

## Case Report

### Giant vesical calculus

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#### ABSTRACT

A giant vesical calculus more than 100 gram is rare entity. Fewer than 30 cases are reported in English literature of vesical calculus more than 100 gm. Largest vesical calculus was of weight 6294 gm by Arthure et al. Available treatment options for vesical calculi include open surgical removal, extracorporeal fragmentation and endoscopic crushing followed by extraction of pieces. Recently, endosurgical mechanical cystolithotripsy followed by percutaneous extraction has been evolved for small or moderate-sized calculi. Our case report demonstrated vesical calculus of 400gms which is a rare finding in today urologic practice.

**Key words:** Giant vesical calculus, open surgical removal, extracorporeal fragmentation, endoscopic crushing

#### Introduction

Giant bladder calculi are not common in modern urologic practice and many have been found to grow to enormous proportions with minimal symptoms. The stones are usually mixed because of associated urinary tract infection. Fewer than 30 reports are available in the English literature with a weight of the stone of more than 100g.<sup>[1]</sup> The largest vesical calculus reported in the literature is of 6294 gram by Arthure et al.<sup>[2]</sup> Our case report demonstrated vesical calculus of 400gms which is a rare finding in today urologic practice.

#### Case Report

A 45 year old female patient presented with complaints of frequency, hesitancy, burning sensation in passing urine and

dribbling of urine with heaviness in lower abdomen for the last 8 years associated with pain over bilateral lumbar regions for 2 years. She had a history of recurrent urinary tract infections for the last 6-7 years for which he took medical treatment many times. There was history of passage of blood and pus flakes in urine on different occasions.

On examination, a non-tender, firm lump was palpable in the hypogastric region. Per vaginal examination revealed a hard and mobile mass in the urinary bladder. Per urethral catheterization was tried but the patient could not be catheterized. Routine examination of urine detected multiple RBCs and WBCs and the urine culture grew E. coli. Plain radiograph of the KUB region showed a large radio-opaque shadow in the pelvis in the bladder (Fig. 1).



**Fig. 1** X-ray showing large radio-opaque shadow in pelvis

Ultrasound of abdomen confirmed the presence of a vesical calculus of 11x8x8cm. Serum calcium and PTH level was normal. Suprapubic extraperitoneal cystolithotomy was done and a yellowish brown hard stone weighing 400g, with smooth surface, was removed (Fig. 2).



**Fig. 2** Giant vesicle calculus weighing around 400 grams

There was no bladder diverticulum. The patient was catheterized and the bladder closed in two layers. The catheter was removed on the 14<sup>th</sup> postoperative day and the patient passed urine comfortably with good stream. Biochemical examination showed a calcium oxalate stone.

### Discussion and review of literature

Urinary bladder calculi are a rare clinical entity (accounting for 5% of all urinary

calculi).<sup>[3, 4]</sup> Giant vesical calculi weighing more than 100g are even rarer, especially in today's modern urologic practice.<sup>[1, 4]</sup> This is supported by the fact that only about 30 cases of urinary bladder calculi having more than 100g of weight have been reported in the English literature.<sup>[1]</sup> The largest one ever reported in the history is of 6294g by Arthure et al.<sup>[2]</sup>

Females are generally less commonly affected than males as ninety-five percent of all bladder stones occur in men.<sup>[3, 5]</sup> Bladder calculi most often occur in conditions of chronic urinary retention, bladder outlet obstruction or urinary tract infection.<sup>[3, 5]</sup> These conditions are commonly precipitated by development of a bladder diverticulum<sup>[5, 6]</sup> benign prostatic hypertrophy in males, genital prolapse in females or urethral stricture. Prolonged catheterisation, neurogenic bladder, foreign body and trauma are other rarer causes.<sup>[5]</sup> There are case reports of formation of bladder stones around a foreign body, sutures, catheters or other objects introduced into the bladder which act as a nidus for stone formation.<sup>[3]</sup> Pomerantz et al. have reported a rare case of formation of urinary bladder calculus around an arterial graft, which was incorporated in the bladder.<sup>[5]</sup>

It is thought that a giant vesical calculus develops from the nidus of the infected material or from a single ureteric calculus with progressive layer-wise deposition of calcified matrix. Thus, each of the earlier stated factors may mutually contribute to the formation of a calculus.<sup>[7]</sup> Also, studies have indicated that infection may not be the inciting factor in stone formation, but may play a major role in further stone crystallization.<sup>[3]</sup>

Most of the vesical calculi are composed of triple phosphate, calcium carbonate, and calcium oxalate. Becher et al. have reported a giant uric acid vesical calculus

of 235g with a minor component of asymmetrical calcium oxalate.<sup>[1]</sup> Presentation of patients with giant vesical calculus is commonly with recurrent urinary tract infection, hematuria, inability to pass urine and azotaemia.<sup>[8]</sup> Complaints of suprapubic discomfort or pain may or may not be there. Patients in urinary retention caused by a vesical calculus usually pass urine in supine position. Chronic obstruction to urine flow due to a vesical calculus further leads to infection, and, rarely, bladder perforation<sup>[9, 10]</sup> hydronephrosis, and acute renal failure.<sup>[1, 8]</sup>

The majority of bladder calculi are radiopaque and detected by plain radiograph. Other investigations which can show bladder calculi are ultrasound, CT-scan, magnetic resonance imaging and intravenous urogram but contrast-enhanced CT is the investigation of choice as it has remarkable sensitivity in detecting urinary tract stones, including uric acid stones. It can reveal the concentric nature of stones. Various surgical modalities are available for vesical calculi which include open surgical removal, extracorporeal fragmentation and endoscopic crushing followed by extraction of pieces. For giant stones open surgery has been recommended as the best modality.<sup>[8]</sup> Recently, endosurgical mechanical cystolithotripsy followed by percutaneous extraction has been evolved for small or moderate-sized calculi. It has an added advantage as it can be combined with a corrective procedure for bladder outlet obstruction.<sup>[11]</sup> Electrohydraulic shockwave lithotripsy (EHSWL) is preferably to be avoided in hard, large vesical calculi and if the stone is in a diverticulum or stuck to the mucosa.<sup>[12]</sup>

## Conclusion

A giant vesical calculus more than 100 gm is rare entity. Bladder calculi most often

occur in conditions of chronic urinary retention, bladder outlet obstruction or urinary tract infection. Contrast-Enhanced CT is the investigation of choice. For giant stones open surgery has been recommended as the best modality.

## References

1. Becher RM, Tolia BM, Newman HR. Giant vesical calculus. JAMA 1976;239:2272-3.
2. Harrison JH. Campbell's Urology. 4th ed. Philadelphia: WB Saunders Co; 1978. p. 853-4.
3. Schwartz BF, Stoller MZ. The vesical calculus. Urol Clin North Am 2000;27:333-46.
4. Besiland C, Anderson M. Giant urinary bladder stone. Tidsskr Nor Laegeforen 2000;120:573-4.
5. Pomerantz PA. Giant vesical calculus formed around arterial graft incorporated into bladder. Urology 1989;33:57-8.
6. Di Tonno F, Forte M, Guidoni E, Cavazzana A, Barbui P. A giant bladder stone. Br J Urol 1988;62:90-1.
7. Leach GE, Fitzpatrick TJ. Giant vesical calculi in the female. Urology 1981;17:274-5.
8. Maheshwari PN, Oswal AT, Bansal M. Percutaneous cystolithotomy for vesical calculi: a better approach. Tech-Urol 1999;5:40-2.
9. Kaur N, Attam A, Gupta A, Amratash. Spontaneous bladder rupture caused by a giant vesical calculus. Int Urol Nephrol 2006;38:487-9.
10. Basu A, Mojahid I, Williamson EP. Spontaneous bladder rupture resulting from giant vesical calculus. Br J Urol 1994;74:385-6.
11. Asci R, Aybek Z, Sarikaya S, Buyukalpelli, Yilmaz AF. The management of vesical calculi with optical mechanical cystolithotripsy and transurethral prostatectomy: is it safe

and effective? BJU Inter 1999;84:332-6.

12. Zhaowu Z, Xiwen, Fenling Z. Experience with electrohydraulic shockwave lithotripsy in the treatment of vesical calculi. BJU 1988;61:498-9.

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