Primary omental pregnancy after intrauterine insemination: a case report

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Introduction

Ectopic pregnancy (EP), a condition in which a fertilised ovum does not implant in the endometrial cavity, occurs in 1% to 2% of all pregnancies.[1] Up to 97% of EPs occur within the fallopian tube, but implantation can also occur at locations such as the cervix, ovary, uterine cornua and abdomen. Abdominal EPs are extremely rare, making up less than 1% of EPs.[1] Their presentation can be non-specific and they are classified as primary or secondary abdominal pregnancies. We present a case of primary omental pregnancy with laparoscopy and omentectomy performed.

Case summary

In January 2020, a 33-year-old gravida 1 para 0 woman was admitted to our gynaecology unit with right-sided abdominal pain. The patient's past health was good and she had no history of gynaecological surgery, sexually transmitted disease or pelvic inflammatory disease. She had been treated in the private sector 3 weeks before to admission with ovulation induction and subsequent intrauterine insemination (IUI) for coital problems. Serum beta-human chorionic gonadotropin (HCG) was 48 mIU/L on day 18 and 768 mIU/L on day 22 after IUI. Ultrasound of the pelvis at 5 weeks of gestation showed no intrauterine sac. She also complained of mild per-vaginal bleeding on admission. Abdominal examination revealed tenderness over the right abdomen, next to the umbilicus. Transvaginal ultrasound of the pelvis on admission showed a linear endometrial lining, with no adnexal masses or pelvic free fluid identified. Blood tests showed a haemoglobin level of 12 g/dL and beta-HCG level of 1366 mIU/mL. Diagnostic laparoscopy was offered to the patient in view of her abdominal pain but she opted for beta-HCG monitoring as she was worried about a negative laparoscopy. She subsequently complained of severe right abdominal pain about 6 hours after admission. Repeat transvaginal ultrasound revealed no adnexal masses but a moderate amount of free fluid in the pouch of Douglas. Due to the increased abdominal pain and suspicion of a ruptured EP, the patient agreed to undergo laparoscopy.

Laparoscopy showed haemoperitoneum of 200 mL and a normal uterus, bilateral fallopian tubes and ovaries. Survey of the peritoneal cavity revealed a 5 × 5 cm haematoma attached to the omentum at the right hepatic flexure, with mild oozing from the site of attachment (Fig 1). The rest of the abdomen was unremarkable. General surgeons were consulted and omentectomy (including the site of bleeding) was performed.

The patient made an uneventful postoperative recovery and haemoglobin was stable. She was discharged on day 4 after surgery. Pathological examination revealed products of gestation mixed with inflammatory and reactive mesothelial cells (Fig 2). Beta-HCG monitoring after surgery showed a satisfactory drop to a non-pregnant level: 366 mIU/mL, 144 mIU/mL, and 1.7 mIU/mL on days 2, 4, and 18 after surgery.

Discussion

Among EPs, abdominal pregnancy is most rare. They have been classified as either primary or secondary. Our case meets the criteria established by Studdiford[2] for a primary abdominal pregnancy: normal, bilateral fallopian tubes and ovaries with no recent or remote injury; absence of any uteroperitoneal fistula; and presence of a pregnancy related exclusively to the peritoneal surface and diagnosed early enough to exclude the possibility of secondary implantation after primary nidation elsewhere.

Early preoperative diagnosis of an abdominal EP is very difficult in many cases. A systematic review by Poole et al[3] showed that among patients with a final diagnosis of omental EP, none had a preoperative diagnosis of abdominal pregnancy. As a result of the diagnostic difficulty, there is usually a delay from presentation to definitive treatment with some cases requiring diagnosis by serial HCG monitoring supplemented with magnetic resonance imaging. A high level of vigilance is therefore vital when monitoring the symptoms and vital signs of a

suspected case, and early surgical intervention should be considered if there is clinical deterioration. In our case, we elected to perform emergent laparoscopy in view of increased abdominal pain and free fluid in the pouch of Douglas.

Laparotomy with excision of the embryo has been the classic management for abdominal pregnancy.[4] However, with its widespread availability, laparoscopy should be the modality of choice, especially when the patient is haemodynamically stable, as in our case, and the required expertise is available. Laparoscopic management is associated with fewer morbidities, reduced intraoperative blood loss and a shorter hospital stay. The importance of a general peritoneal survey is paramount; in cases of normal fallopian tubes and ovaries, extra care must be taken not to miss an EP elsewhere in the peritoneum and prematurely commit to a negative laparoscopy. If a difficult resection is encountered, the expertise of a general surgeon will be of benefit. Alternatives to surgical treatment have also been reported,[3] such as intralesional methotrexate, intramuscular methotrexate, intracardiac potassium chloride injection and artery embolisation. However, the prerequisites for non-surgical treatment include reliable imaging and for the patient to be haemodynamically stable.

Assisted reproductive techniques are known to be associated with an increased risk of EP. Some reports state an incidence of up to 4.5% with assisted reproductive technology compared with a spontaneous pregnancy.[5] With regard to IUI, the incidence of EP is reported to be 2.05% compared with 3.33% for in vitro fertilisation. A higher risk of EP is also associated with stimulated cycles (compared with natural cycles: 2.62% vs 0.99%) and use of husband sperm (compared with donor sperm: 3.54% vs 1.08%). Many postulations have been made regarding the mechanism of an abdominal EP.[3] As ovarian induction was performed in this case, the risk of EP was increased. In the setting of IUI, it is possible that the fertilised embryo develops as a primary tubal pregnancy that subsequently passes through the fimbrial end and implants into the omentum.

Although omental EPs are extremely rare, and in our case, the first of such a condition found after IUI, clinical suspicion must be high in a patient who presents with symptoms suggestive of EP but with normal uterus and adnexa during intraoperative exploration. Clinicians should always be vigilant with regard to the patient's clinical condition, and there should be a low threshold for surgical intervention if clinical deterioration is noted. In addition, with the rising application of assisted reproductive technology, the risk of EPs, and by extension the risk of abdominal EPs, is also increased, making the diagnosis and treatment of this potentially life-threatening condition evermore challenging.

FIG 1. Laparoscopic view of the omental ectopic pregnancy at the omentum, inferior to the liver
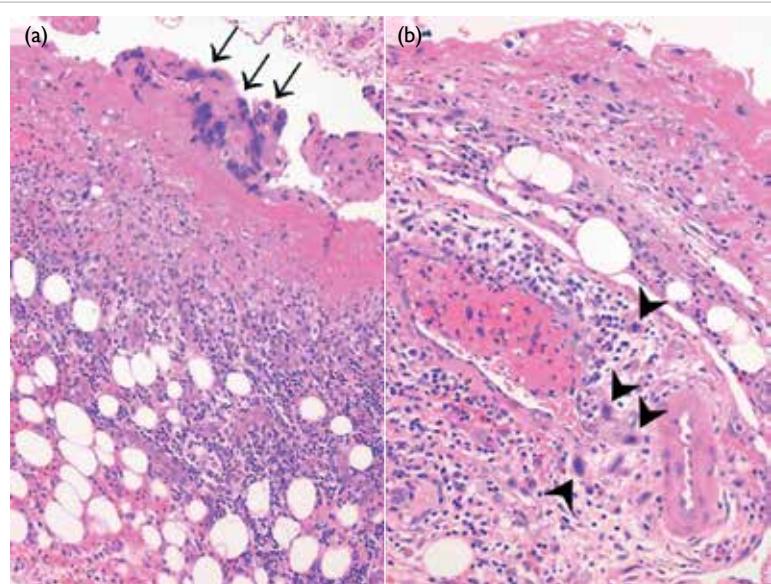

FIG 2. Histological findings in the omental resection specimen. (a) Syncytiotrophoblasts (arrows) are present in fibrin exudate over inflamed omental adipose tissue. (b) Intermediate trophoblasts (arrowheads) infiltrate the fibrofatty stroma of the omentum, consistent with omental pregnancy

Author contributions

Conflicts of interest

Funding/support

Ethics approval

The patient was treated in accordance with the Declaration of Helsinki. Informed consent was obtained for all treatment involved as well as for publication of this article and accompanying images.

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Answers to CME Programme
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I. **Surgical treatment of pelvic organ prolapse in women aged ≥75 years in Hong Kong: a multicentre retrospective study**

A	1. True	2. False	3. True	4. False	5. False
B	1. False	2. True	3. True	4. False	5. False

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II. **Update on the Recommendations on Breast Cancer Screening by the Cancer Expert Working Group on Cancer Prevention and Screening**

A	1. True	2. True	3. False	4. True	5. True
B	1. True	2. True	3. True	4. True	5. False