

# Successful Laparoscopic Management of a Migrated Intrauterine Contraceptive Device in the Pelvic Cavity: A Case Report

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## Abstract

**Background:** An Intrauterine device (IUD) is a long-acting reversible contraceptive commonly used in clinical practice. Its insertion in the uterus is simple and safe. But sometimes, complications can occur. **Case Report:** Herein, we report a case of successful laparoscopic removal of a missing IUD Copper-T, mis-inserted in a 32-year-old woman, 4 months after she delivered by caesarian section, and presented persistent lower abdominal pain lasting 6 months. Uterine ultrasound was unremarkable, but a plain abdominopelvic X-ray confirmed the presence of the Copper-T inside the abdominal cavity. **Conclusion:** Insertion of IUD is simple and safe. When the diagnosis of uterine perforation following its insertion is clinically suspected and radiologically confirmed, laparoscopy, when available, remains one of the best options for removal.

## Keywords

IUD, Ectopic Migration, Contraception, Laparoscopy

## 1. Introduction

The efficiency and efficacy of the IUD make it one of the best contraceptive methods due to its low Pearl index. It is a simple long-acting reversible contracep-

tive method used worldwide. Currently, two major types of IUDs are used, the copper-releasing intrauterine device (IUD) and the levonorgestrel-releasing intrauterine system (LNG-IUS) [1] [2]. Its insertion in the uterus is safe in a trained hand but sometimes, though harmless, its complications can be serious. Uterine perforation is one of the rare, but severe complications whose incidence is thought to be about 1.6% [3]. However, the incidence varies according to authors between 0.4 to 6.7 per 1000 insertions [4] [5]. Concerning the type of IUD, the rate of uterine perforation is 0.3 to 2.6 in every 1000 users following copper IUD insertion, and 0.3 to 2.2 after LNG-IUS insertion [6] [7]. Migration of IUD into the abdominal cavity after uterine perforation can cause damage to nearby organs unless the device is covered by the omentum. When uterine perforation occurs during insertion, it is referred to as primary uterine perforation. Uterine perforation is said to be secondary when it occurs 4 weeks or more after insertion [8]. Patients with misplaced IUCDs may remain asymptomatic for a year or may present with pelvic pain, vaginal bleeding [9], with inability to visualize the IUD string in the vagina or to feel its tip in the cervical canal [6]. Management of missing IUDs consists in localizing and removing it and this does not pose many problems in tertiary units. It is suggested to perform a plain abdominal x-ray without preparation when the abdominal and pelvic ultrasound is unremarkable [2].

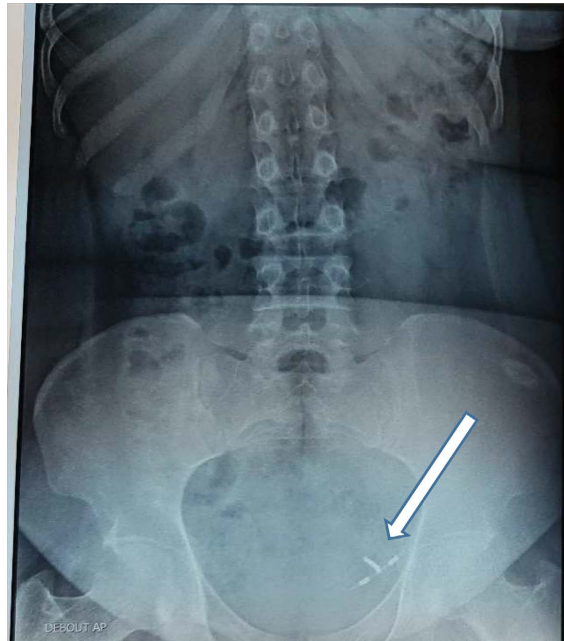
In this article, the authors propose to illustrate the important role of laparoscopic diagnosis in the management of a missing IUD not visualized by pelvic ultrasound but visualized on a plain abdominal x-ray.

## 2. Case Presentation

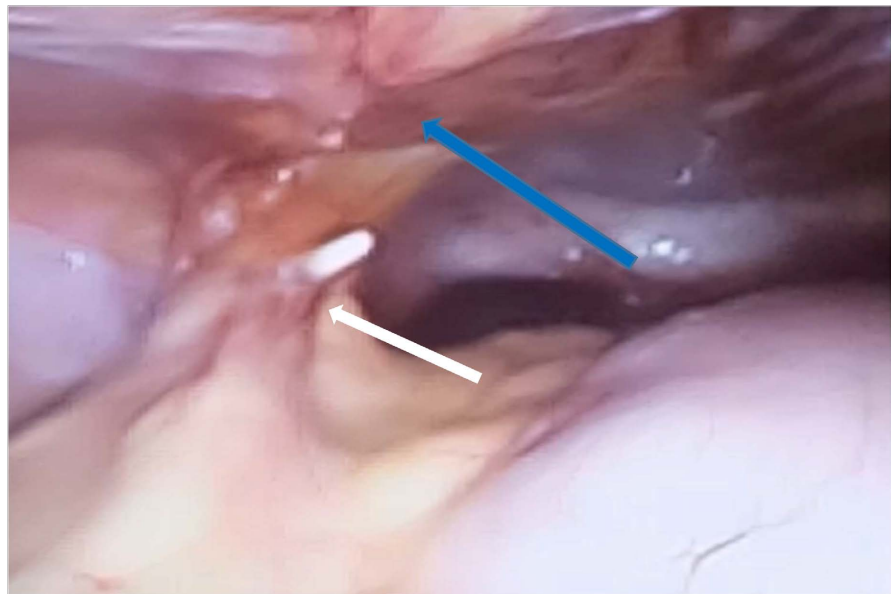
A 32-year-old woman, breastfeeding on presentation, gravida 3 para 3 presented emergently with chronic pelvic pain of seven months duration. She is a healthy woman and her obstetrical history noted two-term vaginal deliveries and one cesarean delivery indicated for non-reassuring fetal status. She has no significant past medical history. The onset of pain was 7 months prior post insertion of a copper T380 IUD. She recalled mild bleeding and mild to moderate pelvic pain during the insertion. Twenty-four hours after IUD insertion the bleeding subsided but the pain persisted. She did not follow up after the initial IUD insertion for localization despite persistent pelvic pain. On physical examination, she was well-appearing and oriented in time and space. Speculum vaginal examination failed to visualize the IUD strings and it was not possible to feel its tip in the cervical canal. There was mild pelvic tenderness on bimanual vaginal examen. A pelvic ultrasound showed an empty uterus with normal size and the IUD was neither seen in the uterus cavity nor myometrium.

A plain abdominal X-ray demonstrated that the IUD was in the pelvis (**Figure 1**), so probably extra uterine as the ultrasound was normal. Hysteroscopy was not performed for this reason, and we proceeded straight to a diagnostic laparoscopy.

Preoperative planning for laparoscopy was conducted and laparoscopy exploration was performed under general anesthesia. Intraoperatively, we did not observe any organ damage or scar on the surface of the uterus. The IUD was located on the omentum and there were some adhesions around the omentum that contained a visible portion of the IUD, and the left anterior wall of the abdomen (**Figure 2**). The adhesive band was dissected with bipolar energy and scissors (**Figure 3**). The IUD was finally removed from the pelvis via a 10-millimeter



**Figure 1.** Plain Abdominopelvic X-ray showing the IUD in the pelvis (white arrow).



**Figure 2.** The IUD was located on the omentum (white arrow) and there were some adhesions around the omentum that contained a visible portion of the IUD, and the left anterior wall of the abdomen (blue arrow).



**Figure 3.** Laparoscopic removal of the IUD after dissecting the omentum.



**Figure 4.** Removed IUD (white arrow).

trocars (**Figure 4**) and sent for culture with normal results. The operative and postoperative periods were uneventful and she was discharged 24 hours later.

### 3. Discussion

The copper-T IUD is commonly used in Cameroon as a safe and accepted contraceptive method in clinical practice. However, we don't have Country data on complications related to its insertion in general, and particularly about uterine perforation and migration. According to published literature [4] [5], the incidence of uterine perforation varies between 0.4 to 6.7 per 1000 insertions. When the uterine perforation takes place at the time of insertion, it is called primary (iatrogenic perforation) or secondary when it occurs at least 4 weeks after insertion [8]. It is often difficult to make the diagnosis of primary perforation because

the symptomatology is often nonspecific, characterized by pelvic pain of variable intensity and vaginal spotting, which are signs classically found in the first week of a normal insertion: That is probably what happened in our case.

Uterine perforation results from the interaction of various factors. These factors include a myometrium weakened by multiple pregnancies, hypoplastic uteri, scarred uteri, highly anteverted or retroverted uteri, and early post-partum [10] [11]. The risk of perforation is also increased by a factor of 10 during breastfeeding, probably because of exaggerated uterine involution due to lactation-induced hypoestrogenism, endometrial atrophy, and less painful insertion, explained by high levels of beta-endorphins in breastfeeding women [12]. For some, the inexperience of the operator and the lack of flexibility of certain IUDs, are also risk factors [13]. Our patient had several factors including breastfeeding, a scarred uterus, and probably an inexperienced operator.

IUD migration is a phenomenon that is not well understood. After uterine perforation, the device can be localized to the urinary bladder, uterine horns, rectum, sigmoid colon, iliac vessels, and abdominal cavity [14]. Such distant extrauterine locations and the occurrence of these translocatory phenomena, sometimes after the first post-insertion year when most IUD complications tend to occur, suggest that apart from iatrogenic perforations, there might be a migratory propensity of the device. This has been difficult to explain [15]. Many mechanisms have been suggested to explain IUD migration, including spontaneous uterine contraction and hydrostatic negative pressure and the relatively higher intrauterine pressure [16], contraction of other abdominal viscera like the urinary bladder, small and large intestines in response to peristaltic and other stimuli. Sometimes, the inflammatory phenomena as well as the uterine contractions will allow the IUD to continue its intraperitoneal migration [17] and to be contained by the omentum which considers it as a foreign body as it was the case in our patient.

Uterine perforation or IUD migration may be asymptomatic or symptomatic with the common presentation being an inability to visualize the IUD string in the vagina or feel its tip in the cervical canal [6]. Some authors therefore insist on the verification of the correct positioning of the IUD using a control ultrasound [10] [18] [19] whereas C. Boyon *et al.* do not recommend it in case of insertion without difficulties [20]. We believe that in developing countries, to limit the additional costs associated with a follow-up ultrasound scan, patients should be trained to palpate the IUD string in the vagina at least 4 weeks post-insertion and to return to the hospital if not felt.

In the case of intraperitoneal migration, pelvic ultrasound confirms uterine emptiness and the absence of IUD in surrounding organs such as the bladder. The diagnosis is then evoked on a film of the plain abdominal X-ray that shows the IUD with its metallic opacity embedded within the bony opacity of the abdominopelvic bones [21]. Nonetheless, the exact location of the IUD cannot be given by this means. Its exact location can only be confirmed by endoscopic techniques (laparoscopy, hysteroscopy, cystoscopy), because of the multiplicity



of possible migration sites.

Removing an asymptomatic migrated IUD is a matter of controversy [22]. However, even in asymptomatic patients, some authors [22] [23] [24] have recommended surgical removal of copper IUD to avoid adhesions formation that can lead to abdominal pain bowel occlusion, or infertility. Laparoscopy remains the most reliable diagnostic and therapeutic means in the case of proven intraperitoneal migration but if not identified on laparoscopy, a laparotomy is recommended [22] [23]. According to the localization of the IUD, other endoscopic techniques like cystoscopy and colonoscopy can be used for diagnosis and management [23]. In our case, a Laparoscopy was done because the patient was hemodynamically stable and the IUCD was lying between the anterior abdominal wall and omentum without bowel involvement.

#### 4. Conclusion

The IUD remains one of the most common, safest, and highly effective methods of contraception in developing countries. However, some severe complications such as uterine perforation and device migration can occur. The inability to visualize the IUD string in the vagina and the emptiness of the uterus on pelvic ultrasound should suggest an intraperitoneal migration which should be confirmed with an abdominopelvic X-ray. The mainstay of diagnosis and treatment is diagnostic laparoscopy and retrieval. Care must be taken when inserting, by an inexperienced operator and patients should be asked to feel for the IUD string themselves at least 4 weeks post insertion and return to the hospital if not felt for vaginal speculum examination before doing an ultrasound check if necessary.

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#### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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