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Unintended and ectopic pregnancy in woman with iud translocation with history of two times previous cesarean section and history of spontaneous abortion: Case report

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Abstract

Intrauterine device is a widely used contraceptive method. However, it may translocate to other sites within the pelvic cavity, including the intestines and the bladder. This contraceptive method has failure rate between 1 and 3 out of 100 women/year. The use of intrauterine device also slightly increases the risk of ectopic pregnancy upon its failure. The combination of intrauterine device translocation and contraceptive failure is rare. We present such a case. A 29-year-old woman (Gravida 4, Para 2) presented with a complaint of abdominal pain and presence of blood spotting over the last 7 h. She tested positive for pregnancy. Upon arrival, her vital signs were normal, but she was moderately obese with a body mass index (BMI) of 38.8 kg/m^2. She displayed tenderness during abdominal examination and cervical motion tenderness. Her blood test results showed no significant abnormalities. Abdominal ultrasound revealed a translocated part of intrauterine device to the cervix and transvaginal ultrasound confirmed the presence of a hypoechoic complex structure in the left adnexa, measuring 53 mm, alongside free fluid in Morrison's pouch. An emergency laparotomy was performed, revealing a normal uterus and a ruptured left fallopian tube with approximately 800 cc of blood in the abdomen.

Keywords

History of cesarean section and abortion, IUD translocation, unintended pregnancy, ectopic pregnancy

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Introduction

The implantation of the embryo usually happens when there is an interaction among chemical, hormonal, and anatomical aspects. Ectopic pregnancy occurs when the fertilized egg is implanted anywhere other than the endometrial lining of the uterine cavity, mostly in the fallopian tube.[1–3] If it fails to be diagnosed and treated promptly, ectopic pregnancy may lead to a soaring number of mortality.[1] The health professional is suggested to be completely aware of the ectopic pregnancy among the patients by looking for indications such as severe pain, vaginal bleeding, nausea, and vomiting.

To this date, there are numerous contraceptive methods that are regarded as effective in preventing the pregnancies from happening. Therefore, the chances for women to experience the ectopic pregnancy are lower. However, if the contraceptive fails to prevent women from getting pregnant, its use may raise the chances of the ectopic implantation. The two methods of contraception, the Levonorgestrel-releasing intrauterine system (LNG-IUS) and the intrauterine device (IUD) have extremely lower the case of failures. Even more, the working mechanism of IUD is considered potent in intercepting the intrauterine implantation. Considering the

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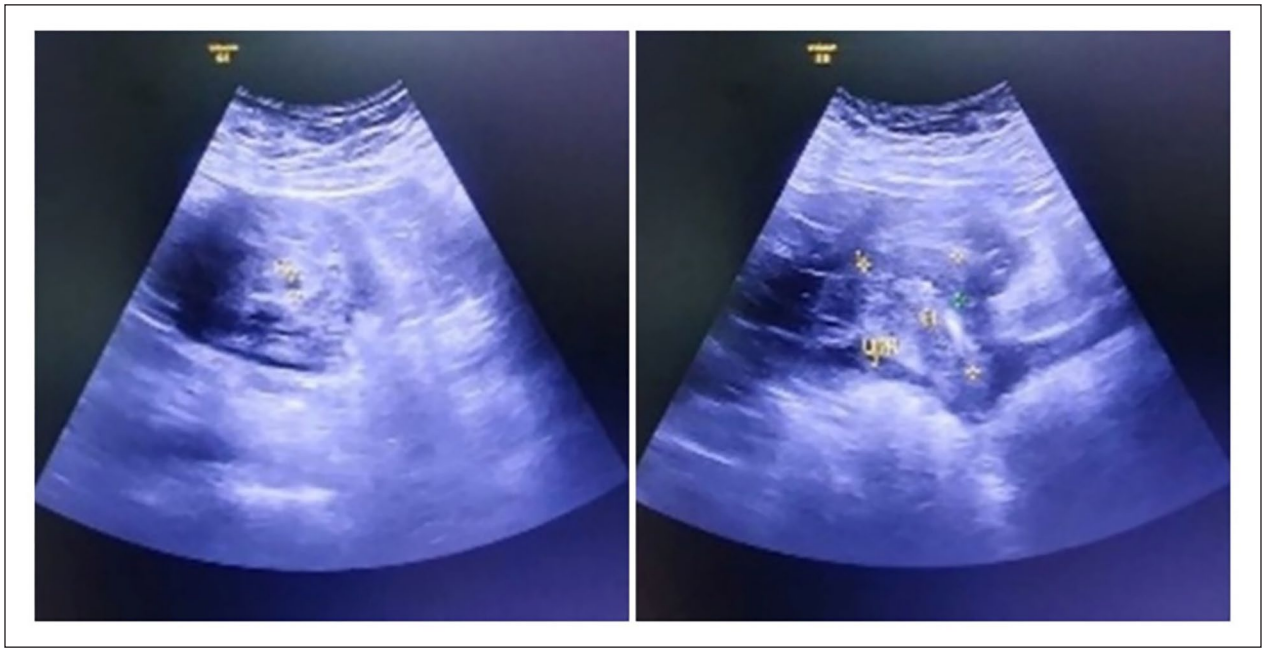

Figure 1. Transabdominal ultrasonography showing translocated intrauterine device (IUD) in the body of uterus, with the part of the IUD in the cervix.

strong effects of the IUD, the greater possibility of ectopic pregnancy will materialize if the IUD methods fail to work.[4] Some research has shown that if an IUD fails, the device is likely to prevent implantation within the uterus, leaving the embryo to implant an extrauterine location.[5] In this article, we report a case of unintended ectopic pregnancy due to a translocated IUD.

Case presentation

A 29-year-old woman with parity status G4P2A1 was referred from PKU Muhammadiyah Gombong Hospital to the maternal emergency department at Margono Hospital. She is currently 1 week and 1 day into her pregnancy and is suspected of having an ectopic pregnancy. She presented to primary healthcare with a chief complaint of abdominal pain persisting for 7 h prior to admission. Additionally, she reported experiencing blood spotting for the same duration. She denied experiencing nausea and vomiting but noted a recent decrease in appetite. There was no history of passing tissue or bubbles from the birth canal, chronic diseases, or symptoms suggestive of COVID-19 such as cough, shortness of breath, or fever. She received the Sinovac COVID-19 vaccine twice. Due to her symptoms, she initially sought care at PKU Muhammadiyah Gombong Hospital and was subsequently referred to Margono Hospital.

In her obstetrical history, this marks her fourth pregnancy. Her first delivery occurred at PKU Muhammadiyah Hospital in 2017, where she had a term delivery via cesarean section, giving birth to a baby girl weighing 2800 g. The second pregnancy ended in abortion and was treated with curettage at Amanda Hospital in 2020. Her third delivery, also at PKU Muhammadiyah Hospital, took place in 2022, again through a term cesarean section, resulting in the birth of a baby girl weighing 2900 g. After her third delivery, the patient opted to prevent further pregnancies and was provided with an IUD for contraception. The current pregnancy constitutes her fourth, which was unintended.

During the physical examination, the patient was alert and oriented, with a blood pressure of 90/60 mmHg, a pulse rate of 92 bpm, a respiratory rate of 20 breaths per minute, a temperature of 36.4°C, and a SpO_2 level of 99% on room air. She was classified as obese II with a BMI of 38.8 kg/m^2. In terms of obstetrical examination, the abdomen was flat and soft, with tenderness present (+), no muscular defense, no shifting dullness, and the fundal height remained non-palpable. In the gynecological examination, there were no fluor, fluxus, or abnormalities observed in the cervix, all appearing within normal parameters. There was also no tissue protruding from the external uterine ostium. During the internal examination, the vulva and vagina appeared normal, the cervical portio was thick and soft, there was tenderness upon cervical motion, the cervical ostium was closed, and no masses or pain were detected in the adnexa. Additionally, there was no protrusion noted in Douglas pouch.

The laboratory findings show mild anemia with a hemoglobin level of 10.1 g/dl and hematocrit of 31%. There is an elevated white blood cell count of 12,790/mm^3. Platelet count, liver function tests, blood urea, and creatinine levels are all within normal limits. Blood glucose level is elevated. Electrolyte levels are normal. The pregnancy test was positive, and urine analysis reveals bacteriuria.

Abdominal ultrasonography (Figure 1) revealed an anteflexed uterus with homogeneous density measuring

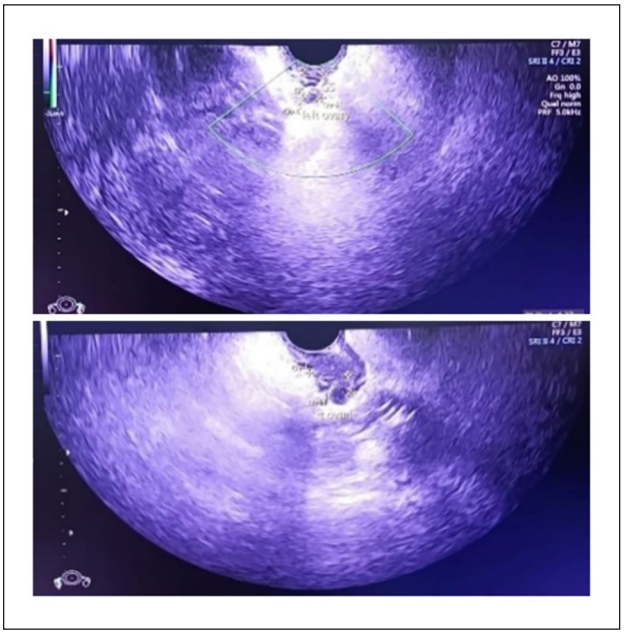

Figure 2. Transvaginal ultrasonography showing hypoechoic structure resembling gestational sac in the left adnexa, along with free fluid in the Morrison's pouch.

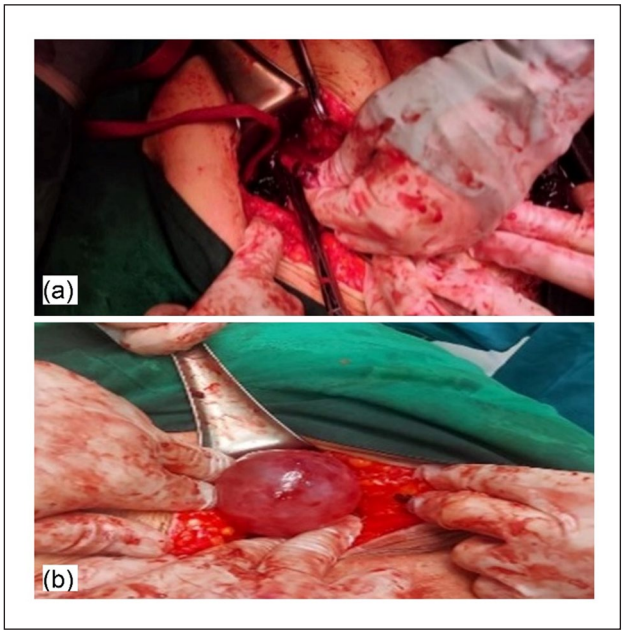

Figure 3. Durante operation. (a) The ruptured left fallopian tube was found and ligated. (b) Right ovarian cyst was discovered incidentally during exploratory laparotomy.

7.47 × 4.74 cm. Gestational sac (GS) and double decidua sign were not found. Free fluid (+). IUD was found translocated, with the part of the IUD in the cervix.

Emergency transvaginal ultrasonography (Figure 2) revealed an anteflexed uterus with heterogeneous density measuring 6.1 × 4.5 cm. Endometrial lining and IUD were both present. Additionally, a hypoechoic structure measuring 53 mm, resembling a GS, was identified in the left adnexa, along with the presence of free fluid in Morrison's pouch, confirming an ectopic pregnancy.

The management plan for this patient includes immediate explorative laparotomy, with prior consultation with anesthesiology. Fluid resuscitation will be initiated with a 1000 cc bolus of Ringer's lactate through two intravenous accesses. Prophylactic measures to prevent surgical infection will include intravenous administration of cefazolin (2 g), tranexamic acid (three doses of 1 gram each), and intravenous Vitamin K (three doses of 10 mg each). Informed consent was obtained, and the patient was closely monitored before the surgery.

Throughout the exploratory laparotomy, the uterus appeared to be within normal size, but there was a rupture of the pars ampullaris of the left fallopian tube (Figure 3(a)). Bleeding amounted to approximately 800 mL. Additionally, a right ovarian cyst with the size of a tennis ball was incidentally discovered during the surgery (Figure 3(b)), which had not been detected via ultrasonography. Surgical procedures performed during the operation included left salpingoophorectomy and right cystectomy.

After the exploratory laparotomy, the patient remained hospitalized for 2 days, displaying stable vital signs and positive results in supporting examinations. One month after the surgery, a follow-up examination was conducted, and the patient's overall condition was found to be satisfactory.

Discussion

An ectopic pregnancy occurs when the blastocyst implants outside the inner lining of the uterus, meaning the pregnancy develops outside the womb. This type of pregnancy can manifest in various forms, such as interstitial, ovarian, cervical, abdominal, heterotopic, and cesarean scar pregnancies.[6] The incidence of ectopic pregnancy in the emergency department has risen significantly, with 6%–16% of pregnant women presenting with abdominal pain or vaginal bleeding being diagnosed with ectopic pregnancy. This elevated occurrence has been associated with a nearly 6% risk of maternal mortality.[4]

Several recognizable symptoms of ectopic pregnancy can be expected, including missed menstrual cycles, abdominal pain, and vaginal bleeding. The American College of Obstetricians and Gynecologists outlines the symptoms of ectopic pregnancy in chronological stages. Initially, it may resemble typical early pregnancy symptoms, such as a missed menstrual period, tender breasts, and abdominal discomfort. Subsequently, it progresses to exhibit typical first-trimester bleeding symptoms, such as vaginal bleeding, mild abdominal or pelvic pain, and slight cramping on one side of the pelvis. If the ectopic pregnancy persists, it can escalate to more severe symptoms, including sudden and intense abdominal pain, shoulder pain, weakness, dizziness, or even fainting.[7,8]

Premenopausal women experiencing vaginal bleeding should undergo pregnancy testing initially to exclude it. Furthermore, those experiencing abdominal pain should also undergo pregnancy testing, as the pain may indicate tubal rupture. If pregnancy is confirmed, ultrasonography is employed to diagnose intrauterine pregnancy. In the absence of visible signs of intrauterine pregnancy, suspicion arises for ectopic pregnancy. Serial serum β-hCG levels should be obtained to monitor the pregnancy's progress.[7] In this case, the patient presented symptoms of abdominal pain accompanied by vaginal bleeding occurring for the past 7 h before seeking medical attention. Initially, a pregnancy test yielded a positive result, confirming pregnancy. Following this confirmation, both abdominal and intravaginal ultrasonography were performed. The results revealed the presence of a GS in the left adnexa, along with bleeding accumulated in Morrison's pouch, indicating a ruptured fallopian tube. These findings were further supported by additional examinations indicating blood loss, such as a hemoglobin level of 10.1 g/dl and a hematocrit of 31%, suggestive of mild anemia. Subsequently, a diagnosis of ectopic pregnancy was made, and the patient was promptly scheduled for surgery to address this urgent situation.

One significant factor contributing to ectopic pregnancy is a previous ectopic pregnancy. A single ectopic pregnancy may result in a 10% recurrence rate, while this figure can exceed 25% for individuals with two or more prior ectopic pregnancies. Besides prior ectopic pregnancies, other risk factors include damaged fallopian tubes, previous tubal surgery, sterilization procedures, and pelvic inflammatory disease. Additionally, factors such as age over 35, smoking, and multiple sexual partners, although secondary to the aforementioned risks, also contribute to the likelihood of ectopic pregnancy.[9] In this case, the patient doesn't have history of previous ectopic pregnancy, but she had previously undergone cesarean section twice and a curettage procedure due to spontaneous abortion. Several situations such as miscarriage and therapeutic abortion are not considered risk factors for ectopic pregnancy.[10] Meanwhile, history cesarean section may increase the risk of ectopic pregnancy, specifically cesarean scar ectopic pregnancy, in which the fertilization product implanted in the scar tissue formed by previous cesarean section[11]; however, this condition did not fit to this case diagnosis as the pregnancy located in left adnexa, not in the cesarean scar.

Similarly, the use of oral or emergency contraception does not increase the risk of ectopic pregnancy. IUDs are highly effective in preventing pregnancy, with a failure rate approaching zero percent. However, if pregnancy occurs despite IUD use, nearly 25%–50% of these pregnancies may be ectopic. Ectopic pregnancies can implant in various locations, including the cervix, uterine cornua, myometrium, ovaries, abdominal cavity, and most commonly, the fallopian tubes.[12] IUD, while can prevent intrauterine pregnancy, it does not necessarily prevent implantation in more distal locations. Some studies have shown that both progesterone and its analog, levonorgestrel, which is a component of the LNG-IUS, can effectively suppress human tubal functions, which have been identified as the primary reason for compromised embryo-tubal retention and implantation of blastocyst.[13] Additionally, the device does not eliminate the risk of ectopic pregnancy, even in women with healthy fallopian tubes. Therefore, healthcare professionals are advised to carefully diagnose women presenting with ectopic symptoms, as ectopic pregnancy can still occur in those without known risk factors.[1] In this case, the patient had been using an IUD for a year following her third delivery. Ultrasonography revealed that the IUD had translocated to the cervical region, thereby failing to function properly, resulting in contraceptive failure and the development of an ectopic pregnancy.

Several alternative approaches are available for treating ectopic pregnancy, including expectant management, pharmacological interventions such as methotrexate, or surgical options.[7]

Conclusion

The findings of this study suggest that the use of IUDs is frequently linked to an increased risk of ectopic pregnancy, particularly in patients who have confirmed pregnancies. Since IUDs are designed to prevent implantation of intrauterine pregnancies, it is imperative to thoroughly investigate the possibility of ectopic pregnancy. The case examined in our study underscores the importance for clinicians to remain vigilant regarding the potential for ectopic pregnancy, particularly in reproductive-age females with a history of contraceptive use.

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Author contributions

D. M. and S assessed the patient, acquired the data and drafted the manuscript. K.T. and M.A. correct and complete the manuscript. All authors contributed to the drafting of the article and agreed on the final version to be published.

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Ethics approval

Our institution does not require ethical approval for reporting individual cases or case series.

Informed consent

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