RESEARCH PAPER

The Wandering Cu-T: Extrauterine Migration To The Left Adnexa With Cyst Encapsulation Managed By Laparoscopic Retrieval — A

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ABSTRACT
Background: Intrauterine devices (IUDs) are highly effective long-acting reversible contraceptives. Rarely, uterine perforation and extrauterine migration can occur and may remain silent for years, later presenting as a "missing" device or an adnexal/pelvic mass. Early localization with ultrasonography and radiography is essential to prevent complications and to guide minimally invasive retrieval.
Case Presentation: A 34-year-old woman (para status not specified) with a history of copper-T (Cu-T) insertion 7 years earlier presented for evaluation of a non-visualized IUD (missing threads). Pelvic ultrasonography and plain pelvic radiography demonstrated the Cu-T located in the **left adnexa**, adjacent to the uterus, **separate from the uterine cavity and separate from the ovary**. Diagnostic laparoscopy identified an extrauterine Cu-T encapsulated within a **cystic sac** (foreign-body reaction) in the left adnexal region. The cyst wall was opened, adhesions were carefully released, and the Cu-T was removed laparoscopically with complete retrieval. Hemostasis was secured and the specimen was confirmed intact. The postoperative course was uneventful (follow-up duration not specified).
Discussion: Extrauterine IUD migration may occur at insertion or via delayed erosion, with presentations ranging from asymptomatic to pelvic pain, adhesions, abscess, or organ involvement. Imaging typically localizes the device; laparoscopy is recommended in most cases for safe removal and reduced morbidity compared with laparotomy.
Conclusion: A "wandering" Cu-T can present years after insertion as an adnexal extrauterine device surrounded by a cystic capsule. Accurate imaging and laparoscopic retrieval offer definitive diagnosis and treatment

Keywords: Adnexa; Copper-T; Extrauterine migration; Intrauterine device; Laparoscopy

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INTRODUCTION

Intrauterine devices (IUDs) are among the most widely used long-acting reversible contraceptive methods globally due to high efficacy, reversibility, and favorable cost-effectiveness. Copper-bearing devices such as the Cu-T provide contraception primarily through a local inflammatory reaction within the endometrium that is spermicidal and inhibits fertilization. When appropriately positioned at the uterine fundus, IUDs have excellent contraceptive performance; however, malposition, expulsion, embedment, and uterine perforation are recognized complications that may compromise efficacy and safety. Radiologists and gynecologists therefore play a critical role in confirming correct placement and identifying abnormal locations on imaging [1]. IUD migration describes displacement from the intended intrauterine location and encompasses a spectrum from partial displacement within the endometrial cavity to complete uterine perforation with extrauterine translocation into the peritoneal cavity or adjacent organs. Imaging appearances differ based on modality and device type. Copper devices are radiopaque and generally visible on pelvic radiography, while ultrasonography is commonly used first-line to evaluate position relative to the endometrial cavity. Cross-sectional imaging may be required when the IUD cannot be visualized in the uterus and extrauterine migration is suspected. A detailed radiologic review has emphasized that complete perforation (partial or total extrauterine position) generally warrants surgical management and timely communication to the treating clinician because of the potential for adhesions and organ injury [2]. The incidence

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of uterine perforation is low but clinically important because patients may be asymptomatic or have non-specific symptoms for prolonged periods. Perforation may occur at the time of insertion (particularly in the early postpartum or lactation period, with uterine softness and altered anatomy) or present later due to gradual erosion through the myometrium. Clinical clues include missing strings, unexpected pregnancy, pelvic pain, abnormal bleeding, or incidental discovery on imaging performed for unrelated reasons. Case literature demonstrates that some patients remain asymptomatic for years before the migrated device is detected [3].

Extrauterine IUDs have been reported in numerous locations including omentum, pouch of Douglas, adnexa, bowel, bladder, abdominal wall, and retroperitoneum. The adnexal region is particularly relevant because a migrated IUD may mimic an adnexal mass, tubo-ovarian pathology, or pelvic inflammatory disease. Furthermore, chronic irritation from a foreign body may induce localized inflammation, adhesions, and formation of a cystic or abscess-like collection around the device. Such encapsulation can obscure anatomy and raises the importance of careful operative planning [4]. The diagnostic approach to a suspected missing IUD typically begins with pelvic examination and transvaginal ultrasonography. If the device is not visualized within the uterus, pelvic radiography can confirm whether the device remains within the pelvis/abdomen (radiopaque copper devices) and help distinguish expulsion from migration. When the IUD is confirmed extrauterine, most contemporary guidance favors removal even in asymptomatic patients because of risks of adhesion formation, bowel or bladder injury, fistula, infection, and chronic pain [5]. Minimally invasive surgery has become the preferred method for retrieval when feasible. A systematic review evaluating intra-abdominal IUDs highlighted that diagnostic laparoscopy is commonly performed and that laparoscopic removal is successful in many patients, with the advantage of reduced postoperative pain, shorter hospital stay, and faster recovery compared with laparotomy. [4] Case series and reports have further supported laparoscopy as a safe approach even when the device is adherent, provided appropriate surgical expertise and readiness to convert if organ involvement is encountered [6,7]. We report a case of a “wandering” copper-T found in the left adnexa seven years after insertion, separate from the uterus and ovary, with cyst formation around the device, managed successfully by laparoscopic retrieval. This case highlights the value of imaging localization and the role of minimally invasive surgery in treating extrauterine IUD migration.

1. Case Presentation

A 34-year-old woman with a history of copper intrauterine device (Cu-T) insertion 7 years earlier presented for evaluation following the inability to visualize the IUD strings on routine clinical examination. The device was presumed to be “missing,” raising concern for malposition, expulsion, or extrauterine migration. Specific symptoms and detailed physical examination findings were not documented; however, the absence of visible threads prompted further investigation to determine the exact location of the device and to exclude potential complications.

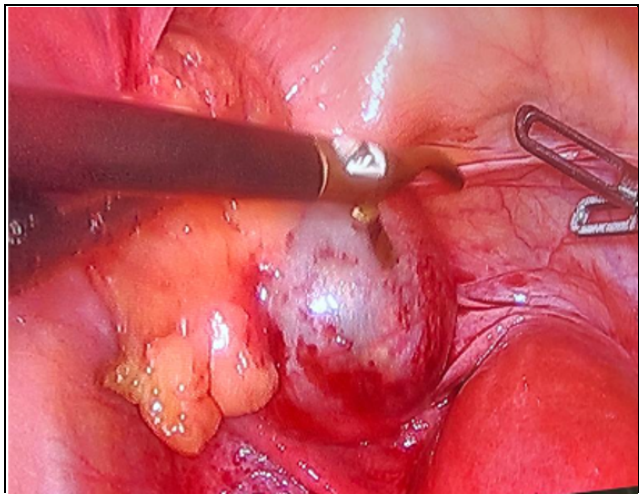
Pelvic ultrasonography revealed the Cu-T located in the **left adnexa**, adjacent to the uterus, and clearly described as **separate from both the uterine cavity and the ovary**. To corroborate this finding and confirm the presence of a radiopaque device within the pelvis, a plain pelvic radiograph was obtained. The X-ray demonstrated a Cu-T shadow in the left pelvic region, consistent with the ultrasonographic localization and confirming an **extrauterine position** of the device. Based on these findings, a clinical diagnosis of **extrauterine migration of the Cu-T to the left adnexa with suspected foreign-body reaction and encapsulation** was made.

Surgical Management and Outcome

In view of the confirmed extrauterine location and the potential risk of chronic inflammation and adhesions, laparoscopic removal was planned. Diagnostic laparoscopy was performed, and a systematic survey of the pelvis was undertaken. Intraoperatively, the Cu-T was identified in the **left adnexal region adjacent to the uterus**, lying outside the uterine cavity and not involving the ovary. Notably, the device was surrounded by a **cystic structure**, consistent with localized inflammatory encapsulation and foreign-body reaction.

The cystic sac enclosing the migrated Cu-T was carefully approached. Gentle adhesiolysis and meticulous dissection were performed to define tissue planes and safeguard surrounding pelvic structures. The cyst wall was opened, exposing the Cu-T, which was then grasped and extracted under direct visualization. The device was removed completely and inspected to ensure intact retrieval. Hemostasis was achieved, peritoneal toileting was performed as required, and laparoscopic ports were closed in the standard manner.

The immediate postoperative period was uneventful, and the patient tolerated the procedure well. Although long-term follow-up details were not available, the successful laparoscopic retrieval provided definitive management of the wandering Cu-T and eliminated the potential for future complications related to its extrauterine presence.



DISCUSSION

Extrauterine migration of an intrauterine device is an infrequent but clinically important complication, as it may remain undetected for prolonged periods and subsequently result in adhesions, chronic inflammation, infection, or injury to pelvic and abdominal organs. The present case is noteworthy for three distinctive features: the prolonged interval of seven years between device insertion and detection, the unusual localization of the Cu-T in the left adnexa adjacent to the uterus yet clearly separate from both the uterine cavity and the ovary, and the formation of a cystic capsule around the migrated device, which facilitated safe laparoscopic retrieval. These characteristics highlight the indolent nature with which extrauterine IUDs may evolve and emphasize the need for a high index of suspicion in patients presenting with missing threads.

Migration of an IUD is generally attributed to either immediate uterine perforation at the time of insertion or delayed secondary erosion through the myometrium. Imaging-based reviews have emphasized that complete perforation results in partial or total displacement of the device into the peritoneal cavity, after which it may migrate under the influence of peristalsis and pelvic organ motion, often settling in dependent regions such as the pouch of Douglas or the adnexal vicinity. The prolonged asymptomatic period in our patient aligns with previous reports demonstrating that extrauterine IUDs may remain clinically silent for years until missing strings prompt evaluation or the device is incidentally detected on imaging. Accurate localization is fundamental to diagnosis and management. Boortz et al. [8] demonstrated that ultrasonography serves as the first-line modality for evaluating IUD position, while pelvic radiography confirms the presence of a radiopaque copper device and helps distinguish expulsion from migration. Our diagnostic approach mirrored this algorithm: ultrasonography localized the Cu-T to the left adnexa, and plain radiography corroborated its extrauterine pelvic position. In more complex situations, particularly when visceral involvement is suspected, cross-sectional imaging such as computed

tomography may further delineate anatomic relationships, as highlighted in recent reports.

A salient feature in the present case was the cystic encapsulation of the migrated device, representing a chronic foreign-body inflammatory response. Benaguida et al. [9] reported a similar presentation in which an intraperitoneal IUD was surrounded by a collection that required laparoscopic incision and removal. Although infection was not evident in our patient, the underlying mechanism is comparable: persistent irritation by the copper device induces localized inflammation, leading to fibrous capsule formation or fluid accumulation. Radiologically, this may mimic adnexal cysts or tubo-ovarian pathology, potentially complicating differential diagnosis. Consequently, a history of IUD insertion should prompt consideration of migration in any woman presenting with an unexplained pelvic mass.

Migration to adnexal or tubal structures, while rare, has been documented. Badr et al. [10] described trans-tubal migration of a Cu-T with tubal perforation and acute abdominal presentation. In contrast, our patient's device was situated adjacent to the uterus in the left adnexal region without ovarian involvement or acute symptoms. This comparison illustrates the wide clinical spectrum, ranging from acute abdomen due to organ perforation to indolent, asymptomatic cases detected only through imaging. An et al. [11] reported an exceptionally rare scenario in which an IUD was found within an ovarian tumor, demonstrating that adnexal localization may be associated with diverse and unexpected pathologies. In the present case, the adnexal "mass" was attributable to cystic encapsulation rather than neoplastic change, underscoring the diagnostic challenge posed by such presentations.

Contemporary evidence supports laparoscopic retrieval as the preferred management strategy for extrauterine IUDs. Gill et al., [12] in a systematic review, demonstrated that laparoscopy is widely employed for both diagnosis and removal, with high success rates and reduced morbidity compared with laparotomy. The advantages include superior visualization, precise adhesiolysis, minimal tissue trauma, and faster postoperative recovery, which are particularly relevant in young women. Rahnemai-Azar et al. [13] reported laparoscopic removal of a migrated IUD embedded in the intestine and emphasized that perforated devices should generally be removed at diagnosis, even in asymptomatic patients, because of the risk of progressive inflammation and organ injury . Although our case did not involve visceral penetration, the presence of cystic encapsulation and adhesions reflects the same pathophysiologic continuum. Aydogdu and Pulat [14] described an asymptomatic intra-abdominal IUD detected incidentally after decades, reinforcing that absence of symptoms does not equate to absence of risk and supporting proactive removal once migration is confirmed. Venkataramani et al. [15] reported a diagnostic dilemma in which a migrated IUD mimicked another pelvic pathology and was successfully retrieved laparoscopically. Li et al. [16] described a migrated IUD involving the bladder serosa, removed using combined endoscopic and laparoscopic assistance. Collectively, these studies highlight a consistent modern paradigm in the management of extrauterine IUDs: precise imaging, individualized operative planning, and minimally invasive retrieval tailored to the device's anatomic relationships. This case reinforces that missing IUD strings warrant prompt evaluation regardless of the time elapsed since insertion, that ultrasonography combined with pelvic radiography provides a reliable localization strategy for copper devices, that chronic foreign-body reaction may result in cystic encapsulation mimicking adnexal pathology, and that laparoscopy offers a safe and definitive treatment with minimal morbidity.

CONCLUSION

A migrated "wandering" Cu-T can present years after insertion as an extrauterine adnexal device and may become encapsulated within a cystic sac due to chronic foreign-body reaction. Combined ultrasonography and pelvic radiography reliably localize a copper IUD outside the uterus. Once extrauterine migration is confirmed, laparoscopic retrieval provides definitive diagnosis and treatment with favorable outcomes, while minimizing operative morbidity and preventing potential long-term complications

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