Giant bladder stone secondary to recurrent urethral stricture; a rare case report and review of literature

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Case Report

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Abstract

Background: A giant bladder stone is very rare in adults. We report a case of giant bladder stone caused by recurrent urethral stricture in a 31-year-old male patient who had a history of recurrent bladder stone episodes.

Case presentation: we present a case of a 31-year-old male patient, who presented with irritative lower urinary tract symptoms (LUTS). Past surgical history was remarkable for urethral injury due to road traffic accident (RTA) for which urethroplasty was done. A non-contrast-enhanced CT scan and cystoscopy were used for the diagnosis. Open cystolithotomy was performed and a 110g weighing bladder stone was extracted. He was discharged improved. A urine leak from the cystotomy site due to transurethral foley catheter malfunction was noted on first follow-up visit. On the second follow-up visit, the urine leak ceased and the foley catheter was removed. The patient reported improvement of the lower urinary tract symptoms (LUTS), on subsequent follow-up visits.

Conclusion: This case represents the second-largest bladder stone reported in Ethiopia. Another peculiarity is the recurrent bladder stone following recurrent urethral stricture after urethroplasty in our case.

Introduction

Bladder stones comprise only 5% of all urinary tract stones.¹ A giant bladder (GBS) stone is a rare disease entity with few cases reported in the medical literature. Most of the cases of giant bladder stones as evidenced by the published literature are caused by infra-vesical obstruction.² GBS is defined as a bladder stone weighing more than 100g.³ We report a case of giant bladder stone caused by urethral stricture in a 31 years old male patient, who suffered recurrent episodes of bladder stone formation in the past.

Case Presentation

This is a case presentation of 31 years male patient who presented with irritative LUTS manifested by frequency, urgency, and dysuria. He also has sudden cessation of urinating. The patient had a history of road traffic accidents (RTA) 18 years back at which time a suprapubic cystostomy was done for a sustained urethral injury. Subsequently, the patient developed bulbar urethral stricture and underwent urethroplasty five years after the trauma. He was relatively doing good until 8 years back when he developed a bladder stone that was surgically managed. Physical examination was nonrevealing except for old surgical scar in the abdomen and perineum.

Laboratory exams were within the normal limit. Ultrasound scan showed bilateral moderate hydronephrosis, bladder trabeculations, echodebris, and a 5.14 cm measuring echogenic structure. Contrast-enhanced CT (CECT) scan of the abdomen and pelvis was performed which showed a 5.2 by 4.4 cm hyperattenuating structure within the bladder lumen with bilateral moderate hydroureteronephrosis

(Fig. 1 & Fig. 2). Transurethral catheter insertion to relieve the obstruction was not successful. Therefore, a possible diagnosis of recurrent urethral stricture was suspected. For this cystoscopy was done which showed narrowed bulbar stricture for which direct visual internal urethrotomy (DVIU) was done. The finding was short, severely narrowed bulbar urethral segment and large intravesical calculus. After the procedure, a 14F Foley catheter was inserted into the bladder over a guidewire.

The patient then underwent open cystolithotomy and a 110 gm weighing bladder stone was removed (Fig. 3). The patient was discharged improved and appointed to the urology clinic. On the first follow-up visit, he developed a urine leak due to transurethral foley catheter malfunction which was exchanged. On the 3rd week post-operatively, the urine leak stopped and the foley catheter was removed. The patient reported improvement of his symptoms on subsequent follow-up visits.

Discussion

Bladder calculi account for 5% of all urinary calculi.^{4,5} Primary, secondary, and migratory stones are the three primary types of bladder stones.⁶ A primary idiopathic bladder stone is the most common in pediatric populations. A bladder stone weighing more than 100g, as defined in the literature, is a very rare clinical condition. There are about 86 cases ever reported in the English medical literature. The largest bladder stone ever removed weighs 1640 g.^{2,7} Patients with giant bladder stones mostly present with recurrent lower urinary tract symptoms (LUTS), hematuria, and acute urinary retention.⁸

Bladder outlet obstruction (BOO), recurrent urinary tract infections (UTI), neurogenic bladder, and foreign bodies are the commonly mentioned causes for vesical calculi.⁹ In our patient, bulbar urethral stricture was the cause for his recurrent bladder stone formation including his current episode. Furthermore, bladder stones can also form in the setting of no identifiable cause in adults. We reported one of such cases several months back in our hospital.¹⁰

Most compositions of the bladder stones include triple phosphate, calcium carbonate, and calcium oxalate. Our patient's bladder stone composition was not analyzed because the stone analysis is not available in our setup.

Although some mention Cystoscopy as the preferred method of diagnosis, plain abdominal x-ray, pelvic ultrasound, and CT scan, alone or in combination, were used to diagnose most giant bladder stones.

There are several available modalities and techniques mentioned in the standard textbooks to remove bladder stones. Almost all of the giant bladder stones reported in the literature were managed with open cystolithotomy.

Conclusion

We believe this case is interesting for the following reasons. This case represents the second-largest bladder stone reported in Ethiopia. Furthermore, it is one of the rare cases in which recurrent bladder

stone formation occurred after recurrent urethral stricture following urethroplasty.

Abbreviations

BOO

Bladder outlet obstruction

CECT

Contrast-enhanced computed tomography

CT

Computed tomography

DVIU

Direct Visual Internal Urethrotomy

GBS

Giant bladder stone

HU

Hounsfield units

LUTS

Lower urinary tract symptoms

PCS

Pelvicalyceal system

RTA

Road traffic accident

UTI

Urinary tract infection

Declarations

Ethics approval and consent to participate

No institutional review board approval was required.

Consent for publication

Written informed consent was obtained from the patient for the 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.

Data availability

All the generated data are included in this article

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Disclosure

The authors have no competing interests in this work.

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Not applicable

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Figures

Figure 1

Pre-contrast phase of CECT of the abdomen and pelvis shows large bladder stone with an attenuation value of 575 HU. and bilateral moderate hydronephrosis. A: Axial image B: Coronal Reconstruction C: 3D reconstruction.

Figure 2

Delayed phase of CECT of the abdomen and pelvis shows bilateral dilated PCS, tortuous and dilated ureters. A: Axial image B: Coronal Reconstruction

Figure 3

Intra-operative pictures. A: Stone being extracted with stone forceps B: calibration of the stone removed.