CASE REPORT

Large bladder calculus masking a stone in single-system ureterocele

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SUMMARY

Ureterocele in an elderly is a rare entity. The presence of stone within ureterocele along with a large bladder calculus is an even rarer presentation. This phenomenon has not been reported so far to the best of our knowledge. We present an unusual case of a large bladder calculus with a concomitant stone in the associated ureterocele. The diagnosis was missed in the first instance due to the masking effect by the larger bladder calculus. Herein, we discuss this case and its management.

BACKGROUND

The majority of ureteroceles or ectopic ureters are detected prenatally on ultrasound imaging. Single-system (orthotopic) ureteroceles are usually found in adults and are almost always intravesical. Stasis of urine in the dilated distal segment often leads to urinary tract infection and stone formation.

There have been several case reports that mention the presence of stone within a ureterocele,^{1–5} but a large bladder calculus masking the presence of a concomitant stone within ureterocele has not been reported in the literature to the best of our knowledge. Herein, we present an unusual case where a large bladder calculus was masking the presence of stone within a concomitant ureterocele, so much so that the diagnosis was completely missed in the preoperative and intraoperative phase.

CASE PRESENTATION

A 68-year-old patient presented to us with complaints of lower urinary tract symptoms and suprapubic pain since 1 year. Physical examination did not reveal any significant abnormality. On evaluation with X-ray kidney, ureter, bladder (KUB), he was found to have a large bladder calculus (figure 1). Ultrasonography confirmed 35 mm bladder calculus. The patient was advised open suprapubic cystolithotomy/percutaneous cystolithotomy, but opted for endoscopic procedure. Cystolitholapaxy under regional anaesthesia was performed. Due to the large volume and high density of the calculus, complete clearance could not be achieved (figure 2). The patient was taken up for second sitting on the next operating day and the remaining fragments were cleared with holmium laser. Check X-ray was requested prior to discharge, and to everyone's surprise it showed presence of a radiopaque shadow in the bladder region (figure 3). The first differential diagnosis that came

to our mind was incomplete clearance. Hence, the patient was taken up for diagnostic cystoscopy but that did not reveal any stone. Finally, contrast-enhanced CT KUB (CECT) was requested, which showed a characteristic 'cobra-head' sign of ureterocele on the left side with the presence of a large calculus within it (figures 4 and 5). We feel that CECT KUB may be good alternative to vesicourethrography (VCUG) as it is less labour-intensive, less invasive and can detect other anomalies as was the situation in our patient.

TREATMENT

This is the first case of its kind where a large bladder calculus occurs concomitantly with a stone in ureterocele and masks it completely so much so that it is missed during the preoperative work-up. This is probably the reason why we failed to diagnose it in the preoperative phase and proceeded with surgery for bladder calculus without any contrast study in the initial setting. A small incision was given over it with Collin's knife and the stone was extracted followed by placement of a double J stent.

OUTCOME AND FOLLOW-UP

The patient recovered well and was discharged 2 days later. Double J stent was removed after 2 weeks.

Figure 1 X-ray KUB (Kidney, Ureter, Bladder) showing large bladder calculus.

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Figure 2 X-ray KUB(Kidney, Ureter, Bladder) after first session of cystolitholapaxy.

DISCUSSION

Bladder stone is seen more commonly in men. Spontaneous formation of calculus in the bladder in an adult is rare; the formation of bladder stones is usually associated with predisposing factors such as bladder outlet obstruction or infection. Various treatment modalities available for such stones include non-invasive management in the form of extracorporeal shock wave lithotripsy. Invasive modalities include endoscopic,

Figure 3 X-ray KUB (Kidney, Ureter, Bladder) after second session of cystolitholapaxy (showing presence of residual calculus).

Figure 4 Contrast-enhanced CT KUB (Kidney, Ureter, Bladder) showing classical 'cobra-head' appearance of ureterocele, longitudinal section, supine position.

percutaneous technique or open surgery in the form of suprapubic cystolithotomy.⁶

Ureterocele in the true sense represents a type of ectopic ureter with cystic dilation of the distal aspect of the ureter. It may be located within the bladder or at the bladder neck and urethra.⁷ Chwalle postulated that dilatation in the distal part of

Figure 5 Contrast-enhanced CT KUB(Kidney, Ureter, Bladder) showing classical 'cobra-head' appearance of ureterocele, longitudinal section, prone position.

the ureter is due to failure of rupture of the distal membrane at the ureteral orifice (Chwalle membrane).⁸ The stone formation may be aggravated by atony of ureters and stagnation of urine in ureterocele.⁹

As per current literature, the most definitive evaluation of the bladder, distal ureters and urethra in ureterocele is done using VCUG. Diagnosis may be reached by the characteristic 'cobra-head' sign, which is typically seen in an ureterocele. On cystoscopy, the appearance of the ureterocele changes with the change in bladder filling, and it is advisable to start with slow filling and increase the bladder volume gradually. It is best appreciated with limited bladder filling. As filling continues, the ureterocele tends to flatten out.⁷

The treatment of ureterocele is directed towards the preservation of renal function, elimination of obstruction, infection or reflux, and maintenance of urinary continence in women if the ectopic opening is beyond the external urinary sphincter. Various procedures for the same include transurethral incision (TUI), ureterocele excision and common sheath reimplantation or ureteroureterostomy.⁷

TUI of ureterocele is the treatment of choice in adults and can be done using endoscopic shears or holmium laser.¹⁰ Success rates are reported in the range of 78%–97%. Using cutting

current, a transverse incision is made through the full thickness of ureterocele wall. To decrease the chance of postoperative reflux, one should take care to incise distally on the ureterocele and as close to the bladder floor as possible. To confirm the adequacy of ureterocele incision, escape of jet of urine from the ureterocele may be seen or the urothelium on the inside of the ureterocele may become visible. Vesicoureteral reflux is not commonly seen following the incision.¹¹ Laser and cold knife incision have also been used with good results.¹²

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Learning points

- Check X-ray in postoperative period before discharge in patients with calculus disease may alert us regarding the presence of any residual fragments.
- Suprapubic cystolithotomy (SPCL) should be the preferred modality of treatment for larger or multiple stones over endoscopic means.
- SPCL has an advantage of achieving complete clearance in a single sitting with minimal morbidity and obviates the need for urethral manipulation.
- Contrast-enhanced CT KUB may be a good alternative to vesicocystourethrogram as it is less labour-intensive, less invasive and can detect other anomalies as well.

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