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Case Report

Bilateral Renal Calculi Coexisting with a Giant Intravesical Calculus in an Elderly Male Patient: Radiologic Findings and a Case Report

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Abstract: Urinary tract calculus also known as urolithiasis refers to the formation of hard, stone-like deposits composed of minerals and salts within any part of the urinary tract. Urinary tract calculi are either of calcium type, struvite type, uric acid type and cysteine type. Giant bladder calculus refers to an unusually large stone that forms within the urinary bladder and weighing greater than 100 grams or measuring more than 40 mm in diameter, and usually develop due to prolonged urinary stasis, infection and or obstruction. This is a 65-year-old farmer referred from a health facility for abdominal and pelvic radiograph (Kidney, Ureter and Urinary bladder view; KUB) on account of prolonged dysuria, dribbling of urine, increased frequency of micturition, supra-pubic pain that radiates to the groin. The KUB demonstrated oval opacities of calcific densities in the lumbar region bilaterally; one on the right and two on the left measuring about 10mm, and 5mm/10mm on the right and left respectively. A larger oval opacity measuring about 75mm x 70mm in mediolateral and cranio-caudal dimension in keeping with a giant calculus within the pelvic cavity. A complementary ultrasonography further confirmed the presence and location of the aforementioned calculi respectively. We report a case of a giant calculus with bilateral renal calculi in a patient with urinary tract symptoms due to peculiar presentation and to review the literature.
Keywords: Renal Calculi, Giant Calculus, Urinary Bladder, KUB.

INTRODUCTION

Giant urinary bladder calculi are regarded as calculus weighing more than 100g or measuring greater than 40mm in widest diameter, and appears rare in current practice [1, 2]. Calculi in the urinary bladder are most often caused by urinary tract infection, urethral stricture, benign prostatic hyperplasia and intravesical foreign body encrustration [1-3].

Giant urinary bladder calculus appears more frequent in males, and often develops from a nidus of infected material or single ureteric calculus with a progressive layer-wise deposition of calcified matrix coexisting with factors leading to urinary stasis such as bladder outlet obstruction [1-3].

Bladder calculi most often occur in association with renal or ureteral calculi, and rarely ever occur without coexisting upper urinary tract calculi, and may either be regarded as primary or secondary in nature [4, 5].

Bladder calculi account for about 5% of urinary calculi, and shows a prevalence between 4 and 20% in the developed countries [4-7]. Bladder calculi are often seen in adults in non-endemic regions, though children remain at higher risk for bladder calculus formation in endemic areas [4-8].

Giant vesical calculi usually present with no symptoms or with minimal urinary symptoms, which in most instances are adequately tolerated, and usually delays the presentation for early treatment and leads to the formation of the giant vesical calculi [9].

Giant vesical calculi though rare, most are associated with bladder outlet obstruction, and also have a varied presentation ranging from completely asymptomatic to dysuria, lower abdominal pain, gross hematuria and urine retention [3-10].

Imaging plays a role in the diagnosis of giant vesical calculus; the stones are often detected by ultrasonography, and also plain radiography (KUB)

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which showed peculiar topographic characteristics with respect to calculus size, surface and radio-opacity [11].

CASE REPORT

This is a 65-year-old farmer referred from a health facility for abdominal and pelvic radiograph (Kidney, Ureter and Urinary bladder view; KUB) on account of prolonged history (about three years) of dysuria, dribbling of urine, increased frequency of micturition, supra-pubic pain that radiates to the groin.

The patient had no history of abdominal trauma, urological procedures or neurological disease in the past.

The KUB demonstrated oval opacities of calcific densities in the lumbar region bilaterally; one on the right and two on the left measuring about 10mm, and 5mm/10mm on the right and left respectively. A larger oval opacity measuring about 75mm x 70mm in mediolateral and cranio-caudal dimension in keeping with a giant calculus within the pelvic cavity (figures 1&2). A complementary ultrasonography further confirmed the presence and location of the aforementioned calculi respectively.

The patient was advised to consult the urologist in a tertiary institution for expertise management which is most likely from open surgical removal.

We report a case of a giant calculus with bilateral renal calculi in a patient with urinary tract symptoms due to peculiar presentation and to review the literature.

Figure 1: Plain abdominal radiograph (Kidney, ureter and bladder view; KUB) demonstrating oval opacities of calcific densities in both renal regions; one on the right and measures about 10mm in widest diameter, and two on the left measuring about 5mm and 10mm respectively

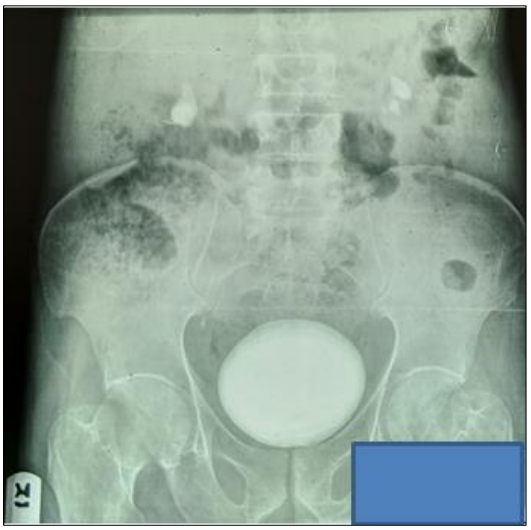

Figure 2: Plain abdominal radiograph (Kidney, ureter and bladder view; KUB) demonstrating an oval opacity of calcific density in the pelvic region measuring about 75mm x 70mm in mediolateral and cranio-caudal dimensions in keeping with a giant vesical calculus. The demonstrated bones show degenerative changes

DISCUSSION

In the pathophysiology of giant calculi formation, risk factors may include low educational level, low socioeconomic status, dry climate, dietary habits and high exposure to sun are associated with high incidence of urinary tract calculi formation [1-12]. The case under review happens to have most of these factors thereby conforming to these literatures.

Giant urinary bladder calculi are regarded as calculus weighing more than 100g or measuring greater than 40mm in widest diameter, and appears rare in current practice [1, 2]. The case under review had a calculus measuring about 75mm in widest diameter which is far beyond 40mm, thereby agreeing with these literatures.

Calculi in the urinary bladder are most often caused by urinary tract infection, urethral stricture, benign prostatic hyperplasia (BPH) and intravesical foreign body encrustration [1-3]. The case under review also had features suspicious of urinary tract infection and urethral stricture (difficult micturition and splitting of the urinary stream), and also confirmed prostatic enlargement from ultrasonography; prostatic volume of about 65mls with features suspicious of BPH, thereby agreeing with the aforementioned literatures.

Bladder calculi most often occur in association with renal or ureteral calculi, and rarely ever occur without coexisting upper urinary tract calculi, and may either be regarded as primary or secondary in nature [4, 5]. The case presented also has bilateral renal calculi coexisting with the giant vesical calculus and most likely the secondary type, and thereby conforming to these literatures.

Giant vesical calculi though rare, may have a varied presentation ranging from completely asymptomatic to dysuria, lower abdominal pain, gross hematuria and urine retention [3-10]. The index case however wasn't asymptomatic, he presented with most of the aforementioned symptoms, thereby conforming to these literatures.

Imaging plays a role in the diagnosis of giant vesical calculus; the stones are often detected by ultrasonography, and also plain radiography (KUB) which showed peculiar topographic characteristics with respect to calculus size, surface and radio-opacity [11]. The index case was diagnosed following abdominal ultrasonography and plain radiograph of the abdomen where the opacity, location and size were determined, thereby conforming to these literatures.

CONCLUSION

Renal calculi and giant vesical calculus are most often opaque on plain radiographs and echogenic following ultrasound scan; these imaging modalities should be employed in confirming the diagnosis of urolithiasis in suspected patient's in order to reduce the morbidity and mortality associated with the condition.

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