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Bladder Calculi Secondary to Migrated Intrauterine Contraceptive Device: A Case Report

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Abstract **Case Report**

Intrauterine contraceptive devices (IUCDs) are commonly used for long-term contraception. Although effective and generally safe, rare complications like migration can occur. This report describes a case of a woman who developed persistent lower urinary tract symptoms, ultimately diagnosed with a bladder stone formed around a migrated IUCD. Computed tomography confirmed the diagnosis, and the device was successfully removed endoscopically. The case highlights the importance of imaging and early detection to prevent complications related to device migration.

Keywords: Bladder calculi, IUCD migration, cystoscopy, urinary symptoms, foreign body.

INTRODUCTION

Intrauterine contraceptive devices (IUCDs) are among the most frequently used forms of long-term reversible contraception globally, particularly valued in low-resource settings for their affordability and effectiveness [1]. Despite their widespread use, IUCDs are not without complications. Although uncommon, uterine perforation can occur at the time of insertion or later due to gradual erosion of the uterine wall [2]. One of the more serious outcomes of perforation is device migration into adjacent pelvic or abdominal organs, including the urinary bladder [3].

IUCD migration into the bladder is an infrequent but significant clinical concern. Such migration may remain asymptomatic or mimic urinary tract infections, resulting in misdiagnosis or delayed recognition [4]. Over time, the IUCD acts as a nidus for calcification and stone formation. Timely identification is essential, and this report aims to highlight the importance of early diagnosis in patients presenting with urinary symptoms and a history of IUCD use [5].

CASE PRESENTATION

A 38-year-old multiparous woman (G4P4) with a background of hypothyroidism, controlled with levothyroxine 75 µg daily, presented to our urology outpatient clinic at Prince Hussein Urology and Organ transplantation center (PHUO)/Royal medical health services (RMS) with a chief complaint of progressive lower urinary tract symptoms (frequency, urgency, dysuria), recurrent urinary tract infections, intermittent hematuria, and associated lower back pain of one-year duration.

Her gynecological history was significant for the insertion of an intrauterine contraceptive device (IUCD) in 2016. Following a chemical pregnancy complicated by vaginal bleeding, she underwent dilatation and curettage in a private clinic, during which she believed the device had been removed. In 2017, another IUCD was inserted in a private setting and replaced five years later. The device was documented as being in situ during her routine gynecological follow-up visits.

Due to her persistent urinary symptoms, she was evaluated by a gynecology at the RMS/Jordan gynecology department where a non-contrast computed

tomography (CT) scan of the pelvis was performed. Imaging revealed an eroded IUCD device penetrating the urinary bladder wall with associated encrustation and calculus formation (Figures 1 and 2).

The patient was referred to the urology department for further management. She underwent endoscopic disintegration of the bladder stone with retrieval of the intravesical portion of the device (Figure 3). The extra-vesical component was removed laparoscopically. A pelvic drain was inserted, and a Foley catheter was left in place for three weeks. Her postoperative course was uneventful, and she was discharged on the second postoperative day.

At her two-week outpatient review, the Foley catheter was removed, and the patient reported complete resolution of symptoms. A follow-up visits at four weeks confirmed that she remained asymptomatic and in good health.

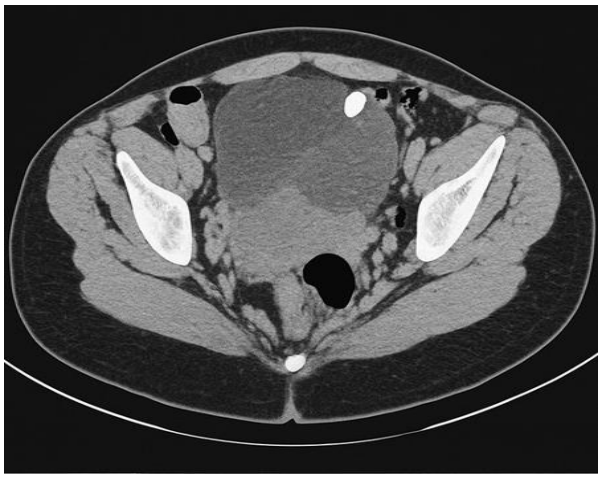

Figure 1: Axial non-contrast CT scan of the pelvis demonstrating an intrauterine contraceptive device (IUCD) located within the bladder lumen, surrounded by calcified material suggestive of stone formation. The device appears encrusted and lies posterior to the pubic symphysis

Figure 2: coronal non-contrast CT-scan of the abdomen and pelvis shows the calcified part of IUCD outside the urinary bladder in the pelvis

Figure 3: Extracted intrauterine contraceptive device (IUCD) following endoscopic and laparoscopic removal.

DISCUSSION

Uterine perforation following IUCD insertion is rare, with reported incidence ranging from 0.1% to 0.3% [6]. It may occur at the time of placement or develop later through pressure necrosis. Migrated IUCDs can enter the peritoneal cavity or neighboring structures like the

bladder, where chronic irritation and encrustation often follow [7]. Once within the bladder, the device can induce inflammation and stone formation due to its foreign body nature [8].

Radiographic imaging is essential for detecting migrated IUCDs. An abdominal X-ray may detect the presence of a radiopaque device, but computed tomography (CT) provides superior anatomical detail, especially for locating encrustation and assessing bladder wall involvement [9]. In this case, CT imaging played a crucial role in both diagnosis and operative planning.

Management of intravesical IUCDs depends on the degree of encrustation and symptom severity. Most cases are amenable to cystoscopic removal, which offers a minimally invasive and highly effective approach [10]. In patients with large stones or deeply embedded devices, laparoscopic or open surgical techniques may be necessary [11]. Combined endoscopic-laparoscopic approaches have also been described, especially when cystoscopic removal fails or the device is partially intramural [12].

Postoperative follow-up is critical to ensure resolution of symptoms and to monitor for potential complications. Counseling regarding follow-up imaging and device checks after IUCD insertion may help prevent delayed presentations such as this [13].

Conclusion

Bladder migration of IUCDs is a rare but serious complication. In women with lower urinary tract symptoms and a history of IUCD use, clinicians should consider the possibility of migration. Prompt imaging, accurate diagnosis, and appropriate surgical management are key to favorable outcomes and prevention of further morbidity.

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