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The Practice of 'Urethral Sounding' Complicated by Retained Magnetic Beads Within the Bladder and Urethra: Diagnosis and Review of Management

Authors' Contribution:
Study Design A
Data Collection B
Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
Literature Search F
Funds Collection G

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Conflict of interest: None declared

Patient: Male, 18-year-old
Final Diagnosis: Foreign body in urethra and bladder
Symptoms: Dysuria
Medication: —
Clinical Procedure: —
Specialty: Urology

Objective: Rare disease
Background: The emergency treatment of a retained foreign body within the urethra and bladder is an uncommon clinical scenario within adult urology. Beyond the medical field, the placement of an object/s into the urethra is known as 'urethral sounding' and encompasses a sexual practice performed to heighten arousal and pleasure. The medical literature highlights the morbidity associated with this practice, most commonly when the sounding device can no longer be retrieved by the participant.
Case Report: A case report involving an 18-year-old male requiring endoscopic retrieval of 60 magnetic metal beads intended for the purpose of urethral sounding. The management was uncomplicated and the patient suffered no long-term complications at follow-up. A brief review of the literature reveals 9 reports since 2013 of magnetic beads retained within the bladder following this autoerotic practice in adults.
Conclusions: The insertion of multiple small magnetic beads into the urethra is an inadvisable method for use in the practice of urethral sounding due to the lack of non-operative management options. This is due to the high risk of the magnetic beads forming a magnetized cluster once the chain enters the bladder. All cases assessed report successful management with both minimally invasive and open approaches.

MeSH Keywords: Foreign Bodies • Urologic Surgical Procedures • Urology

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Background

The emergency treatment of a retained foreign body within the urethra and bladder is an uncommon clinical scenario within adult urology. Foreign body insertion can cause hematuria secondary to urethral trauma and can increase the risk of infection, urethral stricture, and bladder perforation [1–3].

Medically, a 'sound' can refer to an instrument that is placed within a narrow passage, often the urethra, for the purpose of exploration and dilatation, and this practice usually occurs under anesthetic. Beyond the field of medicine, however, the act of 'urethral sounding' exists as a sexual practice considered to heighten sexual arousal and pleasure. It involves the placing of an object or objects into the urethra via the meatus or the injection of liquid along the canal, and is most commonly performed to the male urethra [1,4,5].

While information remains limited regarding the rate of urethral sounding as a sexual practice among the general population, it is a recognized cause of urological morbidity when the process is complicated by failure of the participant to retrieve their sounding device [6,7]. We describe a case of retained magnetic beads within the bladder and urethra, requiring urological retrieval in an 18-year-old male.

Case Report

A healthy 18-year-old male presented to our Accident+Emergency Department requiring assistance with the removal of 60 magnetic metal beads that he reported were stuck within his bladder and urethra. The patient had lubricated the magnetic beads and placed them one by one through his urethral meatus to form a chain while experimenting with his male partner. This process had taken place that evening in the hours preceding his presentation. He reports that on attempting to remove the spheres, he was unsuccessful due to pain and felt it likely that they had formed a magnetized cluster within his bladder. He denied having engaged in this act before. He was able to pass urine without macroscopic hematuria.

Examination of the abdomen and genitals was unremarkable, with no magnetic beads visualized externally. Analysis of urine revealed pH of 7 with leucocytes, protein, and blood. Observations and blood serum analysis were unremarkable, with normal renal function and inflammatory markers. A radiograph of the penis revealed 60 small magnetic spheres clumped within the bladder, which extended as a chain into the urethra. A post-void bladder scan showed no residual volume of urine within the bladder.

Figure 1. A plain film radiograph of the penis demonstrating evidence of magnetic metal beads within the urethra and bladder.

He was reviewed by the urology team on-call and consented for rigid cystoscopic extraction of the foreign bodies under general anesthetic plus open cystostomy if required. The procedure took place the following afternoon. Initial attempts were made to remove the magnetic beads using a 22Fr rigid cystoscope and wire basket forceps, followed by hook-pronged grasping forceps; however, the effort to engage the magnetic spheres was unsuccessful. Successful retrieval was achieved by removing each of the foreign bodies using grasping forceps via a 22-French rigid cystoscope. A 14-French catheter was left *in situ* and the patient received a once-only dose of intravenous antibiotics for procedure and urinary tract infection prophylaxis.

The patient's catheter was successfully removed the following day and he was discharged with oral antibiotics. Outpatient follow-up took place 12 weeks postoperatively. On review in the clinic, the patient reported normal flow of urine without features suggestive of stricture, and described normal sexual function and ejaculation. He was subsequently discharged to the care of his general practitioner (Figure 1).

Discussion

Sexual stimulation is the most common motivation leading to the clinical presentation of retained urethral or vesical foreign

Table 1. Summary of 14 cases reported in the literature in which magnetic beads were inserted into the urethra as a sounding device.

Citation	Age	Number of magnetic beads	Retrieval method
Gurpriya et al., 2011 [19]	19	51	Extraperitoneal laparoscopic technique following endoscopic failure
Graziottin et al., 2013 [11]	22	29	Rigid cystoscopy and grasping/biopsy forceps
Hedgepeth, 2013 [24]	23	62	Open cystotomy following endoscopic failure
Song et al., 2013 [12]	42	82	Rigid cystoscopy and grasping/biopsy forceps
Levine et al., 2013 [13]	42	Not recorded	Open cystotomy following endoscopic failure
	43	Not recorded	Open cystotomy following endoscopic failure
	30	50	Open cystotomy
Brooks et al., 2013 [14]	26	42	Rigid cystoscopy basket and 3-pronged grasper
Pieretti, 2014 [15]	16	25	Open cystotomy following endoscopic failure
Zeng et al., 2015 [9]	21	125	Rigid cystoscopy and 'magnetic sheath' made by inserting magnetic bead into the tip of a 10/12-Fr ureteric access sheath
Tang and Tsai, 2017 [22]	17	Not recorded	Rigid cystoscopy and grasping/biopsy forceps
Gibson et al., 2018 [21]	18	72	Open cystotomy following endoscopic failure
Li et al., 2018 [23]	50	67	Rigid cystoscopy and grasping/biopsy forceps
Liu et al., 2019 [20]	28	159	Rigid cystoscopy and lithotrite

body. This has been established following the assessment of 800 cases of retained urinary foreign body between 1795 and 1999 [5]. The topic has also been addressed by questionnaire to a population of men with genital piercings, and revealed that of the 24% (85/354) that responded, the majority were heterosexual and cited sexual experimentation as their motivation [6]. In the MSM (men who have sex with men) population, the prevalence of urethral sounding is 11% (228/2122) according to a cross-sectional 2012 sexual wellness survey [1].

The former qualitative study involving a population of men with a genital piercing, who were of all sexual orientations, described the use of 32 different sounding devices ranging from chopsticks to electrical wire. The most common object (33/63) was a slender metallic rod which mimics traditional Clutton's dilators. The study noted a single case (1/63) in which magnetic metal beads were used [6]. More rare and unusual forms of urethral sounds have been documented elsewhere in the literature and include the use triple-A batteries [7] and even a lobster tentacle [8].

Several medical case reports highlight the morbidity associated with this practice, most commonly when the sounding device, where an object has been used, can no longer be retrieved by the participant and requires urological review, often

as an emergency. Diagnosis can usually be achieved by a plain radiograph; however, ultrasonography and CT imaging have been used [9,10].

Fourteen cases involving the insertion of magnetic beads into the urethra for the purpose of sexual stimulation have been reported since 2011 [9,11–13,15] (Table 1).

The successful management of retained foreign bodies within the urethra and bladder is often cited to be dependent on the type and number of foreign bodies, with emphasis on the minimally invasive technique of retrieval so to reduce complications [5,16]. Where the item is contained within the distal urethra or is protruding from the urethral meatus, manual manipulation of the foreign body can achieve successful non-operative management [17]. A 2004 review by Rahman of 17 cases involving urethral foreign bodies revealed endoscopic management was successful in 16, with the final case requiring perineal urethrotomy [18]. They reported 2 cases of post-procedure urethral stricture at follow-up. Rafique described 18 cases of intravesical foreign bodies, of which 8 were managed with successful endoscopic retrieval and 8 by open cystostomy, citing their only complications to be related to post-operative infective processes of the wound and urinary tract [3]. Pertaining only to the retrieval of magnetic beads

within the bladder and urethra, approaches used reveal that 7 of 12 cases were successfully managed with various methods of endoscopic retrieval, 5 of 12 cases were managed with open cystotomy following failed attempt at endoscopic retrieval, and 1 case was managed first-line with open cystostomy [9,11–13,15]. One case was managed laparoscopically with an extraperitoneal approach to cystostomy and bladder closure following failed endoscopic approach [19]. Of the 7 cases managed successfully with a cystoscopic approach, the most common instrument used to engage the magnetic beads was grasping/biopsy forceps. One case used the cystoscope to advance the magnets proximally into the bladder prior to their removal in order to reduce the risk of potential urethral trauma by the using grasping forceps within the urethra [20]. The most common reason for cystoscopic failure was due to the strength of the magnetized cluster of beads and inability to engage them with the grasping forceps [13,18,21]

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Conclusions

The motivation behind urethral foreign body insertion is most commonly sexual in the form of urethral sounding. A wide range of urethral sounds have been described in the literature and the insertion of multiple small magnetic metal beads has been consistently reported since 2012. This is an inadvisable method for use when participating in the practice of urethral sounding due to the high risk of the magnetic beads forming a magnetized cluster once the chain enters the bladder. All cases assessed report successful management with both minimally invasive and open approaches.

Conflict of interest

None.