Mystery at the Navel-A Surgical Detective Story on Migration of Copper T to the Anterior Abdominal Wall: A Case Report and Review of the Literature

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ABSTRACT

Background: Uterine perforation and extra-uterine migration of intrauterine devices (IUDs) are uncommon complications. Migration to the anterior abdominal wall is extremely rare, with only sporadic reports in the literature.

Case presentation: We report a 22 year-old woman who presented with one month history of pain and discharge from the umblicus. She had a history of Copper T insertion three years earlier. Clinical examination revealed a firm, non-tender swelling in the lower anterior abdominal wall. Ultrasonography and computed tomography demonstrated a T-shaped metallic foreign body located in the anterior abdominal wall, superficial to the rectus sheath. The device was successfully retrieved through a diagnostic laparoscopy followed by open omphalectomy. The postoperative period was uneventful.

Conclusion: Migration of a Copper T to the anterior abdominal wall is an exceptionally rare occurrence. Missing IUD threads should prompt evaluation for migration. A combination of ultrasound, X-ray, and CT scan aids accurate localization. Surgical retrieval, either laparoscopic or open, remains the definitive management.

Keywords: Copper T, intrauterine device, uterine perforation, migration, anterior abdominal wall, laparoscopy

INTRODUCTION

Intrauterine devices (IUDs) are one of the most reliable and cost-effective methods of reversible contraception. Despite their overall safety, uterine perforation with subsequent migration of the device is a recognized but rare complication, with reported rates between 0.1 and 3.6 per 1,000 insertions depending on operator experience, device type, and timing of insertion [1,2].

Migration usually involves pelvic or intra-abdominal organs such as the omentum, bladder, or bowel [3]. Migration to the anterior abdominal wall is extremely uncommon, with only isolated cases reported in the literature. We report one such case and review relevant literature on its frequency, mechanisms, diagnosis, and management.

Case Presentation

A 22-year-old parous woman presented with a one month history of pain and discharge from the umblicus. She had a Copper T (Cu-T 380A) inserted three years earlier at a primary health centre following delivery. The patient noticed disappearance of the IUD threads six months after insertion but remained asymptomatic and did not seek evaluation.

On examination, a [2×2 cm] firm, non-tender, immobile swelling was noted in the lower anterior abdominal wall just below the umbilicus. Pelvic examination revealed no IUD threads and a normal uterine size.

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Investigations

- Pelvic ultrasonography: Uterus appeared normal with no IUD visualized intra-uterine.
- Abdominal X-ray: T-shaped radiopaque structure seen in the infra-umbilical region anteriorly.
- Contrast CT scan of abdomen and pelvis: Confirmed presence of a metallic foreign body in the anterior abdominal wall, superficial to the rectus sheath, without peritoneal breach or visceral involvement (Figure 1).

Management

The patient underwent diagnostic laparoscopy followed by open omphalectomy under general anesthesia. The Copper T was identified embedded within fibrous tissue of the anterior rectus sheath. It was removed intact, and surrounding fibrotic tissue was excised (Figure 2). Postoperative recovery was uneventful, and the patient was discharged on day 2. At one-month follow-up the wound healed and sutures removed

DISCUSSION

3.1. Frequency and epidemiology

Uterine perforation with IUD migration occurs in approximately 0.1–3.6 per 1,000 insertions (0.01–0.36%) according to systematic reviews [1,2]. Risk is higher with insertion during lactation or early postpartum period, in retroverted uteri, and when inserted by inexperienced personnel [4].

Migration to the anterior abdominal wall is exceedingly rare—limited to isolated case reports [5-8]. Because these represent a small subset of the already rare migration cases, precise frequency cannot be established.

Mechanisms of migration

Perforation may occur:

- Primarily at insertion, when excessive force causes uterine wall penetration.
- Secondarily, by gradual erosion due to chronic inflammatory reaction and uterine contractions.

Once in the peritoneal cavity, the IUD may migrate along tissue planes, omental adhesions, or through micro-perforations to reach the anterior abdominal wall.

Clinical presentation

Most patients are asymptomatic, and missing IUD threads on examination are the first clue. Symptomatic cases present with:

- Abdominal wall swelling or sinus,
- Localized pain or tenderness,
- Discharge or abscess formation, or
- Incidentally detected foreign body on imaging.

Diagnostic approach

1. Pelvic ultrasound – to check intra-uterine position.
2. Plain abdominal X-ray – if threads are missing and the IUD is not seen intra-uterine, to confirm presence of metallic IUD in abdomen/pelvis.
3. CT scan – accurately localizes the device, defines relation to viscera, and guides surgical planning [9].

MRI may be used but is rarely necessary.

Management

WHO and several reviews recommend removal of all extra-uterine IUDs to prevent adhesions, fistula, infection, or organ injury [10].

- Laparoscopy is preferred for intraperitoneal devices.(Figure 3,4)
- Open or direct subcutaneous excision is appropriate for devices localized in the anterior abdominal wall.
- Conversion to laparotomy may be required in cases with dense adhesions or visceral involvement.(Figure 5,6,7)

Most reported anterior abdominal wall cases were successfully treated by direct surgical removal without complications [5-8].

LITERATURE REVIEW SUMMARY

Author (Year)	Site of Migration	Presentation	Management	Outcome
Ansari et al., 2009 [5]	Anterior abdominal wall	Local swelling	Open removal	Uneventful
Arif et al., 2019 [6]	Abdominal wall (infraumblical)	Painful swelling	Laparoscopic removal	good recovery
Addis et al., 2024 [7]	Infra-umbilical skin	Sinus with discharge	Local excision	Healed
Several others (2011-2022) [8]	Subcutaneous plane/ rectus sheath	Local swelling	Excision	Uneventful

Conclusion

Migration of a Copper T to the anterior abdominal wall is an exceptionally rare event. Missing IUD threads should always prompt evaluation for possible migration. Plain X-ray and CT scan are the investigations of choice. Surgical removal, either laparoscopic or open, is curative with excellent outcomes.

Patient perspective

The patient expressed satisfaction with the management and relief from anxiety after retrieval of the migrated device.

Declarations

Ethical approval

Not required for a single case report as per institutional policy. Written informed consent was obtained from the patient for publication.

Conflicts of interest:

None declared.

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