

1 **Ruptured Interstitial Ectopic Pregnancy: A Rare Time-Sensitive Surgical** 2 **Emergency**

3 **Abstract:**

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

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

13 **Introduction:**

14 Cornual ectopic pregnancies are a rare but critical subset of ectopic pregnancies, accounting
15 for approximately 2–4% of cases. This condition poses a significant risk due to the highly
16 vascular nature of the cornual region, where rupture can lead to life-threatening haemorrhage.
17 (1)

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

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

28

29 **Case presentation:**

30 **Patient Background:**

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

33 Her obstetric history included:

34 • Gravida 3, Para 1+1.

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

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

38 **Initial Assessment:**

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

43 **Management:**

44 Given the critical nature of the presentation, effective multidisciplinary team (MDT)

45 communication played a vital role in the patient's management. The case was rapidly

46 discussed among emergency medicine, radiology, obstetrics and gynecology, and

47 anesthesiology teams to ensure prompt diagnosis, resuscitation, and surgical planning.

48 • **Emergency management and Immediate Resuscitation:**

49 Two wide-pore cannulas inserted. Blood samples collected for repeat Beta-HCG, FBC,

50 virology, and group and save screen. Intravenous normal saline administered. Pethidine 100

51 mg given intramuscularly for pain relief.

52 • **Radiology Team Contribution:**

53 Performed urgent pelvic ultrasound, confirming the diagnosis. Provided a rapid assessment

54 of extent of haemorrhage.

55 • **Anesthesiology Team Preparation:**

56 Assessed the patient for hemodynamic stability and prepared for possible blood transfusion.

57 Ensured availability of intraoperative and postoperative critical care support.

58 • **Gynecologic Surgical Team Decision:**

59 The patient was diagnosed with a ruptured left cornual ectopic pregnancy. Thorough

60 counselling was provided, and informed written consent obtained for emergency laparoscopic

61 management.

62

63 **Surgical Intervention:**

64 - Procedure: Laparoscopic removal of ectopic pregnancy.

65 - Intraoperative Findings: Hemoperitoneum: Approximately 1100 mL of blood in the

66 abdominal cavity. Ruptured left cornual ectopic pregnancy (figure2). Bulky uterus. Evidence

67 of previous left salpingectomy. Normal left ovary with evidence of corpus luteum. Normal

68 right ovary, and right fallopian tube. No signs of endometriosis or adhesions. Normal liver,

69 spleen, and stomach.

70 - **Hemostasis & Surgical Team Strategy:**

71 Vasopressin (10 IU diluted in 100 mL normal saline) injected into the myometrium at the left

72 cornu to aid tissue removal and minimize bleeding. Hemostasis achieved using monopolar

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

75 **Postoperative Care Continued with MDT Involvement**

76 **Histopathology:** Confirmed the diagnosis of ectopic pregnancy.

77 **Recovery & Discharge:**

- 78 • The patient had an uneventful postoperative period.
- 79 • Discharged in stable condition the following day.
- 80 • Advised on long-term contraception options, with input from the family planning team.
- 81 • Scheduled for follow-up with gynecology and fertility specialists to discuss future
82 reproductive planning.

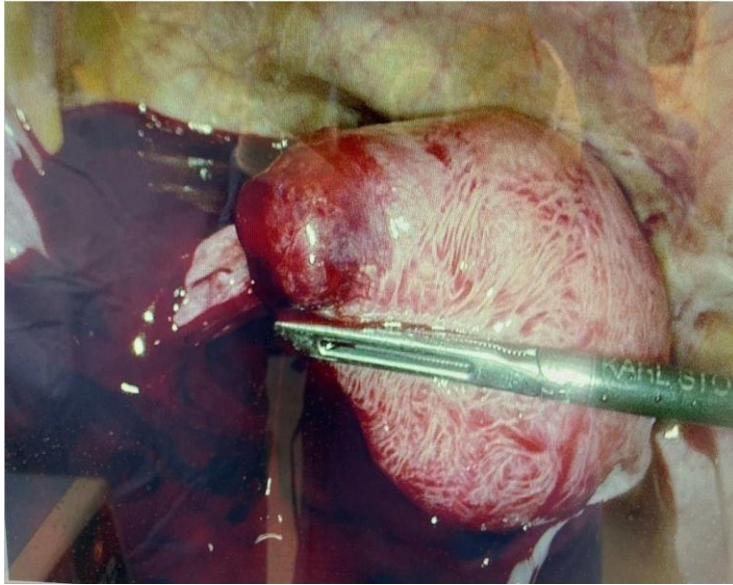
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85 Figure (1) Ultrasound finding of cornual ectopic pregnancy with empty uterine cavity.

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

90

91 **Discussion:**

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

95 **Clinical Presentation & Diagnosis:**

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

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

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

- 104 • An eccentric gestational sac,
- 105 • A thin, asymmetric myometrial mantle surrounding the sac.
- 106 • An empty uterine cavity.

107

108 **Risk Factors & Clinical Relevance:**

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

- 110 • Previous ectopic pregnancy (40.6%).

- 111 • Ipsilateral or bilateral salpingectomy (37.5%).
- 112 • Conception after in vitro fertilization (IVF) (34.4%).
- 113 • History of sexually transmitted infections (STIs) (25.0%) (6).

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

117 **Laparoscopic Management & Haemostasis Strategies:**

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

- 121 • Reduced intraoperative bleeding.
- 122 • Less postoperative pain.
- 123 • Faster recovery & shorter hospital stay.
- 124 • Lower risk of adhesions.
- 125 • Preservation of fertility.
- 126 • Reduced risk of recurrent ectopic pregnancy (8).

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

- 130 • Diathermy or harmonic scalpel to minimize bleeding (9).
- 131 • Vasopressin injection into the myometrium to reduce intraoperative blood loss.
- 132 • Suturing techniques for additional hemostasis.

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

136 **Fertility Outcomes Post-Surgery**

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

141 **Conclusion:**

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

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

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