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Ruptured Interstitial Ectopic Pregnancy: A Rare Time-Sensitive Surgical Emergency

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Ruptured Interstitial Ectopic Pregnancy: A Rare Time-Sensitive Surgical Emergency

Abstract:

Cornual ectopic pregnancy, a rare and potentially life-threatening condition, occurs when a fertilized egg implants in the cornual region of the uterus, where the fallopian tube meets the uterine cavity. Also known as interstitial ectopic pregnancy, this condition carries a high risk of catastrophic hemorrhage, particularly in advanced gestation. (1,2,3)

We present a case of a 27-year-old woman at 7 weeks gestation, with a history of a previous ectopic pregnancy managed by salpingectomy, who was diagnosed via ultrasound with a recurrent cornual ectopic pregnancy on the same side. Laparoscopic management revealed a ruptured ectopic pregnancy with massive hemoperitoneum of 1100 ml. Prompt surgical intervention was critical in ensuring a successful outcome.

Introduction:

Cornual ectopic pregnancies are a rare but critical subset of ectopic pregnancies, accounting for approximately 2–4% of cases. This condition poses a significant risk due to the highly vascular nature of the cornual region, where rupture can lead to life-threatening haemorrhage. (1)

Several factors increase the likelihood of a cornual pregnancy, including previous ectopic pregnancy, ipsilateral salpingectomy, and conception through in vitro fertilization. Contrary to earlier beliefs, interstitial pregnancy rupture can occur relatively early in gestation. (1)

Management strategies depend on early diagnosis, gestational age, rupture status, and the patient's reproductive goals. If identified before rupture, treatment options include minimally invasive surgery or non-surgical approaches. However, once rupture occurs, immediate surgical intervention—either laparoscopic or open surgery—is essential to prevent fatal hemorrhage. (2) Studies suggest that laparoscopic cornuotomy offers comparable clinical outcomes to cornual resection while potentially reducing operative time and maintaining fertility. (3)

Case presentation:

Patient Background:

A 27-year-old woman presented to the emergency department with severe lower abdominal pain and a history of seven weeks of secondary amenorrhea.

Her obstetric history included:

• Gravida 3, Para 1+1.

• First pregnancy: Full-term vaginal delivery 10 years ago (first marriage).

• Second pregnancy: Left tubal ectopic pregnancy, managed by laparoscopic left salpingectomy one year ago (second marriage).

Initial Assessment:

- Vital Signs: Pale and hypotensive (BP: 85/60 mmHg).
- Laboratory Findings: Total Beta-HCG: 11,324 miu/ml. Haemoglobin: 11.8 g/dl.
- Ultrasound Findings: No intrauterine gestational sac, empty uterine cavity, left cornual gestational sac measuring 5 weeks with no yolk sac or fetal pole (Figure 1).

Management:

Given the critical nature of the presentation, effective multidisciplinary team (MDT) communication played a vital role in the patient's management. The case was rapidly discussed among emergency medicine, radiology, obstetrics and gynecology, and anesthesiology teams to ensure prompt diagnosis, resuscitation, and surgical planning.

• Emergency management and Immediate Resuscitation:

Two wide-pore cannulas inserted. Blood samples collected for repeat Beta-HCG, FBC, virology, and group and save screen. Intravenous normal saline administered. Pethidine 100 mg given intramuscularly for pain relief.

• Radiology Team Contribution:

Performed urgent pelvic ultrasound, confirming the diagnosis. Provided a rapid assessment of extent of haemorrhage.

• Anesthesiology Team Preparation:

Assessed the patient for hemodynamic stability and prepared for possible blood transfusion. Ensured availability of intraoperative and postoperative critical care support.

• Gynecologic Surgical Team Decision:

The patient was diagnosed with a ruptured left cornual ectopic pregnancy. Thorough counselling was provided, and informed written consent obtained for emergency laparoscopic management.

Surgical Intervention:

- Procedure: Laparoscopic removal of ectopic pregnancy.

- Intraoperative Findings: Hemoperitoneum: Approximately 1100 mL of blood in the abdominal cavity. Ruptured left cornual ectopic pregnancy (figure2). Bulky uterus. Evidence of previous left salpingectomy. Normal left ovary with evidence of corpus luteum. Normal right ovary, and right fallopian tube. No signs of endometriosis or adhesions. Normal liver, spleen, and stomach.

- Hemostasis & Surgical Team Strategy:

Vasopressin (10 IU diluted in 100 mL normal saline) injected into the myometrium at the left cornu to aid tissue removal and minimize bleeding. Hemostasis achieved using monopolar

hook diathermy and suturing with looped Stratafix suture. Close coordination with the anesthesia team to monitor intraoperative stability and minimize transfusion requirements.

Postoperative Care Continued with MDT Involvement

Histopathology: Confirmed the diagnosis of ectopic pregnancy.

Recovery & Discharge:

• The patient had an uneventful postoperative period.

• Discharged in stable condition the following day.

• Advised on long-term contraception options, with input from the family planning team.

• Scheduled for follow-up with gynecology and fertility specialists to discuss future reproductive planning.

Figure (1) Ultrasound finding of cornual ectopic pregnancy with empty uterine cavity.

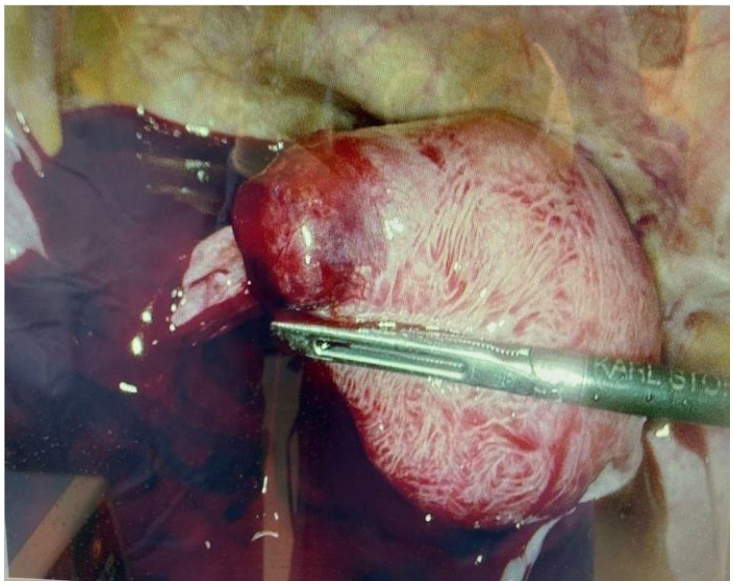

Figure (2) intra operative finding of ruptured cornual ectopic pregnancy with hemoperitoneum.

Discussion:

Cornual ectopic pregnancy is a rare and potentially life-threatening condition due to its high risk of rupture and catastrophic hemorrhage. Early diagnosis is critical to prevent severe maternal morbidity and mortality.

Clinical Presentation & Diagnosis:

Ruptured ectopic pregnancy typically presents with the classic triad of delayed menses, vaginal bleeding and abdominal pain, often progressing to hemorrhagic shock due to massive intraperitoneal bleeding. (4)

In our case, the patient was diagnosed with a cornual ectopic pregnancy via bedside ultrasound, but unfortunately, rupture occurred while preparing for laparoscopic surgery.

Transvaginal ultrasound (TVUS) is the gold standard for diagnosing cornual ectopic pregnancies before rupture. Jafri et al.(5) identified the most common ultrasonographic findings of interstitial/cornual pregnancy:

• An eccentric gestational sac,

• A thin, asymmetric myometrial mantle surrounding the sac.

• An empty uterine cavity.

Risk Factors & Clinical Relevance:

A study of 32 interstitial pregnancies identified key risk factors, including: (2).

• Previous ectopic pregnancy (40.6%).

• Ipsilateral or bilateral salpingectomy (37.5%).

• Conception after in vitro fertilization (IVF) (34.4%).

• History of sexually transmitted infections (STIs) (25.0%) (6).

In our case, the patient had a previous ectopic pregnancy in the same location, which was managed with laparoscopic left salpingectomy one year prior, making this a high-risk recurrence.

Laparoscopic Management & Haemostasis Strategies:

Laparoscopy is a safe and effective approach for managing cornual ectopic pregnancies (3), even in hemodynamically unstable patients (7). The laparoscopic approach offers several advantages over laparotomy, including (4):

• Reduced intraoperative bleeding.

• Less postoperative pain.

• Faster recovery & shorter hospital stay.

• Lower risk of adhesions.

• Preservation of fertility.

• Reduced risk of recurrent ectopic pregnancy (8).

However, laparoscopic cornual resection is technically challenging due to the rich vascular supply of the uterine Cornue, which increases the risk of significant intraoperative hemorrhage. Various hemostatic techniques can be employed, including:

• Diathermy or harmonic scalpel to minimize bleeding (9).

• Vasopressin injection into the myometrium to reduce intraoperative blood loss.

• Suturing techniques for additional hemostasis.

In our case, a combination of Vasopressin injection to myometrium with diathermy and targeted sutures was used to achieve optimal hemostasis, ensuring a smooth postoperative recovery.

Fertility Outcomes Post-Surgery

Following surgical management of cornual ectopic pregnancy, studies suggest that the subsequent intrauterine pregnancy rate is approximately 49.3% (10). Proper counseling and long-term follow-up with a multidisciplinary fertility team are essential for optimizing future reproductive outcomes.

Conclusion:

The successful management of a ruptured cornual ectopic pregnancy hinge on early diagnosis, rapid multidisciplinary coordination, and advanced laparoscopic techniques. This case exemplifies how seamless collaboration between emergency medicine, radiology, anesthesiology, and gynecologic surgery ensures timely intervention, hemodynamic stabilization, and optimal surgical outcomes. Laparoscopic management remains the gold

standard, offering superior safety, efficacy, and fertility preservation while minimizing morbidity. Meticulous post-operative monitoring and patient education are vital for reducing future pregnancy risks and ensuring long-term reproductive health. With cutting-edge surgical advancements and precision-driven intraoperative strategies, outcomes for cornual ectopic pregnancies continue to improve. This case reinforces the critical importance of vigilance, expertise, and a structured multidisciplinary approach in managing gynaecological emergencies, saving lives and safeguarding fertility.

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