Giant bladder stone in a male patient

A case report

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Abstract

Background: In recent years, bladder stones are increasing in China. However, a giant bladder stone is rarely found nowadays.

Methods: A case of a 54-year-old man who presented with a >9-year history of urinary frequency and urgency and macrohematuria for the past 3 days, was examined by ultrasound scan, kidney–ureter–bladder x-ray, and computed tomography. Then, the patient received a cystolithotomy.

Results: His suprapubic area was hard when palpated. An ultrasound scan showed hydrenephrosis of both kidneys and expanded ureters. A kidney–ureter–bladder x-ray showed a large stone within the bladder, and computed tomography revealed that the stone occupied most of the bladder. A large bladder stone composed of magnesium ammonium phosphate, weighing 1048 g, and measuring 13.3 × 8.0 × 9.7 cm in size was removed.

Conclusion: This rare case is, to the best of our knowledge, the largest bladder stone case reported to date in China. For patients with only Lower urinary tract symptoms, bladder stone should be taken into consideration when other signs occur, such as recurrent urinary tract infection and hematuria.

Abbreviation: CT = computed tomography.

Keywords: bladder stone, cystolithotomy

1. Introduction

In recent years, bladder stones are increasing in China. It may be associated with bladder outlet obstruction, genetic or metabolic diseases, and other environmental factors. Intravesicular foreign bodies or chronic infection are well-recognized causes for stone formation. Open cystolithotomy, transurethral cystolithotripsy, shock wave lithotripsy, and percutaneous cystolithotripsy are used for it.

2. Case report

A 54-year-old man visited our clinic with a >9-year history of urinary frequency and urgency; these symptoms had worsened and macrohematuria had developed within the past 3 days. The patient was a farmer, with no history of any injury, and no other lower urinary tract symptoms such as dysuria, interruption of urinary stream, and urinary retention and incontinence, except frequency and urgency, and no complaints of abdominal pain. He had a 30-year history of smoking and smoked 40 cigarettes every day. He had a habit of drinking 150 g alcohol every day for the past 20 years. And the recurrent urinary tract infection may accelerate the continuing enlargement of bladder stone. His suprapubic area was hard on palpation. An ultrasound scan showed a small renal stone around 0.8 cm in size, hydronephrosis of both kidneys, and ureterectasia. The prostate was normal. Kidney–ureter–bladder x-ray showed a giant stone within the bladder (Fig. 1). Computed tomography (CT) revealed that the large stone, sized 11.5 × 9.4 × 10.5 cm with a CT value of 789.73 to 1225.04 HU, occupied most of the bladder. His renal function was normal, and the preoperative neurological examination was normal, with no signs of neurogenic bladder. During the routine urine examination, a white blood cell count of 5/HPF and a red blood cell count of 6/HPF were found. The urinary sediment assay for screening of cancer cells showed no positive results; this was replicated 3 times.

After oral antibiotic treatment for the urinary tract infection, open cystolithotomy surgery was planned. During the operation, we found that the stone was oval and not adherent to the bladder mucosa. The bladder mucosa looked pale and a little thicker after the stone was removed. There was no neoplasm visible to the naked eyes and the bladder outlet was unobstructed. And no sign of cancer was found by biopsy pathology. The stone weighed 1048 g, and measured 13.3 × 8.0 × 9.7 cm in size (Fig. 2); its transection had many compartments of stratified lamellae, composed of magnesium ammonium phosphate (Fig. 3).

The postoperative period was uneventful. The urethral catheter was removed 2 weeks later and the patient’s urinary output was normal. He was evaluated in the outpatient clinic 4 and 8 weeks after discharge with no complaints. No residual bladder stone or urinary system dilation was detected. Hydrenephrosis was no longer present 4 weeks after discharge. Urodynamic evaluation
and urinalysis were also normal. Annual ultrasound scan was required to check the small renal calculus.

The written informed consent for the case report was obtained from this patient, and the consent procedure was approved by the Ethics Committee of the Second Hospital of Tianjin Medical University.

3. Discussion

Bladder calculi account for 5% of urinary calculi and usually occur because of bladder outlet obstruction, neurogenic voiding dysfunction, urinary tract infection, or foreign bodies. Males are more likely to be affected than females. Bladder calculi are usually observed secondary to bladder outlet obstruction. These patients generally present with recurrent urinary tract infection, hematuria, or urinary retention. Although urinary calculi are commonly observed with renal or ureteral calculi, they may rarely occur without associated upper urinary tract calculi. Our case is of particular interest because 1 extremely large bladder calculus occupied most of the bladder and pressing on the orifices of the ureters, leading to the presence of hydronephrosis. Because the stone was oval and smooth, the bladder outlet was not obstructed. We found no foreign body inside the giant stone after dissection. Meanwhile, given the concomitant renal calculi, we speculate that the calculus formed after an upper urinary tract calculus descended into the bladder a long time ago, although the patient remained asymptomatic.

In conclusion, the diagnostic methods of bladder calculi include ultrasound scan, plain radiography, and CT scan. Satisfactory results can be achieved following surgical intervention by cystolithotomy or endoscopic cystolithotripsy, but for some giant bladder calculi, cystolithotomy is preferred. For patients with only Lower urinary tract symptoms, bladder stone should be taken into consideration when other signs occur, such as recurrent urinary tract infection and hematuria.

References

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