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Case Report

Interstitial implantation in a setting of recurrent ectopic pregnancy: A rare combination

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occurring in a rare setting i.e. as a recurrent ectopic, we report a case of IEP conceived after in vitro fertilisation treatment.

Case report

A 29 year old female patient with history of two previous tubal ectopic pregnancies for which bilateral salpingectomy was carried out presented with secondary infertility to our Assisted Reproductive Technology Centre for an IVF treatment. She was evaluated for the same and her endocrinological profile and uterine parameters on hysteroscopy was found to be normal. Male factor was also within normal limits. She underwent an IVF cycle after controlled ovarian hyperstimulation with gonadotropins followed by ovum pick up and finally an embryo transfer. Eighteen days after the ovum pick up her serum β hCG was measured to evaluate the success of the IVF treatment. The results were favourable with a value of 636 mIU/ml. After three weeks from the embryo transfer she reported for a transvaginal sonography (TVS) for visualisation of a gestational sac and on TVS it was seen that the uterine cavity was empty, however a suspected gestational sac was seen at the most lateral edge of the uterine cavity [Fig. 1]. Due to the suspicion of a cornual pregnancy she was hospitalised. A repeat β hCG carried out after 48 h had increased to 1388 mIU/ml. On follow up TVS, there was an increase in the size of the sac with presence of a foetal pole and the cornual site of the ectopic implantation was confirmed by the interstitial line sign and a thin myometrial layer surrounding the sac. She was hemodynamically stable and her vital parameters were normal. The patient was counselled regarding the findings and its consequences and was planned for medical

Introduction

Ectopic pregnancy, derived from the Greek word “ektopos” meaning out of place, refers to the implantation of the fertilised ovum on any tissue other than the endometrial cavity. It is a major cause of maternal morbidity and mortality with its incidence increasing worldwide.¹ As many as 95% of all ectopic pregnancies occur within the fallopian tubes while the less common sites are: the cornual or the interstitial region of the uterus, cervix, ovary, and the abdominal cavity.² Of these uncommon sites, the exceedingly dangerous and rare ectopic gestation is an interstitial ectopic pregnancy (IEP) which accounts for 1–4% of all ectopic implantation.³ This pregnancy forms in the interstitial portion of the fallopian tube that joins the muscular wall of the uterus, and thus leads to greater morbidity as it presents later, and leads to massive haemorrhage if it ruptures.³ In view of the rarity of the condition and

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Fig. 1 – Empty uterine cavity with a cornual gestational sac.

management. Her baseline haematological and biochemical parameters were carried out as she was to receive injection Methotrexate 1 mg/kg body weight as per the single dose protocol with no Folinic acid rescue. She received the first dose of Methotrexate. On the second day she had a severe bout of pain abdomen and on examination she was found to have tachycardia and a blood pressure of 90/64 mm Hg. An urgent sonography was done which revealed hemoperitoneum. She was immediately taken up for surgery and explored laparoscopically which revealed a ruptured cornual gestation. After a thorough wash of the abdomen haemostasis was achieved. Cornual excision was performed and reinforcing sutures for repair of the defective uterine wall was applied. She was also transfused four units of packed cell. The extruded mass was sent for histopathological examination which confirmed the presence of chorionic villi. Her postoperative period was uneventful. Follow up β hCG was carried out till it was negative. She is presently on follow up and desires to undergo a second IVF cycle after a period of convalescence.

Discussion

Interstitial ectopic pregnancy also called as cornual pregnancy which occurs in the interstitial portion of the fallopian tube accounts for 1–4% of all ectopic gestations.⁴ This rare type of implantation is interestingly seen mostly in women with history of previous ipsilateral ectopic pregnancy, salpingectomy or in pregnancies resulting from IVF.⁵ Coincidentally our patient had all the aforementioned risk factors.

This uncommon site of implantation allows the pregnancy to advance to the 16th week of gestation in some cases, as the myometrium surrounding the interstitial segment is more distensible than the muscularis of the more distal portions of the fallopian tube. Additional vascular supplies formed between the uterine and ovarian arteries to support the growing pregnancy makes it more vascular and thus vulnerable to substantial and potentially life-threatening haemorrhage if this pregnancy ruptures.^{6,7} As bleeding following rupture from this location is significantly greater than with any other ectopic site, attributing to morbidity rates as high as

7%, prompt diagnosis of this condition is essential.⁴ The location of this gestation although makes an early diagnosis of cornual pregnancy difficult, the rate of diagnosis can be improved with transabdominal or transvaginal ultrasound, using the following criteria: (1) an empty uterus; (2) a gestational sac seen separately and <1 cm from the most lateral edge of the uterine cavity and; (3) a thin myometrial layer surrounding the sac.⁸ This lady being an IVF patient was on regular follow up and thus picked up early by a transvaginal scan as per the mentioned criteria.

Traditionally, the treatment of cornual pregnancy has been hysterectomy or cornual resection at laparotomy. However, with surgical management being associated with greater morbidity and unfavourable effects on fertility, more conservative approaches are being resorted to in clinical practice. Medical treatment (as with other types of tubal pregnancy) has also been carried out for cornual pregnancy with satisfactory results. In view of her stable haemodynamic condition with no contraindications for use of systemic methotrexate our patient was started on medical management. Medical management, however, can occasionally, be associated with uterine rupture and profuse haemorrhage which occurred with the present patient.⁹ Interestingly, the rupture in the present patient occurred too early which although is in concert with the findings of the largest case series on interstitial pregnancies elucidating early rupture (<12 weeks), but is contrary to the conventional teaching of late ruptures of cornual ectopic.¹⁰

Surgical treatment consists of conservative techniques, such as laparoscopic cornual resection, laparoscopic cornuostomy or hysteroscopic removal of interstitial ectopic tissue, and radical operations such as hysterectomy. Radical surgery is necessary in cases where haemorrhage is life-threatening.¹¹ However, even when ectopic pregnancy is associated with significant hemoperitoneum, laparoscopic surgery has been safely conducted by experienced laparoscopists, with intraoperative blood transfusion and ascertaining haemodynamic stability.^{11,12} In the present case too we approached laparoscopically and carried out cornual excision and repair of the uterine wall.

Many other novel approaches have also been resorted to for management of IEP, with trends towards less extensive laparoscopic procedures as evident in many case reports using cornuostomy.^{13,14} In an uncontrolled retrospective study, Moon et al. reported that 'The endoloop method' and the encircling suture method wherein the loop is placed around the cornu and the pregnancy evacuated using unipolar current with blunt dissection are simple, safe, effective, and nearly bloodless surgical techniques.¹⁵ There have been no uterine ruptures in the pregnancies following these methods of endoscopic management.⁹

Concerns for future pregnancy exist after management of cornual pregnancy both in terms of uterine rupture or recurrence of ectopic pregnancy. Our patient with a recurrent ectopic as a cornual gestation; is under follow up and would undergo a second IVF cycle with a high index of suspicion for an ectopic if she conceives.

Conflicts of interest

All authors have none to declare.

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