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Case Report **OPEN ACCESS**

Diagnostic and therapeutic particularities of a case admitted for low back pain and sciatica

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ABSTRACT

Foreign bodies inserted urethral represent urological emergencies. Self-insertion of foreign bodies is a common practice, especially during states of pathological masturbation. Recently, presentations in emergency rooms with this type of pathology are becoming more frequent. Most of the time, the patient presents late, with the presentation being preceded by the onset of painful, inflammatory, or infectious symptoms. In this study we present the case of a male patient with self-insertion of a urethral foreign body that migrated to the urinary bladder, presented after a period of 15 years in the neurology ward, with neurological and infectious urinary symptoms.

Keywords: foreign body, urinary infection, lithiasis

INTRODUCTION

Self-inserted foreign bodies in the urethra are uncommon emergencies encountered by both urologists and general surgeons. This unusual practice involves inserting virtually any conceivable object into the urethra.

This practice primarily manifests during pathological masturbation states, substance abuse, intoxication, and as a result of psychological compositions. Autoerotic stimulation using self-inserted urethral foreign bodies has existed since time immemorial and represents an unusual presentation, but one known to urologists. Most often, presentation to an emergency or urology service is delayed due to the underlying emotion of embarrassment. The most common symptoms for which medical assistance is sought are hematuria, dysuria, pollakiuria, strangury and acute or chronic urinary retention. Dire consequences, such as fulminant sepsis and death, can result from such behavior in the event of a delayed medical encounter [1].

Some of the behaviors resulting in the self-insertion of such objects are caused by mental health illnesses, senility, drug intoxication, and autoerotic stimulation [2].

In specialized literature, the clinical presentation of a foreign body in the penile urethra ranges from being asymptomatic to experiencing lower abdominal or penile pain, swelling of the glans or penile shaft, dysuria, dyspareunia, microscopic or gross hematuria, pyuria, frequent urination, stranguria, urinary retention, and fever. Delayed presentation is common due to embarrassment and often follows multiple self-removal attempts, which can further injure the urethra and may cause the foreign body to migrate [3].

The diagnosis, like in other surgical emergencies, is often clinical, but sometimes paraclinical investigations are required [4]. Foreign bodies distal to the urogenital diaphragm are easily palpable. A pelvic X-ray and abdominal/pelvic CT scan can be helpful in determining the position, orientation, anatomical relationship with adjacent organs, as well as vascular relationships [5].

Occasionally, more invasive procedures are needed to extract the foreign body-external urethrotomy (for pendulous urethral foreign bodies), suprapubic cystostomy (for posterior urethral foreign bodies or in the event of their intravesical migration), or meatotomy. Complications following the above procedures are rare, but can include infection, fistula, urethral stricture, diverticulum, and urinary incontinence. Of these, infectious phenomena are the most common early complications, while urethral strictures–with an incidence of 5%–are the most common late complications. Thus, proper monitoring is essential to track the development of complications, especially as these patients often do not return for follow-ups [6].

A more holistic approach to management is crucial, which includes not only preventing infection, minimizing subsequent

Figure 1. Transverse section–Hyperechoic image leaving a distal shadow cone located intravesically reduced bladder content (Reprinted with permission of patient)

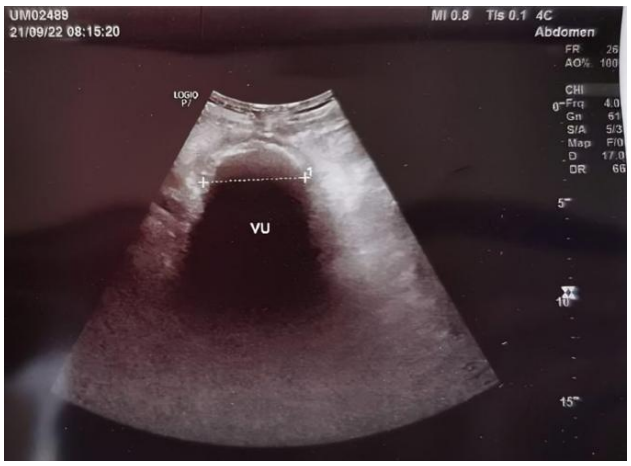

Figure 2. Longitudinal section–Hyperechoic image leaving a distal shadow cone located intravesical reduced bladder content (Reprinted with permission of patient)

urethral injuries, assessing and documenting more sinister underlying injuries, and monitoring delayed complications;but also a detailed assessment of motivational and psychosocial issues, which in itself requires attention and can prevent future episodes.

CASE PRESENTATION

We present the diagnostic and therapeutic peculiarities of a case from the casebook of the neurology and urology department of the Galati Emergency Military Hospital from the year 2022.

In this report, we present the case of a 58-year-old male patient, previously diagnosed with benign prostatic hyperplasia for 15 years. He was admitted to the neurology department of the Galati Emergency Military Hospital. At the time of admission, he complained of severe lower back pain that began after sustained physical effort two weeks prior.

Initially, a comprehensive anamnestic examination was decided upon. It was noted that the patient was not very cooperative, omitting important information for the attending physician's inquiry. Following the general clinical examination, it was found that he also had symptoms of dysuria and pollakiuria. Notable scalar data include a weight of 95 kg and a height of 1.87 m.

The attending physician then conducted a detailed neurological examination. The following peculiarities were noted: the patient was conscious, cooperative, walking in a pain position, with no strength deficit, symmetrical bilateral reflexes, bilateral flexor plantar response, with no sensitivity and coordination disorders, with no signs of cranial nerve damage, nor of lumbar paravertebral contracture.

From a paraclinical point of view, preliminary data at the time of admission reveal: SARS CoV-2 Ag-negative, hypercholesterolemia, with hepatocytes syndrome; the hemogram showed a mild normochromic normocytic anemia, reactive thrombocytosis, inflammatory syndrome. The urine test shows: increased pH, microalbuminuria, presence of microbial flora, with frequent leukocytes and erythrocytes.

At the same time, a series of imaging investigations were decided upon, as follows:

Urologic examination

BLADDER LITHIASIS
RIGHT URETHEROHYDRONEPHROSIS
Recommendations: Admission into the urology ward

Gastrointestinal examination

TOXIC STEATOHEPATITIS
SLIGHT ANEMIA
INFLAMMATORY SYNDROME
Recommendations: A balanced diet, no more alcohol intake
Lagosa 150 mg: 1-0-1 to do next: A test for fecal occult blood, a quantitative fecal calprotectin test
Reassessment ensuing the result of these tests

Figure 3. Urological and gastrointenstinal examinations (Reprinted with permission of patient)

1. Abdomino-pelvic ultrasound showing hepatomegaly, right ureter hydronephrosis 2nd degree, semi-full urinary bladder containing a hyperechoic image leaving a distal shadow cone. A diagnostic suspicion of giant bladder stone is hypothesized (**Figure 1**).
2. Spinal X-ray: Slight left-concave scoliosis with axial rotation. Marginal osteophytes tiered anterolaterally dorsal lower and lumbar. L1 anterior compression. Degenerative changes L2-L3 with narrowing of the reticular space, osteocondensing lesions, and erosions of the vertebral plates, syndesmophytes (**Figure 2**).
3. Cardio-pulmonary X-ray without pathological changes.

Subsequently, data obtained after inter-clinical consultations, urology, and gastroenterology will be presented (**Figure 3**). Behavioral patterns can be listed, as follows:

1. Alcohol and coffee consumer
2. Smoker

Living conditions are, as follows:

1. Average studies
2. Lives in urban area

In evolution, laboratory investigations reveal the confirmation of previous changes, but with a slight decrease in the values of the analyzed parameters. In particular, urine

Table 1. Laboratory investigations

Parameters	Neurology ward (1st admission)		Urology ward
	1st set of tests	2nd set of tests	(2nd admission)
Serum biochemistry			
Cholesterol	281 mg/dl	269 mg/dl	
GGT	148 U/l	99 U/l	88 U/l
ALT (TGO)	55 U/l	54 U/l	103 U/l
ALT (TGP)	36 U/l	36 U/l	73 U/l
Hematology			
Hemoglobin	12.0 g/dl	11.4 g/dl	12.2 g/dl
Hematocrit	34.9 %	31.4 %	35.6 %
MCV	96.7 fL	96.7 fL	96.9 fL
MCH	33.3 pg	34.9 pg	33.1 pg
MCHC	34.5 g/dl	36.1 g/dl	34.1 g/dl
PLT	553 *10^3 µl	428 *10^3 µl	694 *10^3 µl
WBC	6.9 *10^3 µl	7.2 * 10^3 µl	7.1 * 10^3 µl
Neutrophils	68.5 %	60.6 %	62.5 %
Lymphocytes	17.5 %	23.4%	24.1 %
Monocytes	10.6 %	12 %	10 %
ESR	130 mmHg/h	125 mmHg/h	
CRP		63.5 mg/l	
Coagulation			
Fibrinogen		583 mg/dl	
Urine test			
pH	7.5		7.5
Microalbuminuria	150 mg/l		150 mg/l
Microbial flora	Present		Present
Erythrocytes	Relatively frequent		Frequent
Leukocytes	Frequent		Numerous

culture testing positive for escherichia coli (> 100,000 CFU/ml) is observed (**Table 1**).

During the hospitalization, pain relief and neurotrophic treatment were initiated. The patient's evolution was favorable, with symptom improvement. The patient is discharged with the recommendation to later present himself to the urology department for surgery. He's also advised to continue medication with antibiotics, probiotic, anti-inflammatory, neurotrophic, and liver protectant.

In addition to these, the patient must also adhere to the recommendations received following the urological and gastroenterological examinations.

Discharge diagnoses can be listed, as follows:

1. Acute lumbago ameliorated
2. Left-concave scoliosis
3. Antero-lateral inferior dorsal and lumbar osteophytosis
4. Anterior L1 compression
5. Normochromic normocytic anemia
6. Thrombocytosis
7. Hypercholesterolemia
8. Toxic steatohepatitis
9. E-coli urinary tract infection

As per the instructions received, the patient is readmitted to the urology ward for surgical intervention. Thus, he is clinically and biologically reevaluated, noting that he still maintains the previously mentioned changes of parameters.

I mentioned previously that during the hospitalization in the neurology ward it was confirmed that the patient is not very cooperative. Thus, it was observed that the previous medical history was incomplete, with the patient declaring that 15 years ago (at the onset of the prostatic disease), he voluntarily inserted a mercury thermometer into his urethra, which was never subsequently removed.

Based on the information provided, it is recommended to perform ***a native and contrast-enhanced abdominal/pelvic CT scan***, which reveals the followings:

1. First degree right ureter hydronephrosis with adjacent pyelitis signs: VU is a small amount of fluid, and a hyperdense formation is visualized intravesical, density 900-1,200 HU, maximum diameter 60 mm, centered by an aerated tube image. At the prostatic lodge, there is a diffuse inflammatory aspect, with a hyperdense, artifact-causing image of a metallic foreign body. At the penile urethra level, distally, there is another hyperdense, round, well-defined image, density 2,200 HU (metallic), maximum diameter 15 mm. Inflammatory appearance of the pelvic fat. Perivesical and perirectal adenopathy, oval, moderately iodophilic, diameters between 9 and 12 mm– inflammatory aspect.
2. First degree anterior compression of L1: Significant degenerative changes L2 and L3 with erosions and marginal sclerosis of the vertebral plates, L2 vertebral body fracture 1/3 middle, posterior osteophytes L2-L3.

Thus, it is suspected that the patient has a relatively large formation intravesical, possibly a stone centered around a foreign body (mercury thermometer, as he reported in the medical history taken). It was decided to perform surgery to remove the foreign body from the urinary bladder (**Figure 4**).

An umbilico-pubic incision is made with penetration into the Retzius space, identifying the urinary bladder. The bladder wall being very thick, cystolithotomy is performed, extracting a large calculus that encompasses a foreign body (mercury thermometer). The perivesical fat has an infiltrative appearance. A urinary catheter is placed with drainage and lavage of the Retzius space.

Intraoperatively, the following are observed (images from personal archive) (**Figure 5**): Post-operatively, the patient had a favorable evolution, being discharged after 7 days.

Subsequently, 2 weeks after surgery, the patient presented himself for the appearance of a purulent secretion in the genital area, which prompted a culture test from this area, which tested positive for enterococcus faecalis. Given this result, hospitalization in the urology ward was recommended.

Upon admission, the usual tests were taken, suggesting inflammatory syndrome, increased transaminases, moderate anemia, and a slightly modified coagulogram. The culture from the purulent collection was repeated, revealing frequent colonies of Klebsiella pneumoniae > 100,000 CFU/ml (sensitive to amoxicillin-clavulanic acid, ertapenem, imipenem, gentamicin) and rare colonies of escherichia Coli. A urine sediment was also performed, showing leukocyturia and hematuria (**Table 2**).

Subsequently, cultures from other biological products were collected, which also tested positive for two types of antibiotic-resistant Klebsiella pneumoniae colonies. During hospitalization, a cystostomy was performed, and antibiotic treatment (cefort), pain relievers, probiotics, and IV fluid rehydration were administered. The evolution was slow favorable, with the remission of the inflammatory syndrome, hematuria, and leukocyturia.

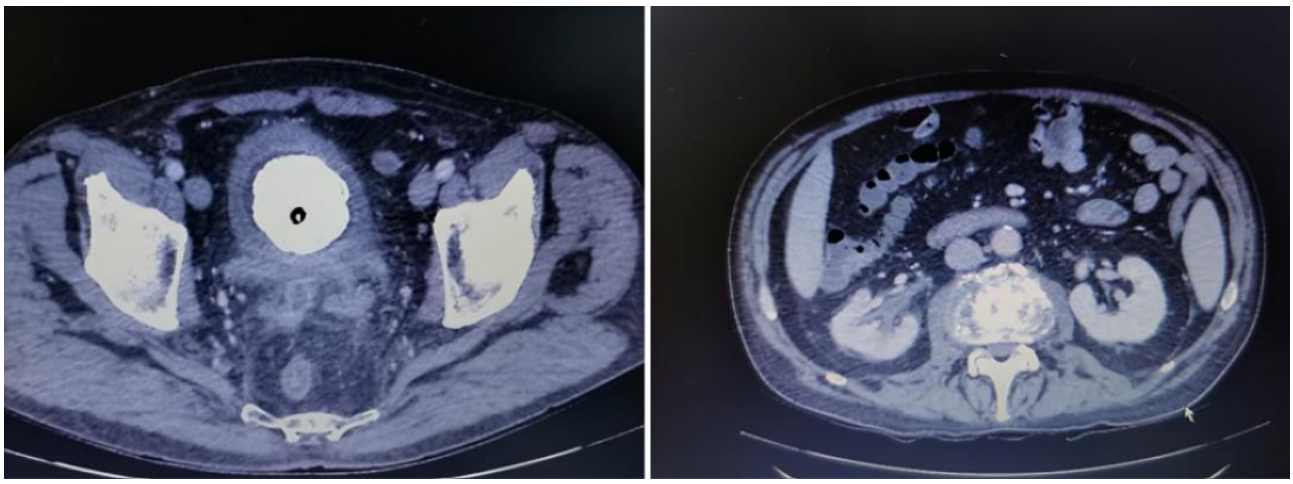

Figure 4. Axial section of computer tomography–Hyperdense intravesical image and pyelitis right kidney (Reprinted with permission of patient)

Figure 5. Intraoperatively image (Reprinted with permission of patient)

Table 2. Urinary culture (urinalysis)

Urine sediment	Result
Flat epithelial cells	16/HPF
Round epithelial cells	1 HPF
Leukocytes	566/HPF
Red blood cells	46/HPF
Unclassified crystals	19/HPF
Microbial flora	764/HPF

DISCUSSION AND CONCLUSIONS

Urethral foreign body insertion is a relatively rare occurrence and is usually a recurrent behavior. Urethral trauma related to foreign body insertion is associated with a significant risk of infection and urethral injuries with long-term consequences.

In this particular case, we have a 58-year-old male patient, with secondary education, who is not very cooperative and who disclosed only partially his medical history. He presented to the hospital with lower back pain, dysuria, and polyuria. After a prolonged anamnesis, upon admission to the urology ward, the patient mentioned that he had inserted a mercury thermometer into his urethra 15 years ago, which was never removed.

According to a retrospective study conducted at Cook County Hospital, between 2000 and 2015, involving 27 patients with foreign bodies in the urethra, the average patient age was 26 years (12-60 years), with 26 male patients (97%) and 1 female patient (3%). Symptoms included dysuria, gross hematuria, urinary retention, urinary tract infection, and penile discharge. The most common removal technique was manual extraction with extrinsic pressure (19.54% of cases). Besides this, endoscopic extraction (8.23%), open cystotomy (1.3%), and drainage to remove the foreign body (7.2%) were practiced. Complications following foreign body removal included urinary tract infection [7, 8].

A review of the current literature reveals the uninhibited and highly creative nature of the human mind. The variety of self-inserted foreign bodies is extensive, including items such as needles, pencils, pens, pen caps, garden wire, copper wire, speaker wire, safety pins, Allen keys, wire-like objects (telephone cables, rubber tubes, feeding tubes, straws, string), toothbrushes, household batteries, light bulbs, marbles, cotton swabs, plastic cups, thermometers, plants and vegetables (carrots, cucumbers, beans, hay, bamboo sticks, grass leaves), animal parts (leeches, squirrel tails, snakes, bones), toys, pieces of latex gloves, Blu Tack, intrauterine contraceptive devices, tampons, pessaries, powders (cocaine), and liquids (glue, hot wax) [5].

In this particular case, his foreign body is a mercury thermometer, and its removal was done through a cystolithotomy. In a series of 20 adult cases over nine years, the insertion of foreign bodies into the lower urinary tract is relatively rare, with men being 1.7 times more likely to engage in this act than women. The average age of the individuals involved is 35.8 ± 20.0 years [5]. Another cross-sectional retrospective study conducted in the United States, between

Table 3. Age distribution

Age in years	Number	Percentage (%)
0-9	786	7.4
10-19	1,069	10.0
20-29	2,256	21.1
30-39	2,080	19.5
40-49	1,611	15.1
50-59	1,182	11.1
60-69	861	8.1
70-79	392	3.7
> 80	450	4.2

2010 and 2014, aiming at emergency visits of patients diagnosed with genito-urinary foreign bodies, emphasized that 4.7% of cases required hospitalization, with male patients being more likely to be hospitalized (24.8% vs. 2.1%). Between 2010 and 2014, in the United States, an estimated weighted average of 102,333 emergency room visits were recorded for genito-urinary foreign bodies, representing a national incidence of 7.6 per 100,000 subjects per year, with 13.1 per 100,000 women per annum and 1.7 per 100,000 men per annum. Approximately 82% of patients with genito-urinary foreign bodies were aged between 18 and 55 years [9] (**Table 3**).

In contrast to the previous study, the latter highlights a higher incidence of genito-urinary foreign bodies in female patients (91,645; 89.5%) as compared to male patients (10,688; 10.5%) [9].

Self-insertion of foreign bodies into the urinary tract is quite rare in emergency medicine practice. Imaging is necessary not only for diagnosis and to determine the location, density, shape, and size of foreign objects, but also to establish therapeutic management. For a more precise assessment in the presented case, a native and contrast-enhanced Computer Tomographic examination was performed before the surgical intervention [10, 11]. Ultimately, a psychiatric consultation should be conducted to prevent future attempts at inserting other foreign bodies into the urinary tract.

Case Peculiarities

1. A lengthy amount of time before presentation: The patient, known for 15 years with prostate hypertrophy and a foreign body in the urethra, presented with dysuria and polyuria. The foreign body remained in the bladder for a long time without causing severe irritating micturition symptoms.
2. Age: In most studies, the age of the patients is younger, unlike the patient in the presented case (at the time of the foreign body insertion, the patient was 43 years old).
3. Sex: The patient in the presented case is male, in contrast to the study conducted in [9], where female cases predominate.
4. Complications: The patient in this study associated a urinary tract infection with Escherichia coli and right renal pyelitic phenomena, unlike the severe complications mentioned in the specialist literature, such as fulminant sepsis or death.
5. Extraction methods: Since the foreign body (mercury thermometer) was located at the vesico-urethral level for 15 years, with the intravesical end presenting a giant stone, it was extracted through a cystolithotomy.

Author contributions: MAM, MG, ACM, IO, & RM: writing–original draft preparation; **MAM, ACM, R-EB-G, RM, & DF:** writing–review and editing; **MAM, RM, & VL:** literature review; **MAM:** conceptualization; & **MG & IO:** methodology. All authors have agreed with the results and conclusions.

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Declaration of interest: No conflict of interest is declared by the authors.

Data sharing statement: Data supporting the findings and conclusions are available upon request from the corresponding author.

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