Endourology

Retrieval of 159 magnetic balls from urinary bladder: A case report and literature review

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ABSTRACT

Foreign body in urinary bladder is an unusual finding in urology emergency, which has always caused wide attention. In this case report, we presented a 28-year-old unmarried male who was admitted to the emergency room with magnetic balls in his bladder. An abdominal plain X ray showed metallic dense shadow in the pelvic region. The foreign body was removed under modified cystoscopy and 159 magnetic balls were detected. The patient was discharged without any surgical or postsurgical complications. Cystoscopy is a better option for dealing with a large number of magnetic balls in urinary bladder.

Introduction

Foreign body in urinary bladder is an unusual finding in urology emergency, which has always caused wide attention. Intravesical foreign bodies are usually found as a result of iatrogenic injuries, self-insertion, sexual abuse, assault, and migration from adjacent sites. Foreign bodies in bladder in previous reports are wide variety including electrical wires, pencil, bullets, intrauterine contraceptive devices, parts of catheters, and so on. Shamed to say the actual history by patients leads to delay their presentation until the lower urinary tract symptoms occur in self-insertion cases. The imageological examinations are helpful for diagnosis and treatment, especially in some patients with no clinical findings. Minimally invasive endoscopic techniques are used for treatment of the majority cases, but open surgeries are also performed in special cases. Here we share our experience dealing with 159 magnetic balls as foreign body in bladder, which maybe the maximum number of foreign body according to previously literatures.

Case presentation

A 28-year-old unmarried male was admitted to the emergency room with lower abdominal pain and dysuria. He stated that he had placed some small magnetic balls into the urethra 5 h before. He had no history of any psychiatric illness and similar act.

A physical examination revealed restlessness with mild suprapubic tenderness. In blood routine examination the white blood cell counts were increased to 17.71 *10^9/L and relative value of neutrophil counts 88.1%, which suggested acute infection. No abnormalities were detected on a renal function test. An abdominal plain X ray showed a metallic dense foreign body that was composed of many small magnetic balls in the pelvic region (Fig. 1).

An emergency operation was performed for him with lumbar anesthesia in lithotomy position by modified cystoscopy. Before removing, we put an external sheath of resectoscopy (26F) as a work path to avoid urethral injury by endoscope in and out repeatedly. A standard nephroscopy (14F) with a larger forcep was used as cystoscopy to take out of magnetic balls. Although being well prepared, the operation was continued 1 h for the larger number and the stronger magnetic attraction of the balls. Finally 159 magnetic balls with 0.5cm diameter were retrieved from the bladder one by one without any surgical or postsurgical complications (Fig. 2). A flexible cystoscopy examination confirmed no residue of foreign body.

Discussion

The bladder is the most common site of a foreign body in the urinary tract. The presenting complaints in patients treated for intravesical foreign bodies are haematuria (67.3%), frequent urination and dysuria (59.1%) and pelvic pain (10.2%) and the most frequency reasons of insertion were iatrogenic and self-insertion.

Small magnetic ball is a widely used toy for interest and decompression. There are sporadic reports on magnetic ball in bladder retrieved in PubMed during the decade. The most of patients were young males and the numbers of balls range from 25 to 150 according to these reports. In our case, the patient forcefully inserted 159 magnetic balls into bladder via his urethra one by one, which was the
largest number on magnetic balls in bladder until now. Most intravesical foreign bodies can be removed transurethrally and with minimum access. In a study conducted by Rafique et al. on patients with intravesical foreign body, Endoscopic retrieval was successful in 50.0% patients, and the remaining underwent open cystectomy. In Bansal’s report, 67.3% foreign bodies were retrieved by cystoscopy, while percutaneous suprapubic cystolitholapaxy was performed in 8.1% patients. Transvesical laparoendoscopic single site surgery is also reported to remove foreign bodies penetrating the bladder. In our experience the methods to retrieval the foreign body are differential, even the same material of foreign body in bladder like magnetic ball. However, it was sometimes difficult to remove the balls in the urethra using forceps because they were smooth and magnetic. In our literature review, 55% (5/9) patients were treated by cystostomy to retrieval the magnetic balls in bladder even the number of balls was not larger. The best management depends on the nature of the foreign body, lodged site, expertise of the surgeon, and available instruments. It is noteworthy that operative complication such as urethral injury, urethral stricture, and nerve injury for impotence should be avoided at the greatest extent either in endoscopy or open operation.

Conclusion

The magnetic ball as foreign body in bladder is still rarely reported. To avoid the complications, the foreign bodies should be removed as soon as possible. The methods to deal with foreign body in bladder are various and should be selected according to specific circumstance. A psychiatric evaluation of such patients should be done to avoid the recurrence of such cases. Cystoscopy is a better option for dealing with a large number of magnetic balls in urinary bladder.

Ethical statement

Written informed consent was taken from the patient for publication of this case report and the associated images. This work was approved by the Ethics Committee of Beijing Jishuitan Hospital.

Disclosure statement

The authors have no conflicts of interest.

Authors’ contribution

Dr. Zhen-Hua Liu drafted the article and is the corresponding author; Dr. Zhen-Hua Liu and Dr. Xiao-Fei Zhu performed minimally invasive surgery and gathered the photos; Dr. Ning Zhou revised the article critically. All authors approved the final version of the manuscript accepted for publication.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.eucr.2019.100975.

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Fig. 1. Magnetic balls were showed in bladder projection by abdominal plain X ray.

Fig. 2. Magnetic balls after extraction (159 in total).