

Ovary transmigration of a levonorgestrel-releasing intrauterine device and ectopic pregnancy: a case report

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Abstract

Introduction: Intrauterine devices (IUD) are safe long-term contraceptive methods frequently used. Though it is a rare event, the uterine perforation and migration of an IUD is possible. **Case description:** This study is based on a single patient who has been using Levonorgestrel (LNG)-IUD for the last two years without previous complications. A control ultrasound in October/2019 reported a normally placed LNG-IUD. However, in July/2020, she was admitted to our hospital with intermittent pain in the right iliac fossa associated with minor vaginal bleeding for the last 30 days. Her hCG level was 827,3 mUI/mL. The LNG-IUD was not identified in the ultrasound exam, and there was a mass of 5.6 centimeters with a hyperechogenic line in the right adnexa. In surgery, we found a right tubal ectopic pregnancy, and the LNG-IUD was located within the right ovary parenchyma, confirmed by pathological examination. We performed a right salpingo-oophorectomy, and there were no procedure complications. The patient presented good clinical evolution, receiving discharge the next day. **Discussion:** The spontaneous IUD migration can affect any adjacent structures, but the exact pathophysiology is unknown. Although uterine perforation and migration are rare complications, the medical team should discuss their possibility with the patient before IUD insertion. Moreover, professionals should be aware of this possibility and diagnose it rapidly to avoid further complications. With this case report we intend to review similar cases described previously and discuss the best options available for management of this complex situation.

Keywords: Ectopic pregnancy; Intrauterine Device Expulsion; Intrauterine Device Migration; Levonorgestrel; Ovary; Salpingo Oophorectomy.

Introduction

Intrauterine devices (IUDs) are long-term contraceptive methods frequently used due to their high efficacy, safety, and low cost¹. Levonorgestrel (LNG)-IUD provides high efficacy rates. However, if there is conception in use of the method, ectopic pregnancy needs to be ruled out once 50% of pregnancies in use of LNG-IUD are ectopic². The excellent efficacy provided by hormonal IUDs is due not only to its high dose of levonorgestrel acting on the endometrium but also to its action on the cervical mucus - thickening it to stop the sperm from fertilizing the egg. Complications related to this method are expulsion, bleeding, uterus perforation, and pelvic infection². Uterus perforation is rare, with incidence varying from 0.6-2.6 cases per 1000 IUD insertions. Risk factors related to this complication are breastfeeding, puerperium, amenorrhea, inexperienced surgeon, and six months after delivery^{2,3}. The higher risk of perforation occurs during the IUD insertion, and only 8.5% are immediately detected⁴. On the other side, there has been reported late migration of the IUD to the abdominal cavity after over four weeks of insertion, which can result in severe complications such as abdominal adhesions or bowel perforation^{3,5}. As this type of complication is rare, the pathophysiology of late migration is still known^{6,7}. This case report details a hormonal IUD migration to the ovarian parenchyma, resulting in ectopic pregnancy, and it will contribute to the scarce literature on the topic.


The Ethics Committee of the Faculty of Medicine, Federal University of Sao Paulo approved this study (CAAE: 41737020.2.0000.5505), and patient informed consent was obtained.

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Case report

A 37-year-old woman came to the emergency room in July/2020 with intermittent pain in the right iliac fossa associated with minor vaginal bleeding for the last 30 days. She denied chronic diseases, the habit of smoking or consuming alcoholic beverages, nor making use of drugs and controlled medicines. Her body mass index (BMI) was 28 kg/m². Her obstetric antecedents were two pregnancies with two previous C-sections, the last one ten years ago. She has been using a LNG-IUD since October/2018 and has had regular monthly bleeding. One year ago, in July/2019, she presented intense vaginal bleeding associated with abdominal pain and, by that time, did a transvaginal ultrasound in another service. The ultrasound reported a normally placed LNG-IUD without other abnormalities. Therefore, she continued to use the method (Figure 1). When the patient arrived at the hospital, she was hemodynamically stable. The abdomen was tender on the physical examination, especially at the right iliac region, associated with rebound tenderness. There were no palpable masses. During speculum examination, there was minor bleeding in the vaginal fornix, and the wire was not visible. During the pelvic examination, the patient had only pain in the right adnexal topography. The laboratory investigations revealed a hCG of 827,3 mUI/mL and a hemoglobin level of 11,7 g/dL. The transvaginal ultrasound did not show the LNG-IUD within the uterus. Instead, it showed a heterogeneous mass of 5.6 centimeters (cm) by the side of the right ovarian, together with a hyperechogenic line compatible with the LNG-IUD (Figure 2 and 3).

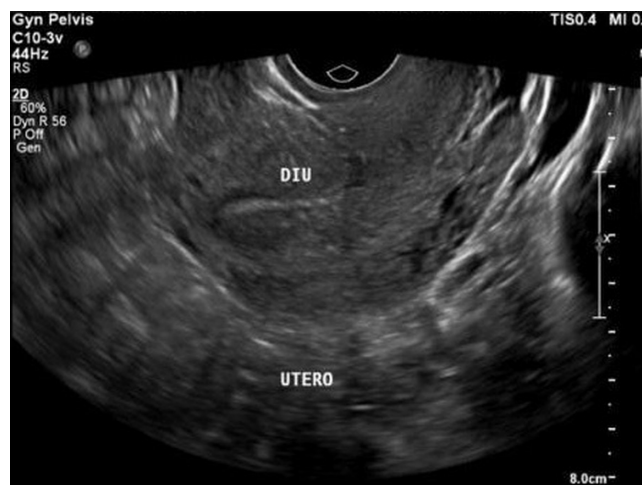


Figure 1. Transvaginal ultrasound showing the IUD correctly positioned

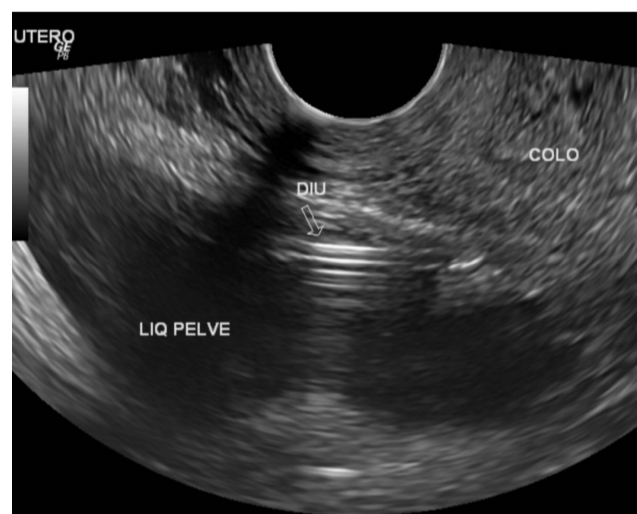


Figure 2. Transvaginal ultrasound showing the IUD by the side of the right ovarian

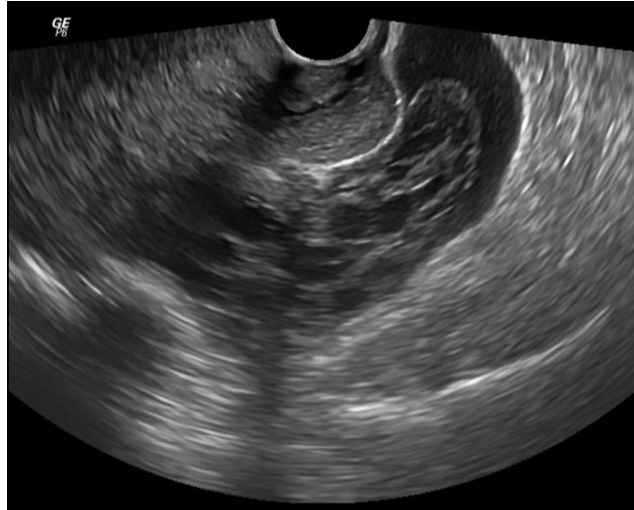


Figure 3. Transvaginal ultrasound showing the heterogenous mass of the right adnexa

Thus, the hypothesis was an ectopic gestation associated with the migration of the LNG-IUD. The medical team indicated an exploratory laparoscopy procedure. However, the laparoscopic equipment was unavailable, and the team chose laparotomic access. During the surgery, there was a 4.5 centimeters mass in the right uterine tube, with no active bleeding, suggestive of tubal pregnancy. Additionally, the LNG-IUD was visible through the ovarian parenchyma (Figure 4 and 5). The uterus did not show any sign of perforation or any other abnormality. Within this, we performed a right salpingo-oophorectomy, and there were no procedure complications. The patient presented good clinical evolution, receiving a discharge and post-operative guidelines the next day. After medical orientation, she chose medroxyprogesterone acetate injection as her new contraceptive method. We recommended a seven-day follow-up after surgery, but she did not attend the appointment. Pathological examination confirmed the right tubal ectopic pregnancy and chronic oophoritis to the foreign body, identified as the IUD.

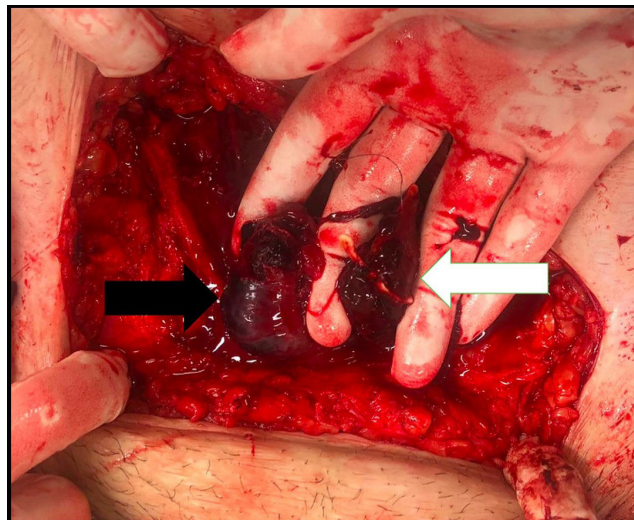


Figure 4. Intraoperative photograph showing right tubal ectopic pregnancy (black arrow) and the right ovary with the LNG-IUD inside it (white arrow)

Discussion

The LNG-IUD has an optimum Pearl Index of 0.2 pregnancy in 100 women over a year of exposure. Although, when not normally positioned, its efficacy is reduced⁸. If pregnancy occurs, it is essential to carefully evaluate its topography once around 50% of pregnancies in the use of LNG-IUD are ectopic^{2,9}, as happened in this case.



Figure 5. Surgical piece containing right adnexa with the tubarian ectopic pregnancy and the IUD within the right ovary parenchyma

Spontaneous migration of the IUD to the periuterine area is rare, and the bladder is the most common destination. It initially occurs due to early or late uterine perforation, followed by migration. The exact pathophysiology of late migration is unknown. One hypothesis relies on the incompatibility between the device's size and the uterus. Other theories suggest that constant pressure on uterine wall fragility - such as a scar caused by previous surgeries - pushes the IUD to the abdominal cavity^{7,10}.

The IUD migration is often asymptomatic. However, it should be suspected when patients report abnormal abdominal pain, uterine bleeding, or when the wire is not visible at the gynecological exam^{7,9,11}. The diagnosis requires an imaging exam, such as an ultrasound, showing an IUD in an abnormal position⁹. The IUD migration may cause peritonitis, appendicitis, bowel obstruction and perforation, obstructive nephropathy, infertility, and even vesica-uterine fistula.

Delaying treatment to wait for the complete migration of the IUD can be beneficial once it may cause easier removal and fewer complications. However, it depends on the patient's clinical symptoms. Immediate removal is necessary when patients experience discomfort, pain, or other complications¹².

If possible, both ectopic pregnancy and IUD migration should be approached preferably by laparoscopy. However, in particular cases where the IUD is not easily found during the surgery, abdominal radiography is mandatory to locate and remove it¹².

The current case illustrates a case of late-onset complete spontaneous migration of contraceptive LNG-IUD to the right ovary associated with ectopic pregnancy successfully managed. There are few similar reports described in previous literature. The limitation of this case report is the lack of consistent data regarding the LNG-IUD insertion and follow-up, as these procedures were realized in an external service.

Conclusion

Uterine perforation and migration caused by an IUD is a rare complication that should always be discussed with the patient while advising contraception options. However, it should not be a reason to contraindicate this method. Regarding caregivers, professionals should be aware of the possibility of these events in order to diagnose them rapidly and avoid further complications.

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LAZ collected data from patient history.

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FPM was responsible for caring for the patient during hospitalization.

CFB was the the project advisor.