ISSN Print: 2811-1672
Online: 2811-1680

www.njbams.asmeda.org.ng

NJBAMS

NIGERIAN JOURNAL OF BASIC AND APPLIED MEDICAL SCIENCES

An official publication of the National

ASSOCIATION OF SPECIALIST MEDICAL DOCTORS IN ACADEMICS (ASMeDA aka MEDSABAMS)

Volume 4, Number 1
January - June
2025

Research Article

https://doi.org/10.53994/NJBAMS.2025.4.1.002

Urinary bladder entrapment syndrome following tubal migration of intrauterine device: A rare case report

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ABSTRACT

Background: Intrauterine contraceptive device (IUD) is one of the commonly used long-acting, reversible, and effective methods of female contraception. Rarely, it may be associated with uterine perforation, vesical migration, and stone formation. Tubal migration has been reported, but it is rare. To our knowledge, tubal migration with bladder entrapment, however, is extremely rare. We report a case of tubal migration of an IUD causing bladder entrapment syndrome due to a reduction in bladder capacity.

Case report: This is a 30-year-old housewife who presented with a 1-year history of recurrent painful micturition, fever, and storage lower urinary tract symptoms which started 2 months post-IUD insertion. She developed recurrent abdominal discomfort and had not noticed the IUD thread per vaginum following insertion of the device. She however conceived despite the IUD in-situ and had spontaneous vaginal delivery at term. There was associated suprapubic tenderness. Imaging modalities revealed the presence of T-shaped structure within the left supero-lateral bladder wall. A diagnosis of IUD migration into the urinary bladder wall was made. She had pelvic exploration and findings of phlegmon involving the fimbrial end of the left fallopian tube, left lateral wall of the bladder with entrapment of the urinary bladder, and an abscess cavity containing an intrauterine contraceptive device. The abscess was drained, the IUD retrieved, and bladder wall fibrosis was excised until full bladder expansion was achieved. This was demonstrable by the bladder mucosa protrusion. She developed a superficial surgical site infection, which was managed with a povidone iodine dressing. She was discharged on the postoperative day 7, and is currently on follow-up with no complaint.

Conclusion: The intrauterine contraceptive device may migrate through the fallopian tube into the urinary bladder wall, causing entrapment syndrome. Exploration, retrieval of the IUD, excision of the fibrotic tissue, and release of the urinary bladder.are associated with good outcomes.

Keywords: Bladder entrapment, syndrome, intrauterine device, tubal migration, storage symptoms, exploration

INTRODUCTION:

Intrauterine contraceptive device (IUD) is one of the commonly used long-acting, reversible, and effective methods of contraception with a pregnancy rate of less than 1%. (1) It accounts for 14.3% of contraception in women of reproductive age worldwide and 8.4% of contraception in our centre. (2,3) The IUDs induce chronic inflammatory changes that may affect the entire genital tract. (4) The inert ones induce local foreign body inflammation, while the active ones induce more extensive inflammation. (4) They may contain levonorgestrel or copper ions, which, when released into the uterine fluids, achieve toxic levels that are spermicidal and interfere with fertilization and implantation. (4) Rarely, it may be associated with migration and perforation of the urinary bladder or intestine. (5) Migration may be intrauterine, tubal, or by uterine perforation into the neighboring structures like the urinary bladder, peritoneum, or intestine. (6,7) Perforation into the urinary bladder may lead to stone formation. (8)

Although uterine perforation is more common, several cases of tubal migration causing hydro salpinx, tubo-ovarian abscess, and ectopic pregnancy have been reported. (9,10,11) Inguinal migration has also been reported. (12) Tubal migration leading to the formation of phlegmon and bladder entrapment syndrome is very rare. The risk factors for tubal migration include trauma and previous caesarian section. (13,14) But we have not come across tubal migration causing bladder entrapment syndrome. Removal can be by open, endoscopic, or laparoscopic approach, depending on the expertise of the surgeon and availability of endoscopic, laparoscopic, and robotic equipment. (5,15,16) We report a case of tubal migration of the IUD causing bladder entrapment syndrome due to a reduction in bladder capacity.

CASE REPORT:

This is a 30-year-old housewife who presented with a year history of recurrent painful micturition, fever, and storage lower urinary tract symptoms characterized by frequency, nocturia, and urge incontinence which started 2-months post IUD insertion. There was mild abdominal pain and discomfort following the insertion. She never saw or felt any thread per vaginum, got pregnant despite having IUD in situ and was delivered at term by spontaneous vaginal delivery. She has 4 children, and the last child birth was 6 months ago. She is a known hypertensive, regular on amlodipine and alpha-methyldopa. Blood pressure and vital signs were within normal limits. There was suprapubic tenderness. Abdominopelvic ultrasound revealed indentation of the left superior lateral bladder wall with the presence of a T-shaped echogenic structure within the region. Radiographic studies [Figure 1A] and computerized tomographic scan [Figure 1B] were done in addition to aid localization of the migrated device. A diagnosis of IUD migration into the bladder wall was made. She had pelvic exploration with findings of an intact uterus, and a phlegmon formed by the left fallopian tube, and urinary bladder. There was also entrapment of the urinary bladder and an abscess cavity containing the IUD. The abscess was drained, IUD retrieved, and bladder wall fibrosis excised [Figure 2A and 2B] until adequate bladder capacity was achieved, demonstrable by protrusion of the bladder mucosa. The pelvic cavity was irrigated with saline and povidone iodine. A size 16 Fr silicon urethral catheter was passed. She developed a superficial surgical site infection, which was managed with a povidone iodine dressing. Urethral catheter was removed on postoperative day 6, and she was discharged the following day.

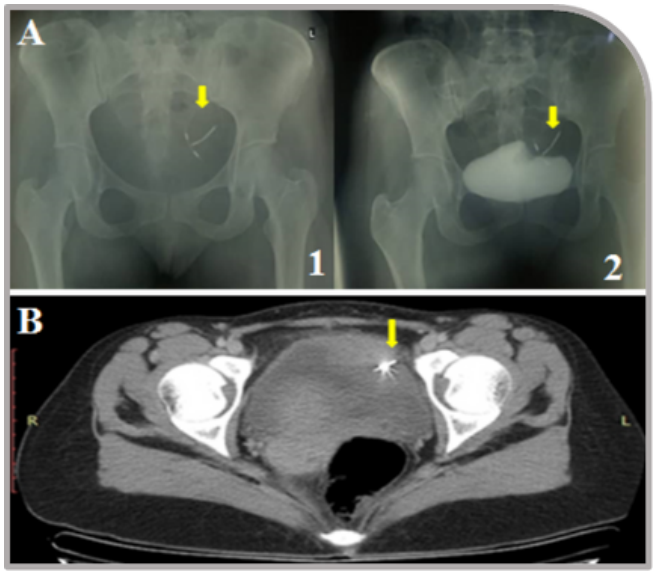


Figure 1: A, Radiographic studies showing A1) Plain Radiograph (KUB) and A2) Cystogram demonstrating the IUD (yellow arrow) on the left posterolateral bladder wall and B, Pelvic Computerised Tomographic Scan showing the IUD embedded in the lateral bladder wall (yellow arrow)

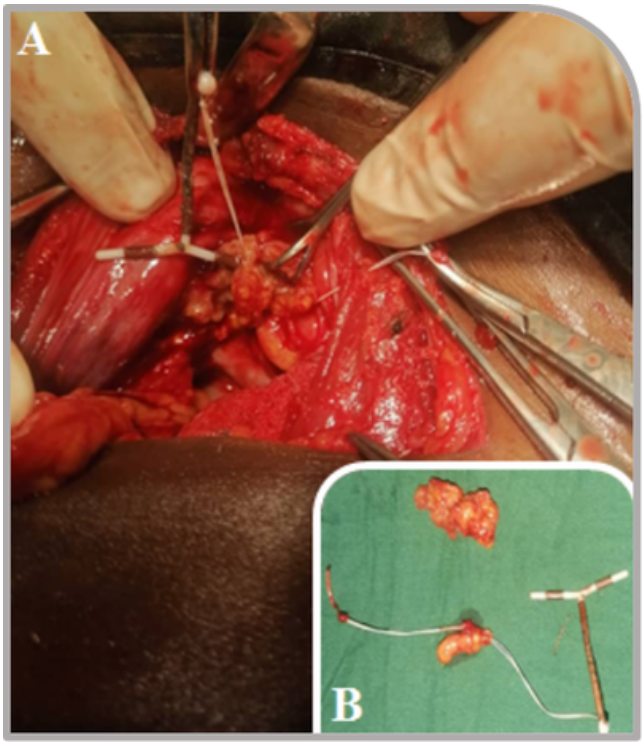


Figure 2: Intraoperative findings showing A) Intraoperative image of the IUD during exploration and removal, and B) IUD immediately after retrieval

DISCUSSION:

Intrauterine contraception device is the most effective, reversible, cost-effective, and simple method of contraception, with a pregnancy rate of less than 1 in 100. (17) Though effective, it may be associated with infection, migration, and perforation into the neighboring structures. (18). Expertise is required for IUD insertion to prevent migration and perforation during insertion. Risk factors for complications include trauma during insertion, previous caesarian section, and puerperium. (19). It occurs in young ladies in their early reproductive period in the third decade, but that of the index patient occurred in her fourth decade. (20). The findings of discomfort, pain, fever, and lower urinary tract symptoms are consistent with the previous studies. [5,6,21] Migration into the myometrium or broad ligament may be asymptomatic, and the displacement is often detected on imaging or after failure of the contraception. (21,22,23) those related to active organs like the urinary bladder and bowel, including the appendix, are always symptomatic.

(12,21,25). The exact mechanism of IUDs migration is not clear. (22) it can be spontaneous or induced. It may follow trauma at the time of insertion or physiological processes like bladder or uterine contractions and peristalsis. (6,20,26) Uterine and bladder contractions might have contributed significantly to the tubal migration of the IUD in the index case. Our patient had spontaneous vaginal delivery which could have enhanced the process; hence we consider a possible multi-stage IUD migration to the perivesical region resulting in the bladder entrapment and abscess. The period of migration was very short (less than 1 year) compared to previous reports, where it occurred after many years of insertion. (28,29) A study by Azzena et al. (25) notably reported a 12-year period of IUD migration.
Even though the impression of a missing IUD can be gotten from the history when the thread was no more palpable from the vagina, the use of imaging such as ultrasound, contrast radiograph and computerized tomographic scan can reveal the correct location. (23,24) In the index patient, the displaced IUD was easily localized on plain pelvic X-ray and cystogram, and also on the non-contrast pelvic CT scan. The definitive diagnosis and the most likely mechanism of migration may only be established intra-operatively when endoscopy, laparoscopy, or open intervention is performed. As in our index case, the extent of bladder involvement, tubal migration, abscess formation, and bladder entrapment were only defined following open exploration. Use of image guidance or confirmation of the position immediately after insertion can minimize the rate of complications. (29) also, application of the IUDs by experienced persons and continuous training and retraining can go a long way in reducing the incidence of complications. Removal of the complicated IUD can be done endoscopically, laparoscopically, or by open method. We offered our patient open removal of the IUD and bladder release.

Usually, the IUD insertion is done by trained personnel. Patients are observed immediately afterwards for pain to rule out traumatic placement and are given instructions for thread palpation and scheduled for follow-up a week after insertion. Many patients do not show up for follow-up and fail to report missing threads, as in our index patient, who even became pregnant without ever reporting the missing thread. (30). We advocate health education and proper counseling before IUD placement and strict follow-up thereafter. Those who do not show up for follow-up can be contacted by phone calls, text messages, or emails. Abdominopelvic ultrasound before and after placement to serve as a baseline may be necessary, however, this would increase the cost of the procedure. We propose a prospective study to assess the magnitude of IUD complications, risk factors, knowledge of complications, follow up and patients' responsibilities in preventing complications.

CONCLUSION

Intrauterine contraceptive device may rarely undergo tubal migration, causing bladder entrapment syndrome, which manifests with storage lower urinary tract symptoms and recurrent urinary tract infection. Open exploration will allow for accurate diagnosis, retrieval of the IUD, excision of fibrotic bands, and release of the bladder with a good outcome. Health education, expertise, monitoring of the IUD thread, and regular follow may mitigate the development of complications.

Acknowledgement: Appreciations to Nurse Amina Suleiman, ADNS Fertility Research Unit, UDUTH Sokoto for the general support provided.

Conflict of Interest: Nil

Declaration by Authors: The manuscript has been read and approved by all the authors, and the requirement for authorship has been met, and each author believes that the manuscript represents honest work.

REFERENCES

1. Sundaram A, Vaughan B, Kost K, Bankole A, Finer L, Singh S, et al. Contraceptive Failure in the United States: Estimates from the 2006-2010 National Survey of Family Growth. Perspectives on sexual and reproductive health. 2017; 49(1):7-16. doi: 10.1363/psrh.12017

2. Buhling KJ, Zite NB, Lotke P, Black K. Worldwide use of intrauterine contraception: a review. Contraception. 2014; 89(3):162-173. doi: 10.1016/j.contraception. 2013.11.011

3. Tunau KA, Singh S, Panti A, Nwobodo E, Hassan M, Bello S et al. Overview of Contraceptive Use in Usmanu Danfodiyo University Teaching Hospital Sokoto North Western Nigeria. AGE. 2019; 14(53):0-9. doi: 10.7860/JCDR/2019/41547.12960

4. Ortiz ME, Croxatto HB. Copper-T intrauterine device and levonorgestrel intrauterine system: biological bases of their mechanism of action. Contraception. 2007; 75(6): S16-S30. doi: 10.1016/j.contraception. 2007.01.020

5. Aljohani A, Alzarea AA, Alnafee R, Aljadaani KS, Sairafi R, Alzahrani A. Migrated intrauterine device: case series report. International Journal of Surgery Case Reports. 2023; 111:108631. doi: 10.1016/j.ijscr.2023.108631

6. Myo MG, Nguyen BT. Intrauterine device complications and their management. Current Obstetrics and Gynecology Reports. 2023; 12(2):88-95. doi: 10.7759/cureus.40938

6. Myo MG, Nguyen BT. Intrauterine device complications and their management. Current Obstetrics and Gynecology Reports. 2023; 12(2):88-95. doi: 10.7759/cureus.40938

7. Al-Ojaimi EH, Ebrahim SA. Laparoscopic Retrieval of a Migrated Intrauterine Contraceptive Device. 2020; World 13(2):85. https://doi.org/10.5005/jp-journals-10033-1409

8. Matsuta Y, Terai A, Arai Y. Intravesical migration of intrauterine contraceptive device (IUCD) with stone formation. Nihon Hinyokika Gakkai zasshi The Japanese Journal of Urology. 2011; 102(3):603-6. doi: 10.5980/jpnjurol.102.603

9. Sindos M, Pisal N, Setchell M, Singer A. Tubal migration: a rare complication of an intrauterine contraceptive device leading to formation of a hydrosalpinx. American journal of obstetrics and gynecology. 2003; 188(4):1109-10. doi: 10.1067/mob.2003.192

10. Luedders DW, Chalvatzas N, Banz C, Horneman A, Diedrich K, Kavallaris A. Tubo-ovarian abscess in woman with an intrauterine device forgotten for 22 years. Gynecological Surgery. 2010; 7:181-4. doi: https://doi.org/10.1007/s10397-009-0550-y

11. Makena D, Gichere I, Warfa K. Levonorgestrel intrauterine system embedded within tubal ectopic pregnancy: a case report. Journal of Medical Case Reports. 2021; 15:1-6. doi: 10.1186/s13256-021-02723-7

12. Aghaways I, Wahid SA, Ali RHG, Sabir F, Kakamad FH. Migration of an intrauterine device to the left inguinal region, the first reported case. International journal of surgery case reports. 2016; 28:68-70. doi: 10.1016/j.ijscr.2016.09.030

13. Badr DA, Cheikh SM, Al Hassan JM, Ramadan MK. Tubal Migration of Intrauterine Device: A Report of a Rare Case of Trauma-Induced Migration Leading to Acute Abdomen. Journal of Clinical Gynecology and Obstetrics. 2017; 6(3-4):75-8. doi: https://doi.org/10.14740/jcgo453w

14. Toh WL, Lim WW, Tan WKA, Lim SKJ. An Unusual, Delayed Presentation of a Migrated Intrauterine Contraceptive Device into the Rectosigmoid Colon. Cureus, 2023; 15(8): e42851. doi: 10.7759/cureus.42851

15. Gazzah W, Mansi Z, Zaidi B. Contraceptive complication: Emergence of a bladder stone - A case report. Int J Surg Case Rep. 2024; 118:109622. doi: 10.1016/j.ijscr.2024.109622

16. Han X, Yang H. Successful endoscopic management of 3 cases of translocated intrauterine devices: a case report. Annals of palliative medicine. 2021; 10(2):2371378-2378. doi: 10.21037/apm-21-184

17. Lanzola EL, Ketvertis K. Intrauterine Device. StatPearls. Treasure Island (FL) ineligible companies. Disclosure: Kari Ketvertis declares no relevant financial relationships with ineligible companies.: StatPearls Publishing Copyright © 2024, StatPearls Publishing LLC.; 2024. PMID: 32491335

18. Buckley CH. The pathology of intra-uterine contraceptive devices. Current topics in pathology Ergebnisse der Pathologie. 1994; 86:307-30. doi: 10.1007/978-3-642-76846-0_8

19. Sharma R, Suneja A. Incarcerated and Transmigrated Intrauterine Contraceptive Devices Managed at a Tertiary Care Teaching Hospital of East Delhi: A 5-Year Retrospective Analysis. Journal of obstetrics and gynaecology of India. 2019; 69(3):272-8. doi: 10.1007/s13224-018-1159-8

20. Almatary A, Alsharif A, Ghabisha S, Ahmed F, Badheeb M. Open surgical retrieval of intra-uterine contraceptive device perforating the ileum: A case report. Int J Surg Case Rep. 2023; 109:108635. doi: 10.1016/j.ijscr.2023.108635

21. Saputra AND, Rahman MN, Widyasari A. Removal of Complete Spontaneous Migration of an Intrauterine Contraceptive Device to the Bladder by Cystoscopy. Case reports in obstetrics and gynecology. 2024:6934178. doi: 10.1155/2024/6934178

22. Bennis H, Berraho K, Kouarty I, Omrani H, Filali A, Saadi N, et al. [Transuterine migration of intrauterine contraceptive devices]. Revue medicale de Liege. 2011; 66(3):153-8. PMID: 21560432

23. Badu-Peprah A, Adu-Bredu TK, Adu-Takyi C. The role of multimodality radiological imaging in extrauterine misplaced IUCD: A case report. African journal of reproductive health. 2020; 24(4):213-7. DOI: 10.29063/ajrh2020/v24i4.21

24. Setianingsih YA, Djatisoesanto W, Renaldo J. Laparoscopic removal of migratory intrauterine contraceptive device to the bladder: A Case report and literature review. Radiology case reports. 2024; 19(4):1650-3. doi: 10.1016/j.radcr.2024.01.047

25. Azzena A, Vasoin F, Pellizzari P, Quintieri F, Angarano R. A rare case of IUD tubal migration. Case report. Clinical and Experimental Obstetrics & Gynecology. 1994; 21(4):246-8. PMID: 7994875

26. Ago BU, Enakirerhi G. Bladder stone caused by misplaced intrauterine contraceptive device: a case report. The Pan African medical journal. 2022; 42: 143. doi: 10.11604/pamj.2022.42.143.35362

27. Bashir BM, Atobatele MO, Illo HG. Bladder calculus resulting from an intravesical translocation of intrauterine contraceptive device in a postmenopausal woman. Nigerian journal of medicine: journal of the National Association of Resident Doctors of Nigeria. 2016; 25(1):90-92. PMID: 29963836.

28. Arshad Z, Saleem A, Zarak MS, Ahadi A, Umar Q, Afshan R. From Contraception to Calculus: An Unusual Case of Intrauterine Contraceptive Device (IUCD) Migration to the Bladder, Recovering Nine Years Post-insertion. Cureus 2024; 16(4): e57582. doi.org/10.7759/cureus.57582

29. Balica AC, Kim CS, Egan S, Ayers CA, Bachmann GA. Sonographically guided insertion of intrauterine device: Indications and results. Journal of clinical ultrasound: JCU. 2018; 46(2):132-5. DOI: 10.1002/jcu.22557

30. Mishra S. Tale of the Tails, the Missing Postpartum IUCD Strings. Journal of obstetrics and gynaecology of India. 2017; 67(3):202-7. DOI: 10.1007/s13224-016-0940-9