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Giant Urinary Bladder Calculi in Calabar-Nigeria: A Case Report

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Abstract

Background: Urolithiasis remains a common urological problem in many parts of the world. Physiological as well as pathological changes in the body accounts for the development of urinary stones. Most of the stones formed in the kidney eventually pass out of the urinary system in the urine. Some stones, however, may get attached to a nidus and continue growing until they are removed by surgical intervention. In most of the developed world, medical intervention takes place early when the stones can be removed by conservative medical expulsive therapy or by minimally invasive techniques using ureteroscopy and laser stone fragmentation. Where such stones are not removed early in their formative stages, they could grow increasingly larger, especially in the urinary bladder, and open surgical intervention by cystolithotomy would then be needed for their removal. It is now very unusual to have giant urinary stones with diameters exceeding 5 cm. **Case Presentation:** We present a case report of the largest documented bladder calculi removed in Africa by open vesicolithotomy from a 40-year-old rural dweller in South-Southern Nigeria. The patient presented with a 5-year history of obstructive and irritative lower urinary tract symptoms, associated with a progressive hard supra-pubic swelling. Physical examination revealed a stony hard supra pubic mass and the plain abdomino-pelvic radiograph showed a giant bladder calculus. At open cystolithotomy, a giant calculus measuring 10 × 10 × 9 cm was removed along with a 6 other associated calculi. Post operative recovery was uneventful. Histology of a biopsy of the 5 cm, hypertrophic bladder wall and epithelium, was negative for malignancy. Challenges of case management are highlighted and pictorial displays relevant to the case is shown. **Conclusion:** Giant bladder stones are rarely seen in most of the developed world. Their diagnosis is usually associated with patients who have no access to health care or those who are managed in societies where specialist care and facilities for investigation are unavailable. Treatment usually is by open vesicolithotomy and biopsy of any areas suspicious for traumatic metaplasia should always be taken.

Keywords

Giant, Calculi, Rural

1. Introduction

Giant bladder calculi have been reported infrequently in the literature [1] but no single collection of calculi this big has been reported in Africa. In northern Nigeria [2] and some parts of the middle east [3], a few reports of giant bladder calculi have been documented. In most of the developed world, the management of urinary stones is by conservative medical expulsive therapy or by minimally invasive techniques using ureteroscopy and laser stone fragmentation. Where such stones are not removed early in their formative stages, they could grow increasingly larger especially in the urinary bladder, and open surgical intervention by cystolithotomy would then be needed for their removal.

In many resource limited facilities, where equipment for extracorporeal shock wave lithotripsy or cystoscopy and laser stone fragmentation facilities are unavailable, surgeons are compelled to offer open cystolithotomy for giant stone like the one we are reporting. Malignant transformation of the epithelium, a complication that may occur with chronic bladder mucosa irritation, should be anticipated.

2. Case Presentation

A 40-year-old, African male, presented to a Secondary health care centre in Calabar-Nigeria, with a five-year history of obstructive and irritative lower urinary tract symptoms. Urinary outflow improved with changes in posture. The voided urine was associated with intermittent total hematuria, passage of pus-like, purulent urine with or without stone debris.

Three years prior to presentation, the patient's condition was associated with a moderately painful, stony hard, slowly but progressively growing supra-pubic mass which at examination was about 22-week size (**Figure 1**). The patient reported going into acute urinary retention two weeks before presenting to hospital. The urinary retention was successfully relieved by the uneventful passage of a urethral catheter and this incident motivated him to seek medical care.

Figure 1. Patient lying supine, with hard 22 week supra pubic mass extending to umbilicus.

Ultrasound scan of the abdomen showed a huge vesical calculi within the bladder. The bladder had very thick (5 cm) wall. Plain abdominal x-rays showed a pelvic lesion consistent with a giant bladder calculus (Figure 2). No calculi was visualized in the upper urinary tracts. The renal function test showed a normal result. Unfortunately, the patient absconded from the hospital because he was uninsured and could not afford the cost of treatment.

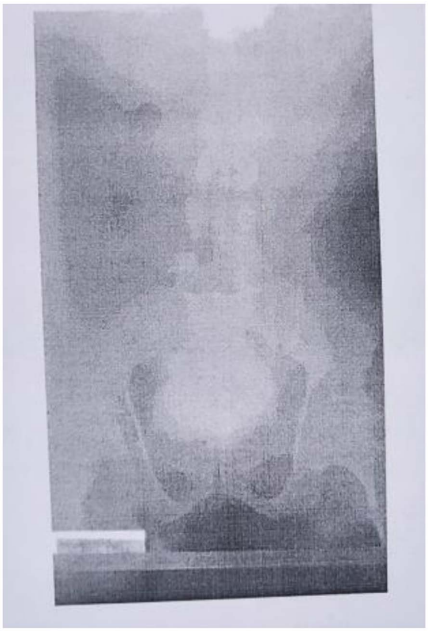
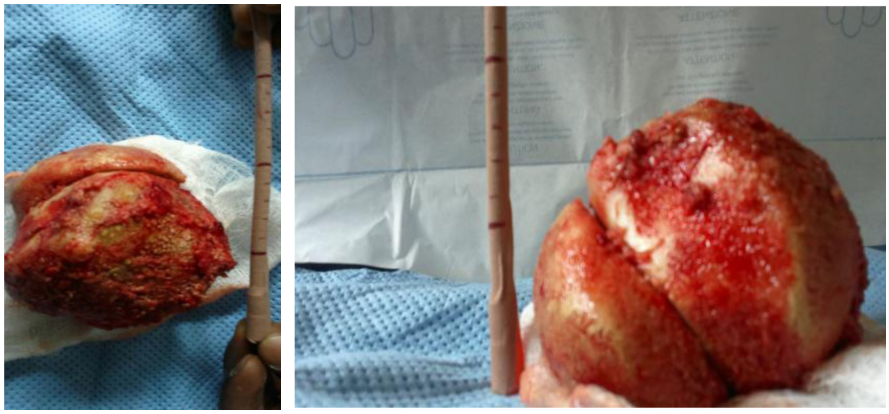


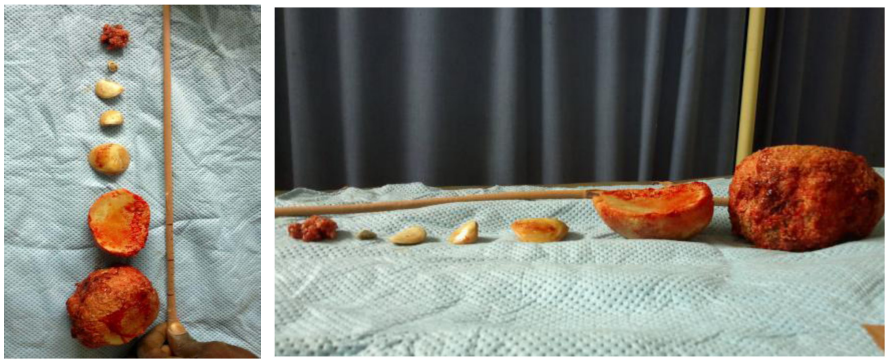
Figure 2. Plain radiograph of the abdomen and pelvis showing a pelvic calcification within the bladder (Note the poor quality of the available X-ray).

The patient re-presented to hospital five years later with the same condition. This time, he was ready for surgery. Patient was worked up for vesicolithotomy. Urine cytology was also done to evaluate for malignant transformation. At surgery, an anterior bladder wall vertical vesicostomy was done, and huge bladder stones were delivered from the urinary bladder (Figure 3(a) and Figure 3(b)). The giant calculi were stuck to the anterior and posterior bladder wall. The posterior bladder wall was noted to be very hypertrophic, measuring about 5 cm in thickness. Even though the posterior bladder wall appeared benign, a biopsy of the bladder wall was taken. Subsequently, the histology returned as hypertrophic bladder wall and mucosa, negative for malignancy. Seven fragments of very hard calculi all stuck together as a "Giant stone ball" with the largest measuring about 10 cm × 10 cm × 9 cm, were removed from the bladder (Figure 4(a) and Figure 4(b)). The stones were "cemented" to the bladder wall by concretions and were extremely difficult to pry out. The bladder vesicostomy was closed in two layers and a urethral catheter left in the bladder for continuous bladder drainage. The post operative period was uneventful and the patient was discharged home with a urethral catheter on the 7th day post operation.



(a) (b)

Figure 3. Giant bladder stones.



(a) (b)

Figure 4. Disassembled components of the giant calculi.

A post operative cystogram was done after 2 weeks and the integrity of the bladder repair was assessed to be intact before the urethral catheter was removed. Post operative urinalysis and follow up cystoscopy were essentially normal. Longer term follow up for this patient would be ideal but sadly, the patient could not come back for check-up, possibly due to financial constraints.

3. Discussion

Bladder calculi are commonly diagnosed around the world but a review of the literature showing documentation of bladder calculi this gigantic to be infrequent. While many patients can hardly tolerate stones much smaller in size in other parts of the world, it is interesting that this patient could live with the painful symptoms associated with this condition for over 5 years. Although, poverty might be an underlying cause for the late presentation to hospital, ignorance and an unquestioning hope for a faith based miraculous cure may account for the late presentation in many patients.

Calcified non-functioning paraganglionomas masquerading as bladder calculi have constituted a diagnostic pitfall for many clinicians [4]. Other authors have more commonly, found squamous metaplasia of the urinary bladder to be asso-

ciated with chronic irritation of the bladder mucosa [5]. In many similar cases, factors like previously treated upper tract stones or previous bladder exploration would predispose patients to developing giant bladder stones [6]. The index patient did not however have any of these conditions.

High cost of medical services, against the backdrop of dysfunctional or non-existent national health insurance programs in many sub-Saharan and other developing countries continues to constrain many patients to present late to hospital [7]. Even where a diagnosis is made and the consequences of delayed treatment is explained to patients, like in our case, patients' are still inclined to try other treatment options before they eventually show up in hospital for treatment as a last resort. The paucity of medical specialists in many sub-Saharan countries also increases the time interval to have a specialist consultation.

Diagnostic challenges continue to confront clinicians in sub-Saharan Africa. The lack of even the most basic of diagnostic equipments like ultrasound scanning machines as well as routine X-ray services poses a stumbling block to many clinicians. In these circumstances, the thin line separating the patient from a life of continuous suffering and an improved quality of life resulting from early specialist consultation, in many instances is determined by the referring clinicians diagnostic acumen.

4. Conclusion

Bladder stones are not an uncommon medical finding. Many patients would seek medical attention early and would therefore not need to have open surgery. When very advanced to this giant size, open surgery is inevitable. The possibility of malignant transformation of the bladder wall should however, always be anticipated.

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Consent for Publication

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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