

Heterotopic Pregnancy with Tubal Rupture following IVF Conception - A Case Report

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ABSTRACT

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Heterotopic pregnancy is the coexistence of an intrauterine and an ectopic pregnancy. There has been a rising incidence of heterotopic pregnancy with the development and easy accessibility to ART techniques. Studies have shown that this increase is due to ovarian hyperstimulation syndrome and multiple embryo transfer during IVF.¹ Other risk factors are previous tubal surgeries or previous pelvic inflammatory disease. The aim of this report is to present a case of ruptured heterotopic pregnancy conceived via ART in a 37-year-old primigravida, who presented with abdominal pain and vaginal bleeding. She was treated with laparoscopic right salpingectomy. She was discharged on postoperative day four with a single live intrauterine gestation of 8-9 weeks. She had a normal course for her intrauterine pregnancy and delivered a healthy baby at 38 weeks. Hence, early diagnosis and prompt surgical management are the keys to reducing complications, but diagnosis may often be missed if the adnexa is not carefully examined.

Keywords: Heterotopic Pregnancy, Intrauterine Pregnancy, Ectopic Pregnancy, Art, Fet, Laparoscopy

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INTRODUCTION

Heterotopic pregnancy refers to the coexistence of an intrauterine pregnancy along with an ectopic pregnancy.² In spontaneous conception, the occurrence is rare with an incidence of 1:30,000, while in assisted reproductive techniques (ART), the incidence is found to be as high as 1%.³ Major risk factors for heterotopic pregnancy and ectopic pregnancy largely overlap in case of general population. Whereas, for women undergo-

ing assisted reproduction techniques, additional factors like higher incidence of multiple ovulation and that of tubal malformation, tubal damage, and technical factors in embryo transfer further elevate the risk.⁴ This case report is about a ruptured heterotopic pregnancy at 8 weeks of gestation, which was managed by emergency laparoscopy and right salpingectomy, and hence ended up in a successful pregnancy outcome. The case report aims to emphasize the importance of timely diagnosis in achieving better management outcomes.

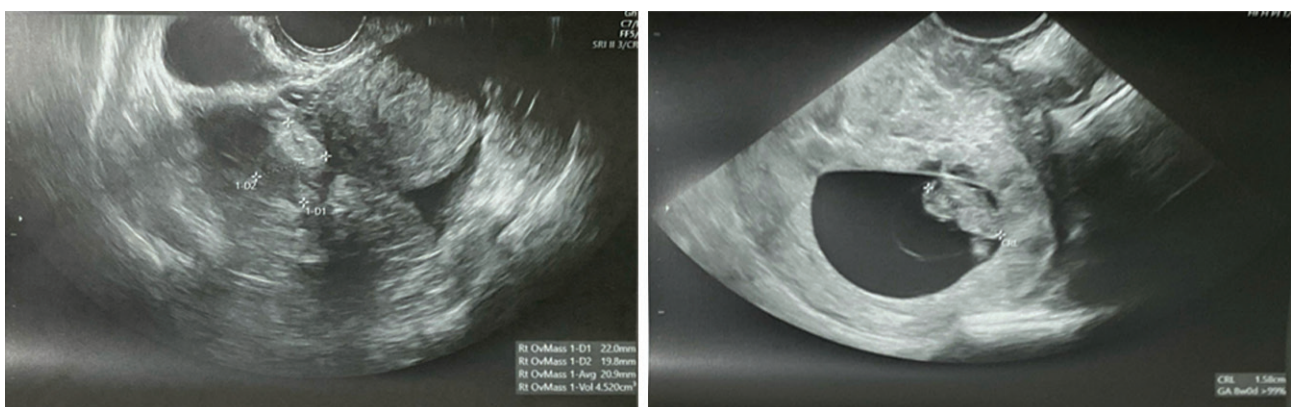


Figure 1. (a) Ultrasound image of the right adnexal mass and hemoperitoneum, (b) Ultrasound image of the intrauterine pregnancy

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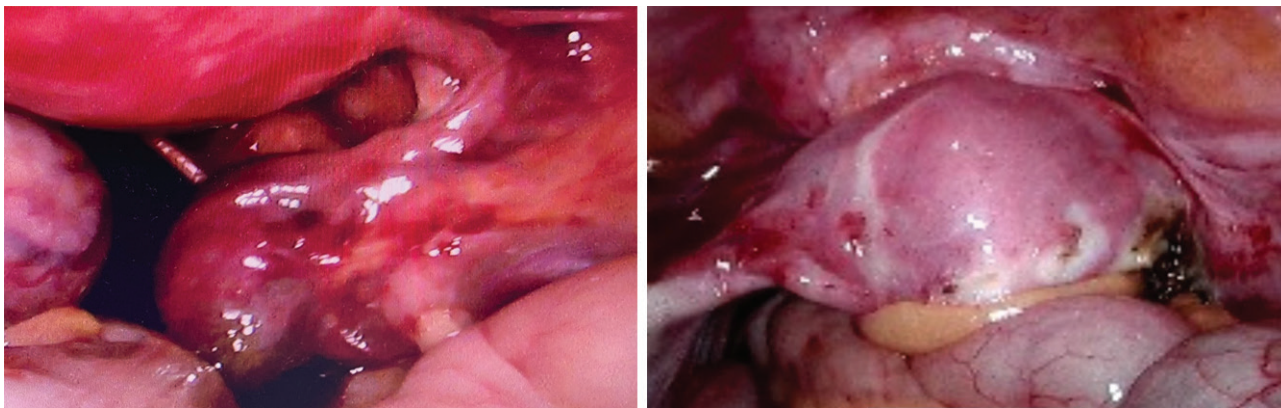


Figure 2. Intraoperative image (a) of enlarged fallopian tube and gravid uterus (b) after right salpingectomy and thorough irrigation of the abdominal cavity.

CASE REPORT

37-year-old primigravida at 8 weeks 2 days gestation, IVF FET conception, came to the hospital with complaints of lower abdominal pain and vaginal bleeding with a history of passage of clots lasting for 6 hours. She underwent FET on 27th November 2021 (in which four embryos were transferred). Her first antenatal scan was done at 6 weeks, which showed no evidence of extrauterine pregnancy, and her adnexal imaging was stated to be normal. On admission, her vitals were stable with pulse rate 72/min, blood pressure -120/80 mmHg, respiratory rate of 16 /min, and she was afebrile. On abdominal examination, she was found to have mild suprapubic tenderness (more in the right iliac fossa). There was no guarding or rigidity. Per speculum examination showed blood-stained discharge, but no active bleeding was visualised. Lab tests showed total count -15800 cells/cu.mm, Hemoglobin-10.6gm/dL, Haematocrit- 29.7%, platelet count-236 Lakhs/cu.mm, Urine routine- normal. Transvaginal scan showed SLIUG with CRL 15.8 mm corresponding to 8 weeks of gestation, yolk sac present, fetal heart rate of 176 per minute, and a small subchorionic haemorrhage measuring 22 x 4 mm. A mixed echogenic mass of 2.2 X 1.9 cm, separate from the right ovary, suggestive of ectopic pregnancy with features suggestive of rupture was imaged in the right adnexa.

The patient was taken up for emergency laparoscopy on 10th January 2022. Intraoperative findings were stated as -uterus enlarged, right tube -enlarged with evidence of rupture. 300- gram clots were seen in the abdominal cavity. Left adnexa and right ovary – normal. Right salpingectomy was done, and the abdominal cavity was thoroughly irrigated.

The postoperative period was uneventful. Transvaginal scan on postoperative day four showed SLIUG corresponding to 9 weeks of gestation, yolk sac present,

fetal heart rate of 166 per minute. The patient was discharged on postoperative day four. She was added on progesterone support throughout her pregnancy. Her further course of pregnancy was uneventful, and she gave birth at around 38 weeks of gestation.

DISCUSSION

The incidence of heterotopic pregnancy has significantly increased over the last few years, which can be attributed to advancements in the field of ART. The spontaneous incidence of heterotopic pregnancy in the general population is 1/30,000, whereas it is 1/1000 in ART conception.⁵ Tal et al. have stated the incidence of heterotopic pregnancy to be 4.5% and 3 % in patients conceived with ART and ovulation induction, respectively.⁶ Risk factors for heterotopic pregnancy include previous history of ectopic pregnancy, PID, endometriosis, use of fertility treatment, and damaged fallopian tubes.⁷ Amit et al concluded that a case of confirmed IUP with complaints of abdominal pain should be closely monitored to rule out heterotopic pregnancy, especially after ART techniques.⁸ The reported case had a risk factor of ART conception.

The diagnosis of heterotopic pregnancy is often challenging, as the presence of concurrent intrauterine pregnancy can be misleading and cause a delay in recognition. Patient can present with abdominal pain, bleeding per vaginum, surgical abdominal symptoms, or shoulder pain, and in cases of rupture, patients may present with hemodynamic instability secondary to intra-abdominal haemorrhage. This patient reported with abdominal pain and bleeding per vaginum that lasted for 6 hours. Careful imaging of the adnexa by means of transvaginal scan helped us visualise an ectopic pregnancy with evidence of rupture in the right adnexa. Most heterotopic pregnancies occur between 5 and 10 weeks of gestation and can be diagnosed easily

with the help of TVS. Almost 70% of heterotopic pregnancies are diagnosed between 5th and 8th week of gestation, 20% between 9th and 10th week, and only 10% are diagnosed after 11th week.⁹ Serial serum quantitative beta hCG monitoring may not be useful as in ectopic pregnancy, as there is a coexisting intrauterine pregnancy. A condition called haemorrhagic corpus luteal cyst can also look and feel like a heterotopic pregnancy, making diagnosis challenging.¹⁰ Anyway, the most accurate diagnostic tool is laparoscopy as it allows direct visualization of the adnexa.

Management of heterotopic pregnancies is mainly based on whether the IUP is desired or not and whether the patient is hemodynamically stable or not. For patients who are clinically stable, laparoscopy is the preferred route of treatment. Hemodynamically unstable patients may require laparotomies to prevent a ruptured ectopic ending up in hemoperitoneum and hypovolemic shock.¹¹ In the present case, surgical management was done, and intrauterine pregnancy was allowed to continue, ultimately leading to her giving birth to a healthy baby at term. Treatment should be as minimally invasive as possible to preserve the intrauterine pregnancy. With timely diagnosis and treatment, 70% of intrauterine pregnancies can progress to viability.⁸ Adriana et al stated that intrauterine pregnancy after removal of an ectopic, progresses normally in 65-92% cases.¹²

CONCLUSION

Although rare, the chance for heterotopic pregnancy should always be considered, even when an intrauterine pregnancy is detected. A high index of suspicion on the part of the clinician, especially in patients conceived with IVF (with multiple embryo transfer) is essential. Along with that, careful adnexal imaging is required to detect a concurrent ectopic pregnancy. Early detection facilitates timely intervention and hence improves the chances of a favourable intrauterine pregnancy outcome and helps in preventing catastrophic complications that ultimately lead to the mortality of women.

END NOTE

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List of Abbreviations:

IVF	In Vitro Fertilisation
ART	Assisted Reproductive Techniques
FET	Frozen Embryo Transfer
TVS	Transvaginal Scan
SLIUG	Single Live Intrauterine Gestation
CRL	Crown Rump Length
PID	Pelvic Inflammatory Disease
IUP	Intra Uterine Pregnancy
HCG	Human Chorionic Gonadotropin

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