

A Rare Manifestation of Migrated Intrauterine Contraceptive Device: A Case Study Highlighting Symptoms and Ultrasound Detection

Augustina Badu-Peprah ^{1,2,*}, Theophilus Kofi Adu-Bredu ³, Daniel Asante-Mante ⁴, Kwame Asiedu Danso ⁵ and Yaw Boateng Mensah ⁶

¹ Radiology Directorate, Komfo Anokye Teaching Hospital, Kumasi, Ghana.

² Radiology Department, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.

³ Obstetrics and Gynaecology Directorate, Komfo Anokye Teaching Hospital, Kumasi, Ghana.

⁴ Obstetrics and Gynaecology Department, Firstcare Hospital, Kumasi, Ghana.

⁵ Obstetrics and Gynaecology Department, Manhyia Hospital, Kumasi, Ghana.

⁶ Department of Radiology, University of Ghana Medical School, Accra, Ghana.

World Journal of Advanced Research and Reviews, 2024, 22(03), 480–484

Publication history: Received on 27 April 2024; revised on 06 June 2024; accepted on 08 June 2024

Article DOI: <https://doi.org/10.30574/wjarr.2024.22.3.1738>

Abstract

Ultrasonography is a widely used and cost-effective imaging modality, but its effectiveness can be operator dependent. We present the case of a 29-year-old para 3A woman who experienced intermittent low abdominal pains and skin rash following the insertion of a copper-T intrauterine contraceptive device (IUCD). Ultrasound, performed by an experienced operator, was crucial in diagnosing a migrated IUCD with adnexal and skin complications. This case highlights the importance of skilled ultrasound operators in detecting migrated IUCDs and associated complications.

Keywords: Intrauterine Contraceptive Device; Uterine Perforation; Ultrasonography; Migrated IUCD.

1. Introduction

Intrauterine contraceptive devices (IUCDs) are commonly used contraceptive methods, but they are not without complications [1,2]. Imaging modalities are essential for accurately locating migrated IUCDs and their associated complications [3,4]. However, many low-resourced settings lack access to advanced imaging [5,6]. We report a case where ultrasound, skillfully performed by an experienced operator, was instrumental in diagnosing a migrated IUCD with uncommon manifestation.

2. Case presentation

A 29-year-old para 3A woman presented to the hospital with a history of intermittent lower abdominal pains and skin rash of over five months duration (Figure 1A). She had received a copper-T IUCD at the family planning clinic of a District Hospital 5 months and 1 week ago, but she could not feel the device's string in her vagina. Her gynaecologist examined her and confirmed the absence of the string of the IUCD and as well elicited tenderness in her right adnexa. He then ordered a pelvic ultrasound examination which revealed an empty uterus and the presence of the IUCD in the right adnexa encased in a complicated collection with internal echoes consistent with an abscess (Figure 2A & 2B).

* Corresponding author: Augustina Badu-Peprah

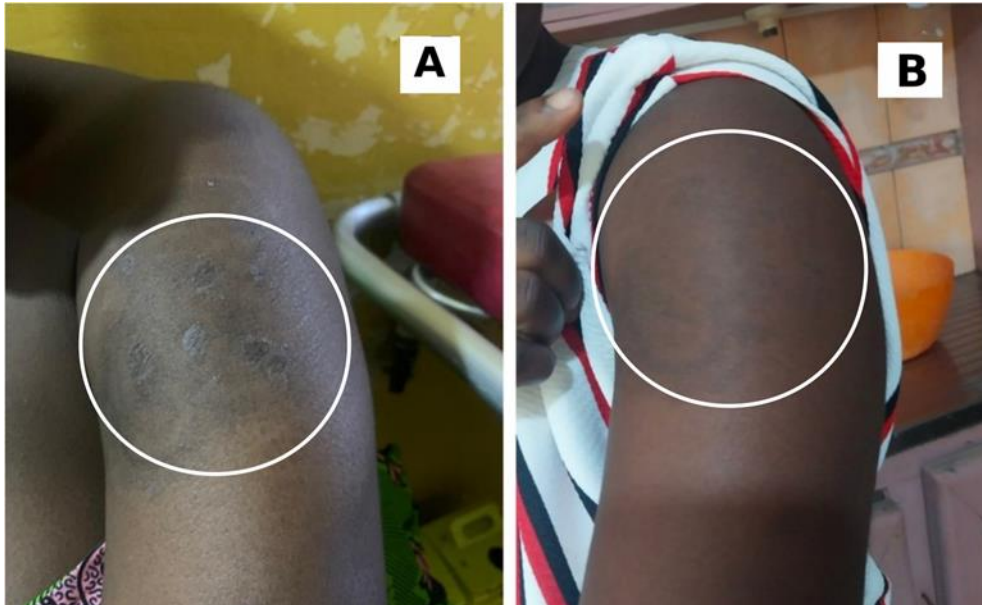


Figure 1 An Image showing a pigmented skin rash on the arm (A) and the resolution after removal of the intrauterine contraceptive device (B).

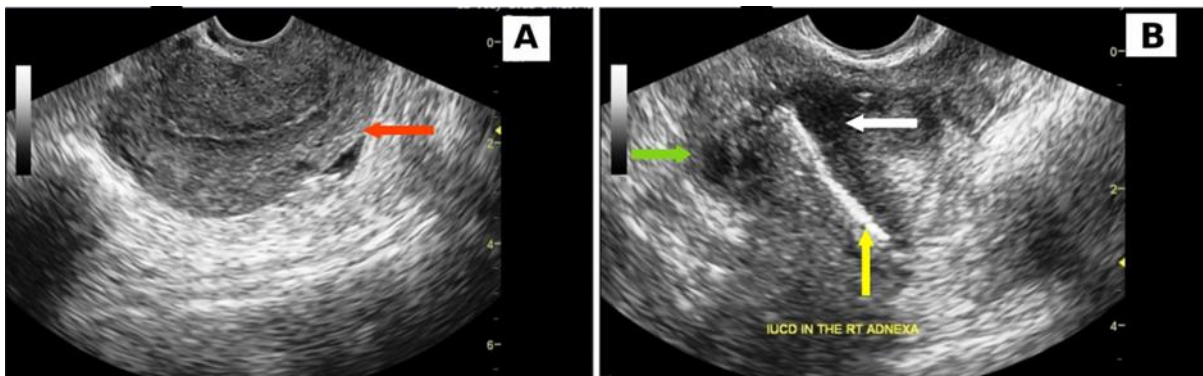


Figure 2 Transvaginal ultrasound images showing an empty uterus (red arrow) and the copper-T intrauterine contraceptive device (yellow arrow) in the right adnexa abutting the right ovary (green arrow) and encased in abscess (white arrow).

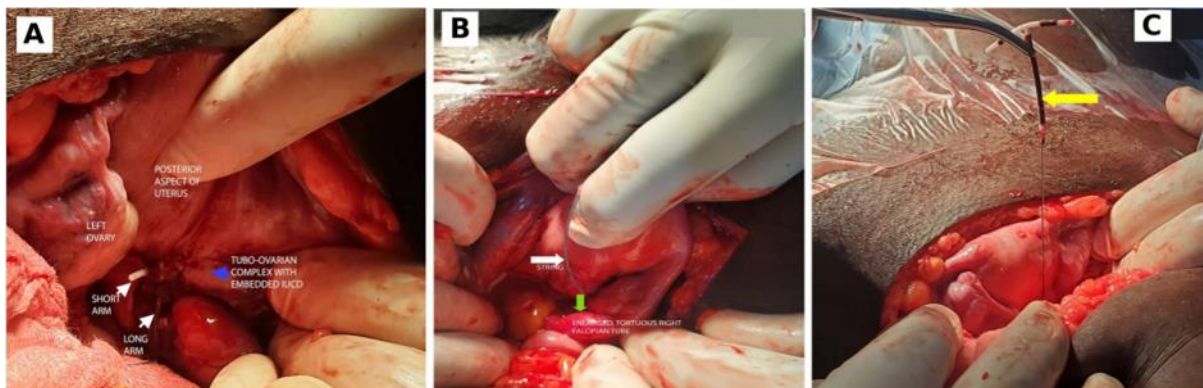


Figure 3 Images showing intrauterine contraceptive device (IUCD) lodged in a pocket of pus in the right adnexa with associated adhesions and the right ovary (blue arrow), inflamed right fallopian tube (green arrow), with the IUCD (white arrow) adjacent to it, and the removed intrauterine contraceptive device (yellow arrow).

An exploratory laparotomy performed on 26th July 2022, confirmed the presence of the IUCD in the right adnexa, surrounded by pus and adhesions (Figure 3A). The right ovary was affected, and the ipsilateral fallopian tube showed inflammation (Figure 3B). The migrated IUCD was removed (Figure 3C), and a right salpingo-oophorectomy was subsequently performed. The patient's postoperative recovery was uneventful. Histology confirmed an acute on chronic inflammation with no malignancy.

3. Discussion

Our case report highlights the important role ultrasound can play in the prompt and accurate detection of migrated IUCD even in limited resource settings. Both transabdominal and transvaginal ultrasound scans were performed to ensure a comprehensive evaluation of the pelvis which lead to the diagnosis and subsequent management.

Ultrasound is a valuable tool in the initial assessment of patients with suspected migrated IUCDs. It offers a non-invasive, cost-effective, and widely available imaging option that can provide critical information about the device's location and associated complications. While other advanced imaging modalities like computed tomography (CT) and magnetic resonance imaging (MRI) can provide more detailed information, their availability may be limited in resource-constrained settings [6].

While ultrasound can be highly effective in detecting migrated IUCDs, its accuracy largely depends on the operator's expertise [7,8]. Like Tolsgaard et al, we emphasize the importance of training and proficiency in pelvic ultrasound, especially the transvaginal approach, to maximize sensitivity and accuracy in mapping the location of missing or migrated IUCDs [7]. In cases where ultrasound fails to detect the device, a plain radiography examination of the pelvis can be performed to detect the radio-opaque structure, although it may not precisely identify the device's location. In the ideal clinical setting, a computed tomography (CT) with 3-D reformatted images in coronal and sagittal views is usually performed to provide information on the exact device location that could inform management decisions [3].

Peri et al and other researchers have suggested that uterine perforation usually occurs at the time of insertion and rarely occurs later and that may have been the case in this patient [9-12]. Subsequent visceral migration has been documented to be due to uterine contractions [12]. A thorough pelvic evaluation using a step-by-step transvaginal approach can increase sensitivity and accuracy in mapping the location of missing or migrated pelvic IUCDs.

While some studies have shown limitations in using ultrasound alone to detect migrated IUCDs, our case demonstrates the effective use of pelvic ultrasound when performed by an experienced operator [2,13]. It is worth noting that, in some studies where multi-imaging modality was used, ultrasound accurately mapped the area of migration and further radiological imaging confirmed the ultrasound findings and also identified missed complications [3,14].

This case also presents an intriguing discovery of hyperpigmented skin lesions in response to the copper-T IUCD, a phenomenon not previously reported in the literature. Approximately one week after the IUCD insertion, the patient developed hyperpigmented skin rashes on both her upper arms and thighs, which were not accompanied by itching or swelling. Seeking medical attention, she consulted a dermatologist who initially treated the rash as a possible fungal infection. However, the rash showed no response to the treatment and continued to worsen. The dermatologist then considered the possibility of an allergic reaction. Following the removal of the IUCD, the patient received further dermatological treatment, leading to a cessation of rash progression, and complete resolution within two months after the device's removal (Figure 1B).

Surgical management is recommended once a migrated IUCD is identified, particularly when associated with abscess and fistula formation and this necessitated the decision for an exploratory laparotomy and successful removal of the IUCD in this case [15]. Some authors, however, argue against surgical removal in asymptomatic cases [16].

4. Conclusion

This case report illustrates the critical role of ultrasonography in detecting a migrated intrauterine contraceptive device and its associated complications. The skilled use of transabdominal and transvaginal ultrasound allowed for an accurate mapping of the IUCD's location, leading to timely surgical intervention and successful removal. In resource-limited settings, where advanced imaging modalities may not be readily available, ultrasound can serve as an invaluable diagnostic tool. Healthcare providers should be vigilant in considering migrated IUCDs in patients presenting with atypical symptoms following insertion and ensure prompt evaluation and appropriate management to prevent potential complications and improve patient outcomes. Continuous training and proficiency in pelvic ultrasound are essential to

enhance the sensitivity and accuracy of detecting missing or migrated pelvic IUCDs. Further research and larger studies are warranted to explore the utility of ultrasound in detecting migrated IUCDs and its impact on patient care in diverse clinical settings.

Compliance with ethical standards

Acknowledgments

The authors are appreciative of the patient for giving us consent for this paper to be written. Also, we thank Mr. Frank Quarshie and the staff of the Ultrasound scan and Surgery units for helping us with the acquisition of these images.

Disclosure of conflict of interest

The authors declared no conflicts of interest.

Statement of informed consent

An oral informed consent was obtained from the patient for this case to be reported for publication. The patient was assured of absolute confidentiality and anonymity. Ethical clearance was not required for this study.

Funding

The author(s) declare no financial support for the research, authorship, or publication of this article.

Author contributions

The author(s) declare that all author(s) contributed equally, approve of this work, and take full responsibility.

References

- [1] Tsui AO, Brown W, Li Q. Contraceptive Practice in Sub-Saharan Africa. *Popul Dev Rev.* 2017 May;43(Suppl Suppl 1):166–91. <https://doi.org/10.1111/padr.12051>
- [2] Kho KA, Chamsy DJ. Perforated Intraperitoneal Intrauterine Contraceptive Devices: Diagnosis, Management and Clinical Outcomes. *J Minim Invasive Gynecol.* 2014;21(4):596–601. <https://doi.org/10.1016/j.jmig.2013.12.123>
- [3] Badu-Peprah A, Adu-Bredu TK, Adu-Takyi C. The role of multimodality radiological imaging in extrauterine misplaced IUCD: A case report. *Afr J Reprod Health.* 2020 Dec;24(4):213–7. <https://doi.org/10.29063/ajrh2020/v24i4.21>
- [4] Carroll A, Paradise C, Schuemann K, Schellhammer SS, Carlan SJ. Far migration of an intrauterine contraceptive device from the uterus to the small bowel. *Clin Case Rep.* 2022 Mar 13;10(3):e05589. <https://doi.org/10.1002/ccr3.5589>
- [5] Badu-Peprah A, Otoo OK, Amamoo M, Quarshie F, Adomako B. Breast imaging reporting and data system for sonography: Positive and negative predictive values of sonographic features in Kumasi, Ghana. *Translational Oncology.* 2024 Jul 1;45:101976. <https://doi.org/10.1016/j.tranon.2024.101976>
- [6] Ogbole GI, Adeyomoye AO, Badu-Peprah A, Mensah Y, Nzeh DA. Survey of magnetic resonance imaging availability in West Africa. *Pan Afr Med J [Internet].* 2018 [cited 2020 Oct 18];30. Available from: <http://www.panafrican-med-journal.com/content/article/30/240/full/>
- [7] Tolsgaard MG, Ringsted C, Dreisler E, Klemmensen A, Loft A, Sorensen JL, et al. Reliable and valid assessment of ultrasound operator competence in obstetrics and gynecology. *Ultrasound in Obstetrics & Gynecology.* 2014;43(4):437–43. <https://doi.org/10.1002/uog.13198>
- [8] Abuhamad A, Minton KK, Benson CB, Chudleigh T, Crites L, Doubilet PM, et al. Obstetric and Gynecologic Ultrasound Curriculum and Competency Assessment in Residency Training Programs: Consensus Report. *Journal of Ultrasound in Medicine.* 2018;37(1):19–50. <https://doi.org/10.1002/jum.14519>
- [9] Peri N, Graham D, Levine D. Imaging of Intrauterine Contraceptive Devices. *Journal of Ultrasound in Medicine.* 2007;26(10):1389–401. <https://doi.org/10.7863/jum.2007.26.10.1389>

- [10] Zakin D, Stern WZ, Rosenblatt R. Complete and partial uterine perforation and embedding following insertion of intrauterine devices. I. Classification, complications, mechanism, incidence, and missing string. *Obstetrical & gynecological survey*. 1981;36(7):335. <https://doi.org/10.1097/00006254-198107000-00001>
- [11] Rowlands S, Oloto E, Horwell DH. Intrauterine devices and risk of uterine perforation: current perspectives. *Open Access J Contracept*. 2016 Mar 16;7:19–32. <https://doi.org/10.2147/OAJC.S85546>
- [12] Eke N, Okpani AO. Extrauterine translocated contraceptive device: a presentation of five cases and revisit of the enigmatic issues of iatrogenic perforation and migration. *Afr J Reprod Health*. 2003 Dec;7(3):117–23. <https://doi.org/10.2307/3583296>
- [13] Deshmukh S, Ghanouni P, Jeffrey RB. Early sonographic diagnosis of intrauterine device migration to the adnexa. *J Clin Ultrasound*. 2009 Sep;37(7):414–6. <https://doi.org/10.1002/jcu.20591>
- [14] Ozdemir S, Cihangir N, Görkemli H, Emlik D. Pyosalpinx caused by the tubal migration of an intrauterine device—a case report. *Eur J Contracept Reprod Health Care*. 2008 Sep;13(3):320–2. <https://doi.org/10.1080/13625180802254563>
- [15] WHO Scientific Group on the Mechanism of Action, Efficacy of Intrauterine Devices. Mechanism of action, safety and efficacy of intrauterine devices. Vol. 753. World Health Organization; 1987. Available from: <https://apps.who.int/iris/handle/10665/38182>
- [16] Markovitch O, Klein Z, Gidoni Y, Holzinger M, Beyth Y. Extrauterine mislocated IUD: is surgical removal mandatory? *Contraception*. 2002 Aug 1;66(2):105–8. [https://doi.org/10.1016/S0010-7824\(02\)00327-X](https://doi.org/10.1016/S0010-7824(02)00327-X)