

A Rare Giant Vesical Calculus: Case Report with Review of Literature

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Abstract: Giant vesical calculus is an uncommon clinical entity in the modern urological field. Males are affected more than the females. We are reporting a case of 56 years old male patient non diabetic or hypertensive who presented with urinary symptoms. His biochemical tests were within normal limits. Urine analysis and culture sensitivity showed infection. His X-ray of abdomen and ultrasonography revealed a giant vesical calculus bilateral mild hydronephrosis and small prostate. After controlling the urinary infection with a course of antibiotics, he underwent an open cystolithotomy and post-operative recovery was uneventful.

Keywords: Vesical calculus, Giant, Infection, Stone

INTRODUCTION

Calculus disease of the urinary system is known since a long time. Though calculus disease of the urinary system is common, giant vesical calculi are rare. They are secondary to the renal stones or to the bladder outlet obstruction and bladder diverticulum [1].

Giant vesical calculus weighing more than 100 grams is rare and more than 30 authors have reported showing weight of the stone more than 100grams [2]. The largest vesical calculus of 6294 grams was reported till now is by Arthur *et al.*[3].

Hereby we report a case of giant vesical calculus in a 56 years old male patient weighing 386 grams.

CASE REPORT

A 56 years old male patient presented with complaints of severe burning micturition, difficulty in voiding, haematuria, difficulty in passing stools and lower abdominal pain for last seven years. He had a past history of repeated visits to general practitioners for the above symptoms, for which he was treated symptomatically without further investigations.

On examination he was found to be anaemic with suprapubic tenderness. Rectal examination revealed hard mass in the urinary bladder anteriorly. Routine examination of the urine revealed multiple red blood cells and white blood cells and urine culture was positive for *E. coli* and sensitive to ciprofloxacin. He was treated with a course of ciprofloxacin and preoperative repeat urine culture showed no growth.

Ultrasonography of the KUB region showed presence of a huge vesical calculus measuring 10×8 cm with bilateral hydronephrosis. His biochemical parameters i.e. serum calcium, serum uric acid were within normal limits. Plain X-ray KUB region showed a large calculus in the bladder area (Fig.1).

After detailed examination patient was subjected to extraperitoneal cystolithotomy (Fig.2) with extraction of entire calculus was done under spinal anaesthesia and the calculus weighed 386 grams (Fig.3). Thorough bladder wash was given and bladder was primarily sutured in two layers and bladder was drained by 20Fr per urethral Foley's catheter which was kept for ten days and his post-operative recovery was uneventful.



Fig.1 Skiagram pelvis: Showing a huge calculus with concentric laminations.



Fig.2 Peroperative: Showing extraction of calculus by open cystolithotomy.



Fig. 3 A huge vesical calculus, 10×8 cm weighing 386 grams.

DISCUSSION

The reason of formation of bladder stones is not completely known. Bladder stone formation may occur because of

- Urinary tract infection,
- Obstruction to the urinary tract,
- Enlargement of prostate gland in men
- Presence of foreign bodies in the urinary tract.

Diet and amount of fluid intake are attributed to be important factors in the development of bladder stones [4].

Major compositions of the vesical calculi include triple phosphate, calcium, calcium carbonate and calcium oxalate. Becher *et al.* have reported giant vesical calculus with uric acid as the major component with a symmetrical calcium oxalate deposition [2]. Our patient had a giant vesical calculus with weighing 386grams, its composition consisting of calcium oxalate and triple phosphate.

Females are usually less commonly affected than males, as 95% of all bladder stone occur in men [1,5]. Vesical calculi occur commonly secondary to the renal stone, bladder outlet obstruction and bladder diverticulum [1]. These calculi are formed commonly in males due to benign prostatic hypertrophy or urethral stricture, where as rarer causes such as trauma, catheterisation, neurogenic bladder, foreign body have also been incriminated. Bladder stones are formed around a foreign body, sutures, catheters or other objects introduced into the bladder and it is thought that a giant vesical calculus develops from a nidus of the infected material or from a single ureteric calculus with progressive layer wise deposition of the calcified matrix. Thus each of the earlier stated factors may mutually contribute to the formation of a calculus [6]. Also studies have reported that infection may not be the primary factor in stone formation but may play a major role in further stone crystallisation [7].

It is usually present with recurrent urinary tract infection, haematuria, inability to pass urine, azotaemia [8] and complaints of suprapubic pain or discomfort may or may not be there.

The majority of the bladder calculi are radio-opaque and detected by plain radiograph as in our case. Other techniques include ultrasound, CT scan, MRI imaging and IVU. CT scan is the investigation. It has remarkable sensitivity in detecting urinary tract stones, including uric acid stones and reveals concentric nature of the stones [8].

Surgical treatment of vesical calculus has evolved over years [8]. In small or moderate calculus endourological procedures such as cystolithotripsy has

added advantages as it can be combined with corrective procedure for bladder outlet obstruction [9].

CONCLUSION

Physicians should be alert to the possibility of a urinary bladder stone in patients presenting with urinary symptoms because obstructive lesions and infection seem to play a role in formation and growth of vesical calculi, their eradication will minimize the occurrence of stones. These patients should be examined as soon after symptoms appear as possible to rule out underlying disease or other causes. Patients who have small stones should be followed with regular examinations to prevent development of giant calculi.

REFERENCES

1. Pomerantz PA; Giant vesical calculus formed around arterial graft incorporated into bladder. *Urology* 1989; 33(1):57-58.
2. Becher RM, Tolia BM, Newman HR; Giant vesical calculus. *JAMA*, 1978; 239(21):2272-2273.
3. Harrison JH; *Cambell's Urology*. 4th edition, WB Saunders Co., Philadelphia, 1978: 853-854.
4. Shilpi G, Onkar S, Sumit S, Raj KM; Giant Vesical Calculus. *The Internet Journal of Surgery*. 2008; 17(1). Available from <http://ispub.com/IJS/17/1/10317>
5. Schwartz BF, Stoller ML; The vesical calculus. *UrolClin North Am.*, 2000; 27(2):333-346.
6. Leach GE, Fitzpatrick TJ; Giant vesical calculi in the female. *Urology*, 1981; 17(3):274-275.
7. Schwartz BF, Stoller ML. The vesical calculus. *UrolClin North Am.* 2000; 27(2):333-346.
8. Maheshwari PN, Oswal AT, Bansal M; Percutaneous cystolithotomy for vesical calculi: A better approach. *Tech Urol.*, 1999; 5(1):40-42.
9. Asci R, Aybek Z, Sarikaya S, Büyükalpelli R, Yilmaz AF; The management of vesical calculi with combined optical mechanical cystolithotripsy and transurethral prostatectomy: is it safe and effective? *BJU Int.*, 1999; 84(1):32-36.