

Ruptured Ectopic Pregnancy with IUD in Situ

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Background

An ectopic pregnancy is any pregnancy which has implanted outside of the womb. There are several types of ectopic pregnancies for example tubal, cervical, ovarian. Ectopic pregnancies can also implant on caesarean scars. The most common sites for implantation of an ectopic pregnancy are the fallopian tube (97%), followed by the ovary (3.2%) and the abdomen (1.3%) [1]. Ruptured ectopic pregnancies pose high risk of mortality and morbidity to the patient [2]. This is because of possibility of rupture, intraperitoneal bleeding and subsequent haemodynamic instability of the patient. According to NICE CKS, in the UK, an estimated 12,000 ectopic pregnancies are diagnosed each year [3]. In the UK, 1 in 90 pregnancies (just over 1%) is an ectopic pregnancy [2]. It is unclear how many ectopic pregnancies occur with IUD/IUS in situ. Ectopic pregnancies are diagnosed via clinical history and examination. Diagnostic tool used to confirm a diagnosis of ectopic pregnancy is transvaginal ultrasound. MRI may be used as a second line option for diagnosing A ectopic pregnancy which was implanted on the C-section scar [2]. There are several risk factors which increase the risk of ectopic pregnancy. These risk factors include surgery, infection which can lead to fallopian tube damage. Other risk factors include pregnancy conceived via In-Vitro Fertilisation (IVF), smoking, previous ectopic pregnancy and pregnancy with Intrauterine Device (IUD) in situ [2]. Intrauterine contraceptive devices are a form of long-term reversible contraception. There are 2 types of intra uterine devices. One is called the Copper Intrauterine Device (Cu-IUD) and the other is called Levonorgestrel Intrauterine Device (LNG-IUDs). Cu-IUD has a failure rate of 0.8% with typical use and LNG-IUD has a failure rate of 0.3% for both typical and perfect use [4]. Because IUDs are so effective at preventing pregnancy, when there is a pregnancy, chances of the pregnancy implanting outside the womb is higher [5]. However, although the pregnancy itself is more likely to be ec-

topic when the woman has an IUD, the chance of getting pregnant is much lower, meaning the overall risk of ectopic pregnancy is drastically reduced [5]. There was no specific research found at the time of writing this care report as to which type of IUD caused a higher increased risk of ectopic pregnancy. In one study, 50% of pregnancies reported with LNG IUS were ectopic pregnancies [6,7]. In this report we discuss the case of a female patient who presented with a ruptured ectopic pregnancy and hemoperitoneum despite a correctly positioned IUD.

Case presentation

This was a healthy 25-year-old student who presented to our hospital's emergency department with sudden onset, right-sided abdominal pain, which woke her from sleep. This pain was constant and sharp, radiating to the right shoulder tip, rated at 7/10 with no exacerbating or alleviating factors. The patient also reported vomiting with pain once, with continuing nausea, new light-headedness, and 1 episode of dark brown PV bleeding after urinating. There was no history of fever, diarrhoea, headaches, syncope, or chest pain. She reported the use of an LNG-IUS for long-term contraception with no regular medication. She had two previous surgeries, open reduction and internal fixation of a left wrist fracture in 2014 and a tonsillectomy in 2018. She had a heart rate of 107 with a blood pressure of 139/86 on presentation. A urine dipstick revealed 2+ blood and 1+ protein. Owing to the patient's chief complaints, there were few differential diagnoses that were indicated such as ovarian cyst rupture, ovarian torsion, endometriotic lesion. These were resolved by performed a pregnancy test, blood tests and a transvaginal ultrasound. The pregnancy test was performed which returned positive. Blood tests revealed a Beta-HCG level of 1280, Progesterone of 22.8, C Reactive Protein (CRP) of 1, White Cell Count (WCC) of 9.0, and Haemoglobin of 108. The transvaginal ultrasound scan showed an anteverted uterus with

a Mirena IUS correctly inserted with no evidence of intrauterine pregnancy. An inhomogeneous mass measuring XXX was observed medial and superior to the right ovary, with the left ovary being normal. There was also, notably, haemoperitoneum of around 300 mls. Given the results of the ultrasound, a diagnosis of a likely right-sided ruptured tubal ectopic pregnancy was made. The patient, therefore, underwent a diagnostic laparoscopy and subsequent right salpingectomy with notable findings of minor pelvic endometriosis (also known to alter local anatomy of the adnexa) on the broad ligament to the left and hemoperitoneum with suspected right tubal abortion. The LNG-IUD was removed during the surgery.

Outcome: Postoperatively, the patient recovered well, with a negative pregnancy test three weeks after. Histological examination of tissue revealed an ectopic fallopian tube pregnancy with no evidence of atypia or malignancy. She was discharged from the hospital after a period of observation.

Significance of this case study: This was a case of a nulliparous lady who presented with a ruptured ectopic pregnancy despite the presence of an LNG-IUD. This reiterated the importance of a thorough clinical history and recognition of key presentational points of a ruptured ectopic pregnancy; these points include vomiting during pain, diffuse abdominal pain, acute pain lasting longer than 30 minutes, and flashing pain - any one of these four have been shown to have 93% sensitivity for tubal rupture, though they have low specificity (44%) [8]. In one study, the classic triad of symptoms of an ectopic pregnancy are abdominal pain, PV bleeding and amenorrhoea/positive urinary pregnancy test, all present in the case patient [9,7,10]. The value of remembering that whilst the LNG-IUD is highly efficacious, it is not perfect and can fail was reiterated in this case. It is particularly notable that despite the risk of any pregnancy being very low, when pregnancy occurs with an intrauterine contraception in situ there is an increase in the proportion of which are ectopic [4]. This increase in proportion is something that patients should be counselled on so that if they begin to experience symptoms of an ectopic pregnancy, they can present to healthcare earlier rather than later with a ruptured ectopic, which has a mortality rate of up to 14%, being responsible for up to 10% of all pregnancy-related deaths [11,12]. The lack of such counselling at current was notable in this case as the patient stated she was unaware of this increased risk and, on presentation to ED, believed it was gastroenteritis, being surprised at the diagnosis of a ruptured ectopic.

Conclusion

This case displays the acute significance of a thorough clinical history, followed by investigations based on clinical gestalt. This gestalt needs to be based upon a broad foundational knowledge, with medical staff seeing patients in emergent conditions aware of the key points to look out for when taking a history. It also demonstrates the importance of patient counselling so that delayed presentations are avoided, potentially presenting before tubal rupture, leading to reduced mortality and morbidity.

Ethical considerations: This case report was written with informed consent taken from the patient.

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