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Case Report

Open surgical retrieval of ovarian migrated intrauterine contraceptive device: a case report

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ABSTRACT

Intraovarian migration of intrauterine contraceptive device (IUD) is a rare complication, only few cases have been reported. Arguably no reported case in Nigeria to best of knowledge. The patient was Mrs. S.I, a 29-year-old primiparous presented with a 6-hour history of abdominal pain, the pain was said to be sudden in onset pain associated with vomiting. She used an IUD for contraception for about 2 years prior to her presentation. The physical examination showed a patient with good hemodynamic and ventilatory status. Abdominal and vaginal examination revealed marked tenderness at suprapubic and left iliac region, with positive cervical excitation and left adnexal tenderness respectively. Provisional diagnosis of acute pelvic inflammatory disease was made, empirical broad spectrum antibiotic therapy commenced, pelvic scanning done revealed a hyperechoic structure, likely intrauterine device, perforating the uterine fundus and extending into the left ovary. Subsequently, she had laparotomy and the removal of the device. She did well post-surgery and was discharged home to follow in the clinic on the third day after surgery. Intraovarian migration of IUD is one of the rare complications of the device. High index of suspicion with radiological imaging support is necessary in making the diagnosis in a woman of reproductive age group with IUD in- situ regardless of the visible IUD string or not.

Keywords: Intrauterine device, Contraceptives, Complication

INTRODUCTION

The frequent occurrence of consecutive, early, and unintended pregnancies, as well as induced abortions and their associated complications, has led to the evolution of family planning approaches and the improvement of contraceptive techniques.[1] Among these methods, the intrauterine device (IUD) stands out as one of the most widely adopted globally, with approximately 8.4% of women of reproductive age utilizing it worldwide.[1] It provides a simple, dependable, and reversible method of contraception, demonstrating failure rates of less than 1% within the first 12 months of use.[2] While this effective device is not without drawbacks, the most significant is uterine perforation by the IUD, leading to subsequent migration to neighboring structures such as the bowel, bladder, and, rarely, ovaries.[3] Diagnosis generally relies on ultrasound, occasionally complemented by computed tomography or pelvic MRI when readily available.[4] Management typically includes the systematic removal of the migrated IUD, even in the absence of symptoms. In this case, we present a distinctive instance of uterine perforation by an IUD resulting in intraovarian migration.

CASE REPORT

The patient was Mrs. S.I, a 29-year-old primiparous, separated from her husband. She presented with a 6-hour

history of abdominal pain, the pain was said to be sudden in onset and to have been increasing in severity, which started at the left iliac region and radiated to the back. It was said to be dull aching and constant. The pain was said to be associated with vomiting, the patient had two episodes of vomiting since the onset of symptoms, prior to presentation, the vomitus was said to contain recently ingested meals, non-projectable neither bloody nor mucoid but bilious, and no known relieving or aggravating factors. There was no history of fever, anorexia, constipation or abdominal distention, No amenorrhea or bleeding per vaginam. No preceding history of trauma to the abdomen. There was a previous history of vaginal discharge and recurrent dysuria about two months prior for which she was treated in our facility on an outpatient basis. The current pain was severe enough to disrupt her daily activities, scoring the pain to be 9/10, necessitating her presentation.

Gynecological history

She attained menarche at age 13, and has a regular menstrual pattern, 5 days of menstrual flow in a 26-day cycle length. Her last menstrual period was 16 December 2023. There was no history of dysmenorrhea, menorrhagia, or dyspareunia but she had a history suggestive of acute pelvic inflammatory disease that was treated in an outside facility in the last one year. There was history of multiple sexual partners with barrier contraceptive occasionally being used by her sexual consorts. She used an IUD for contraception for about 2 years prior to her presentation, IUD was inserted 6-week after her last confinement in 2021 at a primary health centre.

The physical examination showed a patient with good hemodynamic and ventilatory status. On examination of the abdomen, there was marked tenderness at suprapubic and left iliac region. The liver and spleen were not palpable, her kidneys were not ballotable, bowel sounds were normoactive. Vaginal examination showed a normal female external genitalia, the string of the IUD was visible at the cervical os, some yellowish collection was seen at the posterior fornix of the vagina; there was marked cervical excitation tenderness and left sided adnexal tenderness. Initial provisional diagnosis of acute pelvic inflammatory disease was made. Pelvic ultrasound showed a normal-sized non-grand anteverted uterus with a regular outline (measuring 8.99 cm by 3.63 cm) and the endometrial stripe was 2.7 mm thick. A hyperechoic structure, likely intrauterine device, was noted perforating the uterine fundus and extending into the left ovary. A complex mass comprising the left ovary, IUD, and uterine fundus was noted with associated probe tenderness, and fluid in the pouch of Douglas (Figure 1). Other investigations done were full blood count, endocervical swab for microscopy, culture and sensitivity and serum pregnancy test. She was placed on empirical broad spectrum antibiotic therapy.

Full blood count included packed cell volume- 32%, white blood cell count- 9,400 cells per microlitre, and platelets count- 267,000 cells per microlitre.

Serum pregnancy test was found to be negative.

Endocervical swab M/C/S yielded moderate growth of gram-negative bacillus *E. coli* after 48 hours of incubation, sensitive to Levofloxacin, Ceftriaxone and Cefixime.

Retroviral screening and Pap smear result not remarkable.

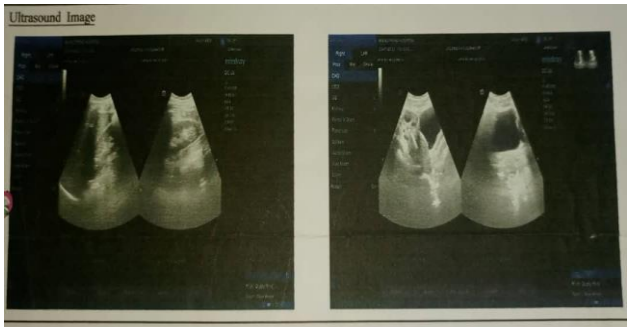

Figure 1: Suprapubic pelvic ultrasound showed intrauterine device perforating the uterine fundus and extending into the left ovary.

A laparotomy was performed to extract the IUD that has migrated into the pelvic cavity. When the abdominal cavity was opened, the IUD was seen sticking out of the fundus of the uterus with part of the vertical portion still within the uterus, and the wing (horizontal portion) embedded in the inflamed and hemorrhaging left ovary; the right ovary and tubes were grossly normal. The IUD was removed, the uterus was repaired using vicryl 2; the left ovary was resected and the stump was suture ligated with vicryl 2/0 suture (Figure 2).

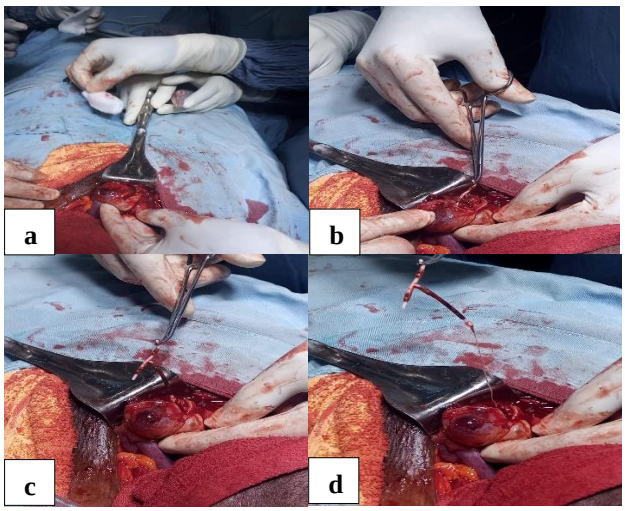

Figure 2 (a-d): Intraoperative findings showing IUD embedded within ovary after perforating the uterus.

The postoperative follow-up was uncomplicated and she was discharged home post-operative day 3 on oral medications. The patient was followed at the gynae clinic and family planning clinic for 6 months after the removal of the IUD with good clinical improvement. As at her last clinic visit she was on 3 yearly implant with emphasis on the use of barrier contraceptive in view of her marital status.

DISCUSSION

IUDs rank among the most efficient reversible contraception methods, they are offered to women desirous of long-term reversible contraception and those in whom combined hormonal contraception is contraindicated. Alongside implants, IUDs are categorized as long-acting reversible contraceptives (LARCs) due to their ability to prevent pregnancy for multiple years. Depending on the type, IUDs remain effective for three to ten years. LARCs have been recognized as superior to alternative contraceptive methods.[5]

The utilization of IUDs has surged, reaching an estimated 159 million users globally in 2019. This represents 8.4% of women of reproductive age, with rates soaring as high as 46.9% in specific regions.[1] The most popularly used type of non-hormonal IUD in the developing nations is the copper (Cu) T 380A and T 200, while for levonorgestrel containing intrauterine devices the common ones include LNG 52, LNG 14, and LNG 20.[2] These devices are highly effective and not reliant on user adherence, with a pearl index (PI) of 0.6 for ideal use and 0.8 for typical use. Thus, the real-world user failure rate is less than 1%. After prolonged continuous use, the cumulative pregnancy rate is 1.6% at 7 years and 2.2% at 8 and 12 years.[2]

The mechanism of action of the IUD operates at various levels. At the endometrial level, it induces direct trauma and a non-specific inflammatory response as the copper ions released from Cu-IUDs accentuate the inflammatory response and reach levels in the luminal fluids of the genital tract that are harmful to spermatozoa and embryos.[6] Concerning cervical mucus, the IUD with progesterone can alter its characteristics, making it less conducive for sperm passage by reducing quantity, viscosity, and spinning. Within the fallopian tubes, there is a disruption in tubal motility and an inflammatory change in the mucosa, potentially hindering the transport of sperm and blastocysts. Additionally, both copper and progesterone in the IUD exhibit cytotoxic effects on spermatozoa.[6]

Inserting an IUD is a simple medical procedure, but it comes with potential complications. Although infections and the spontaneous expulsion of the IUD are frequent, uterine perforation followed by intraperitoneal migration of the device is rare, occurring in approximately 0.4 to 6.7 per 1000 insertions.[6] Migration may occur to the bladder, which is the most frequent location for migration outside of the uterus, sometimes resulting in the formation of calculi while ovary is the least reported area of migration.[5,7] The likelihood of IUD perforation correlates with factors such as the type of device used, the expertise of the operator, the positioning of the uterus (anteverted or retroverted), previous childbirths, scarring of the uterus, any underlying uterine abnormalities, and the time elapsed between childbirth and insertion.[5,6] The risk of perforation during the puerperium period is estimated to be 2.5 per 1,000 insertions. Breastfeeding at the time of insertion was linked to a six-fold increase in the risk of perforation.[8] In the index patient, the insertion was performed during the puerperal period while the patient was breastfeeding.

The diagnosis of IUD perforation and migration is occasionally suspected based on clinical findings and confirmed through radiological imaging. Clinically, the symptoms can vary depending on the location of the migration. According to the literature, approximately 85% of perforations are entirely asymptomatic without involving adjacent organs.[5] However, they can also present with diverse symptoms such as pelvic pain, dyspareunia, abnormal vaginal bleeding, inability to feel the IUD strings, and a positive pregnancy test. In the remaining 15% of cases, IUD perforation can result in complications involving adjacent organs.[5] These complications may include bowel obstruction, bowel perforation, perforation of the mesentery, urinary bladder perforation, rectal strictures, and the formation of recto-uterine fistulas. Additionally, there can be instances of embedding into the ovary, although this occurs infrequently.[9] Patients affected by these complications may present with symptoms such as fever, abdominal pain, diarrhea, urinary tract infections, and signs indicative of peritonitis resulting from the perforation of a hollow organ.[10]

During gynecological examination, the suspicion of migration arises when the string of the IUD is not visualized at the level of the cervical os. However, clinicians need to note that the presence of the string exiting the cervical os does not necessarily rule out uterine perforation. This possibility must always be considered, as in the case of this patient where the strings were observed exiting the cervical os despite the perforation.

Ultrasonography, whether transabdominal or transvaginal, serves as the initial diagnostic tool to localize the IUD and detect any uterine perforation. Additionally, ultrasound can provide valuable information regarding the relationship of the device with adjacent organs such as the small bowel, urinary bladder, and ovary.[11] Other relevant investigations, such as plain abdominal X-rays and hysterography (after ruling out pregnancy), can also be employed when the IUD is not visualized intrauterine by ultrasound. However, computed tomography (CT) and magnetic resonance imaging (MRI) are considered the optimal radiological examinations for managing this complication. Nonetheless, their utilization may be restricted by cost and accessibility constraints, as it was in the setting of this patient.[11]

In terms of treatment, the World Health Organization and the International Federation of Family Planning recommend the removal of the migratory IUD, even in cases where there are no apparent symptoms.[6] The primary method for removing the migratory IUD is laparoscopy, as it is considered less invasive and more practical.[11]

Laparotomy is indicated in cases where laparoscopy fails, or when there are complications involving the digestive tract, bladder, or uterus, as well as in patients with multiple abdominal scars due to adhesive tissue formation.[5] In this particular case, given the unavailability of laparoscopy at our facility, laparotomy was necessary.

While the IUD contraceptive is an attractive option for long-term reversible contraception, it is not without its drawbacks, with uterine perforation and subsequent migration into surrounding structures being a primary concern. Therefore, it is important to maintain a high index of suspicion when a woman using an IUD presents with any of the symptoms mentioned earlier.

CONCLUSION

Despite the challenges and potential complications associated with IUDs, their efficacy and benefits in long-term reversible contraception remain noteworthy. A comprehensive understanding of the risks, diagnostic approaches, and treatment options is essential for healthcare providers to ensure the safe and effective use of IUDs in family planning. Maintaining a heightened awareness and suspicion of potential complications is crucial for delivering optimal care to women utilizing this contraceptive method.

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