Case Report

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Accidental Journeys: Intrauterine Contraceptive Device Migration to the Sigmoid Colon and Right Ovary – A Report of Two Cases

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ABSTRACT

Ectopic migration of intrauterine contraceptive devices (IUCDs) to neighboring organs is infrequent, but can lead to severe consequences. This article presents two cases of IUCD migration resulting in serious outcomes, including sigmoid colon penetration in the first case (a 25-year-old) and right ovary penetration and contraceptive failure leading to pregnancy in the second case (a 19-year-old). The IUCD was inserted 6 months ago and 2 years ago in the first and second cases, respectively. Both cases underwent surgical exploration and IUCD removal. Fortunately, both patients experienced uneventful recoveries without any complications. In conclusion, although uncommon, IUCD ectopic migration may result in contraceptive failure and, in some cases, organ perforation. Thorough evaluation during care visits is necessary for proper IUCD placement, and radiological assessment should be performed in cases of a 'missed IUCD,' even if the patient is asymptomatic. Timely removal of an ectopic IUCD is strongly advised to minimize potential risks.

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Introduction

Antrauterine contraceptive devices (IUCDs) are widely regarded as one of the most extensively used contraceptive methods due to their remarkable tolerance, long-lasting efficacy, and reversibility [1]. However, IUCD perforation of the uterus or cervix with subsequent ectopic migration into neighboring reproductive, gastrointestinal, or genitourinary structures can be a serious complication [1, 2]. The challenging aspect of this clinical entity lies in its rarity, which manifests with elusive and nonspecific symptoms, often mimicking other medical conditions [2, 3]. Fortunately, the majority of intraperitoneal IUCD perforations tend to be uncomplicated, with the IUCD remaining inert within the abdominal cavity, while organ perforation and/or damage are infrequently observed [1].

Literature on ectopic IUCD transmigration leading to sigmoid or ovarian perforations with pregnancy is scarce, with only a limited number of published papers [2-4]. In this article, we present two cases involving ectopic IUCD migration and organ perforations: the first case involves the sigmoid segment, and the second case involves ovarian perforation with contraceptive failure leading to pregnancy.

Case presentation

Case One

Patient Information

A 25-year-old woman, a mother of two children (gravida 2, para 2+0), underwent a recent IUCD insertion two months ago. She has been experiencing mild left lower abdominal pain accompanied by minimal vaginal bleeding since the IUCD placement. There were no associated symptoms of nausea, rectal bleeding, or other gastrointestinal symptoms. Additionally, she confirmed regular menstruation and denied any previous history of dysuria, hematuria, dyspareunia, or abnormal vaginal discharge. Notably, the patient's surgical history revealed a prior cesarean section during her second pregnancy, which was followed by IUCD insertion six months after childbirth. Beyond that, the patient's medical, familial, and social history were unremarkable.

Clinical findings

The patient was clinically stable. Upon examination, mild tenderness was noted in the left lower quadrant, and the IUCD could not be detected during the vaginal examination.

Diagnostic assessment

Laboratory analysis revealed mild leukocytosis, with a white blood cell count (WBC) of 12 × 10^9/L, and mild anemia, indicated by a hemoglobin (HB) level of 11.2 gm/dL. The patient's pregnancy test yielded negative results, and other laboratory tests were unremarkable. An abdominal ultrasound (US) displayed an empty uterine cavity, with abnormal echogenicity observed in the peritoneal cavity. Subsequently, a plain abdominal X-ray identified the IUCD in the pelvic region (Figure 1). Upon discussing the possibility of the IUCD migrating with the patient, a decision was made to surgically retrieve the IUCD.

Therapeutic interventions

An open surgical procedure was performed under general anesthesia, with the patient in a supine position and a Pfannenstiel incision was made. During the exploration, notable findings included adhesions formed between the uterus, left adnexa, and sigmoid colon, with the head of the IUCD having fully penetrated the sigmoid wall. The site of perforation was irritated, yet there was no evidence of infection. The IUCD was carefully removed, followed by edge-limited resection. The opening of the fistula in the proximal and distal bowel segments was approximately 1 cm in diameter. These were primarily closed with interrupted serosubmucosal sutures in two layers using 2/0 vinyl sutures. The uterine perforation site did not require repair.

Follow-up and outcome

"The postoperative course proceeded smoothly, and the patient resumed oral liquids after 24 hours, a soft diet after 48 hours, and then a full diet after 72 hours without any complaints. She was discharged home on the 4th postoperative day. During an 11-month follow-up period, the patient reported being free from any complaints. The patient chose an alternative contraceptive method, and the administration of a contraceptive pill was initiated.

Case two

Patient Information

"A 19-year-old mother of two children (gravida 2, para 2+0), who had an IUCD inserted two years prior to her presentation, complained of left lower quadrant

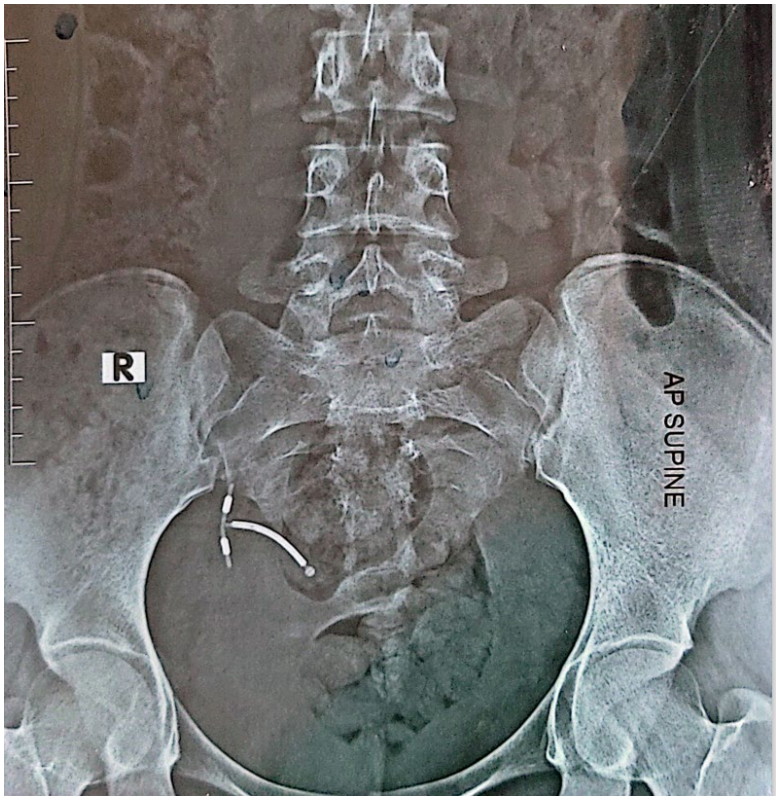

Fig. 1. Plain radiography showing the intrauterine contraceptive device in the pelvis

abdominal pain for the past 17 months. Despite her symptoms, no regular follow-up or further evaluation was provided. Unexpectedly, the patient noticed abdominal distention, which prompted further assessment. This revealed a positive pregnancy test result, along with a normal fetal ultrasound. Beyond that, the patient's medical, familial, and social history were unremarkable.

Clinical findings

The patient was clinically stable. Upon examination, mild tenderness was noted in the right lower quadrant, and the IUCD could not be detected during the vaginal examination.

Diagnostic assessment

"Other than a positive pregnancy test, all other laboratory tests yielded unremarkable findings. The abdominal ultrasound displayed a normal intrauterine fetus, estimated to be at 8 weeks of gestation, and notably, no signs of an IUCD were observed within the uterine cavity. Considering the patient's informed decision to proceed with the pregnancy and the inability to visualize the IUCD threads, a strategy of careful monitoring with frequent ultrasound examinations was adopted. Consequently, the patient had an uneventful normal vaginal delivery. Two months later, radiologic investigations showed that the IUCD was located in the right lower pelvic region. Upon discussing the possibility of the IUCD migrating with the patient, a decision was made to surgically retrieve the IUCD.

Therapeutic interventions

The open surgical procedure was performed under general anesthesia, with the patient in a supine position, and a Pfannenstiel incision was made. Surgical exploration revealed complete migration of the IUCD through the round ligament of the uterus, with adherence to the right ovary wall (Figure 2). The IUCD was carefully extracted while concurrently addressing a minor pus collection along the penetration tract, which was appropriately swabbed and thoroughly cleansed. Following the extraction, a meticulous irrigation process with normal saline was undertaken to ensure optimal cleanliness. The areas were primarily closed with interrupted sutures in two layers. The uterine perforation site did not require repair. A drain was placed, and the abdominal incision was closed in layers.

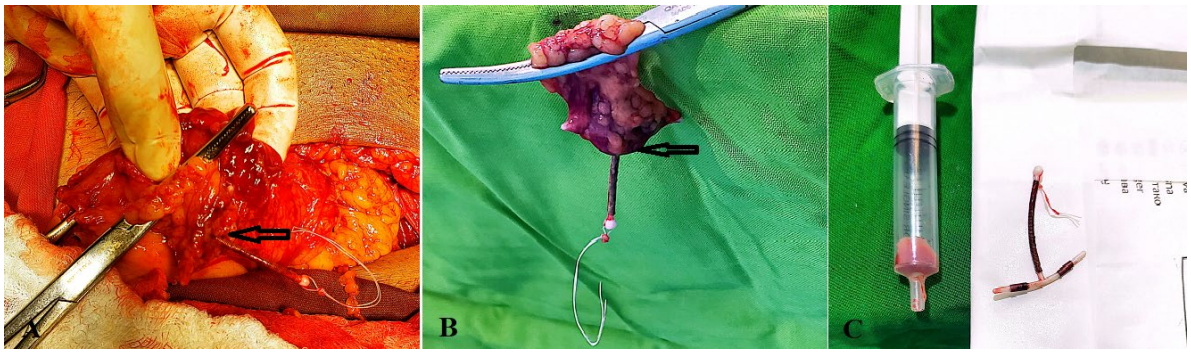

Fig. 2. Intraoperative photo showing the intrauterine contraceptive device (IUCD) device between the ovary and round ligament (black arrow) (A), IUCD safely removed with adhered tissues black arrow) (B), and IUCD removal and aspirated pus collections (C).

Follow-up and outcome

The postoperative course proceeded smoothly, with the patient resuming oral liquids after 12 hours and transitioning to a soft diet after 24 hours. By the 2nd postoperative day, the patient was on a regular diet. On the 3rd postoperative day, the patient was discharged home. The patient chose an alternative contraceptive method, and the administration of a contraceptive pill was initiated. Within a 12-month follow-up period, the patient reported being free from any complaints.

Discussion

This study presents rare complications of IUCD ectopic migration, involving sigmoid colon perforation in the first case and failed contraception with ovarian penetration in the second case. Typically, an IUCD migrates into surrounding structures such as the urinary bladder wall, gut, peritoneum, and retroperitoneal space [1]. Uterine perforation may be evident at the time of IUD insertion, resulting in pain and bleeding, as seen in the first case, or may occur later as a secondary event following pregnancy or subtle uterine contractions, as seen in the second case [4, 5]. Sigmoid wall penetration was postulated to be a consequence of IUCD adhesion to the pericolonic fat, thereby triggering local inflammatory reactions with pressure necrosis that eventually resulted in penetration of the gastrointestinal lumen. This mechanism has been previously described in relevant studies [2, 4, 5]. Despite the inflammatory properties associated with copper-containing IUCDs, a comprehensive analysis of a large cohort demonstrated no significant differences in uterine perforation rates between copper and levonorgestrel IUCDs [6].

IUCD-related organ perforations are classified into partial perforation, where a portion of the IUCD remains embedded within the uterine walls, and complete perforation, characterized by the IUCD passing through all layers of the uterus and freely residing in the peritoneal cavity [1]. In our first case, the IUCD perforated the sigmoid wall and partially perforated the ovary, leading to adhesion between the right ovary and the round ligament and pregnancy in the second case. Various factors contribute to the predisposition of uterine perforation and IUCD ectopic migration, including uterine size and position, breastfeeding, insertion during the postpartum period (within six weeks after delivery), inherent uterine anomalies, insertion by an inexperienced practitioner, and prior surgical interventions [6]. Insertion during the postpartum period may increase the risk of migration and intestinal wall perforation due to factors such as uterine involution, strong contractions, and the soft consistency of the uterus [2].

The reported median time interval for IUCD-related gastrointestinal perforations is approximately 1.5 years, with a range of 2 months to 13 years [7]. Therefore, the first case in this study represents a short-documented interval of 2 months between IUCD insertion and the confirmed injury to the sigmoid, and an intermediate period of two years for the second case. Furthermore, the distinctive complications observed in our second case (pregnancy) highlight subclinical issues that were likely exacerbated by prolonged medical neglect.

IUCD migration can lead to complications ranging from lower urinary tract symptoms to rarer issues, such as IUCD-induced appendicitis, utero-vesical fistula, and hydronephrosis due to retroperitoneal fibrosis caused by IUCD migration through the retroperitoneal space [7]. The symptoms associated with intraperitoneal perforation related to IUCDs vary depending on the location of the perforation. Patients may remain asymptomatic for months or years, or they may present with abdominal pain or bleeding. In some cases, a triad of abdominal pain, fever, and diarrhea may manifest [1]. Generally,

if intraperitoneal perforation occurs within a few months of insertion, the commonly reported symptom is discomfort in the lower abdomen, whereas individuals detected later are generally asymptomatic or experience chronic abdominal pain [8]. In our first case, the primary symptom reported by the patient was acute lower abdominal pain. The second case had both chronic abdominal pain and contraception failure. A similar presentation was reported by Atileh et al. [9].

Radiologic studies such as ultrasound (US), abdominal X-rays, computed tomography (CT) scans, and magnetic resonance imaging are useful in the evaluation of IUCD migration. While US is suitable for primary assessment, CT is the gold standard method because it can assess the accurate position of the IUCD and associated intra-abdominal complications, such as intestinal perforation and abscess formation [10]. In our cases, the diagnosis was made by US and plain radiology and confirmed intraoperatively.

Various approaches have been reported for the management of ectopic migrating IUCDs, including laparoscopy, laparoscopy combined with hysteroscopy, colonoscopy, and open surgery [11]. The choice of approach depends on the location of the IUCD, availability of equipment, presence of adhesions or bowel perforation, and the surgeon's experience [7, 11]. Rahnemai-Azar et al. reported successful laparoscopic removal of an IUCD from the small intestine, attributing their success to the surgeon's skill and the use of a wound protector retraction device, which facilitated visualization of the wound [12]. However, the presence of adhesions and bowel perforation has been cited as a primary reason for converting laparoscopy to laparotomy, as mentioned by several authors [11, 13]. In the cases presented here, an open surgical approach was employed due to the unavailability of laparoscopic equipment.

Looking ahead at future contraceptive plans, the patient may elect to proceed with another IUCD insertion, ideally under direct laparoscopic supervision if resources permit. Alternatively, they may opt for a different contraceptive method. Indeed, this decision should be made collaboratively with their healthcare provider, keeping individual patient preferences and circumstances front and center [7]. This report aims to highlight the importance of patients being knowledgeable about the specifics of their IUCD in light of increased geographical mobility and the wide variety of available IUCDs worldwide. It is crucial to encourage patients to maintain records documenting essential information such as the type of IUCD used, dates of insertion and expiration, and awareness of alarming signs indicative of IUCD displacements. Moreover, emphasizing the significance of regular monitoring following IUCD implantation is essential.

Conclusion

While the occurrence of ectopic IUCD migration is rare, it can lead to contraceptive failure and, in infrequent cases, gastrointestinal or adnexal organ perforation. To minimize potential risks, patients with IUCDs should undergo a thorough evaluation during care visits for proper IUCD placement, and radiological assessment is essential in cases of a 'missed IUCD,' even if the patient remains asymptomatic. Timely removal of a translocated IUCD is strongly recommended, with the choice of surgical approach guided by available equipment and the surgical expertise of the healthcare professional.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this article.

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Conflict of Interests

The authors have declared that no competing interests exist

Patient's perspective

Both patients were satisfied with the outcome of the surgery.

Informed Consent

Written consent was obtained from both patients for the publication of the case, including a photo.

Authors' contributions

Patient management: Saleh Al-wageeh. Data collection: Abdulfattah Altam, Qasem Alyhari. Manuscript

drafting: Faisal Ahmed. Manuscript revision: Saleh Al-wageeh. All authors read and approved the final version of the manuscript.

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