 g. Although the patient died 36 h postoperatively [6], it represents the largest stone removed from a live patient to the best of our knowledge. However, the bladder stone removed from our patient (1650 g) may represent the largest giant stone removed with the patient surviving the postoperative period, after that reported by Nygaard and Terjesen in 1976 which weighed 1640 g [6].

Patients with symptomatic bladder stones tend to present early, however, our patient presented rather atypically. Despite the significant symptoms, he delayed presentation for care. It is also atypical for patients with stones of this size and duration of symptoms not to have hydronephrosis or deteriorated renal function [4,6]. This probably contributed to the delayed presentation in our patient. Other factors that could have contributed to the late presentation include poverty, ignorance, a poor health-seeking behavior and ready access to and reliance on over-the-counter medication in our environment. The indiscriminate use of antibiotics by this patient might have been responsible for the failure to isolate any organism in his urine.

Risk factors for secondary vesical calculi include bladder outlet obstruction, vesical foreign bodies and urinary tract infection [7,8]. This patient presented with features suggestive of obstruction of the lower urinary tract years before the typical symptoms of vesical calculus. He developed bladder neck stenosis, probably as a consequence of the untreated childhood hematuria. Bladder neck stenosis results in BOO, urinary stasis and persistent UTI, which may be complicated by triple phosphate stone formation.

Open cystolithotomy is the treatment of choice for giant vesical calculi larger than 6 cm in diameter [4,9,10]. Our patient was subjected to open cystolithotomy, bladder neck dilatation and multiple bladder biopsies. Histology of the bladder biopsies showed non-specific chronic inflammatory changes. Also, there were no dysplastic or metaplastic changes. It should be noted that bladder neck stenosis may recur following bladder neck dilatation or incision, while chronic irritation of the bladder by the stone may ultimately be complicated by bladder carcinoma [6]. Hence the need for long-term follow-up of this patient for an early diagnosis of possible

recurrent bladder neck stenosis and/or bladder carcinoma in order to commence an appropriate therapy, if necessary.

Conclusion

Despite their rarity, giant vesical calculi attaining enormous dimensions may still be encountered in contemporary urologic practice.

Conflict of interest

The authors declare no conflicts of interest.

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