

Cystoscopic Extraction of a Whole Pen From the Bladder: A Case Report and Review of Bladder Foreign Bodies' Treatment Options

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Abstract

Foreign bodies (FBs) in the urinary bladder are relatively rare. FBs introduced through the urethra are the most common cause of bladder FBs and introduced for the purpose of sexual stimulation. Patients may be asymptomatic or presented with various lower urinary tract symptoms. Here we reported the management of a pen introduced inside the bladder of a young female patient.

Keywords: Pen; Foreign body; Bladder; Lithotrite

Introduction

Foreign bodies (FBs) in the urinary bladder are relatively rare. Various unusual bladder FBs were reported such as needle, bullet, fish hooks, metal rods, animal feather, hair pins, pieces of a candle, a thermometer, screws, pellets, wires, wooden sticks, pieces of fish, pencil, telephone cables, a gauze pack, a toothbrush, scalpel blade and fetal bone [1].

Bladder FBs may be self-inserted through the urethra, iatrogenic, migratory or due to penetrating trauma. FBs introduced through the urethra are the most common cause of bladder FBs. It is inserted for the purpose of eroticism and sexual stimulation or during intoxication. It may be also associated with psychiatric disorders or senility [2].

Patient with bladder FBs may be asymptomatic or complains of dysuria, hematuria, suprapubic pain, frequency, poor stream and urinary retention. Some complications may be associated with long standing bladder FBs as recurrent urinary tract infection and stone formation. Rarely some pa-

tients may develop serious complications such as perforation of the urinary bladder [3] or hydronephrosis [4] with impairment of renal function.

Here we reported the first successful endoscopic extraction of a whole self-inflected pen using mechanical lithotripter in a female patient.

Case Report

An 18-year-old female patient presented to our emergency department complaining of severe dysuria, hematuria and suprapubic pain which occurred after self-insertion of a pen inside the bladder during masturbation. Physical examination revealed suprapubic tenderness on palpation. Genital examination was normal and hymen was not ruptured. Laboratory findings were normal except urine analysis showed RBCs over 100. Ultrasound, X-ray pelvis and computed tomography confirmed the presence of a pen inside the bladder (Fig. 1A, B). Under general anesthesia, visualizing cystoscopy was performed and the pen was successfully extracted (Fig. 2, 3). The operative time was 35 min with no intraoperative complications. Twenty °F Foley's catheter was inserted for 10 days to ensure complete healing of the minor bladder perforations. Her postoperative recovery was satisfactory.

Discussion

The presence of bladder FBs has always been an interesting topic representing a challenge of diagnosis and management to the urologist. Various treatment options are reported for the treatment of bladder FBs, for example, endoscopic, laparoscopic, percutaneous, radiological and open surgery. In some cases, a combination of techniques is required; however, still endoscopic retrieval is the preferred treatment among urologists. The method of choice for extraction varies according to the size and mobility of the object inside the bladder [1]. In addition, the availability of surgical instrumentations and urologist experience plays an important role.

The increased use of minimally invasive endoscopy for treatment of urinary stones has also provided different grasp-

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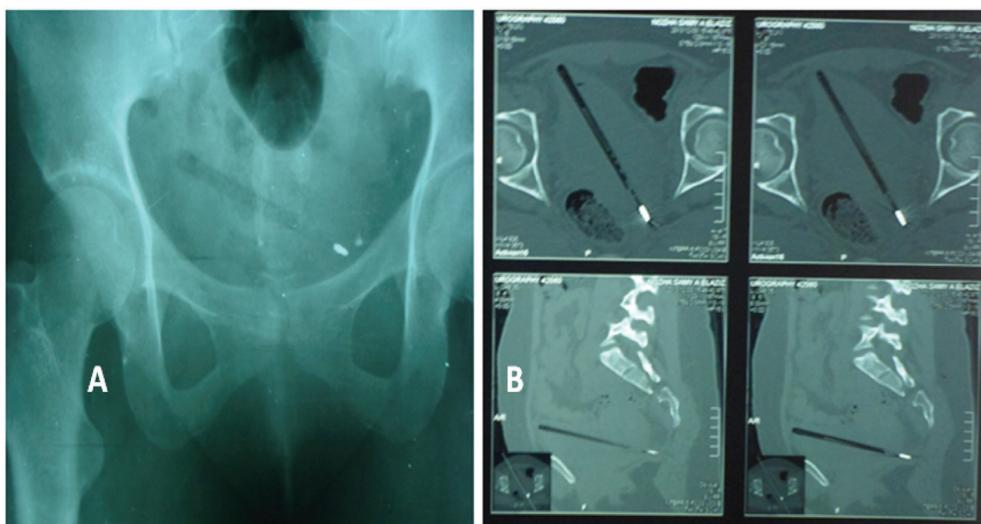


Figure 1. (A) Plain-X-ray showing the pen (radio-opaque shadow is the metal tip of the pen). (B) Computer tomography showing the pen is hanged inside the bladder.

ing tools amenable for extracting different bladder FBs. A wide range of grasping instruments may be required including stone basket [5, 6], grasping forceps [7], stone punch, snares and other modified instruments [8, 9]. Satisfactory success rate for cystoscopic extraction of bladder FBs was reported in literature ranging between 50 and 94% [7-9].

The presence of a pen in the urinary bladder is extremely rare and most cases are treated by surgical exploration as this may be due to its long length with increased liability to perforate owing to its sharp tip [10], or the formation of a large

bladder stone over a neglected pen cap that requires open cystolithotomy [11]. However, endoscopy was successfully used in the extraction of a piece of pen [12] and fragmentation of a stone encrusted around a pen cover [13]. Our case is a unique one as it is the first reported successful extraction of a whole pen from the bladder using a mechanical lithotripter “lithotrite”. Badenoch and Campbell (1937) reported a trial to remove a leather bootlace using lithotrite but they failed and shifted to open surgery [14]. We were faced by many difficulties during the procedures: 1) both ends of the pen

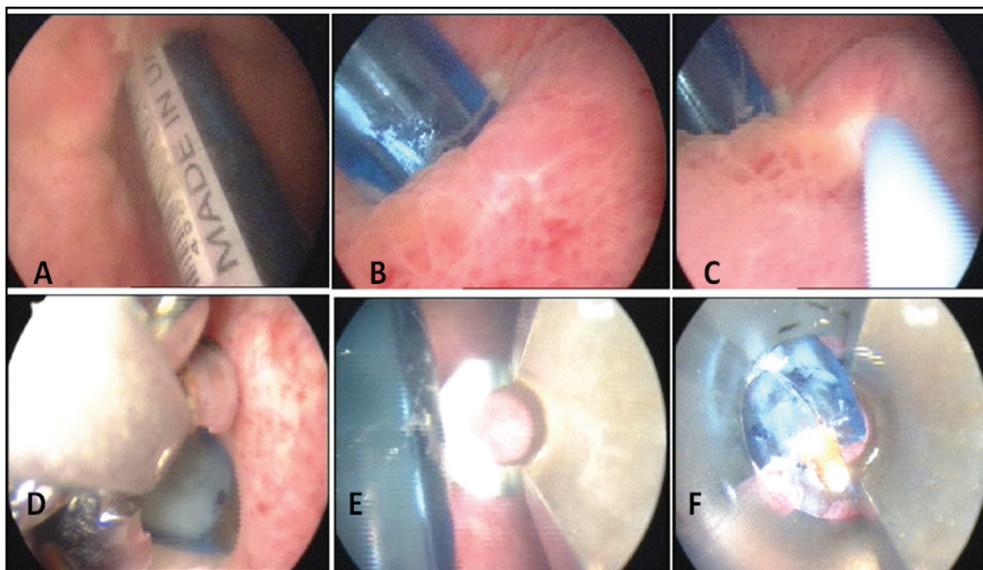


Figure 2. Steps of cystoscopic pen extraction: both pen ends penetrated into the bladder walls (A, B). The left ureter is secured (C). Failed trials of pen extraction using cold punch and forceps (D). Failed trials of pen fragmentation with the mechanical lithotripter as it was hard (E). Finally, we hold the tip of the pen with the lithotrite and disimpacted it backward away from the bladder mucosa, then pulled it with the lithotrite directed upward (F).



Figure 3. The whole pen after its extraction.

were penetrating into the bladder wall, 2) the wide diameter of the pen which made it very difficult to hold by the ordinary grasping instruments and 3) the long length of the pen increased the risk of bladder wall perforation as we try to disimpact it from one side. Our main aim during pen extraction was to complete the procedure endoscopically without the need to shift to open surgery and we succeeded.

Bladder FBs treatment options

To minimize the hazards of open surgery and to maintain the minimally invasive advantages of endoscopy, many studies reported innovative trials and new techniques for bladder FBs removal. Ureteral catheters could be used to snare FBs, a resectoscope has been used to extract a thermometer, while screws and sharp, pointed objects were extracted by a Blu-Tack nephroscope [15]. Younesi et al (2004) managed to remove a lidocaine carpule from the bladder using a nephroscope through a suprapubic percutaneous approach [16]. Moreover, holmium laser was reported to fragment and remove bladder FBs [17, 18].

In some patients, the extraction of FB from the bladder may be difficult and open surgery is indicated. To minimize the risk of open surgery, urologists innovated other techniques for treatment. Delair et al (2006) utilized a small suprapubic cystostomy (3 cm in length) to extract a toy frog guided by endoscopic visualization [19]. Other surgeons combined two techniques: percutaneous or laparoscopic technique with endoscopy to avoid open suprapubic cystostomy. Hutton and Huddart (1999) used percutaneous puncture for retrieval of an intravesical FB using direct transurethral visualization [20]. Moreover, a self-inflicted wire extending from the external meatus to the bladder was removed using combined rigid cystoscopy and suprapubic forceps [21]. Bukowski and Williams (1997) used a combined laparoscopic/endoscopic procedure to extract a migrated intraurethral stent from after distal hypospadias repair [22].

The role of laparoscopy in the treatment of bladder FBs has also been discussed. Feliu et al (2011) reported laparoscopic management of calcified bladder FB due to displaced tack after laparoscopic incisional hernia repair. Tacks were

removed laparoscopically together with partial cystectomy [23]. Recently an encrusted polypropylene mesh could be extracted successfully from the bladder mucosa using single port laparoscopic surgery [24].

Also, a novel radiological technique was described using fluoroscope under local anesthesia to guide a gooseneck snare through endoscopic sheath to retrieve an FB after pushing it into the bladder [25].

In some cases, open surgery is indicated in sharp or large sized FB or after failed endoscopy [26, 27].

In conclusion, endoscopic retrieval of FBs has always been a challenge and quite satisfying procedure if done properly. It is now clear to us that the majority of bladder FBs can be treated successfully by endoscopy; however, open surgery still has a role if failed endoscopy, with large sized FB, migrating or solid impacted FBs. Also open surgery is indicated if endoscopic equipments are not available or lack of surgeon's experience with endoscopic maneuvers.

Conflict of Interest

No conflict of interest.

Author Disclosure

No competing financial interests exist.

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