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# An Unusual Cause of Bladder Stones In a Female: A Migrant Intrauterine Contraceptive Device

*Vinod Priyadarshi, Mahendra Singh, Vijoy Kumar, Rajesh Tiwari, Sanjay Kumar Gupta, Nidhi Sehgal*

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**ABSTRACT**

Intrauterine contraceptive devices (IUCD) have been widely accepted contraceptive methods among women for many years due to their efficacy, longevity, reversibility, and safety. There is a possibility of uterine perforation and migration, but an intravesical perforation is extremely rare. Only a few case reports depicting incrustation of such foreign bodies in the bladder, mostly incomplete and fixed to the perforated wall, are available in the literature. We are here reporting a T-shaped floating stone in the bladder in a female due to complete incrustation of a migrated IUCD in the bladder, which she had received seven years before presentation.

## INTRODUCTION

Intrauterine contraceptive devices (IUCD) are some of the most frequently used contraceptive methods. Although they are generally safe modalities for long-term contraception, still, on occasion, an IUCD can give rise to complications. Uterine perforation and migration are rare complications. A perforated IUCD may migrate to any adjacent pelvic organ. An IUCD in the urinary bladder may present with features of UTI, hematuria, incontinence due to vesicoutrine fistulae, and obstruction due to the formation of secondary stones over the migrated device.

## CASE REPORT

A 31-year-old woman presented with complaints of intermittent dysuria associated with fever and suprapubic pain for two years. She had 1 recent episode of hematuria 10 days prior to presentation, which resolved on some medication. She had 2 children and the younger one was 4 years old. Her menstrual cycle was regular, and there was no history of vaginal discharge. Upon abdominal examination, there was tenderness in the suprapubic region, and her vaginal examination was normal. Her investigations revealed red blood cells and pus cells in her urine, and *E. coli* on her culture. Her X-ray for the kidney, ureter, and bladder (KUB) showed a T-shaped radio-opaque shadow around the arms of a suspected Copper-T device in the pelvic region. The patient was questioned about this and she gave the history of an IUCD insertion 7 years prior to presentation. According to her, contraception failed and she became pregnant after 3 years. Assuming the IUCD may have dropped, no attempt was made by her caregiver to locate the device.

Her ultrasound (US) and intravenous urogram (IVU) were suggestive of a solitary bladder stone with normal upper tracts and insignificant post-void residual urine. Cystoscopy was done, which confirmed a large, T-shaped, dark brown, floating stone with a rough, irregular surface in the bladder. The stone had features of cystitis and was without a scar. Cystolithotomy was done to remove the stone and to avoid any residual fragment of the Copper-T device. The stone was 4 cm x 4 cm in dimension, and its core was made of coiled copper wire. The postoperative period was uneventful, and the catheter was removed on the tenth day. The patient remained symptom-free on follow-up.

## DISCUSSION

Intrauterine contraceptive devices (IUCD) are some of the most popular methods of reversible contraception. They are generally safe modalities for long-term contraception [1]. However, they

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**CORRESPONDENCE**: Vinod Priyadarshi, MBBS, MS, Senior Resident, Indira Gandhi Institute of Medical Sciences, Patna, Bihar India (vinod_priyadarshi@yahoo.com)

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Figure 1. The X-ray KUB.

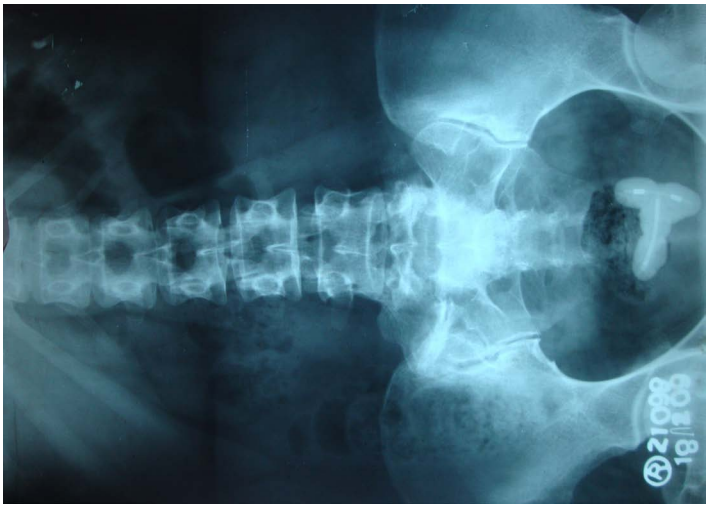

Figure 2. The intravenous pyelogram (IVP).

have some complications such as hemorrhage, hypermenorrhea, dysmenorrhea, pain, septic abortion, ectopic pregnancy, and pelvic inflammatory disease [2,3]. Uterine perforation is a rare event (1 to 3 perforations per 1 000 insertions) [3], and they occur primarily during insertion. These perforations depend on the time and technique of insertion, the type of IUCD, the skill of the physician, and the anatomy of the cervix and uterus [2]. Undetected, extreme posterior uterine position is the most common reason for perforation at the time of insertion. This risk increases during the puerperium period, after a recent abortion or medical termination of pregnancy (MTP), after cesarean section, in sepsis, and in multiparous births [4].

A perforated IUCD may migrate to the nearby structures such as the peritoneum, the omentum, the adnexa, the colon, the bladder, and the appendix [1]. In a review of 165 cases of migrated IUCD, Kassab and Audra reported the bladder as the destination in only 23 cases (14%) [5].

Erosion and secondary perforation can also occur at any time after insertion, by slow migration across the muscular wall of the uterus and bladder, which can be augmented by spontaneous uterine contractions [6,1].

A direct transurethral introduction of IUCD into the bladder is a highly unlikely possibility provided the device is inserted by paramedics with adequate levels of skill and anatomic knowledge, but it can't be ignored [7].

The migrated IUCD may remain silent for a long period [8], or it may present with abdominal or pelvic pain and lower urinary tract symptoms [2]. Such IUCD in bladder works as a nidus for stone incrustation, and it is often associated with stone formation and subsequent obstructive symptoms [9]. There is also a chance to develop vesicouterine fistulae and subsequent incontinence, either during the migration or the removal of a partially migrated IUCD [1].

In the present case, patient became pregnant after 3 years with IUCD and had symptoms for the last 2 years only, suggesting it may be a case of gradual progression and migration.

Primary vesicle calculi are very unusual in women, and the presence of intravesical stones should raise suspicion of the presence of a foreign body [10]. Conversely, any patient with a missing IUCD must be carefully searched for the lost device, and any symptoms of recurrent urinary tract infection, incontinence, or obstruction in such patients should be suspected as an indication of IUCD migration into the bladder [1]. Such migrated devices can easily be detected with abdominal radiography or ultrasonography (USG) [6].

Any displaced IUCD should be removed due to its potential complications. It can be removed from the bladder by cystoscopy or by suprapubic cystotomy [2] but the motive should always be for the complete removal of the device with the least trauma to the bladder and urethra, as any residual fragment may lead to a recurrence of symptoms.

A trained professional should always do an IUCD insertion after a proper case selection and physical examination, and it should be avoided in early puerperium or following a recent abortion or MTP [2]. Women should be informed of the potential

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Figure 3. The stone with a copper coil core.

Figure 4. The length of the stone.

complications and should check the device string regularly [1,6]. If the string is not found, abdominal radiography should be done, even in asymptomatic patients. If uterine rupture is suspected, US should be performed to determine the probable location of the rupture [1,2].

## CONCLUSION

Intravesical migration and stone formation is a rare complication of IUCD insertion and it should be suspected in women with an IUCD who have recurrent or persistent urinary tract infections, persistent LUTS, or vesicle stones, especially if the IUCD is missing or failed. Diagnosis can be made easily with abdominal radiography and US. Any such device should be removed in totality. Such conditions can be avoided with proper case selection, an informed patient, a trained staff, and careful follow-up.

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