RESEARCH PAPER

Management Of Ruptured Interstitial Pregnancy

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ABSTRACT

Interstitial pregnancy is a rare and life-threatening form of ectopic pregnancy, accounting for 1-3% of all ectopic pregnancies. It occurs when the gestational sac implants in the interstitial portion of the fallopian tube, which traverses the myometrial wall. Due to the rich vascular supply and distensibility of the myometrium, these pregnancies can progress to a larger gestational age before rupture, often resulting in catastrophic hemorrhage with significant maternal morbidity and mortality. Early diagnosis is challenging due to nonspecific clinical presentation, and rupture can occur suddenly with rapid hemodynamic deterioration. This case report describes the clinical presentation, diagnostic challenges, and successful surgical management of a ruptured interstitial pregnancy. A high index of suspicion, prompt imaging, and urgent surgical intervention are crucial for favorable maternal outcomes.

Keywords: Interstitial pregnancy, Ruptured ectopic pregnancy, Cornual resection, Ectopic pregnancy management.

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SUMMARY

Interstitial pregnancy is a rare and potentially life-threatening form of ectopic gestation due to its propensity for delayed rupture and massive haemorrhage. We report a woman in her late 30s (P2L2) presented with acute abdominal pain and prolonged menstrual bleeding preceded by 2 months of amenorrhea . On admission, she was in hypovolaemic shock with severe anaemia (Hb 4.6 g/dL). Ultrasonography showed a right ruptured ectopic pregnancy with hemoperitoneum. Emergency laparotomy with cornual resection was done which showed ruptured right interstitial pregnancy with significant blood loss (~1800 mL), patient was stabilised with blood transfusion and inotropic support. Ahe withstood the procedure well ,

This case highlights the diagnostic challenges of interstitial pregnancy, the risk of catastrophic hemorrhage, and the critical importance of early recognition and prompt surgical intervention in improving maternal outcomes

BACKGROUND

Ectopic pregnancy, defined as implantation of a fertilised ovum outside the uterine cavity, remains a significant cause of first-trimester maternal morbidity and mortality, accounting for approximately 1–2% of all pregnancies.[1,2] Among these, interstitial (cornual) pregnancy is a rare subtype, constituting 2–4% of ectopic pregnancies and occurring in approximately 1 in 2,500–5,000 pregnancies.[1,3]

Interstitial pregnancy occurs in the intramural portion of the fallopian tube, where the surrounding myometrium and rich vascular supply allow greater distensibility, often leading to delayed presentation and diagnosis. Consequently, rupture typically occurs at a later gestational age and is associated with catastrophic haemorrhage, hypovolaemic shock, and increased maternal mortality compared to other ectopic sites.[2,3]

In some cases, a interstitial pregnancy may undergo spontaneous regression, the conceptus may be expelled through the uterine cavity, mimicking an intrauterine abortion, or may pass through the fallopian tube, resembling a tubal abortion. These events can present clinically with vaginal bleeding and abdominal pain and may be mistaken for a miscarriage. Early recognition using transvaginal ultrasonography and β-hCG monitoring is essential, as timely intervention can be life-saving. This case highlights the importance of maintaining a high index of suspicion in atypical presentations to prevent adverse maternal outcomes

CASE PRESENTATION

A woman in her late 30s . presented to the emergency department of a tertiary care centre with complaints of acute

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onset diffuse abdominal pain, associated with vomiting and giddiness for one day.
Also complaints of prolonged vaginal bleeding for one month, initially requiring 4–5 sanitary pads per day and subsequently reducing to spotting. This was preceded by approximately 2 months of amenorrhoea.
The obstetric history of the patient is Para 2 , Live 2 and is not previously sterilized
There is no significant medical and surgical history,
Patient is not on any medication at present and is not a known allergic to any drugs.

On admission, the patient was conscious and oriented, with marked pallor. She was haemodynamically unstable, with a pulse rate of 140 beats per minute, blood pressure of 60/40 mm Hg, and oxygen saturation of 92% on room air.
Abdominal examination revealed lower abdominal fullness extending up to the umbilicus with tenderness. On speculum examination, the cervix and vaginal walls appeared healthy, with mild bleeding through the cervical os. Bimanual examination demonstrated an anteverted uterus with indistinct size, bilateral forniceal fullness, and mild cervical motion tenderness.

These findings raised a strong clinical suspicion of a ruptured ectopic pregnancy with haemodynamic compromise, prompting urgent evaluation and intervention

INVESTIGATIONS
Pregnancy confirmation
Urine pregnancy test: Positive
Haematological investigations
Haemoglobin: 4.6 g/dL (severe anaemia)
Total leucocyte count: 14,420 cells/mm³
Platelet count: 301,000 cells/mm³

Coagulation profile
Prothrombin time: 13.6 seconds
Activated partial thromboplastin time: 24 seconds
International normalised ratio: 1.02
Bleeding time: 2 minutes 25 seconds
Clotting time: 5 minutes 40 seconds
Urine analysis
Within normal limits
Imaging
Transabdominal ultrasonography [figure 1]
Uterus: Anteverted, measuring 6.9 × 4.4 × 3.3 cm
Endometrial thickness: 7.7 mm
Right adnexa: Large heterogeneous echogenic lesion measuring 9.7 × 9.3 × 9.2 cm, predominantly solid
Ovaries: Not separately visualised
No identifiable yolk sac or fetal pole
Moderate free fluid in the peritoneal cavity
Impression: Findings suggestive of ruptured ectopic pregnancy with hemoperitoneum

DIFFERENTIAL DIAGNOSIS
A **ruptured ectopic pregnancy** was strongly considered given the combination of early pregnancy, abdominal pain, shock, and ultrasonographic evidence of an adnexal mass with free intraperitoneal fluid. This remained the leading diagnosis throughout evaluation.

A **ruptured haemorrhagic ovarian cyst** was considered due to the presence of acute abdominal pain, adnexal mass, and free fluid. However, this was deemed less likely in view of the positive pregnancy test and absence of typical sonographic features of a cyst.

Ovarian torsion was also a consideration given the acute onset abdominal pain and adnexal fullness. However, the presence of significant haemoperitoneum and haemodynamic instability, along with a positive pregnancy test, made this diagnosis less likely.

Pelvic inflammatory disease with tubo-ovarian abscess was considered due to adnexal tenderness. However, the absence of fever, vaginal discharge, or prior suggestive history, along with the acute presentation and shock, argued against this diagnosis.

Taken together, the clinical presentation, laboratory findings, and imaging strongly supported a diagnosis of ruptured ectopic pregnancy, which was subsequently confirmed intraoperatively as a ruptured interstitial pregnancy

TREATMENT
The patient was haemodynamically unstable at presentation, with clinical features suggestive of hypovolaemic shock. Immediate resuscitative measures were initiated, including intravenous fluid administration and oxygen support.

Based on ultrasonographic findings suggestive of a ruptured ectopic pregnancy with hemoperitoneum, the patient was taken up for emergency exploratory laparotomy without delay.

Intraoperative findings [figure 2 ,3]
Intraoperatively, approximately 1800 mL of hemoperitoneum was noted. Both ovaries and fallopian tubes appeared normal. A ruptured right interstitial ectopic pregnancy measuring approximately 4 × 2 cm was identified, with active bleeding from the cornual region.

Surgical management
A right cornual resection was performed, and haemostasis was achieved using haemostatic sutures.

Transfusion and supportive care
The patient received 3 units of packed red blood cells and 4 units of fresh frozen plasma during the intraoperative and postoperative period. In view of persistent haemodynamic instability, inotropic support with adrenaline infusion was initiated and subsequently tapered as the patient stabilised.

Postoperative course
The patient tolerated the procedure well and showed gradual clinical improvement. She was haemodynamically

stable and was discharged on postoperative day 8 with advice regarding follow-up and contraception

OUTCOME AND FOLLOW-UP

The patient showed progressive clinical improvement following surgical intervention and haemodynamic stabilisation. By postoperative day 3, she was stable without inotropic support and was tolerating oral intake. Her haemoglobin levels improved following transfusion, and no further evidence of intra-abdominal bleeding was noted.

She was discharged on postoperative day 8 in a stable condition and was able to resume basic daily activities.

Follow-up and surveillance

At follow-up (2–4 weeks post-discharge), the patient remained clinically well, with no complaints of abdominal pain or abnormal vaginal bleeding. Wound healing was satisfactory.

Although serum beta-human chorionic gonadotropin monitoring is recommended postoperatively to ensure complete resolution of trophoblastic tissue, this was not performed in this case. The patient was counselled regarding the importance of follow-up in future similar scenarios.

The patient was advised regarding:

Risk of recurrence of ectopic pregnancy

Need for early ultrasound in subsequent pregnancies

Importance of timely hospital presentation with symptoms

Appropriate **contraceptive counselling** was provided prior to discharge.

Outcome

The patient had a favourable outcome, with complete recovery and no postoperative complications. She did not experience any long-term morbidity related to the condition or its management.

DISCUSSION

Interstitial pregnancy is a rare form of ectopic gestation occurring in the intramural portion of the fallopian tube. Owing to the surrounding myometrium and rich vascular supply from both uterine and ovarian vessels, these pregnancies can expand to a larger size before rupture, often presenting later and with more severe haemorrhage compared to other ectopic pregnancies.[1,3,4]

In the present case, the patient presented with amenorrhoea followed by abnormal uterine bleeding, acute abdominal pain, and haemodynamic instability, which are classical but often nonspecific features of ectopic pregnancy. The severity of shock and profound anaemia were attributable to massive hemoperitoneum (~1800 mL) following rupture, highlighting the life-threatening nature of interstitial pregnancy.

Diagnostic challenges

Early diagnosis of interstitial pregnancy remains difficult. Transvaginal ultrasonography plays a key role, with features such as an eccentrically located gestational sac and the interstitial line sign aiding diagnosis.[1,4] However, in emergency settings with significant haemoperitoneum, as in this case, precise localisation may be challenging, and the condition may be misinterpreted as a ruptured tubal ectopic pregnancy. The absence of serum beta-human chorionic gonadotropin measurement in this case represents a limitation, as serial levels can assist in diagnosis and follow-up.[2]

Management considerations

Management depends on haemodynamic stability, gestational age, and extent of rupture. Current guidelines recommend immediate surgical intervention in haemodynamically unstable patients, as seen in this case.[2,3] While conservative approaches such as methotrexate therapy or laparoscopic cornuostomy may be considered in stable patients, rupture with active bleeding necessitates emergency laparotomy and cornual resection.[1–3,5] Prompt surgical management in this patient was life-saving.

Comparison with published literature

Similar cases reported in the literature describe delayed diagnosis leading to rupture and massive intra-abdominal bleeding, often requiring surgical intervention.[4,5] Compared to ampullary ectopic pregnancies, interstitial pregnancies are associated with higher maternal morbidity and mortality, primarily due to delayed rupture and increased vascularity.[3]

Clinical implications

This case emphasises the importance of:

Maintaining a high index of suspicion in women presenting with amenorrhoea and abnormal bleeding

Recognising that ultrasonography may be inconclusive in emergency settings

Ensuring early surgical intervention in unstable patients to prevent mortality

While a causal association between delayed diagnosis and adverse outcome is likely, it should be interpreted with caution given the inherent diagnostic challenges of interstitial pregnancy

LEARNING POINTS/TAKE HOME MESSAGES *3-5 bullet points*

1] Ectopic pregnancy should be suspected in any woman with amenorrhoea followed by abnormal uterine bleeding and abdominal pain.

2] Haemodynamic instability in early pregnancy is a ruptured ectopic pregnancy until proven otherwise, requiring urgent intervention.

3] Interstitial pregnancy carries a high risk of catastrophic haemorrhage due to delayed rupture and increased vascularity.

4] Ultrasonography may be inconclusive in emergency settings, and failure to perform serum beta-human chorionic gonadotropin measurement can limit diagnostic accuracy and follow-up.

5] Early resuscitation and prompt surgical management are life-saving in unstable patients.

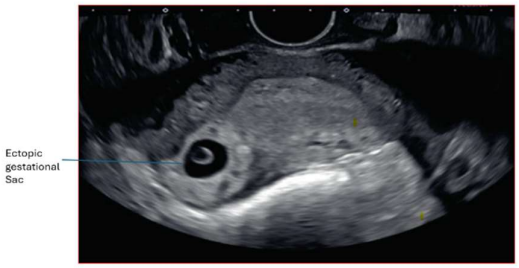

Figure 1: Transvaginal ultrasonography showing an eccentrically located gestational sac in the right cornual region , separate from the endometrial cavity, suggestive of interstitial pregnancy

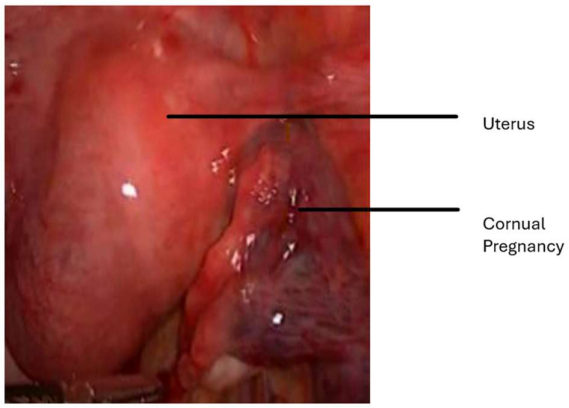

Figure 2: Intraoperative image showing a ruptured right interstitial pregnancy with surrounding haemorrhage and hemoperitoneum

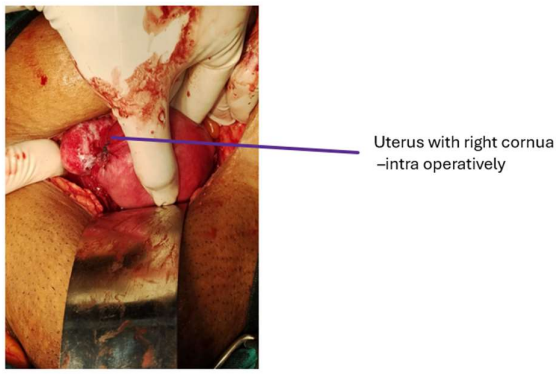

Figure 3: Intraoperative view of the uterus demonstrating the right interstitial region , confirming the site of rupture.

PATIENT'S PERSPECTIVE

I had missed my periods for about two months and then started having continuous bleeding, which I initially thought was just a delayed menstrual cycle. Over time, the bleeding reduced to spotting, but I began to feel weak and tired. A day before coming to the hospital, I developed severe abdominal pain along with vomiting and dizziness, which made me very anxious.

When I reached the hospital, I was told that my condition was serious and required immediate surgery. I was frightened and did not fully understand what was happening, but I trusted the medical team and agreed to the treatment.

After the surgery, I gradually started feeling better. I was weak initially but improved over the next few days. I am grateful that the condition was treated in time. I have been advised to seek early medical care in future pregnancies, and I now understand the importance of not ignoring such symptoms

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REFERENCE

1] Williams Obstetrics. 26th ed. McGraw Hill; 2022.

2] American College of Obstetricians and Gynaecologists. Tubal ectopic pregnancy. Obstet Gynecol. 2018.

3] Royal College of Obstetricians and Gynaecologists. Ectopic pregnancy and miscarriage. 2016.

4] Tulandi T, Al-Jaroudi D. Interstitial pregnancy: results generated from the Society of Reproductive Surgeons Registry. Fertil Steril. 2004.

5] Dagar M Interstitial and cornual pregnancy conservative management