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CASE REPORT

IUD perforation and embedment within omentum: A rare and perplexing incidence

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Abstract

Intrauterine devices rarely fail, which results in pregnancy. Meanwhile, these devices can perforate uterine and migrate through abdomen. Our case experienced IUD failure and perforation simultaneously, and the device was embedded in omentum and shifted rapidly, which made it hard to localize and could only be removed using ultrasonography guidance.

KEYWORDS

intrauterine device failure, intrauterine devices, omentum, ultrasonography, uterine perforation

1 | INTRODUCTION

Intrauterine devices (IUD) are one of the most frequently used methods of contraception. Even though IUDs are effective, they may fail sometimes. Although some studies have shown that there is no difference between levonorgestrel-releasing IUDs and copper IUDs regarding complications and failure, frameless copper-releasing, intrauterine contraception devices can be more tolerable while posing less risk concerning perforation.[1–4] Complications include a wide range, from failures in insertion and perforation to syncope and bradycardia. Because these consequences are unexpected, a physician must continually be alert about strategies to manage adverse effects.[5]

Intrauterine devices failures can result in pregnancy, and this incidence is particularly important since these failures can potentially lead to preterm labor and miscarriage.[2,6] Meanwhile, the inserter or the uterus are also responsible for uterine perforation. This incidence though rare and uncommon happens mostly during the postpartum period.[7,3] An IUD might fully or partially penetrate the uterine; as described by Zakin et al.[8] the most common location for a complete perforation is the pouch of Douglas. It can also attach either loosely or tightly to the omentum. On rare occasions, these devices can become

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embedded in the myometrium. Other cases have also reported that IUDs can migrate within the abdominal cavity and can potentially cause perforations.

Although uterine perforation might even cause peritonitis and it is a potentially life-threatening incidence, it is a very rare incidence, and most of the time, it is asymptomatic, but it can manifest symptoms such as abnormal uterine bleeding and pain.[4,8–11] For diagnosis, a variety of imaging techniques have been utilized, although the most common are transvaginal sonography and simple pelvic radiography. In terms of diagnosis and localization, it has been claimed that TVS (transvaginal sonography) is a more accurate technique.[5,12,14] In a previous case series, it was reported that the devices were localized with CT scans since TVS had missed the devices particularly when they had migrated in the upper abdomen.[9,13] Depending on the location of the IUD, the techniques for removal can differ and can sometimes be challenging.[12] When these devices cannot be removed at the office or when their respective location indicates surgical removal, laparoscopic surgery is the preferred method, although novel studies suggest that removal is not warranted when the patient is not symptomatic as the risks of surgery are not justifiable.[5,6,14,15] Deeply perforated devices can also lodge into different organs within the abdominopelvic cavity; however, the most common site is the omentum.[6,10,13,16,17]

In this case, a 30-year-old woman in her third pregnancy had an IUD implanted 3 months before pregnancy; however, the IUD was not located within the uterine cavity at her follow-up. Since the IUD was entirely embedded within the omentum, surgical removal and localization were extremely difficult. Written informed consent was obtained from the patient and her next of kin for publication of this case report and any accompanying images.

2 | CASE PRESENTATION

A 30-year-old woman, who, based on her last menstrual period, was 7 weeks and 4 days pregnant, was presented to the office while complaining of abdominal pain. She stated that 3 months before this date, she had a copper 380 t IUD insertion. Two months after insertion, in a work-up following missed menstrual period, it was revealed that the patient was pregnant. The patient underwent ultrasonographic imaging; the live embryo with cardiac activity was observed (CRL: 7.5 mm). IUD was not observed within the uterine cavity, and no signs of uterine rupture were noted either. The IUD was seen deep within the transversalis fascia and abdominal cavity. However, it was noted that the device changed position too often and it shifted from right to left, which made IUD nearly impossible to be precisely located. According to the fact that the patient suffered from pain and was symptomatic, the patient became a candidate for laparoscopic surgery. Unfortunately, during the surgery, the device was not found and it was assumed that the initial ultrasound imaging was false and the device was still entrapped within the myometrium. Another ultrasonography stated the device was actually within the abdominal cavity, and it might be trapped inside the omentum since it shifted as the patient changed position, since the first diagnostic evaluation could not locate and find the device it was decided that the device should be removed under ultrasonographic guidance. Before spinal anesthesia, the radiologist ran another ultrasonographic imaging using a superficial ultrasound probe. The location was then marked. (Figure 1) During the second laparotomy, a paraumbilical incision was made and the device was found with guidance and palpation as the device was barely visible and the threads were twisted inside the omentum. The foreign body had migrated into the omentum and was embedded into it. Granulation tissue was also formed around it which made it very difficult to distinguish. Partial omentectomy was performed, and the device was safely removed. (Figures 2 and 3) The patient was under observation for 24 h, and another ultrasonography assessed fetal cardiac activity and status. The patient was later discharged without any major complications.

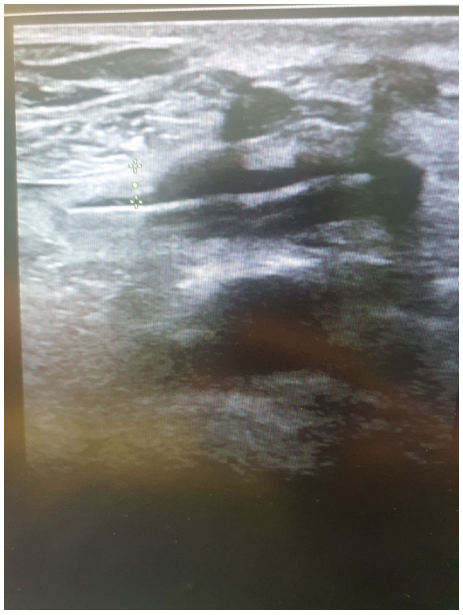

FIGURE 1 Ultrasound imaging showcasing the device prior to surgery deep within abdominal cavity and omentum

3 | DISCUSSION

Intrauterine devices rarely perforate the uterine, but these few instances can cause damage to internal organs.

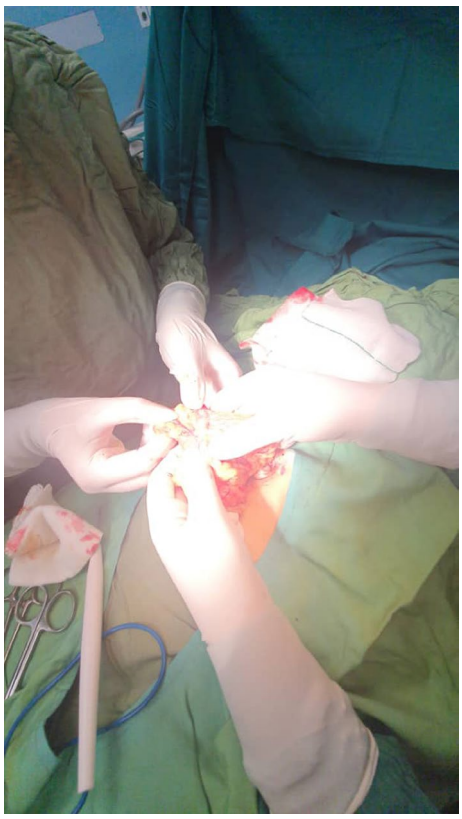

FIGURE 2 Partial omentectomy

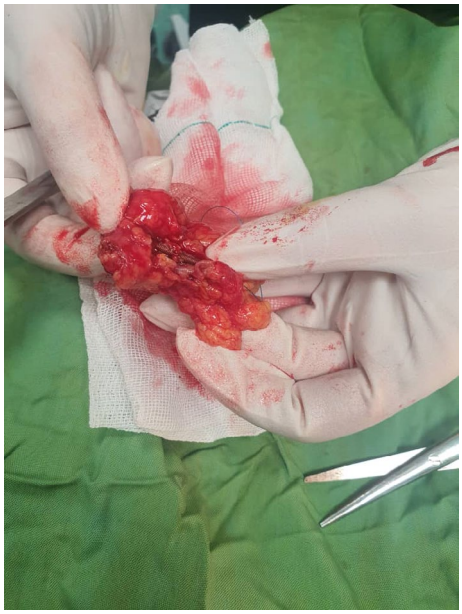

FIGURE 3 The part of omentum in which the IUD was embedded. Note that the threads had twisted inside and granulation tissue had surrounded the device

Several risk factors such as "inexperienced clinician, lactation, and low parity and post-partum insertions particularly within 6 months after labor" are thought to be in association. Several cases of penetration into the bowel and urinary tract have been reported. Patients with such perforations are prone to peritonitis.[5,8,4,11]

Although many imaging techniques can locate the device, ultrasonography is the most preferable way. According to Rowlands et al.[5] the first warning symptom of perforation is missing threads, and ultrasonography is the backbone of diagnosis. Since all IUDs are radiopaque, they may be seen on plain radiographs, but this does not indicate the exact location of the device. A CT scan can provide better pictures of the situation, and it has been used to classify perforations in a few cases.[5,8,16,18]

The patient was a pregnant woman; therefore, ultrasonography was the sole modality that could be used. Since the device was cloaked with granulation tissue and omentum, "which is quite loose and unrestricted," the position of the device could not be accurately found. Thus, more skill was required to locate the device and it could only be removed with an ultrasonographic guide. During the surgery, the device was barely visible and could only be found with guidance and palpation.

The current consensus states that these devices should only be removed if the patient is symptomatic or there is a great risk of adhesions and complications such as perforation and peritonitis. Our patient was neither severely ill nor any signs of perforation were noted, but since she was pregnant and prone to other complications and the pain was too great for her to bear, it was decided that the device should be removed.[8,9,12,14,17]

Our experience with this patient has led us to presume that in patients whose foreign body can not accurately be positioned another imaging modality such as CT scan must be utilized. If the patient has any contraindications, an ultrasonographic guide can be extremely helpful. In cases whose device is fast shifting and the device is changing position too often, it must also be considered that the device might be lodged in tissues such as omentum that is loose and untethered; thereafter, an ultrasonographic guide can help with retrieving it. Our patients also posed another challenge, which was due to its embedment within the omentum; this particular phenomenon indicates internal organs be thoroughly examined and palpated. We also have decided to gather further information using a patient registry system to assess risk factors that make patients more susceptible to perforation and embedment of IUD.

Simultaneous pregnancy and embedment of IUD in the omentum, in this case, was challenging since the device could not precisely be localized, and the device was fast shifting. In such cases, ultrasonography guidance can be helpful in localization.

CONFLICT OF INTEREST

The authors have no conflict of interest to declare.

AUTHOR CONTRIBUTIONS

AH and AT contributed in developing the research idea and composing and revising the manuscript. E.P and M.M contributed in composing and revising the manuscript.

ETHICAL APPROVAL

This study was approved by the research and ethics committee of Tehran University of Medical Sciences. The patient's family has given their informed consent to publish this case.

CONSENT

Written informed consent was obtained from the patient and her next of kin for publication of this case report and any accompanying images.

DATA AVAILABILITY STATEMENT

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

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