

Endourology

Primary intravesical insertion of intrauterine device for 10 years: Clinical presentation and outcome

Rola Abu Alwafa^a, Amir Aghbar^{a,b}, Maha Akkawi^{a,c}, Mosab Maree^{a,d}, Ibrahim Alami^{a,b}, Faris Abushamma^{a,b,*}

^a Department of Medicine, College of Medicine and Health Sciences, An-Najah National University, Nablus, 44839, Palestine

^b Department of Urology, An-Najah National University Hospital, Nablus, 44839, Palestine

^c Department of Pathology, An-Najah National University Hospital, 44839, Nablus, Palestine

^d Department of Radiology, An-Najah National University Hospital, Nablus, 44839, Palestine



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ABSTRACT

Intrauterine device (IUD) is considered the second most widely used method of contraception. Migration of the IUD into the urinary system has been reported. Nevertheless, a missed IUD which is mistakenly inserted into the bladder has rarely been reported. We report a female patient experienced recurrent urinary tract infection (UTI) for 10 years without appropriate evaluation. The underlying problem was an IUD that inserted into the bladder led to the formation of bladder stone. The clinical course and the endoscopic management of the stone and the IUD is reviewed in this case report.

1. Introduction

The intrauterine device (IUD) is commonly regarded as the second most prevalent form of contraception. Its popularity stems from its effectiveness, affordability, and relatively low risk of complications. However, there have been instances where the IUD has migrated beyond its typical anatomical pathway, particularly towards the urinary system, as reported in a series of cases.¹ Bladder stone formation secondary to migrated IUD has been reported sporadically in the literature where patients do present with suprapubic pain, hematuria, and recurrent urinary tract infection.² Nevertheless, there is currently no existing evidence in the literature that reports incidents of inadvertent primary insertion of an IUD into the bladder leading to stone formation and recurrent symptoms over a period of 10 years. Hence, we would like to present a case of a 38-year-old female patient who presented with lower urinary tract symptoms (LUTS) and recurrent urinary tract infection (UTI) and was found to have an IUD that was mistakenly inserted into the bladder.

2. Case presentation

A thirty-eight-year-old female presented to the urology clinic with

complaints of overactive bladder symptoms and a burning sensation during urination. Her previous medical history included recurrent UTIs and positive urine cultures with various microorganisms such as *E. coli*, *Staphylococcus epidermidis*, and *Klebsiella*. Physical examination revealed no notable findings.

An abdominal ultrasound detected the presence of a urinary bladder stone. Subsequently, a urinary computed tomography (CT) scan was performed, which revealed an unusual-looking urinary bladder stone, raising the suspicion of a foreign body. This foreign body had a wire-like structure that had migrated through the remnants of the urachus (Fig. 1 A and B). displays the CT scan images depicting the stone and the wire-like structure connected to it.

During flexible cystoscopy, a stone was observed that had formed over a foreign body penetrating the dome of the bladder into a remnant urachus (Fig. 2A). A multidisciplinary meeting involving urology and radiology experts was conducted to decide on the most appropriate treatment approach. It was decided to proceed with endourological laser management; however, the patient was counseled about the possibility of conversion to open surgery. Cystolithotripsy was performed using a dusting mode with a pulse frequency of 20 (total power of 10–14 W). Upon fragmentation and dusting of the stone, a residual IUD was discovered (Fig. 2 B and C). The IUD was found hanging from the dome

* Corresponding author. Department of Medicine, College of Medicine and Health Sciences, An-Najah National University, Nablus, 44839, Palestine.

E-mail addresses: rolaakram00@gmail.com (R. Abu Alwafa), Amir.aghbar@najah.edu (A. Aghbar), mahaakkawi@hotmail.com (M. Akkawi), m.maree@najah.edu (M. Maree), lbraheem1456@gmail.com (I. Alami), farisabushamma@hotmail.com (F. Abushamma).

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of the urinary bladder, with its thread penetrating the remnant urachus (Fig. 2 D). Notably, there were orange metallic parts on the IUD shaft, potentially representing copper. The thread was cut using the laser fiber, and the IUD fell into the urinary bladder. All stone fragments and dust were evacuated, and the IUD was removed. A Foley's catheter was inserted at the end of the operation, and the patient's postoperative course was uneventful.

After further probing into the patient's history, she revealed that the IUD had been inserted ten years ago, but she had subsequently experienced two uneventful pregnancies, assuming that the IUD had been expelled. The IUD had been inserted by a general practitioner in a rural area. Therefore, it was concluded that the IUD had been mistakenly inserted into the bladder instead of migrating (Fig. 3). displays the extracted IUD.

3. Discussion

There have been numerous reports indicating that the perforation of an IUD into the bladder can lead to complications such as stone formation. Common clinical presentations in such cases include recurrent UTIs, storage and voiding urinary symptoms, and gross hematuria.^{1,3} The dilemma in diagnosis and treatment arises when the IUD migrates into the bladder either immediately or after a significant delay. While the traditional approach involves laparotomy for IUD extraction, advancements in endourological procedures, laser technology, and the expertise of endourologists have made the endoscopic approach an increasingly preferable option whenever possible.¹

Our case is rare because, based on the available evidence, the IUD was primarily inserted into the bladder instead of migrating, which explains the subtle clinical presentation. Additionally, our case highlights the successful utilization of the endourological approach to treat this complex situation using a high-power laser. The concept of employing high-frequency and low-energy laser settings enables the urologist to dust and peel the stone and evaluate the underlying material. Endoscopic extraction of foreign bodies has even been reported even in male patients.⁴

In cases of recurrent UTIs in young females, it is crucial to thoroughly investigate the underlying cause before commencing empirical antibiotic treatment.⁵ Options such as ultrasound scan, CT scan, and flexible cystoscopy should be considered for evaluating recurrent UTIs. In our case, the IUD remained in the bladder for ten years with two uneventful pregnancies. Proper evaluation of recurrent UTIs in her case would have prevented such a prolonged disease trajectory.

4. Conclusion

Recurrent UTIs in a young female should always be adequately

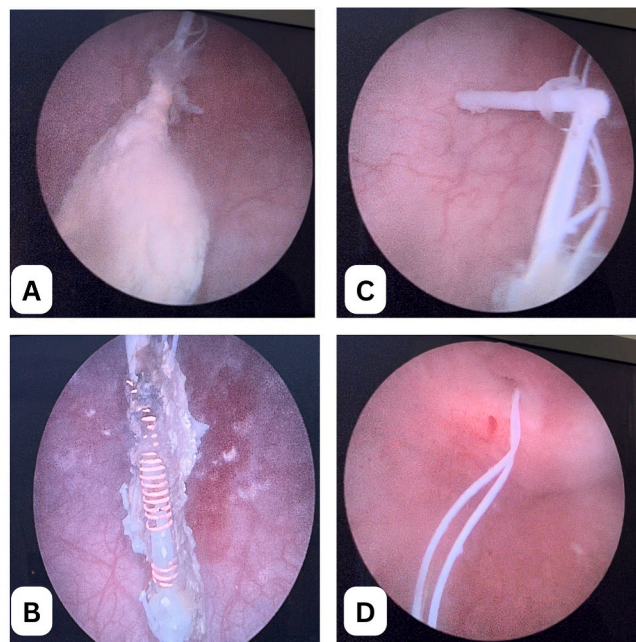


Fig. 2. A: Flexible cystoscopy view of bladder stone
B and C: Cystoscopy view of IUD after stone fragmentation
D: Cystoscopy view of IUD thread penetrating the remnant urachus.

addressed and evaluated. Underlying bladder stone or foreign body is a potential cause which can be treated endoscopically.

Ethical statement

Informed consent was taken from the patient for publication of this case report and the associated images.

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CRediT authorship contribution statement

Rola Abu Alwafa: Data curation, Writing – original draft. **Amir Aghbar:** Data curation, Formal analysis, Writing – original draft. **Maha Akkawi:** Conceptualization, Data curation, Writing – original draft. **Mosab Maree:** Writing – original draft. **Ibrahim Alami:** Data curation,

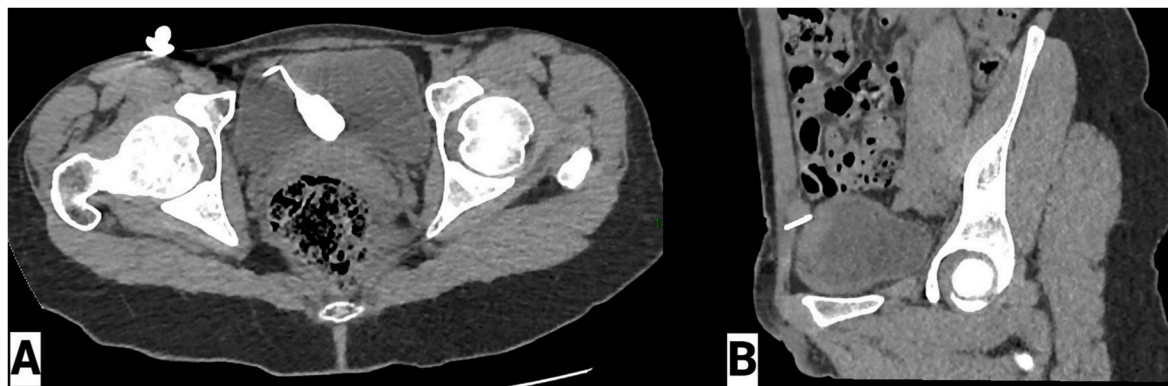


Fig. 1. A: Axial CT scan without IV contrast showing unusual-looking urinary bladder stone, raising the suspicion of a foreign body
B: Oblique sagittal CT scan without IV contrast showing a small (1.3 cm) part of the proximal end of the foreign body (IUD) which is separated and is seen between the anterior wall of urinary bladder and anterior abdominal wall muscles.



Fig. 3. The extracted IUD from urinary bladder.

Formal analysis, Writing – original draft. **Faris Abushamma:**

Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

Declaration of competing interest

The authors have no conflicts of interest.

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