



CASE REPORT

An Unusual Case of Spontaneous Fracture and Vesical Transmigration of Intrauterine Contraceptive Device

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Introduction

An intrauterine contraceptive device (IUCD) is a commonly accepted contraceptive device, and it is best known for its effectivity, reversibility, longevity, and cost-effectiveness. It is safe, but complications can occur like any other medical device. Displacement within the uterine cavity, perforation, migration to adjacent organs, infection, abnormal uterine bleeding, contraceptive failure, and expulsion are problems associated with this contraceptive method [1]. We report a patient with urinary problems and abdominal pain resulting from the migration of the transverse arm of IUCD 380 A into the urinary bladder. Vesical stone was found secondary to foreign body reaction around the migrated IUCD. Endoscopic management was done with an excellent outcome.

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Case Reports

A 45-year woman, para 2 living 2, came to the Gynecology department with a history of IUCD insertion 6 years before. She had suprapubic pricking pain and difficulty in passing urine along with a burning sensation on and off for 5 years, which was increased over the past 8 months. She did not complain of urinary incontinence or haematuria. She had two cesarean deliveries, and the last was 7 years before. One year after the last childbirth, an intrauterine contraceptive device was inserted. She did not have a follow-up for IUCD after the initial 2 visits. Her speculum examination suggested a missing IUCD retrieval thread. Vaginal findings were unremarkable. Her urinary test suggested microscopic haematuria and urinary infection. Blood investigations were within normal limits. A transvaginal scan suggested a normal uterus and displaced IUCD in the cervical canal, which was removed after moderate gentle traction. Since only the vertical arm was retrieved, a search for the remaining IUCD was carried out. A full urinary bladder scan suggested a floating hyperechoic stone measuring 3 × 3 cm in the urinary bladder with possible IUCD. The same was depicted as a hyperechoic area in the right iliac region by X-ray. To confirm the findings, a CT scan (Fig. 1) was offered and suggested the presence of secondary vesical calculus with a tip of a foreign body, possibly a horizontal arm of CU-T.

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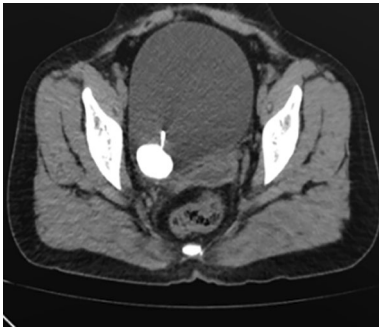


Fig. 1 Vesical stone with the tip of IUCD in the coronal image of CT scan



Fig. 2 The horizontal stem of IUCD was retrieved after cystolithotripsy

She was planned for cystoscopy and removal of calculus with the foreign body under spinal anesthesia. Cystoscopy examination revealed floating calculus, encrusting the horizontal arm of IUCD except at its tip. Calculus was fragmented by the procedure called cystolithotripsy. The horizontal stem of IUCD and fragments of stone were removed (Fig. 2). The urinary bladder was examined for any rent at mucosa through a cystoscope. The only finding was generalized inflammation of urinary bladder mucosa, more at the right lateral urinary bladder wall. The patient was catheterized for 24 h and discharged from the hospital after 48 h. At 3 months follow-up, she is asymptomatic.

Discussion

IUCD is the most preferred reversible method of family planning for the past many years. It has high acceptability due to its low cost, long years of protection, and high efficacy. It is associated with a few frequent complications like abnormal uterine bleeding, infection, dysmenorrhea, and displacement. The perforation of the uterus and migration of IUCD is an infrequent but serious complication. The manifestations depend upon the migrated location.

Faulty insertion technique may be a cause for IUCD displacement and transmigration; however, it may occur spontaneously anytime later also [1]. Mainly failure of contraception reveals this complication. The copper content of IUCD is necessary to produce inflammatory reactions for contraceptive benefit, but persistent inflammation can also result in uterine perforation and migration by an unknown mechanism [1]. The migration can be complete or incomplete. The incidence of perforation and extrauterine migration is varying between 1.2 and 1.6/1000 insertions of IUCD [1]. We believe previous fibrosis due to cesarean, and associated inflammation would have led to the embedment of IUCD and the process of migration in our case. Later uterine contractions would have forced it further through the cesarean scar into the urinary bladder.

The foreign body in the urinary bladder mainly leads to urinary symptoms. Her presenting symptoms were attributed to the urinary bladder stone and urinary infection. The most common lodging site after the migration is the peritoneal space and omentum, which generally produces lower abdominal vague discomfort or no symptoms. Extra-peritoneal migration can occur in the sigmoid colon, rectum, urinary bladder, or ureter. The urinary symptoms and suprapubic pain are predominant with displacement at the utero-vesical fold and in the urinary bladder. Chronic abdominal pain and bowel symptoms like diarrhea can occur with bowel migration. One has to be vigilant for serious complications like colocolic fistula, rectal perforation, Vesicovaginal fistula, and ureteric erosion depending on the site of migration [1]. Migration can also occur in the appendix, in the uterine adnexa, or in the broad ligament [2].

The spontaneous or iatrogenic breakage of IUCD is mentioned in the literature [2]. The floating stone in the urinary bladder suggests spontaneous breakage of IUCD. The breakage could be secondary to the stone formation. The literature is available for the perforation of IUCD in the urinary bladder and the formation of stones around it [3]. To the authors' knowledge, such a case of spontaneous breakage and partial translocation of IUCD to the urinary bladder is not reported in the literature.

A high index of suspicion is necessary when missing IUCD is dealt with. The ultrasound is an easily available imaging modality for the diagnosis of displaced IUCD and vesical stones. However, sometimes it is difficult to locate IUCD precisely; hence, other modalities like abdominal radiography, CT scan, or MRI should be considered [1]. Removal of IUCD after its localization is recommended as transmigration is associated with complications. A urinary bladder stone is uncommon in females, and a foreign body has to be suspected for any calculus. Hence, the presence of urinary bladder stones in a woman with missing IUCD should raise a strong suspicion of its transmigration.

Approaches to remove IUCD are open or minimally invasive surgery. In our case, endoscopic removal of vesical calculus and CU-T was planned. Transurethral removal of the IUCD stem could be the option in the absence of calculus, preferably under cystoscopic guidance. Cystoscopy is ideal, and it would also help in the visualization of the fistulous tract and its repair [1,3,4]. In this case, cystoscopy and removal were possible with the fastest recovery.

Conclusion

It is of utmost importance to follow the proper IUCD insertion technique. If not followed, it can lead to serious complications like perforation and migration of IUCD. Difficulty in negotiating internal os can be overcome by a drug like a prostaglandin. Ultrasound-guided insertion of IUCD can be opted for in difficult cases.

Spontaneous breakage and IUCD migrating to the urinary bladder are rare complications that can be considered while managing urinary tract symptoms with a history of IUCD, more with missing devices. Previous uterine surgery may trigger the process of migration of IUCD. In an attempt to visualize IUCD, full urinary bladder scan and TVS is recommended, which helps to diagnose such a rare entity. Ultrasound and X-ray abdomen are sufficient for the identification of translocated IUCD. Advanced imaging is essential to detect migration of IUCD to the pelvic or extra-pelvic area and the fistulous tract between the urinary bladder/bowel and uterus/cervix. The endoscopic approach for the removal of translocated IUCD is considered safe and effective.

Authors' contributions KS has contributed to concept, plan, conduct and writing of the manuscript. Dr. RB has guided and edited the manuscript. Dr. PH has also managed patient. All were involved in patient care.

Declarations

Conflicts of interest Disclosure of potential conflicts of interest- None.

Human Participants and/or Animal Research involving Human Participants and/or Animal—Observational study.

Informed Consent Informed consent was taken from the participants.

References

1. DeSilva WSL, Kodithuwakku KASUA, Aponsu GUE, Rathnayake RMM, Rajasegaram E. A large bladder stone caused by the intravesical migration of an intrauterine contraceptive device: a case report. *J Med Case Rep.* 2017;11(1):293.
2. Cánovas E, Beric D, Jara R, Cazorla E. (2022) Intrauterine contraceptive device rupture. Follow-up of a retrospective cohort and clinical protocol. RUDIUS Study. *Heliyon.* ;8(1):e08751. <https://doi.org/10.1016/j.heliyon.2022.e08751>.
3. Nouioui MA, Taktak T, Mokadem S, Mediouni H, Khiari R, Ghazzi S. A mislocated intrauterine device migrating to the urinary bladder: an uncommon complication leading to stone formation. *Case Rep Urol.* 2020;7(2020):2091915.
4. Liu G, Li F, Ao M, Huang G. Intrauterine devices migrated into the bladder: two case reports and literature review. *BMC Womens Health.* 2021;21(1):301.

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