A childhood blast victim presenting with bladder stone in adulthood-A rare case report of retained blast fragment with secondary stone☆

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ABSTRACT

Secondary bladder stones in young adults are usually a result of stasis caused by urethral stricture disease, neobladders, continent pouches or neurogenic bladder. Foreign bodies like stents, catheters and non absorbable sutures are a frequent nidus for the development of bladder stones. Unusual foreign bodies in bladder are a result of self insertion, iatrogenic, migration from adjacent organs or penetrating ballistic trauma. These kind of foreign bodies usually present early as retention of urine, hematuria or pain lower abdomen. Left unattended in bladder for a long period of time, these foreign bodies get encrusted to form stones. We report a rare case of large bladder calculus in a young adult that has developed on a retained blast fragment. Patient had suffered a blast injury in childhood and blast fragment had retained inside the bladder. Patient presented after a long gap of 13 years with symptoms of frequency and hematuria. This is a unique case, blast fragment missed in bladder at primary laparotomy and presenting as a bladder calculus after a gap of 13 years.

1. Introduction

Secondary bladder stones in young adult males are usually a result of stasis caused by urethral stricture disease, neobladders, continent pouches or neurogenic bladder. Foreign bodies like stents, catheters and non absorbable sutures are a frequent nidus for the development of bladder stones. Unusual foreign bodies in bladder are a result of self insertion, iatrogenic, migration from adjacent organs or penetrating ballistic trauma. These kind of foreign bodies usually present early as retention of urine, hematuria or pain lower abdomen. Left unattended in bladder for a long period of time, these foreign bodies get encrusted to form stones. We report a rare case of large bladder calculus in a young adult that has developed on a retained blast fragment. Patient had suffered a blast injury in childhood and blast fragment had retained inside the bladder. Patient presented after a long gap of 13 years with symptoms of frequency and hematuria. This is a unique case, blast fragment missed in bladder at primary laparotomy and presenting as a bladder calculus after a gap of 13 years.

2. Case report

A 28 year old male presented to us with complaints of dull aching pain in lower abdomen, dysuria, increased frequency of micturation and occasional terminal hematuria for one year. He did not have any other comorbidity. Patient had past history of grenade blast injury at the age of 15 years. His operative records revealed that patient had multiple abdominal and lower limb injuries and was hemodynamically unstable. No contrast imaging was done and patient underwent Exploratory laparotomy with repair of colonic injury, repair of multiple ileal perforations with ileostomy and repair of bladder injury. Three months later ileostomy was taken down and patient had uneventful recovery. Patient was asymptomatic and did not undergo any imaging until recently. Patient consulted urologist at another center for his urinary symptoms. Ultrasound examination of abdomen and pelvis revealed an echogenic focus 3 × 4cm with posterior acoustic shadow in the bladder suggestive of calculus. X-ray abdomen demonstrated a radiopaque shadow in pelvis with core denser than the shell (image-1). Mistaken for a simple bladder stone cystolithotripsy was attempted. Upon fragmenting the shell, metallic core of stone was visible which being large in size could not be retrieved. Patient was referred to our center and X-ray abdomen could clearly demonstrate the metallic foreign body inside the bladder (image-2). Open cystolithotomy was done and blast fragment (2.7 × 1.3cm), lying freely inside bladder lumen was removed intact (image-3). Patient had uneventful recovery. Following removal of foreign body, his lower urinary tract symptoms resolved and had normal urinary flow.

3. Discussion

Historically Bladder stones have been described since at least 4800
It is a common occurrence in men aged more than 45 years with an estimated prevalence of 1–19% in Asian countries. Secondary bladder stones in young adults are relatively uncommon. Urinary stasis secondary to bladder outlet obstruction, urethral strictures, neurogenic bladder, neobladders and continent reservoirs is the main causative factor for formation of bladder stones. Any foreign body inside the bladder acts as a nidus for the formation of bladder stone. Foreign bodies find their way into bladder because of self insertion, migration from surrounding organs, iatrogenic and penetrating ballistic injuries. Self insertion of foreign bodies into the bladder being more common is usually associated with psychiatric disorders, dementia, drug intoxication or to obtain sexual gratification. These include a wide variety of objects like electric wires, charger cables, pen, pencils, thermometers, candles, intrauterine contraceptive devices, chicken and fish bones, Foley catheters, bullets, sequestrum and orthopedic screws. Most of these foreign bodies present early with pain, hematuria and irritative lower urinary tract symptoms. Retained foreign bodies inside bladder get encrusted over a period of time and form stones. In our case it was a blast fragment that had penetrated into bladder and was missed during the earlier exploratory laparotomy. Our patient presented 13 years later as bladder calculus with symptoms of pain, dysuria and hematuria.

Proper clinical history with Plain X ray radiography and Ultrasonography are sufficient to diagnose bladder calculi or foreign bodies inside bladder. Treatment of bladder calculus or foreign body inside bladder depends on age of patient, condition of urethra, size of stone/foreign body. Recent advances in endourologic armamentarium have replaced open surgical procedures for bladder calculus or removal of foreign bodies, however it is still required to deal with large stones, large foreign bodies and in cases with urethra unfavorable for endoscopic procedures. Perurethral pneumatic cystolithotripsy is safe endourologic procedure for removing bladder stone. Our patient underwent cystolithotripsy at another hospital and surgeon was not expecting metallic foreign body core inside calculus. During procedure the metallic core of the stone became visible after crust was removed that could not be removed. The case was referred to our center and foreign body with residual stone fragments was removed intact by open cystolithotomy.

4. Conclusion

A retained blast fragment with secondary stone is a rare clinical entity. Meticulous history and proper evaluation is required to make appropriate diagnosis and framing proper plan of treatment.
Declaration of competing interest

None.

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