

CASE REPORTS

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# Self-induced intravesical foreign body leading to bladder stone and renal failure: a case report

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## Abstract

**Background:** Intravesical foreign bodies leading to bladder stone and renal insufficiency are rarely reported in literature.

**Case presentation:** We report a case of 18-year-old male who presented with renal insufficiency due to bladder outlet obstruction caused by bladder stone formed over electric wire that was self-inserted 1 year ago. We present the symptoms, imaging, diagnosis and treatment of unique complications due to self-insertion of intravesical foreign body. We performed the open vesicolithotomy uneventfully and patient sent for psychiatric evaluation. Our patient's case was unique for several reasons i.e., inserted foreign body was electric wire, symptoms duration was not very long and it resulted in life threatening complication of renal failure.

**Conclusion:** There should be high index of suspicion in young patients with bladder foreign bodies presenting with lower urinary tract symptoms.

**Keywords:** Intravesical foreign body, Renal insufficiency, Electric wire, Bladder stone

## 1 Background

Foreign bodies are relatively rare in urology but most commonly found in bladder due to varying etiologies i.e., iatrogenic, self-insertion, sexual assault, migration from adjacent structures and penetrating trauma [1]. A wide range of foreign bodies have been reported in the literature like needles, pens, wooden sticks, thermometer, copper wire, parts of Foley's catheters, knotted suprapubic catheters and broken parts of endoscopic instruments [2, 3]. Most patients avoid treatment out of shame and embarrassment and present late with complications i.e., lower urinary tract symptoms, bladder stone, fistulas and even renal failure [4, 5]. We are reporting a case of bladder foreign body presenting as bladder stone and causing renal failure.

## 2 Case presentation

An 18-year male presented in outpatient clinic with 15 days history of hesitancy, poor urinary stream, hematuria, shortness of breath, peri-orbital puffiness and decrease urinary output. Examination revealed mild pedal edema and fine crepitations in chest. Laboratory investigations showed Hemoglobin of 10.1 g/dL, TLC count of 14,000, serum creatinine of 23 g/dL and potassium of 7.1 mmol/L. All other baseline investigations were normal. Ultrasonography of abdomen demonstrates bilateral moderate hydronephrosis and large bladder stone. Patient was admitted and on consultation with nephrologist immediate hemodialysis started via right internal jugular catheter. After stabilization of patient, Non contrast CT abdomen was performed which showed bilateral hydronephrosis with relatively small left kidney and large bladder stone (Fig. 1). Our diagnosis was of obstructive uropathy due to large bladder stone. He underwent vesicolithotomy after informed consent and pre-operative optimization. Intraoperatively, the

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**Fig. 1** CT KUB showing large bladder stone and bilateral hydronephrosis



**Fig. 2** Electric wire intertwined with bladder stone

stone was soft and surprisingly we found a large electric wire intertwined with stone which was removed with stone (Fig. 2). On further enquiry after surgery, he admitted self-insertion of electric wire 1 year ago for sexual gratification which acted as a nidus for bladder stone and led to renal failure. Patient was followed with serial creatinine monitoring and sent for psychological counselling after discharge. Psychologist gave opinion that he is not suffering from sexual addiction or autoeroticism and this single event of self-insertion of electric wire was out of curiosity.

### 3 Discussion

Foreign bodies in upper urinary tract are relatively rare and mainly caused by iatrogenic injuries while the etiologies of foreign bodies in lower urinary tract are multiple i.e., self-insertion for sexual gratification, iatrogenic, accidental, trauma and migration from adjacent structures [6, 7]. In literature, various iatrogenic objects reported in bladder i.e., catheter tips, parts of catheter balloons, forgotten DJ stent with encrustations, buggies, beaks of resectoscope sheaths while Self-Inflicted foreign bodies

reported are crystal glass stirrers, copper wire, metallic cables, lead pencil and ball pen [8]. Psychological aspects like mental illness, exotic impulse and personality disorders should be considered in patients with self-insertion of foreign bodies [9].

Most patients have LUTS and present early while few have mild or no symptoms and present late with complications like bladder stone, oliguria, renal failure or bladder fistulas. Symptoms caused by intravesical foreign bodies are frequency, urgency, dysuria, suprapubic pain, hematuria, strangury, poor urinary stream and urinary retention [10, 11]. Our patient present late with complication of renal failure.

Diagnosis of intravesical foreign body is relatively easy and simple plain radiograph of abdomen can confirm radiopaque foreign body and bladder stone. Ultrasound KUB is sufficient for radiolucent stones and to demonstrate proximal hydronephrosis while CT KUB needed in some cases to measure the exact size of bladder stone formed on foreign body and to plan surgery like in our case. Cystoscopy is the definitive diagnostic procedure for diagnosis of intravesical foreign body.

The aim of treatment should be to remove the foreign body and to avoid the complications. The method

of removal of foreign body should be selected on the basis of shape, size, nature and mobility of foreign body. Endoscopic treatment should be attempted first as minimal trauma to patient [12]. In literature some cases of removal of foreign bodies by percutaneous or laparoscopic approach are reported to minimize the risk of open surgery [13, 14]. Open surgery is indicated for large or sharp foreign bodies and in cases of failed endoscopic attempt. In our case, open vesicolithotomy was done as bladder stone was very large.

Iatrogenic foreign bodies are mostly soft now a days and usually present early while self-inserted are hard or dangerous and mostly present late with complications due to embarrassment. Psychiatric evaluation of these patients needed as some of these patients may be suffering from autoeroticism or sexual addiction and objects inserted for these purposes may be dangerous which can lead to life threatening complications [15].

#### 4 Conclusion

Intravesical foreign bodies are relatively common and can lead to life threatening complications. High index of suspicion should be made in young patients presenting with lower urinary tract symptoms. Psychiatric evaluation should be done in patients with self-inflicted bladder foreign body.

#### Abbreviations

LUTS: Lower urinary tract symptoms; KUB: Kidney ureter and bladder.

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#### Author contributions

SJ were involved in managing the patient, formalizing and writing the manuscript. MA were involved in management of patient and proof reading of manuscript. MM were involved in management of patient and pre-operative dialysis of patient. All authors read and approved the final manuscript.

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ERC exemption taken and Consent to participate taken from patient.

#### Consent for publication

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The authors declare that they have no competing interests.

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