More foreign bodies in the urethra and bladder and their combined management: a case report

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**ABSTRACT**

The diversity of objects that can be found in the genitourinary system surpasses the urologist’s imagination, often making the diagnosis and treatment of such foreign bodies a challenge. The case presented here is a forty-three-year-old man with past medical history of schizophrenia and the practice of introducing foreign objects into the urethra from the age of three. He came to the emergency room presenting with suprapubic pain, dysuria, and penile pain. Three sharp and pointed metal objects were identified inside the bladder and urethra. They were extracted by means of endoscopy combined with cystostomy.

The insertion of objects into the lower genitourinary system is associated with patients presenting with mental illness and sexual stimulation. The ideal technique for extraction depends on the location, size, material, and mobility of the object, as well as on the available medical equipment and experience of the urologist. The least invasive approach possible is recommended.

**Keywords:** Foreign body, urethra, bladder, intraurethral objects, intravesical objects, Mexico.

**RESUMEN**

La diversidad de objetos en el sistema genitourinario inferior escapa a la imaginación del urólogo, encontrando de todo tipo y que se convierten en un reto para el diagnóstico y tratamiento. Presentamos el caso de un paciente masculino de 43 años de edad, con antecedentes de esquizofrenia e historia de introducirse objetos extraños en la uretra desde los tres años de edad. Se presentó al departamento de urgencias con dolor suprapúbico, disuria y dolor en pene. Se identificaron tres objetos metálicos punzocortantes dentro de vejiga y uretra, extrayéndolos mediante endoscopia combinada con cistostomía.

La inserción de objetos en el sistema genitourinario inferior se asocia a pacientes con enfermedades mentales y estimulación sexual. La técnica ideal para la extracción, depende de la localización, tamaño, material y movilidad del objeto, así como también del equipo médico disponible y la experiencia del urólogo. Recomendando el abordaje menos invasivo posible.

**Palabras clave:** Cuerpo extraño, uretra, vejiga, objetos intrauretrales, objetos intravesicales, México.
INTRODUCTION

The diversity of foreign objects that a male can insert into his urethra is often unimaginable to the physician. The urologist frequently comes up against such cases that turn into a real diagnostic and management challenge. Numerous cases of foreign bodies in the urethra and bladder have been reported and the lengthy list includes hooks, metal bars, bones, screws, small balls, small lightbulbs, speaker wire, stones, triple-A batteries, open safety pins, plastic caps, straw, marble, and cotton swabs. In an extreme case a decapitated snake was inserted, adding dead animals to the list. 5

CASE PRESENTATION

The patient is a 43-year-old man who was admitted to the Hospital Civil Fray Antonio Alcalde emergency room with dysuria and penile pain of an approximate 14-day progression. He had a history of schizophrenia and of introducing foreign objects into his urethra since the age of three years. He underwent open urethrotomy 10 years before to extract a foreign body.

On admission patient was restless and not very cooperative and complained only of pain in his penis and hypogastrium. Upon physical examination, vital signs were normal and old surgical scars on the ventral side of the penis stood out.

Urinalysis reported 50 leukocytes per field, 100 erythrocytes per field, and scant bacteria. Full blood count reported hemoglobin 6.19 mg/dL, hematocrit 20.9 %, platelets 779 k/uL, leukocytes 10.7 k/uL, urea 19 mg/dL, creatinine 0.80 mg/dL, PT 12.0, and PTT 28.0. Plain abdominal film showed 3 radiopaque (metallic) sharp and pointed foreign bodies in the pelvic region (Image 1).

Management. Prophylaxis was given with tetanus toxoid and antitetanus gamma globulin. Three units of packed red cells were transfused and antispasmodic, analgesic, and antibiotic medication was begun. It was decided to extract the foreign bodies by means of endoscopy. Cystoscopy was introduced and permeable penile urethra was visualized with no lacerations in mucosa. Two sharp, pointed metal foreign bodies were found in the bulbar urethra. Foreign body tweezers were used to extract one of the objects; the other was removed by its tip without lacerating the urethral mucosa. Cystostomy was carried out to extract the remaining objects. Two sharp and pointed oxidized metal objects were found in the bladder. One perforated the bladder wall towards the retropubic space and was removed without complications. The second object penetrated the bladder from the bladder neck (Image 2) and was removed with Kelly tweezers with no complications (Image 3).

DISCUSSION

The insertion of foreign objects into the male urethra is an interesting and anecdotal event for the majority of urologists. There is a wide variety of objects reported on in the literature and their unimaginable quality makes diagnosis and treatment a challenge for any physician. Arndt Van Ophoven5 states that foreign bodies can remain in the urethra for more than 16 years without producing urinary obstruction or ejaculatory obstruction. He put together a lengthy list of objects that have been introduced into the urethra: different types of needles, pins, ballpoint pens and caps, whale bone, vines, awls, pipe stems, hair pins, matches, a 4-pronged fork, forceps, metal and electric wires, straw, fish bones, rubber rings and tubes, and pistachio shells. Some of the stranger objects have been: a coyote rib, a toothbrush, a razorblade, and the most incredible, a 45 cm decapitated snake. Objects in an extraurethral site, such as bullets, have been reported to migrate to the bladder and urethra.6-9

Generally, the intravesical foreign bodies found are objects that have been propelled from the urethra when attempted to be removed or through involuntary muscle contraction of the perineum. It is surprising, and so far, inexplicable, how an object can pass through...
the urethra, especially the curve of the bulbar urethra, without causing significant injury. Equally amazing is the diversity of objects passing through the urethra into the bladder that can include almost any object in the individual’s environment.

SYMPTOMATOLOGY OF FOREIGN BODIES IN THE GENITOURINARY SYSTEM.

The principal symptoms in patients with intraurethral objects are attributed to inflammation and local urethral damage. There can be pain upon micturition as well as purulent urethral secretion. The most frequent symptoms in patients with intravesical foreign bodies include urinary frequency, bladder tenesmus, suprapubic pain upon micturition, dysuria, hematuria, and leukocyturia. Less frequent symptoms are acute urethral retention, decrease in urine stream caliber, and edema of the external genitals. There have even been cases of nephritis.

MANAGEMENT OF FOREIGN BODIES IN THE GENITOURINARY SYSTEM.

Thanks to technological advances made, today there is a complete armamentarium for minimally invasive treatment of foreign bodies in the urethra and bladder that goes from endoscopic techniques to laparoscopic, percutaneous, and radiological techniques. Open surgery is a last resort. In some cases a combination of techniques is required.

The method of choice for foreign body extraction depends on its size, mobility, material, and exact location, as well as on the medical instrumentation available and the experience of the urologist. If the object is very mobile and able to move to the bladder, it is recommended to introduce it into the bladder where it can be more easily managed by endoscopy or surgery.

The increased use of minimally invasive surgery for extracting urinary stones has also provided tools for extracting foreign bodies from the genitourinary system. The use of 3.5 F nitinol baskets\(^\text{12,13}\) and alligator forceps (endoscopic graspers)\(^\text{14,15}\) has been suggested, as well as minimally invasive radiological techniques with fluoroscope and local anesthesia.\(^\text{16}\) Today, open urethrectomy is justified only when there is no possibility of pushing the object toward the bladder and no possibility of extracting it by endoscopy, or if the necessary material for extracting it in a minimally invasive manner is not available. Open surgery is strongly indicated when there is periurethral abscess or phlegmon. It is not recommended to attempt to blindly extract urethral objects with just any type of tweezers. This is rarely successful and there is high risk of damaging the urethral mucosa. If it is not possible to extract the intraurethral objects then they should be pushed into the bladder for easier approach.\(^\text{5}\)

In the eighteenth century, an unsuccessful attempt was made to dissolve a piece of lead catheter by intravesical mercury instillation.\(^\text{4}\) The instillation of chemicals or solvents (xylol, benzene, kerosene, or carbon tetrahydrochloride) inside the bladder to dissolve paraffin objects has been argued over time. However, because these solvents are known carcinogens their use is no longer recommended. Mineral oil or carbon dioxide have been used during cystoscopy in the place of solvents for the extraction of foreign objects.

Minimally invasive approach: In addition to conventional foreign body tweezers and baskets for foreign body retrieval, several modifications of endoscopic instruments for extracting specific objects
have been developed. Ureteral catheters have been used to snare objects, a resectoscope was used to extract a thermometer, and a Blu-Tack \(^17\) nephroscope was used to extract screws and sharp, pointed objects. \(^18\) Laparoscopic surgery has also been successfully used to extract foreign bodies from inside the bladder. Other somewhat more invasive techniques are those that combine two techniques; generally percutaneous technique or laparoscopic technique is combined with endoscopy \(^20\) in order to avoid cystotomy. K.A.R. Hutton combined percutaneous puncture, guided by urethral endoscopic visualization through a rigid cystoscope, to avoid urethral injury with endoscopic extraction of the object. Delair et al performed a small cystostomy (3 cm in length) guided by endoscopic visualization to extract a toy frog with a 3 cm diameter. \(^21\) Recently Inger et al used a one-port laparoscopic technique to extract encrusted polypropylene mesh from the bladder mucosa.\(^22\)

Even though the majority of foreign objects can be extracted by a minimally invasive technique, open surgery is still used for larger objects that are severely encrusted in the bladder wall, for lacerating objects, or for solidly impacted ones. It is also indicated when the necessary equipment for minimally invasive surgery is not available. In the case presented here, simple endoscopic extraction of one of the objects would have damaged the urethral mucosa and would not have been successful in extracting the object that went completely through the bladder wall.

**CONCLUSIONS**

The presence of foreign bodies in the lower urinary tract is not a common event. The principal causes are undoubtedly psychiatric alterations and autoeroticism. The variety of objects is so wide that practically anything in our surroundings can end up being used. Foreign body diagnosis can be a great challenge and is often delayed due to shame and embarrassment or to psychiatric illness of the patient. The majority of times plain and lateral abdominopelvic film is sufficient for diagnosis. More sophisticated radiological studies are rarely needed. Today there is a wide variety of medical equipment and minimally invasive techniques available for the extraction of foreign bodies from the lower genitourinary system. There are endoscopic, laparoscopic, and percutaneous techniques, as well as open techniques or a combination of any of the existing techniques. The ideal technique depends on the location, size, material, and mobility of the object involved, and equally on the medical instrumentation available and the experience of the urologist. The best approach is the one that uses the most minimally invasive technique possible.

**BIBLIOGRAPHY**