

Pride and Prejudice: A Case Series of Heterotopic Pregnancy

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Abstract : Heterotopic pregnancy is defined as combined existence of intrauterine and extrauterine pregnancy. It occurs in 1:30000 of natural conceptions. With increasing prevalence of assisted reproduction, the frequency of heterotopic pregnancies was cited to be between 1:100 to 1:500. Furthermore, these are a diagnostic and therapeutic challenge for obstetricians. If undiagnosed, a life threatening situation may occur even when timely surgical intervention with laparotomy is performed. Here we report a case series of five patients having five different scenarios, who were diagnosed with heterotopic pregnancies in the first trimester and managed successfully.

Keywords: Ectopic pregnancy, Heterotopic pregnancy, Intrauterine pregnancy, Laparotomy, Rupture.

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I. Introduction

A coexistence of an extra- and intrauterine pregnancy is defined as a heterotopic pregnancy.^{2,4,6} With increasing use of assisted reproductive techniques, the incidence of heterotopic pregnancy is also shown to increase. Aside from the difficulty of diagnosing ectopic pregnancy, management can be difficult and may be life threatening, even when surgical intervention with laparotomy is performed.² Heterotopic pregnancy must be considered in a patient who has a confirmed intrauterine pregnancy but presents with abdominal pain and bleeding per vaginam. This study describes heterotopic pregnancy in five patients, two of them who conceived with the aid of ovulation induction and three spontaneous conceptions and their course of events.

II. Case Series

2.1 CASE 1

A 23-year-old woman, primigravida, at 6 weeks and 6 days of gestational age, conceived after 3 cycles of ovulation induction with clomiphene citrate, was referred to the casualty, with complaints of pain in left iliac fossa. Patient had one episode of spotting per vaginam 10 days prior. Ultrasound revealed, heterotopic pregnancy of a single live intrauterine gestation of 6 weeks and 6 days, with a left adnexal ectopic pregnancy, with minimal free fluid in the pouch of Douglas. Routine investigations, hemoglobin was 11.8, beta subunit of human chorionic gonadotropin was 86,536. Two units of O positive packed cells were reserved. Pulse — 82/min, blood pressure — 110/60, SpO₂ — 99% on room air. Per abdomen was soft, no tenderness. No bleeding per vaginam, per speculum, Os closed. Emergency laparoscopy was planned as she was hemodynamically stable. After carefully explaining to the patient and attenders about the risk of abortion, possibility of harm to the fetus in utero due to anesthetic effects, laparoscopy was proceeded. About 600 ml of hemoperitoneum was present, and the same removed using suction. Findings suggestive of left ampullary tubal rupture. Hence, left salpingectomy was proceeded, using bipolar cautery. Right tube appeared normal and both ovaries appeared normal. One unit packed cell transfused intraoperatively. Post procedure vitals were stable, and she continued the intrauterine pregnancy. She came for regular antenatal check-ups. Rest of the antenatal period was uneventful. At 38 weeks and 4 days, on routine antenatal evaluation, she presented with oligohydramnios with amniotic fluid index of 5.7 cm. In view of previously managed heterotopic pregnancy and oligohydramnios, due to maternal demand, elective lower segment cesarean section was performed. Patient delivered a healthy baby boy weighing 3.12 kg with an Apgar of 8/10, 9/10. After 1 year and 2 months, she conceived again and underwent an uneventful pregnancy and delivered a baby girl weighing 2.95 kg and also underwent right tubal sterilization along with elective lower segment cesarean section.

2.2 CASE 2

A 27-year-old woman, primigravida, at 9 weeks of gestational age, conceived by ovulation induction with clomiphene citrate, was referred to the casualty, with complaints of severe lower abdomen pain. Patient had bleeding per vaginum last 5 hours. Dating scan done at 7 weeks revealed, a single live intrauterine gestation only. Ultrasound pelvis was done after 2 weeks, in view of lower abdominal pain, showed right-sided ruptured ectopic and a single live intrauterine gestation corresponding to 8 to 9 weeks with moderate hemoperitoneum. Features suggesting of heterotopic pregnancy. A repeat ultrasound pelvis done at our institution after 3 hours from the previous scan showed right-sided ruptured ectopic with a massive hemoperitoneum along with a single intrauterine gestation with no cardiac activity, confirming heterotopic pregnancy with missed abortion. On examination, temperature 98.6° F, pulse rate 112/min, blood pressure 90/60 mm Hg, respiratory rate 20/min pallor ++. No pedal edema, cardiovascular and respiratory systems normal. Per abdomen, diffuse tenderness present in lower abdominal region and abdominal distension present. Per speculum examination, bleeding present through os. Per vaginal examination. Cervix pointing downwards, uterus anteverted, 8 to 10 weeks size, cervical motion tenderness present, right forniceal fullness and tenderness present, left fornix free. Investigations, revealed a hemoglobin of 6.3 gm/dl, beta subunit of human chorionic gonadotropin of 92,243, INR of 1.08. Renal function tests, blood urea nitrogen of 8 mg/dl and serum creatinine of 0.7 mg/dl. Four units of O positive packed cells were reserved. In view of hemodynamic instability, emergency laparotomy proceeded. Intraoperatively (Figs 4A and B), 900 ml hemoperitoneum was present. Two hundred gram clots removed. Right-sided ruptured ectopic of size 3 × 2 cm noted in the fimbrial end, for which right salpingectomy was done. Left tube and both ovaries appeared normal. Suction evacuation was performed for missed abortion. Three units of packed cells were transfused intraoperatively. Post procedure, patient had no complications, hence, discharged on postoperative day 5.

2.3 CASE 3

A 29-year-old woman, gravida 2 ectopic 1, at 7 weeks and 6 days of gestational age, spontaneous conception, presented to the antenatal outpatient department. History of laparoscopic left salpingectomy done in view of left ruptured ectopic pregnancy. Patient had no complaints of bleeding per vaginum or pain abdomen. On routine scan, heterotopic pregnancy of a single live intrauterine gestation with a live right ectopic pregnancy was diagnosed. Investigations revealed a hemoglobin of 13.3 gm/dl. Beta HCG was 94,933. Two units of B positive packed cells were reserved. Pulse -78/min, blood pressure- 100/70 mm Hg, SpO₂- 99% on room air. Per abdomen was soft, no tenderness. No bleeding per vaginum, per speculum, Os closed. She was admitted in the labor ward for observation. Vitals and abdominal girth closely monitored. After carefully explaining to the patient and attenders about the risk of abortion, possibility of harm to the fetus in utero due to anesthetic effects, laparoscopy was proceeded as she was hemodynamically stable. Intraoperatively (Figs 4C and D), left tube was absent. Right tube had a 6 × 4 cm mass with features suggestive of impending rupture. Right and left ovaries were normal. Using bipolar cautery right salpingectomy done. Perfect hemostasis secured (Figs 4E and F). The ectopic pregnancy was removed *in toto* from laparoscopic 10 mm port site (Fig. 4G). Post procedure, vitals were stable, and she continued the intrauterine pregnancy. At 11 weeks and 4 days, she presented to the casualty with one episode of spotting per vaginum. She was admitted, subjected to bed rest for 3 days. No further episodes of spotting per vaginum, hence discharged. Now, she is now 20 weeks of gestational age and is continuing the pregnancy without any complications.

2.4 CASE 4

A 24-year-old , primi at 9 weeks and 3 days of gestational age presented to the antenatal outpatient department. Patient had complaints of pain abdomen since one day. Scan showed a heterotopic pregnancy with right sided non viable ectopic pregnancy. Investigations revealed a hemoglobin of 10.4gm/dl. . Beta HCG was 153447. Pulse-90/min, blood pressure-120/80mmHg, SpO₂-99% on room air. Per abdomen was soft, tenderness was diffuse more in the right iliac fossa. Per speculum, Os closed ,bleeding through os present. High risk consent was obtained. Patient was taken up for emergency laproscopy. Ruptured right tubal ectopic mass of 2.5 x 2 cm noted . Right and left ovaries are normal. Using harmonic, Right salpinectomy was done. Perfect hemostasis secured. The ectopic pregnancy was removed *in toto* from laparoscopic 10 mm port site. Post procedure, vitals were stable, and she continued the intrauterine pregnancy. At 37 weeks and 4 days, she presented with pain abdomen.. She was admitted. NST was reactive and AFI was normal. Patient progressed spontaneously and had rupture of membranes. Patient progressed and with syntocin augmentation patient delivered by spontaneous vaginal delivery. Both mother and the baby were doing good.

2.5 CASE 5

A 24-year-old woman married for 3 months, 6 weeks + 1 day came with complaints of bleeding per vaginum since 1 month. Spontaneous conception was confirmed by UPT at 45 days of amenorrhea. Investigations revealed a hemoglobin of 11.1gm/dl. Pulse-84/min, blood pressure-110/70mmHg, SpO₂-99% on room air. Per abdomen was soft, No tenderness. Per vaginal examination revealed bulky uterus and presence of cervical and left forniceal tenderness, Os closed. Scan showed IUGS with fetal pole of 7mm, no cardiac activity, suggestive of embryonic demise. Left adnexa showed a mass of 1.1x1.5cm close to ovary, suggestive of left unruptured ectopic pregnancy. Beta HCG was 28810. Mifepristone 600 mcg and Inj MTX 45mg were given on the same day. Repeat Beta HCG on next day was 32144. Inj folic acid 4.5mg. Beta HCG on third day was 9172. Her Beta HCG later was 2101. Patient had no complaints of pain abdomen, bleeding per vaginum. Her Beta HCG later was 583. Patient stable and hence discharged with appropriate medication.

III. Discussion

Heterotopic pregnancy^{4,9} was first described by Duverney in 1708. The majority of heterotopic pregnancy cases are diagnosed late. Significant morbidity and occasional mortality have been reported as a result of a delay in diagnosis.⁴ As no single investigation can predict the presence of a heterotopic pregnancy, it should be suspected in any patient who presents with lower abdominal pain in the early phase of an obvious intrauterine pregnancy following fertility treatment.^{8,9}

Nowadays, the use of assisted reproductive technology and fertility agents, such as clomiphene citrate can increase a patient's risk of a heterotopic pregnancy probably due to the combined effects of hyperstimulation and the subsequent, simultaneous transfer of several embryos into the uterus with retrograde flow into the fallopian tubes. Indeed, any factor predisposing a patient to an increased risk of ectopic pregnancy and/or multiple gestations may contribute to heterotopic pregnancy.^{1-4,9} In one of our patients, pregnancy also occurred in association with ovulation induction.

Often, abdominal and pelvic ultrasonography fail to show the ectopic pregnancy or is misinterpreted because of the awareness of an already existing intrauterine pregnancy.^{3,4} But, demonstration of an intrauterine pregnancy is no longer a reliable indicator for excluding an ectopic pregnancy.^{4,7} If a patient has a beta subunit of human chorionic gonadotropin level of 1,500 mIU per ml or greater, but the transvaginal ultrasonography does not show an intrauterine gestational sac, ectopic pregnancy should be suspected.

Most ultrasonographic reports make no mention for a search of coexistent ectopic pregnancy, when evaluating intrauterine gestation, because a heterotopic pregnancy is still thought to be extremely rare and for this reason, almost all ectopic pregnancies are diagnosed by excluding an intrauterine pregnancy.¹

Our cases also presented early in the pregnancy with a history of nausea, scant vaginal bleeding and lower abdominal pain. These symptoms are common in intrauterine pregnancy. There was also a delay in the detection of the ectopic pregnancy component, in the first case scenario, therefore diagnosis was not made until an ectopic pregnancy rupture had occurred and the patient developed hemoperitoneum and instability of vital signs.⁵ Although the primary ultrasonography helped to confirm the presence of an intrauterine pregnancy, it failed to identify the ectopic pregnancy, while a heterotopic pregnancy as a cause for abdominal pain should have been suspected immediately in our case.

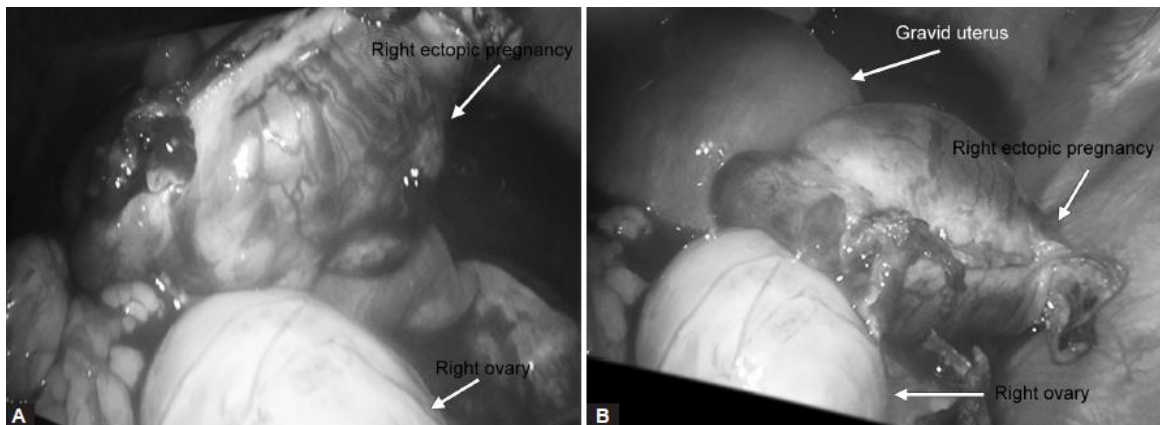
The management of heterotopic pregnancy remains controversial. Surgical therapy has been the traditional mainstay but involves surgical and anesthetic risks to both the mother and intrauterine pregnancy.³ Studies suggest that laparoscopic management is preferred over laparotomy in patients with a suspected ectopic pregnancy, and with a documented intrauterine pregnancy because of minimal manipulation of the uterus.^{9,10}

A nonsurgical approach can be used safely and effectively to manage patients who are clinically stable and where a heterotopic pregnancy is recognized relatively early in gestation. The successful nonsurgical management of six cases of heterotopic pregnancy using potassium chloride injection into the tubal ectopic pregnancy has been reported.³ In our case, if ectopic pregnancy had been diagnosed early, then it might have been possible to complete the surgery with the laparoscope, but because of hemodynamic instability in our case, an urgent laparotomy was arranged.

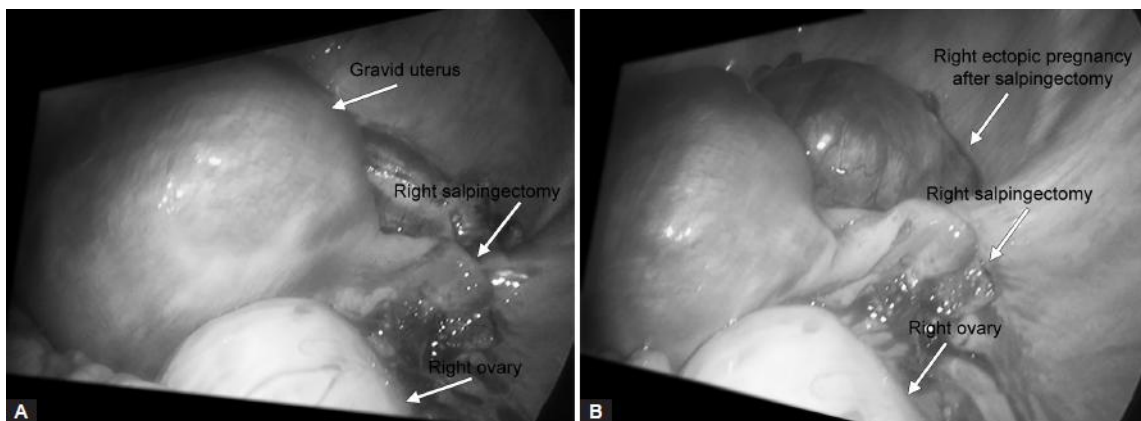
IV. Figures



Figs 4A and 4B: (4A) Ruptured right ectopic pregnancy with hemo-peritoneum (200 gm clots) and (4B) right fallopian tube and products of conception



Figs 4C and D: Laparoscopic findings: Right ectopic pregnancy of size 6 × 4 cm. Uterus corresponding to 8 weeks in size, right normally appearing ovary. Minimal hemoperitoneum (intraoperative photograph at Sri Ramachandra Medical College, Department of Obstetrics and Gynecology)



Figs 4E and F: Heterotopic pregnancy of the right fallopian tube. Removed laparoscopically using bipolar cautery, and placed anteriorly. Perfect hemostasis secured at the cut ends of the fallopian tube (intraoperative photograph at Sri Ramachandra Medical College, Department of Obstetrics and Gynecology)



Fig. 4G: Specimen showing right fallopian tube with products of conception

V. Conclusion

These cases highlight the fact that as clinicians, we should be aware of the possibility of a heterotopic pregnancy in any patient presenting with pelvic pain, even when an intrauterine pregnancy has been confirmed. This is even more imperative after ovulation induction. We would also like to emphasise that an early diagnosis is critical to safeguard the intrauterine pregnancy and avoid maternal morbidity and mortality due to ectopic pregnancy.

VI. Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images

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