

## CASE REPORT

# Migration of intrauterine device caused asymptomatic acute appendicitis: A case report

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**Abstract**

Missing of IUD is not always due to expulsion. If the patient is sure that it has not got expelled, further investigations such as abdominal ultrasound and X-ray should be performed to look for the device before any device-related complications.

**KEYWORDS**

appendicitis, contraception, intrauterine device, laparoscopy, laparotomy

## 1 | INTRODUCTION

We report a case of acute appendicitis caused by IUD migration. The lack of string was considered as expulsion but the patient resisted and referred to us. Imaging showed IUD but hysteroscopy and laparoscopic failed to find the device. Thus, laparotomy was performed and it was seen in the appendix.

Intrauterine devices (IUDs) are among the most successful contraceptive options used by over 160 million women worldwide. Similar to any other medical device and medication, IUDs have their side effects including spotting, bleeding, pain,<sup>1</sup> and ectopic pregnancies.<sup>2</sup> Beside these mentioned complications, users may face some other problems as well, such as IUD displacement which occurs at up to 25% of the cases. This challenge however seems to be related to the specialists' level of experience during insertion. The other issue to be concerned about is IUD expulsion which is not rare by being detected in 10% of the cases. The expulsion may be accompanied by feeling the device in the vagina, pain, or spotting. However, in most females, this phenomenon may be associated with no sign(s) or symptom(s). The most serious complication of IUDs is uterus perforation which might be uncommon (1/1000), yet critical enough to be considered an emergency situation.<sup>3</sup> Copper IUDs are known to perforate the uterus and establish sterile abscesses in the peritoneal

cavity often presented with pelvic pain or unintended pregnancy.<sup>4,5</sup> The perforation could happen right after the placement or with delay due to the progressive erosion of myometrial wall.<sup>6</sup> Also, several older studies reported cases of symptomatic IUD appendicitis.<sup>7-9</sup> This paper presents a case in which placement of an IUD in a postpartum, breastfeeding woman resulted in perforation with a histologically diagnosed asymptomatic acute appendicitis.

## 2 | CASE PRESENTATION

The patient was a 23-year-old gravida 1 para 1 woman who had also undergone childbirth (natural vaginal delivery) 8 months before IUD insertion and had been breastfeeding since. She had undergone IUD (Copper T 380 A) insertion with no abnormal sign or symptom during and after the procedure (in another clinic). After a week, the patient visited for evaluation of IUD which string was not found in the examination. Although there was no sonographic evidence of the IUD in the endometrial cavity, no evaluation was made for possible extra-uterine presence. She chose to have no intercourse until finding out what happened to the IUD and referred to our practice for evaluation. When the patient was referred to our clinic, she did not mention

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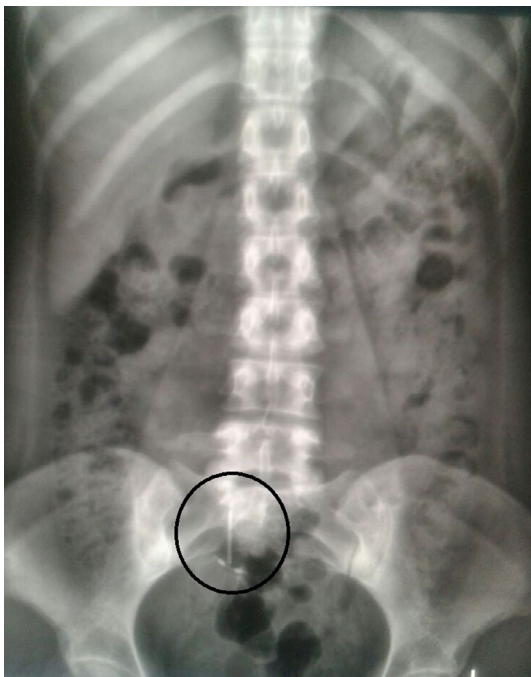
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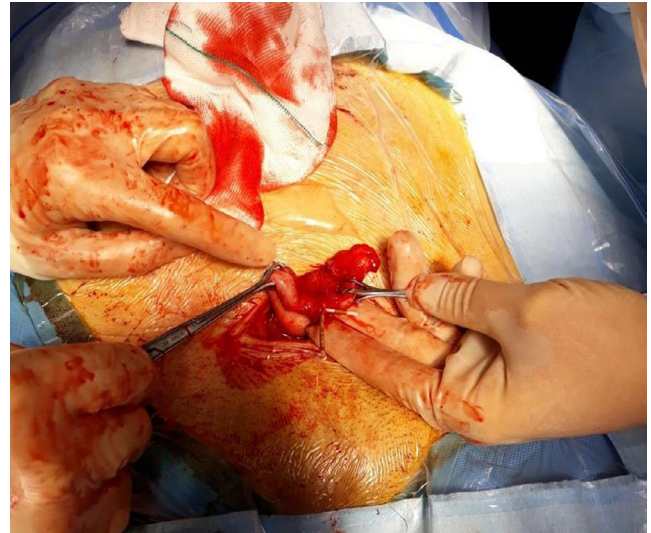
any pain, vomiting, and nausea as well as changes in her gastrointestinal or reproductive systems. Also, her physical examinations (especially abdominal examination) were unremarkable as well as the laboratory tests, especially white blood cell (WBC) count. The IUD was visualized on abdominopelvic X-ray imaging, but localizing tests were not performed at the time (Figure 1).

### 3 | INTERVENTIONS, OUTCOME, AND FOLLOW-UP

The patient was candidated for synchronized hysteroscopy and laparoscopic evaluation (8 hours later with a duration of 3 hours). Neither of these tests showed any sign of IUD in uterus and abdominopelvic cavity. Due to the presence of IUD in the plain radiography and failure to find it in the laparoscopic surgery, the patient underwent a mini-laparotomy through a 4.5-cm incision. During the laparotomy, the IUD was found to have perforated and migrated to the appendix serosa (Figure 2), causing the adhesion of omentum to the colon without any abscess formation in the involved site. Also, no further complications in other visible anatomical sites were observed during the surgery. Following the appendectomy, the report of histopathology concluded that the specimen was consistent with acute suppurative appendicitis. The patient was discharged on 1st day postoperative and has been seen in 3 monthly follow-up visits with no complications. Also, medroxyprogesterone acetate (DMPA) was



**FIGURE 1** The abdominal X-ray after normal abdominopelvic ultrasonography showing the intrauterine device



**FIGURE 2** The intrauterine device in the appendix of the patient after laparotomy. The device has perforated the serosa and migrated to the appendix

selected as the contraception method. During the 2-month follow-up, the patient had no specific related issues.

### 4 | DISCUSSION

Among the side effects of IUD insertion, perforation of the myometrial wall is a serious medical emergency that requires surgical intervention. The complications regarding this phenomenon have been reported as peritonitis, bladder/bowel injury, septicemia,<sup>10</sup> adhesions,<sup>11</sup> and in this case, acute appendicitis. Although no strong evidence is available, it seems that lack of experience during insertion, low estrogen levels, anatomical abnormalities, lactation, childbirth during past 6 months,<sup>12,13</sup> and multiple abortions may increase the risk of perforation.<sup>14</sup> The perforation may present merely as embedment (partial perforation) in the myometrial wall or complete perforation causing the device to migrate to the abdominopelvic cavity.<sup>14</sup> In the complete perforation situation, IUD may freely move in the abdominopelvic cavity, stack in adhesions, intestine, or omentum.<sup>3</sup> As it has been studied, the pouch of Douglas seems to be the most possible site of IUD migration in complete perforation.<sup>14</sup>

Missing the string in a woman using IUD could also be a critical issue that needs further evaluations; mostly to rule out the possibility of perforation. Thus, the imaging should be performed in this condition. For such purpose, ultrasound and abdominopelvic X-ray are two common acceptable modalities. If no evidence of IUD is found through intravaginal ultrasound evaluation, the next step would be to carry out a plain X-ray for, as mentioned, ruling out the possibility of perforation. If the IUD is detected in the abdominopelvic

X-ray, it would be considered a surgical emergency which requires immediate removal of IUD.<sup>15</sup>

As already discussed, several risk factors could expose a woman using IUD to a myometrial perforation<sup>12-14</sup>; which in the case of our patient, it was lactation. Although the postpartum interval was longer than 6 months (8 months), lactation could still not be dismissed as the possible risk factor. In women with copper IUDs in the breastfeeding period or those who had a recent pregnancy, IUD-induced uterus perforation and establishment of sterile abscesses in the peritoneal cavity are more likely to occur. Thus, this issue should be noted that any missing IUD string after its implantation should be considered serious.

So far, few case reports have published on the occurrence of acute appendicitis following a migrated IUD. Patients in these reports had some appendicitis-related signs such as nausea, vomiting, fever, and abdominal pain. These signs were accompanied by some of the following symptoms: abdominal tenderness (right lower quadrant), rebound tenderness, decreased abdominal sounds, and pain on percussion. Some patients had elevated WBC count or CRP level. To our knowledge, all of these patients with a similar condition have reported some case-experienced sign(s), symptom(s), and laboratory positive test(s) and none were asymptomatic.<sup>16-20</sup>

In an asymptomatic woman with missing string and an ultrasound showing no signs of IUD in the uterus, it is very important to consider emergent diagnostic and therapeutic interventions; especially for those with a recent history of pregnancy and breastfeeding. Also, it is very crucial to consider previously mentioned risk factors which make the patient prone to perforation. This report shows that even in an asymptomatic patient with normal examinations and laboratory tests, a possible emergent situation must be considered.

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## CONFLICT OF INTEREST

None declared.

## AUTHOR CONTRIBUTIONS

MZB, and RAA has performed surgery, case management, data collection, manuscript drafting and reviewing, and approval of final manuscript. SA has performed surgery, case management, data collection, manuscript drafting and reviewing, and approval of final manuscript along with study supervision.

## ETHICAL APPROVAL

Patient kindly signed a written consent form freely for publishing/using of her medical data. Authors declare their adherence to the 1975 Declaration of Helsinki and its next revisions.

## DATA AVAILABILITY STATEMENT

Data would be available through an online request.

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