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A giant stratified lamellate stone occupying almost the entire urinary bladder

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An 89-year-old male presented with dysuria and oliguria. He had a history of benign prostate hyperplasia and neurogenic bladder under long-term Foley catheter use of 10 years. Recurrent urinary tract infections had occurred since then. The laboratory data showed acute renal failure with a blood urea nitrogen (BUN) of 57 mg/dL, creatinine 3.61 mg/dL (baseline renal function 6 months before admission, BUN 22 mg/dL, creatinine 0.89 mg/dL). Abdominal computed tomography revealed a 7 × 4.8 cm giant vesicle stone occupying almost the entire urinary bladder with bilateral hydronephrosis (Figure 1). Open vesicolithotomy was performed. The extirpated stone was composed of ammonium magnesium phosphate. The hydronephrosis was quickly relieved, and the patient's renal function returned to normal range 3 days after surgery.

Urinary bladder stones account for about 5% of urinary calculi [1], but a giant vesical calculus is rare in the recent urological practice. It is usually seen in males but seldom in females due to the lower incidence of obstructive uropathy [2]. Urinary bladder stones are usually composed of calcium oxalate or magnesium ammonium phosphate [1].

The break section of the stone in the presenting case revealed a central core and irregularly progressively increased stratified lamellar structure (Figure 2). This structure might prove the theory of stone formation, which describes the initial nidus from infected material, foreign body or calculus passed from the upper urinary tract [1,3] and facilitated by recurrent urinary infection. Moreover, urinary tract infection promotes the condensation and formation of stones, and the growing stone predisposes to urinary tract infection, which might become a vicious cycle.

The risk factors for urinary stone formation include urinary stasis (benign prostate hyperplasia, urethral stricture, bladder neck contracture, neurogenic bladder), urinary tract infection and foreign bodies [1–3]. The symptoms consist of dysuria, haematuria, and even urinary outlet obstruction which leads to urinary retention, hydronephrosis and oliguria [1–3]. The techniques for removal of huge bladder stones include cystolitholapaxy, percutaneous cystolitholapaxy and open suprapubic vesicolithotomy. Relieving urinary stasis and eliminating infection are vital for the prevention of stone formation.

Conflict of interest statement. None declared.

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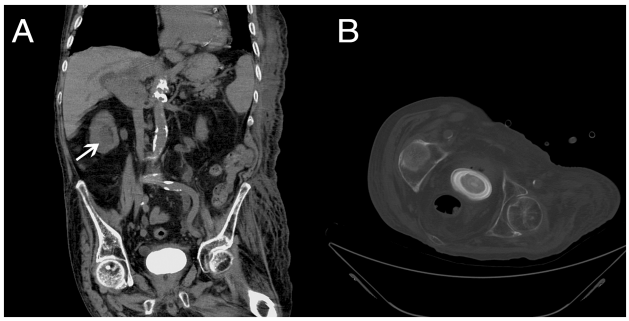

Fig. 1. (**A**) The abdominal computed tomography revealed a 7 × 4.8 cm giant vesicle stone occupying almost the entire urinary bladder with bilateral hydronephrosis (arrow). (**B**) The CT scan in the bone window revealed stratified lamellar structure.

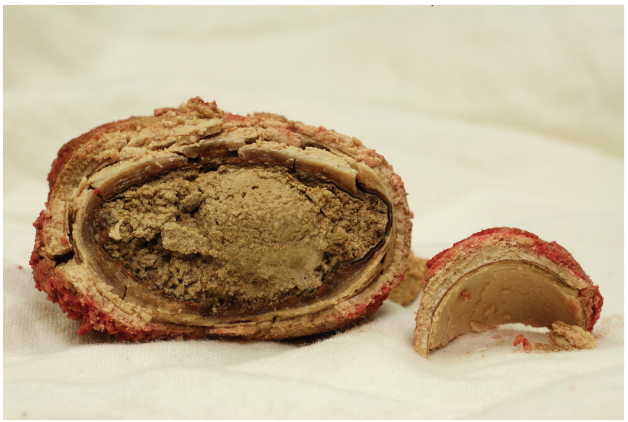

Fig. 2. The break section of the stone revealed a central core and irregularly progressively increased stratified lamellar structure.