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WHEN RARITY MEETS REALITY- A CASE OF OVARIAN HETEROTOPIC PREGNANCY IN EARLY GESTATION.

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ABSTRACT

Background: Heterotopic pregnancy is the coexistence of an extrauterine gestation with an intrauterine gestation. Its incidence has increased with the increasing use of assisted reproductive techniques. Ovarian heterotopic pregnancy is exceptionally uncommon and often presents a diagnostic challenge, as the presence of an intrauterine pregnancy often masks a concurrent ectopic pathology. This report aims to highlight the importance of early diagnosis and prompt management for this kind of a rare entity.

Results: A 22-year-old primigravida presented at 9 weeks gestation with lower abdominal pain and vaginal spotting. She had conceived following ovulation induction. On clinical examination, left iliac fossa tenderness, guarding, and cervical motion tenderness were noted. Ultrasonographic examination revealed a live intrauterine gestation and a simultaneous live ectopic pregnancy within a heterogeneous left adnexal mass, with the left ovary not separately visualized. Emergency exploratory laparotomy revealed 150–200 mL of hemoperitoneum and a ruptured left ovarian ectopic pregnancy. A left Salpingo-oophorectomy was performed. Suction evacuation of the intrauterine pregnancy was done following intraoperative counselling in view of risk to the intrauterine conceptus. Histopathology confirmed the diagnosis.

Conclusion: Ovarian heterotopic pregnancy, though rare, must be considered in early pregnancy with adnexal masses, especially following ovulation induction. The presence of an intrauterine gestation should not preclude thorough adnexal assessment. Early diagnosis and timely surgical intervention are critical to prevent maternal morbidity and ensure optimal outcomes.

Keywords: Heterotopic pregnancy, Ovarian heterotopic, Ovulation induction, Early pregnancy complications, Salpingo-oophorectomy

INTRODUCTION

Heterotopic pregnancy, defined as the coexistence of intrauterine and extrauterine gestations, is a rare yet potentially life-threatening condition. While historically considered a medical curiosity with an

incidence of approximately 1 in 30,000 natural conceptions, its prevalence has risen dramatically with the widespread use of assisted reproductive technologies (ART) and ovulation induction therapies, reaching as high as 1 in 100 pregnancies in some series. [1,2]

Among the various ectopic implantation sites, the ovary remains one of the rarest, accounting for just 0.5–3% of ectopic pregnancies. [3] Ovarian heterotopic pregnancy is especially elusive due to its atypical presentation and the simultaneous presence of a viable intrauterine gestation, which can create a false sense of diagnostic reassurance. Clinical suspicion may be further delayed in spontaneous conceptions or when risk factors are subtle, making early diagnosis challenging and often reliant on high-resolution transvaginal ultrasonography and vigilant clinical acumen. [4,5]

We present the rare case of a young primigravida who conceived following ovulation induction and was found to have a ruptured ovarian ectopic pregnancy coexisting with a viable intrauterine gestation. This case highlights the diagnostic dilemmas, surgical challenges, and critical importance of early recognition and need for prompt management in such cases.

CASE SUMMARY

A 22-year-old Primigravida came to the emergency in a tertiary care centre in Central India with history of amenorrhoea of 2 months duration with complaints of pain in abdomen for 1 month which was aggravated in the last 5 days. She also complained of spotting per vaginal for 2 days. She had no history of trauma or fall in the recent past. She gave history of having conceived after Ovulation Induction. Her gestation as per her LMP (Last menstrual period) was 9 weeks 1 day. She was a known case of Sickle Cell Trait – 'AS' pattern.

On Examination, she was vitally stable. BP – 120/70 mm of Hg. Pulse was 100/min. She was conscious and oriented in time, place and person. Per Abdomen examination revealed tenderness in Left Iliac Region. Abdomen was soft however; there was guarding and rigidity present. Per Speculum examination revealed that the cervical os was closed and there was minimal bleeding present. On per vaginal examination, the uterus was 8 weeks size. Left fornicial fullness was felt along with cervical motion tenderness. She was immediately shifted for Ultrasound examination.

Ultrasound examination revealed Intrauterine Gestational Sac of Sonic maturity 8 weeks 6 days. There was evidence of well-defined heterogenous mass of size 7.2x 3.7cm noted in left adnexa. A live foetal pole with CRL 1.7cm corresponding to 8 weeks of gestation visualized. Left ovary not separately visualized. Rt ovary was visualized normal. Minimal free fluid noted in Pouch of Douglas. Subchorionic haemorrhage of size 4.1cm x 3.3cm was also noted.

Decision was taken to explore the patient. Intraoperatively, evidence of 150-200 cc hemoperitoneum present. Rt sided adnexa visualized normal. On the left side, evidence of 8x8cm of ectopic tissue seen along with dilatation of Left Fallopian tube with Left Ovarian rupture. The mass was adherent to the sigmoid colon around 5-6cm length of the colon. Intraoperative Surgical assistance taken and bowel adhesions separated. No evidence of bowel injury was noted. Left Salpingectomy with Oophorectomy done and samples sent for Histopathological Examination. Procedure proceeded with suction evacuation of the intrauterine products of conception after consent from relatives in view of prolonged exposure of intrauterine conceptus to General Anaesthesia drugs and risk of subsequent foetal complications. Patient tolerated the procedure well and was discharged.

DISCUSSION

Heterotopic pregnancy (HP), defined as the concurrent presence of intrauterine and ectopic gestations, represents a unique diagnostic and therapeutic challenge in modern obstetric practice. Although it was once considered exceedingly rare—with an incidence of 1 in 30,000 in spontaneous conceptions—its frequency has increased significantly in the era of assisted reproductive techniques (ART), ovulation induction, and embryo manipulation, where the incidence may rise to 1 in 100 to 1 in 500 pregnancies. [1,6] The patient in this case had conceived following ovulation induction, a known risk factor for HP, which likely contributed to the development of this rare condition.

The clinical presentation of HP is notoriously variable, frequently mimicking more common conditions such as threatened abortion, corpus luteum haemorrhage, or isolated ectopic pregnancy. In

this case, the patient presented with lower abdominal pain and spotting per vaginum, which could easily have been attributed to a threatened intrauterine pregnancy loss or a subchorionic hematoma. This highlights a critical diagnostic pitfall: the false reassurance provided by the visualization of an intrauterine gestational sac, which may result in missed or delayed recognition of a coexisting ectopic gestation. [2,4,7] Several reports have described cases in which the diagnosis of HP was only established intraoperatively or after rupture, emphasizing the need for heightened clinical vigilance in at-risk populations. [3,9]

Transvaginal ultrasonography remains the most effective tool for early diagnosis. However, its sensitivity is operator-dependent and limited in spontaneous or non-IVF pregnancies. In such settings, only 10–30% of cases are diagnosed prior to surgical intervention. [4,10] In this case, ultrasound examination revealed both an intrauterine gestational sac and a heterogeneous left adnexal mass with cardiac activity, strongly suggesting a live ectopic gestation. The failure to visualize the left ovary separately and the presence of hemoperitoneum on imaging were suggestive of ovarian rupture. Additionally, the coexisting large subchorionic hematoma could have masked the severity of the adnexal pathology. Importantly, the presence of a viable intrauterine pregnancy should not preclude thorough adnexal evaluation—particularly in patients with prior ART, multiple corpora lutea, or persistent pelvic pain. [1,4,7]

Ovarian ectopic pregnancies constitute a very rare subset, accounting for only 0.5% to 3% of all ectopic pregnancies, and their occurrence in a heterotopic setting is even more unusual. [8] In our patient, the diagnosis of ovarian heterotopic pregnancy was confirmed intraoperatively. The ovary was extensively ruptured, and the mass was found to be adherent to the sigmoid colon over a segment of 5–6 cm. Adhesions involving bowel structures in the context of ectopic pregnancy are rarely reported but may occur secondary to localized inflammation, rupture, or prior pelvic pathology. [5] In this case, surgical assistance from general surgery was required to safely separate the adhesions and confirm the absence of bowel injury, highlighting the importance of multidisciplinary collaboration in complex presentations.

The cornerstone of treatment in heterotopic pregnancy is individualized, timely intervention aimed at optimizing maternal outcomes while preserving the intrauterine pregnancy whenever feasible. In hemodynamically stable patients with early, unruptured ectopic gestations, conservative or minimally invasive approaches—such as laparoscopic resection or ultrasound-guided injection of potassium chloride into the ectopic sac—have been described. [5,8] However, in cases involving rupture, hemoperitoneum, or bowel adhesions, prompt surgical intervention is imperative. Our patient underwent an emergency exploratory laparotomy with left Salpingo-oophorectomy due to the extent of ovarian rupture and adherence to the bowel. Given the patient's prior ovulation induction, it is plausible that multiple ovulatory follicles and subsequent haemorrhage contributed to the fragility of ovarian tissue.

Although the intrauterine pregnancy was initially viable, a decision was made to perform suction evacuation. This decision was influenced by several intraoperative factors: the duration of surgery, significant blood loss, and the exposure of the intrauterine gestation to multiple anaesthetic agents and physiological stressors. Literature reports indicate that intrauterine pregnancy can be preserved in 60–70% of heterotopic pregnancies, particularly when the ectopic component is managed early and without significant intra-abdominal pathology. [2,4,8] However, adverse foetal outcomes including miscarriage and foetal anomalies have been described following prolonged surgeries, hemodynamic instability, or intra-abdominal contamination. [11]

The diagnosis of heterotopic pregnancy should always be considered in women presenting with abdominal pain or signs of peritoneal irritation, especially those with a recent history of fertility treatment. Importantly, this diagnosis must not be ruled out solely on the basis of a confirmed intrauterine gestation. As highlighted in this case, adnexal tenderness, cervical motion tenderness, guarding, and peritoneal signs in early pregnancy—even when subtle—must prompt urgent imaging and surgical evaluation if necessary. [1,7,10] Clinicians must also be mindful of diagnostic confounders such as subchorionic haemorrhage, corpus luteum cysts, and coexisting adnexal pathology that may obscure the sonographic features of ectopic pregnancy.

Our case contributes to the limited but growing body of literature documenting ovarian heterotopic pregnancies in the setting of ovulation induction. It underscores the importance of early diagnosis, the role of surgical judgment in managing complications such as bowel adhesions, and the nuanced decision-making required to balance maternal safety with foetal preservation.

CONCLUSION:

Ovarian heterotopic pregnancy remains an exceptionally rare and diagnostically challenging entity, particularly in the context of ovulation induction. This case underscores the imperative for clinicians to maintain a high index of suspicion in early pregnancy, regardless of the presence of an intrauterine gestation. Comprehensive adnexal evaluation, prompt recognition of atypical clinical signs, and timely surgical intervention are critical to prevent morbidity. As demonstrated here, individualized management strategies and multidisciplinary coordination are essential in addressing the complexities of such presentations and ensuring optimal maternal outcomes.

DECLARATIONS

Consent for Publication: The patient's informed consent has been acquired for the publication of the case details, clinical images, and relevant medical information. All efforts have been made to ensure patient confidentiality, and any identifying information has been appropriately anonymized.

Availability of Data and Material: The data and materials used or analysed during the study are available from the corresponding author upon reasonable request. Due consideration will be given to maintaining patient privacy and confidentiality.

Competing Interests: The authors declare no competing interests, financial or otherwise, that could have influenced the content or interpretation of this case study.

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FIGURES

Figure a. Intraoperative image showing foetus in ruptured left ovarian tissue - 8weeks of gestational age

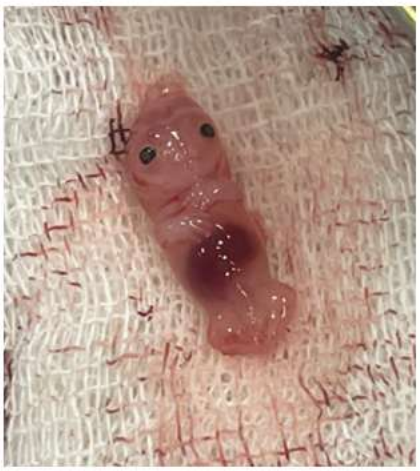

Figure b. Foetus separated from ruptured ovarian tissue of Left Adnexa

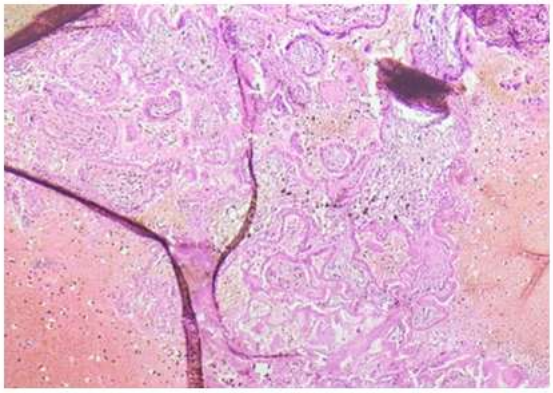

Figure c. HPE from Ovarian tissue showing villi in a background of haemorrhagic areas

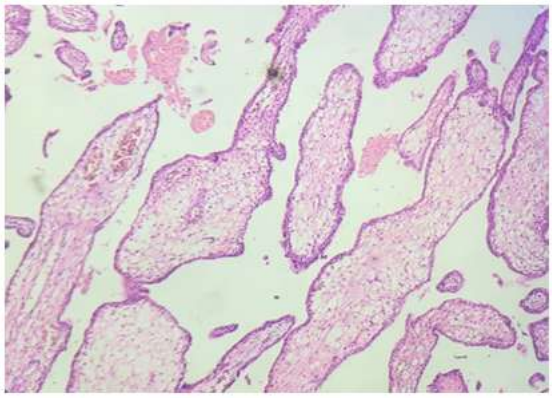

Figure d. HPE of intrauterine products of conception - POCs showing hydropic change.

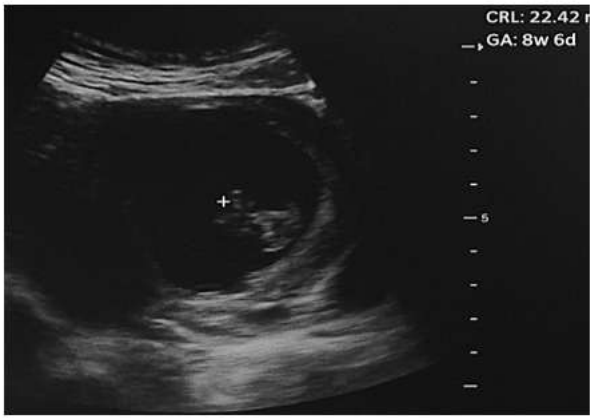

Figure e. USG showing intrauterine G-sac of 8+6 weeks gestational age
CRL- 22.42mm.

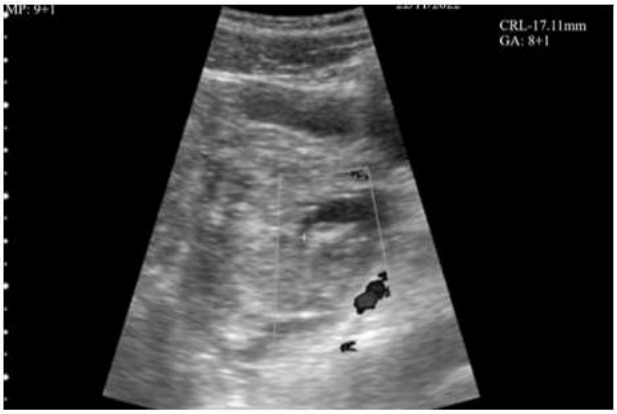

Figure f. USG showing Left Adnexa with a heterogenous collection: 7.2 x 3.2 cm with a foetal pole visualized within
CRL- 17.11mm: 8+1 weeks

Abbreviations:
HP- Heterotopic Pregnancy
HPE- Histopathological Examination
POC- Products of Conception
CRL- Crown Rump Length
G-sac- Gestational Sac
ART- Assisted Reproductive Techniques
IVF- In Vitro Fertilisation