

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/radcr

Case Report

Laparoscopic removal of migratory intrauterine contraceptive device to the bladder : A Case report and literature review ☆,☆☆

Yennie Ayu Setianingsih^{a,b}, Wahjoe Djatisoesanto^{a,b,*}, Johan Renaldo^{a,b}^a Department of Urology, Faculty of Medicine, University of Airlangga, Surabaya, East Java, Indonesia^b Dr Soetomo General-Academic Hospital, Surabaya, East Java, Indonesia

ARTICLE INFO

Article history:

Received 29 December 2023

Revised 13 January 2024

Accepted 18 January 2024

Keyword:

Bladder

Case report

Intrauterine device

Laparoscopy

Spontaneous migration

ABSTRACT

The intrauterine contraceptive device (IUCD) is the most frequently used method of reversible contraception with high efficacy. Despite these benefits, rare complications, such as spontaneous migration of the device into adjacent organs, particularly the bladder, are possible. Minimally invasive surgery is a safe and effective procedure with few complications for the management of migrated IUCDs. We presented a 36-year-old multiparous woman referred by her gynecologist who had an IUCD inserted 4 years prior. She had been experiencing dysuria and lower abdomen pain for 3 months. Ultrasonography of the abdomen revealed a hyperechoic lesion on the bladder wall's left anterior-superior portion. An MRI revealed that the device was embedded in the bladder's anterior left wall. Under general anesthesia, a cystoscopy and laparoscopy exploration were subsequently scheduled. Cystoscopy was performed, but the long limb of the IUCD was embedded in the mucosal and muscular layers, preventing its removal from the bladder wall. Laparoscopic retrieval of the IUCD was performed without complications. The patient was discharged 2 days after surgery with a Foley catheter inserted in the bladder for 10 days. When the urethral catheter was removed, a cystoscopy was performed to confirm bladder wall healing. In the postoperative follow-up 1 month after IUCD removal, no abnormalities were observed. Patients with a suspected IUCD migration must undergo a comprehensive evaluation, regardless of whether they are symptomatic or asymptomatic. Before surgical retrieval, imaging such as ultrasonography and MRI were utilized to locate the migrated IUCD and consider therapeutic options. Even though cystoscopy is considered as an effective and safe minimally invasive procedure for managing a migrated IUCD to the bladder, laparoscopic removal could serve as an option once cystoscopy retrieval is failed.

© 2024 The Authors. Published by Elsevier Inc. on behalf of University of Washington.

This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

☆ Acknowledgments: No author received financial or material support for this report. No author has a financial or proprietary interest related to the report.

☆☆ Competing Interests: The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

* Corresponding author.

E-mail address: wahjoe.djatisoesanto@fk.unair.ac.id (W. Djatisoesanto).

<https://doi.org/10.1016/j.radcr.2024.01.047>

1930-0433/© 2024 The Authors. Published by Elsevier Inc. on behalf of University of Washington. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

Introduction

The intrauterine contraceptive device (IUCD) is the most widely used and highly effective reversible contraceptive method [1]. The most severe complication associated with IUCD use is uterine perforation, which may result in the migration of the IUCD to adjacent organs. Surgical intervention is often necessary in order to remove migrating IUCD. In this study, we report a 36-year-old woman who presented with dysuria and history of unintended pregnancy 3 months after IUCD insertion.

Case presentation

A woman, 36 years old, was consulted by an obstetrician with left lower abdominal pain in the last months. She had dysuria without a fever. She had a history of intrauterine device insertions 4 years ago. She got pregnant 3 months after the IUCD insertions and had a spontaneous vaginal delivery without any complications. The history of chronic disease was denied. The patient had 4 children with normal spontaneous vaginal deliveries.

Her physical examination was normal. Based on a urinalysis examination, she was found to have leukocyturia (3+) and microhematuria (1+) with a normal urine culture.

Investigation

A plain abdominal radiograph revealed IUCD in the pelvic cavity. An ultrasound of the abdomen showed a T-shaped hyper-echoic lesion on the left anterior-superior part of the bladder. The stem of the IUCD was embedded in the bladder (Fig. 1). An MRI scan of the abdomen with contrast revealed an IUCD that was 0.34×3.67 cm in size, with the tip penetrated the mucus-submucous wall of the bladder's left front wall (Fig. 2).

Treatment

The patient was then scheduled for a cystoscopy and laparoscopic exploration. Cystoscopy revealed that IUCD was visualized in the dome of the bladder wall. Multiple attempts to remove IUCD with the use of forceps were unsuccessful. During laparoscopy, the string and arm of the IUCD are embedded in the anterior abdominal wall, with adhesion between the bladder wall and omentum. Adhesiolysis was performed, and IUCD was successfully removed. The patient was discharged on postoperative day 2, and a Foley catheter was placed in the bladder for 10 days. After the Foley catheter was removed, a cystoscopy was used to evaluate the bladder. It showed that the bladder mucosa had high blood pressure where the IUCD was embedded, and 2 stones size ± 5 mm and 2 mm were found. Bladder stones were evacuated using forceps. A month after IUCD removal, the patient had no LUTS or any sign of infection (Fig. 3).



Fig. 1 – Ultrasound view of migrated IUCD in bladder.

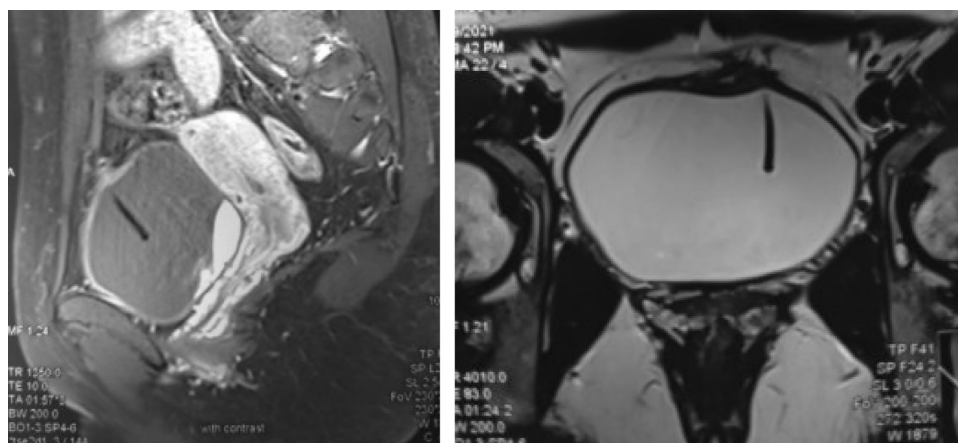


Fig. 2 – MRI of migrated IUCD in bladder.

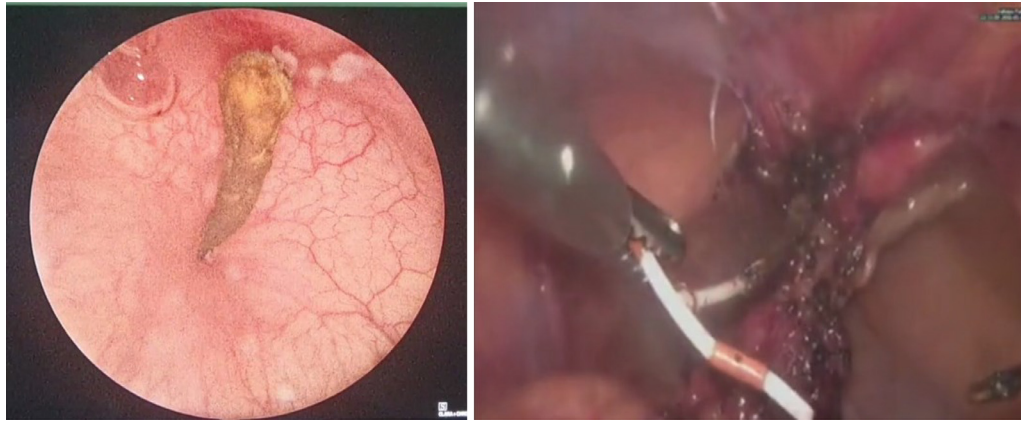


Fig. 3 – Cystoscopic view of IUCD and laparoscopic images showing IUCD removal.

Discussion

The intrauterine contraceptive device is the most common reversible contraceptive device which has a low failure rate [2,3]. Uterine perforation and subsequent migration of the IUCD to an adjacent organ are considered as serious complications associated with IUCD insertion [4]. IUCD migration may occur asymptotically, and surgical intervention is required to remove the IUCD. There are 2 potential mechanisms by which an IUCD can induce uterine perforation. The first anticipated mechanism is perforation during installation, and the second is uterine perforation that develops gradually and spontaneously in the presence of risk factors, as explained in subsequent developments; this type of perforation may be asymptomatic [5]. The risk factors for uterine perforation include the thickness of the uterine wall, the position and consistency of the uterus, the time of IUCD insertion, a history of pelvic region surgery, an infection of the genitalia, a congenital disorder of the uterus, and the experience of the medical officer. Uterine contraction resulting from sexual activity or labor may account for the gradual migration mechanism of IUCD [4,5].

In this case, the patient underwent IUCD insertion one week following to the delivery of her third child. Three months after the IUCD was inserted, she became pregnant and had a spontaneous vaginal delivery without any complications. The patient conceived subsequent to IUCD insertion, which proved the ineffectiveness of the contraceptive device within the uterus. Perforation risk may be increased during breast feeding due to uterine atrophy and thinning of the uterine walls caused by hypoestrogenism, involution of the uterus, forceful uterine contractions, and a soft consistency of the uterus. As a result, it is advised to delay IUCD insertion until 3 months after delivery for the purpose of safety.

IUCD as corpus alienum in the bladder might result in LUTS. Clinical manifestations such as dysuria, suprapubic pain, recurrent urinary tract infections, hematuria, chronic pelvic pain, and irritation upon voiding are indicative of intrauterine device (IUCD) migration into the bladder. In this case, patient had dysuria and suprapubic pain 4 years after IUCD insertion, although urine culture was sterile.

IUCD should be periodically examined. The absence of an IUCD string during a pelvic examination raises the possibility that the IUCD has migrated. IUCD migration can be effectively detected via transabdominal or transvaginal ultrasound. For determining the precise location of a migrated IUCD and associated complications, CT and MRI are both valuable tools. MRI provides excellent tissue characterization and high contrast resolution. A precise localization of the IUCD is essential for the preoperative clinical evaluation. The location of the IUCD increases the possibility of conversion to laparotomy and the possible need for additional intraoperative procedures such as cystoscopy.

The World Health Organization (WHO) recommended that any displaced IUCDs should be removed in order to avoid issues resulting from the development of intraperitoneal adhesions or their migration into adjacent organs [6]. For the management of migrated IUCD, minimally invasive techniques such as cystoscopy, hysteroscopy, laparoscopy, and their combinations are preferable. Laparoscopic IUCD removal should be considered because it allows IUCD detection by panoramic visualization [7]. An IUCD that is adhered to the omentum or completely displaced in the peritoneal cavity may undergo positional change during physical movements, which could possibly make open surgery ineffective in locating it. Adhesions and intestinal perforation were associated with higher failure and laparotomy conversion rates. In this case, IUCD is completely severed from the uterus that had become trapped in the urinary bladder wall; this elevated the possibility that its extraction could be performed entirely through cystoscopy. Despite adhesion to an adjacent organ, the IUCD was able to be effectively removed. This finding suggests that the presence of adhesions does not consistently signify a higher risk of open laparotomy conversion issues.

Conclusion

Migrated IUCD should be removed without delay. The most effective and prognostic-oriented methods for managing a displaced IUCD are minimally invasive surgical procedures, such as hysteroscopy, cystoscopy, laparoscopy, and their combina-

tions. A thorough imaging examination is necessary in order to precisely localize the ectopic IUCD. In spite of ensuring the presence of necessary equipment and specialists, the location of the IUCD would provide additional information regarding the process for giving consent and appear to affect the risk of conversion.

Author contribution

YAS, JR, and WD contributed equally to this article. All authors have read the manuscript and agreed to the contents.

Patient consent

Informed consent for patient information to be published in this article was obtained. Appropriate informed consent was obtained for the publication of this case report and accompanying images. This report has been approved by the ethical committee of Dr Soetomo General-Academic Hospital (Letter of Approval: 070/1166/102.6.3.3/Litb/2023)

REFERENCES

- [1] Lanzola EL, Ketvertis K. Intrauterine Device [Internet]. 2023 [Accessed July 12, 2023]. Available from: <https://pubmed.ncbi.nlm.nih.gov/32491335/>
- [2] Trussell J, Aiken ARA, Micks E, Guthrie KA. Efficacy, safety, and personal considerations. *Contracept Technol* 2018;21.
- [3] Aoun J, Dines VA, Stovall DW, Mete M, Nelson CB, Gomez-Lobo V. Effects of age, parity, and device type on complications and discontinuation of intrauterine devices. *Obstet Gynecol* 2014;123(3):585–92.
- [4] Kaislasuo J, Suhonen S, Gissler M, Lahteenmaki P, Heikinheimo O. Intrauterine contraception: incidence and factors associated with uterine perforation—a population-based study. *Hum Reprod* 2012;27(9):2658–63.
- [5] Rowlands S, Oloto E, Horwell D. Intrauterine devices and risk of uterine perforation: current perspectives. *Open Access J Contracept* 2016;19.
- [6] Mechanism of action, safety and efficacy of intrauterine devices. Report of a WHO Scientific Group. *World Health Organ Tech Rep Ser.* 1987;753:1–91.
- [7] Uçar MG, Şanlıkan F, İlhan TT, Göçmen A, Çelik Ç. Management of intra-abdominally translocated contraceptive devices, is surgery the only way to treat this problem? *J Obstet Gynaecol (Lahore)* 2017;37(4):480–6.