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Ectopic pregnancy with levonorgestrel-releasing intrauterine device (Jaydess) in situ

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Abstract

Presentation

A 31 year old female, gravida 1, para 0, presented to the (ED) with minimal vaginal bleeding and severe RIF and abdominal pain. A Jaydess coil was in situ and history of 3 months diagnostic laparoscopy.

Diagnosis

Trans-abdominal and vaginal ultrasound in the ED revealed no evidence of intrauterine pregnancy and a well-defined heterogeneous lesion in the right
adnexa. The scan also showed intraperitoneal fluid collection and the coil in the lower uterine cavity.

Treatment

A diagnostic laparoscopy was performed where hemoperitoneum was evacuated and a right salpingectomy was done due to a partial rupture of the right tubal ectopic pregnancy. The patient was discharged home with outpatient follow-up and no complications postoperatively.

Discussion

This case highlights that although unintended pregnancies are uncommon in women with an IUD in place, clinicians should remain vigilant about the higher chance of EP. Ultrasound technology has enabled accurate and non-invasive diagnosis of EP and effective management.

Introduction

The use and availability of levonorgestrel-releasing intrauterine devices (LNG-IUD), including the Mirena and Jaydess, is increasing, being utilized by more than 150 million women worldwide[1]. The LNG-IUDs are considered reliable contraceptive options, with a Pearl Index (number of unintended pregnancies per 100 woman-years of exposure) of approximately

0.1%[2]. Furthermore, the LNG-IUD is used in the management of menorrhagia and dysmenorrhea and is a beneficial option in postmenopausal women requiring estrogen replacement, as a method to protect the endometrium from unopposed estrogen therapy[3].

Ectopic pregnancy (EP) is described as the implantation of the embryo outside of the uterine cavity. In the general population, the overall incidence of EP is 2%[4]. In cases of unintended pregnancy in women using the LNG-IUD, the likelihood of an EP is increased. A recent case-control study by Li et al. estimated the risk to be more than 20 times higher than in women using no method of contraception[2]. Additional risk factors include in vitro fertilization (IVF), smoking, pelvic inflammatory disease (PID), and a previous history of EP[5,6].

This case report discusses and brings up important management considerations for a 31-year-old female who presented to the Emergency Department (ED) with severe abdominal pain and vaginal bleeding. She had an LNG-IUD and was diagnosed with a ruptured ectopic pregnancy.

Case Report

A 31 year old female, gravida 1, para 0, presented to the Emergency Department (ED) with minimal vaginal bleeding and severe right iliac fossa (RIF) and abdominal pain. Her last menstrual period (LMP) was unknown, had a Jaydess coil in situ for the past 2 years. With up-to-date and normal cervical smear tests. She is a nonsmoker with no significant medical history apart from anxiety, and her surgical history includes a tonsillectomy and diagnostic laparoscopy with cystectomy 3 months ago.

On clinical examination, the patient was well. Oriented in time, place, and person but in pain without distress. Her vital signs were as follows: temperature 36.2ºC, heart rate 70 beats per minute, blood pressure 150/104 mm Hg, respiratory rate 18 breaths per minute, and oxygen saturation 97% on room air. Abdominal examination revealed a soft and mildly distended abdomen with RIF tenderness and guarding. A speculum examination, conducted with a verbal consent and a Chaperone, showed minimal vaginal bleeding. The vulva, vagina, and cervix appeared healthy, with visible coil thread.

The patient had previously presented to the ED twice (two days apart) with minimal per-vaginal (PV) bleeding and mild abdominal pain. She had a positive urine pregnancy test and was hemodynamically stable. Speculum examination at that time, also conducted with verbal consent and a Chaperone, showed minimal vaginal bleeding with a healthy-appearing vulva, vagina, and cervix. The coil thread was visible. An initial scan showed no intrauterine

pregnancy, and her beta-human chorionic gonadotropin (BHCG) level was 1885. An impression of Pregnancy of Unkown Location (PUL) was established so she was referred to the Early Pregnancy Assessment Unit (EPAU) for follow-up and scheduled for a scan.

Given her clinical presentation and despite having a contraceptive device (Jaydess coil), there was a strong suspicion of a right ectopic pregnancy. A quick point-of-care bedside Trans-abdominal and Trans-vaginal ultrasound in the ED revealed no evidence of intrauterine pregnancy, normal left adnexa, and a well-defined heterogeneous lesion measuring 2.93 cm × 2.3 cm in the right adnexa overlying the ovary (Figure 1). The ultrasound also showed intraperitoneal fluid collection and the coil sitting in the lower uterine cavity. Throughout the scanning the patient was tender with ultrasound probe.

The patient was placed on continuous monitoring, and a peripheral intravenous line was established. Baseline blood samples were taken, and 2 units of red cell concentrate (RCC) were cross-matched. Initial laboratory results showed hemoglobin 12.8 g/dL (reference range: 12.0-15.5 g/dL) and hematocrit 37% (reference range: 34.9-44.5%). Her electrolytes, blood glucose, and lactate levels were unremarkable.

The patient was taken to the operating room (OR) for a diagnostic laparoscopy. During the procedure, 100 ml of hemoperitoneum was evacuated, a right salpingectomy was performed, and the coil was removed. Intraoperative findings included a normal left ovary and tube, and a partial rupture of the right tubal ectopic pregnancy (Figure 2). The patient remained in the hospital with no complications postoperatively until the next day and discharged home with outpatient follow-up.

Discussion

We presented a case of a nulliparous woman presenting with an ectopic pregnancy (EP) despite the presence of a levonorgestrel-releasing intrauterine device (LNG-IUD) Jaydess. This case highlights the importance of considering women with a positive pregnancy test and an IUD in situ as high-risk for EP, raising significant discussion points regarding the management of these patients.

A large multi-national cohort study conducted in 2015 assessed the relative contraceptive effectiveness and risk of EP in women with LNG and copper IUDs in situ[7]. It revealed that the LNG-IUD was associated with a lower risk of both normally implanted pregnancies and EP compared with the copper IUD.

In our case, the coil was observed to be abnormally positioned in the lower aspect of the uterine cavity on ultrasound examination. The risk of unplanned pregnancy in women using

LNG-IUDs is reported to be higher when the IUD is displaced either lower in the uterine cavity or perforates into the myometrium[7]. This finding highlights the importance of assessing the location of IUDs on routine pelvic ultrasound scans and counselling women who are found to have a displaced IUD about the potential reduction in contraceptive efficacy. This case report demonstrates the need for urgent investigation in IUD users with a positive pregnancy test, given the higher risk of complications. It is crucial to clearly advise women of the different management options available.

Given the risk of significant morbidity with a delayed EP diagnosis, this case highlights that although unintended pregnancies are uncommon in women with an IUD in place, clinicians should remain vigilant about the higher chance of EP in those who do become pregnant. Recent advances in ultrasound technology have enabled accurate and non-invasive diagnosis of EP, facilitating timely information to guide management decisions effectively.

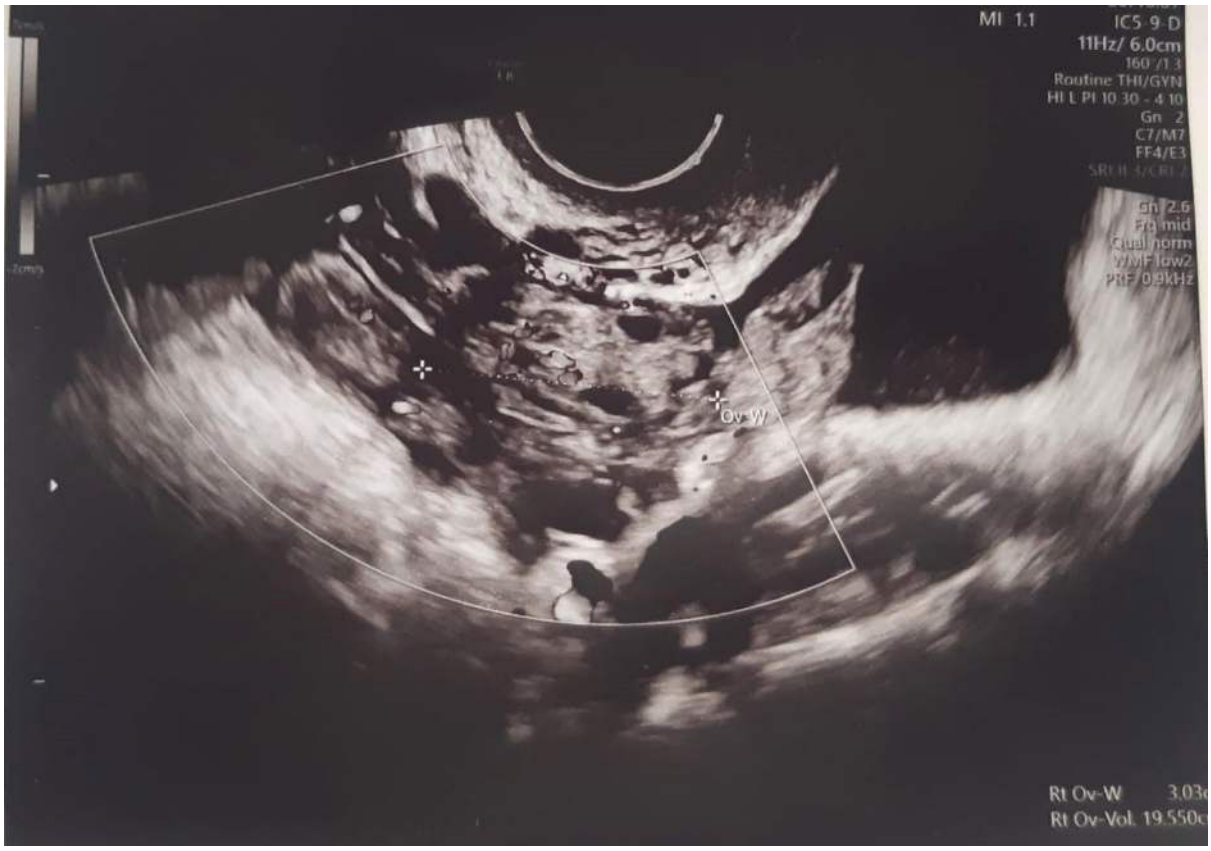

Figure 1: Transvaginal scan showing right sided heterogeneous mass adjacent to the right ovary

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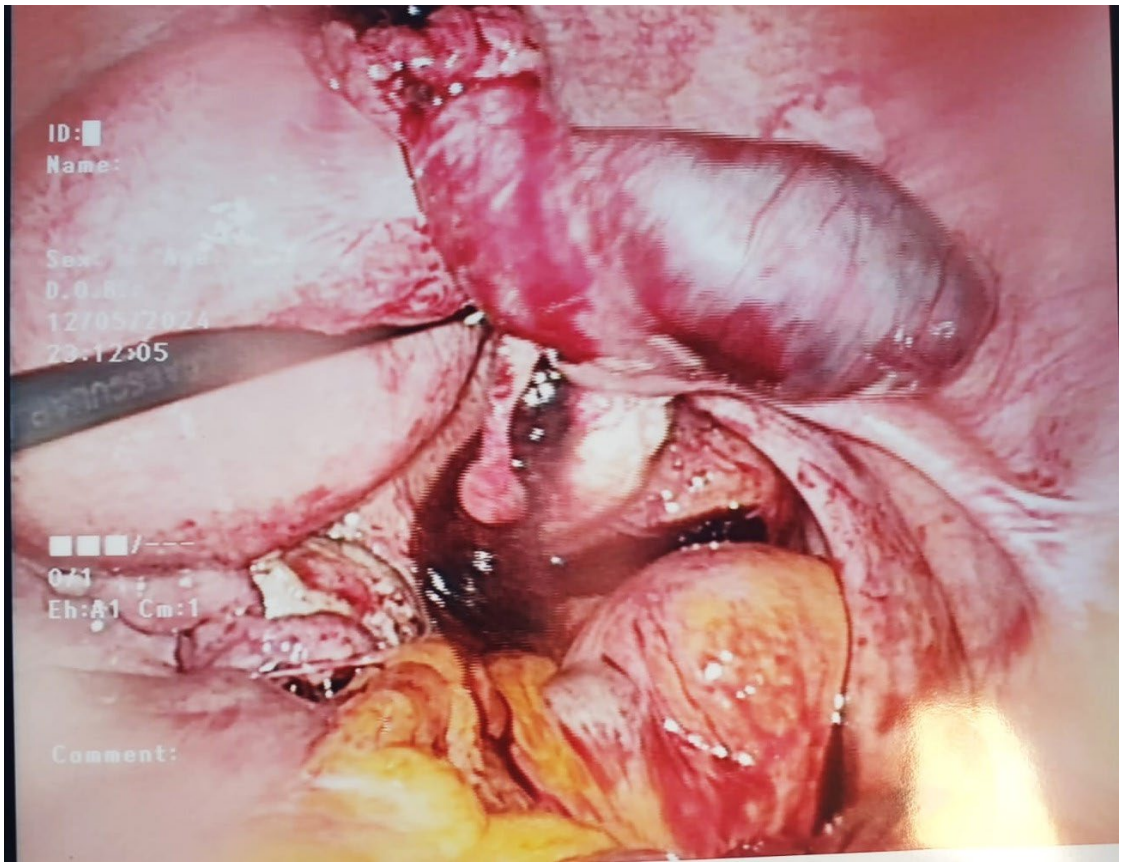

Figure 2: Laparoscopic view showing partially rupture right tubal ectopic pregnancy.

Declarations of Conflicts of Interest:
None declared.

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