Impacted Bullet in the Bulbar Urethra, an Unusual Cause of Urine Retention: A Case Report

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Abstract

Encountering a patient with a bullet lodged in the urethra without a history of gunshot is uncommon in urological practice. This unique case of an 81-year-old man experiencing urinary retention due to a bullet lodged in the bulbar urethra underscores the importance of considering unusual scenarios during routine patient evaluations. An 81-year-old man presented to our facility with a 3-day history of increasing difficulty urinating, which culminated in a total inability to urinate. He complained of associated fever and suprapubic pain. He had been experiencing lower urinary tract symptoms for some years. The elderly man was in pain with a pulse rate and blood pressure of 106 beats/minute and 140/90mmHg respectively. The bladder was distended and tender while the prostate was enlarged. A diagnosis of acute-on-chronic urinary retention secondary to benign prostatic enlargement complicated by urinary tract infection was made. An initial attempt at urethral catheterization was unsuccessful, and the patient had an emergency stab percutaneous suprapubic cystostomy (SPC). Following the patient's removal of the suprapubic catheter, an open SPC procedure was performed. After a second instance of catheter removal by the patient, necessitating repeat SPC, information was provided by the patient's son regarding the presence of a foreign object in his urethra. Subsequent pelvic x-ray and retrograde urethrogram examinations revealed a bullet-shaped foreign body in the bulbar urethra. He had a urethrotomy and removal of the bullet. The patient had an uneventful recovery and was discharged home.

Keywords: Bullet, Urethrotomy, Urethral Bullet, Urethral Foreign Body, Urinary Retention.

Introduction

An impacted foreign body in the urethra is not an uncommon urological emergency. Self-insertion of foreign bodies into the urethra is most often related to erotic self-stimulation, intoxication, and psychiatric disorders.[1,2] Several objects have been reported to be inserted in the urethra such as dinner fork, sewing needle, metal screws, staples, pencils, electrical wires, fishhook, among others.[1,3-7] However, the insertion or impaction of a bullet in the urethra is extremely rare. One of the earliest documented cases of a rifle bullet impacted in the urethra dates back to 1949 when Simon reported a bullet that migrated from the bladder into the urethra where it became impacted.[8] The clinical presentation of a patient with a foreign body in the urethra varies depending on the type of foreign body inserted and the degree of urethral obstruction it causes. In most instances, the patient may provide information regarding the foreign body inserted in the urethra. However, occasionally the patient may deny introducing any foreign body into the urethra and only be diagnosed following imaging, such as the index patient. We report the case of an 81-year-old man brought to the emergency room with urinary retention

secondary to an impacted bullet in his urethra to highlight the importance of meticulous patient evaluation and the need to consider unusual scenarios when evaluating a patient with urinary retention.

Case Report

An 81-year-old diabetic and hypertensive man was brought to the emergency department with a 3-day history of increasing difficulty in urinating which culminated in total inability to urinate, and a day history of intermittent high-grade fever. There was associated suprapubic pain and swelling. He has been having non-bothersome storage and voiding lower urinary tract symptoms (LUTS) for some years. The patient had no previous history of psychiatric illness or abnormal behaviour, and neither did he consume any intoxicating substances. On examination, the elderly man was found to be in painful distress but was afebrile (37^0C). His pulse rate and blood pressure were 106 beats/minute and 140/90mmHg respectively. Abdominal examination revealed a distended and tender urinary bladder that extended to the umbilical region with a dull percussion note. The prostate was found to be enlarged with benign features on digital rectal examination. A diagnosis of acute on chronic urine retention (AUR) secondary to benign prostatic enlargement complicated by urinary tract infection was made. There was a failed attempt at urethral catheterization as the catheter got arrested at the bulbar urethra. He subsequently had an emergency stab percutaneous suprapubic cystostomy (SPC) with drainage of about 1400 ml of turbid urine. He had intravenous fluid (0.9% saline), intravenous levofloxacin, paracetamol, and oral tamsulosin. A urinalysis revealed protein (++), leucocyte (+++), and blood (+++). The electrolytes profile was urea 8.2 mmol/l and creatinine 247µmol/L, the random blood sugar was 8.4 mmol/L. The patient pulled out the suprapubic tube a day later, for which he subsequently had an open SPC. The intraoperative findings were a distended and thickened bladder containing 1.5 litres of urine. Also, the prostate was seen to be enlarged with a narrowed bladder neck. A day later, the catheter was pulled out by the patient for a second time which necessitated a redo-SPC. It was at this point that the patient's son confided in the doctor that his father had inserted a bullet into his urethra as ritual protection against gunshots and that he repeatedly pulled out the SPC catheter to void in an attempt to expel the bullet. The patient, however, denied inserting any bullet into his urethra. A plain pelvic x-ray and retrograde urethrogram demonstrated the presence of a radio-opaque object with a configuration of a high calibre bullet impacted in the proximal bulbar urethra (Figure 1). The patient subsequently had a urethrotomy with retrieval of the bullet (Figure 2). The bulbar urethra was approached through a midline perineal incision with the patient in a dorsal lithotomy position. The incision was deepened in layers through the skin, subcutaneous tissue, colles fascia, and bulbospongiosus muscles. A Turner Warwick retractor was used to aid exposure and a vertical urethrotomy was used to expose the bullet which was lodged in the bulbar urethra. The bullet was retrieved and the urethra was closed over a silicone catheter. The antibiotics and analgesics were continued for 5 days. The patient had an uneventful recovery with a gradual recovery of his renal function, evidenced by serum urea 4.2mmol/L and creatinine 33µmol/L. He was discharged home on the 8^{th} postoperative day with no further complaint. The urethral catheter was removed 3 weeks later and the patient reported a satisfactory voiding. Whilst on admission, the patient was co-managed with the nephrologist, endocrinologist, and cardiologist due to his associated comorbidities.

Figure 1: (a) Plain pelvic x-ray showing the radio-opaque bullet. **(b)** Retrograde urethrogram showing the intraurethral location of the Bullet. **(c)** Post retrograde urethrogram displaying the bullet.

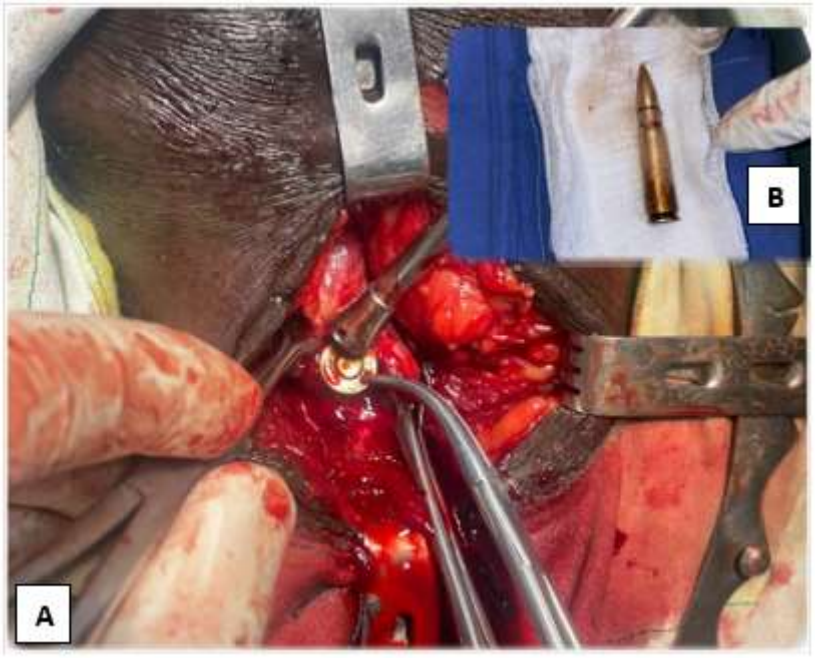

Figure 2: (a) Urethrotomy exposing the bullet. **(b)** The retrieved bullet on a piece of gauze

Discussion

Encountering a patient with a foreign body in the urethra is not uncommon in urologic practice. It is a unique situation encountering a patient with an impacted bullet in the urethra causing urine retention. However, to our knowledge insertion of a bullet from without into the urethra has not been documented. Furthermore, an impacted bullet in the urethra causing urine retention is extremely rare. Among the most common reasons for inserting foreign bodies into the urethra in descending order are psychiatric disorders, intoxication, and sexual gratification as reported by Bezinque et al.[9] Similarly, it has been documented that non-psychiatric patients have inserted objects into the urethra intending to relieve urinary retention or urethral itching.[10] In children, curiosity and inquisitiveness are the major reasons for inserting foreign bodies into the urethra.[11] Foreign bodies may also be inadvertently introduced into the urethra in an attempt to prevent conception or to trigger abortion in women.[1] Forcing foreign objects into the urethra can lead to the impaction of the foreign object in the urethra as seen in our index patient. Also, foreign bodies inserted into the urethra may migrate into the bladder leading to foreign bodies in the bladder.[11] This is more common in females due to their short urethra.[1] The clinical presentation of patients with urethral foreign bodies varies depending on the object inserted into the urethra, and how long they remain in the urethra. They include urethral pain, hematuria, and symptoms of urinary tract infection when they migrate into the bladder.[12] Some, patients may experience frequency, and perineal pain.[8] The patients may present with varying degrees of urethral obstruction leading to difficulty voiding and urine retention in extreme cases such as seen in our patient. On physical examination, the foreign body might be seen extruding through the urethral meatus or might be palpable along the ventral surface of the urethra, especially when the foreign body is solid and located distal to the urogenital diaphragm. Failure to palpate the urethra might be the reason why a foreign body was not suspected in our patient. However, in some instances, physical examination may not assist in the diagnosis of a urethral foreign body, and ancillary investigations may be needed to aid diagnosis. In some situations, patients may deny inserting any foreign body into their urethra, such as our patient, and hence, a high index of suspicion is needed. Investigations that can assist in the diagnosis of foreign bodies in the urethra include a plain X-ray of the pelvis which will reveal the presence of radiopaque foreign bodies such as needles.[6] Our patient also had a plain pelvic X-ray, which also revealed the radiopaque high caliber bullet. In addition, a urethrogram will assist in confirming the intraurethral location of a foreign body such as seen in our patient. Patients with radiolucent urethral foreign bodies may require a computerized tomography (CT) scan to localize and characterize the foreign body.[6] Ultrasound scan may also diagnose the presence of a radiolucent foreign body.[10] Cystoscopy is a precise method of verifying the presence of a urethral foreign body.[4] Medical consultation by patients with urethral foreign bodies may be delayed due to embarrassment, leading to complications.[4] Others may seek early medical care due to acute and severe symptoms such as seen in our patient. The magnitude of damage caused by a foreign body to the urinary tract depends on the size, shape, duration, location, and mobility of the foreign body.[6] The treatment of a urethral foreign body also depends on the type, size, location, and shape of the foreign body. Foreign bodies located in the distal urethra may be voided spontaneously thereby avoiding intervention.[9] Similarly, they can be manually retrieved via urethroscopy. We believe this approach will be better suited for those with non-traumatic and non-impacted foreign bodies to avoid further damage to the urethra. The characteristics that favour the likelihood of expelling the foreign body include size <1cm, palpable, blunt, and mobile foreign body in the distal urethra with favourable orientation on X-ray in the absence of gross hematuria or other significant symptoms.[9] Additional manoeuvres can be employed to facilitate spontaneous passage or to facilitate manual retrieval such as administration of intravenous fluid bolus, analgesia, and anaesthetic gel instillation.[9] Similarly, a meatotomy can be done to facilitate foreign body expulsion or retrieval. A tricky situation is when the foreign body is protruding from the urethral meatus. Though the diagnosis is straightforward, the treatment is not that straightforward as long flexible foreign bodies can knot in the bladder. Removal by traction may be tempting in this situation, but one should know what is concealed before attempting traction to prevent urethral trauma.[13] Operative removal may be more appropriate.[13] Another option for retrieving urethral foreign bodies is cystoscopy.[6,9,10] With the aid of a cystoscope the foreign body is localized and accessory instruments such as snares, forceps, and stone retrieval baskets are used to extract the foreign body.[9,10] Urethroscopic retrieval of foreign bodies is successful in up to 80% of cases.[4] When Urethroscopy fails, external urethrotomy may be required to remove the foreign body.[9] Similarly, this approach may be ideal in the case of sharp and irregularly shaped foreign bodies.[5] Complications are reported to be more common in the open approach such as

hematomas, infection, abscess, incontinence, strictures, and rarely erectile dysfunction.[6] Untreated urethral foreign bodies can result in diverticula and fistula formation among others.[9] Foreign bodies in the posterior urethra can be advanced into the bladder and retrieved through a suprapubic cystotomy. Even though it has not been universally accepted, it has been advocated that patients presenting with self-inserted urethral foreign bodies should have routine psychiatric evaluation due to the high incidence of psychiatric illness, mental retardation, and dementia.[10]

Conclusion

A bullet as a foreign body in the urethra is extremely rare but can occur leading to urine retention or complicating an already existing chronic retention. A high index of suspicion and meticulous patient evaluation is key to diagnosing a foreign body in the urethra.

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