

Ruptured Right Ampullary Tubal Ectopic Pregnancy with a Live Embryo Presenting as Hemoperitoneum in a Low-Risk Multigravida: a Case Report

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Abstract

Background: Ectopic pregnancy (EP) complicates 1–2% of pregnancies and remains the leading cause of first-trimester maternal mortality worldwide. Tubal rupture typically occurs early, and most ruptured pregnancies are no longer viable at the time of presentation. We report a case of a ruptured ampullary tubal ectopic pregnancy in which the embryo remained viable, presenting with hemoperitoneum at a gestational age beyond the usual window for tubal rupture.

Case presentation: A 28-year-old woman, gravida 2 para 1, with no notable medical, surgical, or gynecological history, presented with acute pelvic pain, dark vaginal bleeding, and vomiting after two months of amenorrhea. She was hemodynamically stable with mild conjunctival pallor and right iliac fossa tenderness. Pelvic ultrasound showed a 10 × 6 cm latero-uterine mass containing a gestational sac with an embryo corresponding to 12 weeks by crown–rump length and positive cardiac activity. Serum β-hCG exceeded 1395 mIU/mL. Surgical exploration confirmed a ruptured right ampullary tubal pregnancy with moderate hemoperitoneum; a right salpingectomy was performed with peritoneal lavage and drain placement. The post-operative course was uneventful, with stable hemoglobin and no transfusion requirement.

Conclusion: This case illustrates that tubal rupture with hemoperitoneum can occur in the ampullary segment beyond the gestational age typically associated with rupture, even with a viable embryo and in the absence of identifiable risk factors. It underscores the need for a high index of suspicion for ectopic pregnancy in any woman presenting with first-trimester pain and bleeding, regardless of risk profile or reassuring hemodynamic status.

Keywords: Ectopic pregnancy, Tubal rupture, Hemoperitoneum, Ampullary pregnancy, Salpingectomy, Case report

Abbreviations: EP: Ectopic pregnancy

Introduction

Ectopic pregnancy (EP) — implantation of a blastocyst outside the uterine cavity — complicates approximately 1–2% of all pregnancies and remains the leading cause of pregnancy-re-

lated death in the first trimester worldwide [1,2]. Approximately 95–97% of ectopic pregnancies are tubal, and the ampullary segment is by far the most common implantation site, accounting for roughly 70% of cases [1]. Compared with the isthmic or interstitial segments, the ampulla is generally considered to



carry a lower risk of rupture [3], and rupture classically presents early, often before 8 weeks of gestation, frequently in association with a non-viable pregnancy. Recognized risk factors include prior pelvic inflammatory disease, previous ectopic pregnancy, tubal surgery, smoking, intrauterine device use, and assisted reproduction [2,4,5]; however, most women who develop an ectopic pregnancy have no identifiable risk factor [2]. We report a case that is notable for two atypical features: tubal rupture occurred at a gestational age (12 weeks by crown–rump length) well beyond the usual window for ampullary rupture, and the embryo remained viable — with positive cardiac activity — at the time of rupture and surgery. We present this case in accordance with the CARE (CAse REport) guidelines [6,7].

Patient Information

A 28-year-old woman, gravida 2 para 1 (one prior living child, born by vaginal delivery), with no notable past medical,

surgical, or gynecological history, was admitted to the emergency department for acute pelvic pain and dark (blackish) vaginal bleeding associated with vomiting, occurring in the context of a pregnancy dated to two months of amenorrhea.

Clinical Findings

On admission, the patient was conscious (Glasgow Coma Scale 15/15) and hemodynamically stable: blood pressure 110/70 mmHg, heart rate 80 bpm, oxygen saturation 100% on room air, respiratory rate 16/min, and temperature 36.7 °C. Conjunctivae were mildly pale. Urine output was preserved. Abdominal examination revealed a soft abdomen with tenderness in the right iliac fossa, without guarding or rebound tenderness. Gynecological examination (vulva and perineum) was unremarkable. Speculum examination showed a violaceous (bluish-discolored) cervix with clean vaginal walls.

Timeline

Time point	Event
Day of admission	Emergency presentation: acute pelvic pain, dark vaginal bleeding, vomiting, 2-month amenorrhea. Vital signs stable; mild conjunctival pallor; right iliac fossa tenderness without guarding. Speculum examination: violaceous cervix.
Day of admission (H+1–2)	Pelvic ultrasound(FIGURE 1): latero-uterine mass 10 × 6 cm containing a gestational sac (9 × 4 cm) with an embryo of 12 weeks' crown–rump length and positive cardiac activity. Laboratory work-up: Hb 11.7 g/dL, WBC 6830/mm ³ , platelets 301,000/mm ³ , CRP 67.5 mg/L, serum β-hCG > 1395 mIU/mL.
Day of admission (H+3–4)	Diagnosis of ruptured right ampullary tubal ectopic pregnancy with hemoperitoneum. Emergency surgical exploration performed.
Intraoperative	Moderate-volume hemoperitoneum(FIGURE2). Right fallopian tube: 10 cm ampullary gestational mass in tubal abortion. Left adnexa normal. Right salpingectomy, peritoneal aspiration/lavage, Redon drain placement.
Postoperative day 1	Stable vital signs. Post-operative hemoglobin 11.4 g/dL (hematocrit 34.1%), platelets 259,000/mm ³ , WBC 7730/mm ³ — no evidence of ongoing bleeding; no transfusion required.

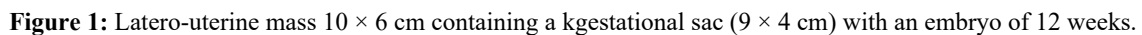
Table 1

Diagnostic Assessment

Pelvic ultrasound identified a latero-uterine (adnexal) mass measuring 10 × 6 cm, containing a gestational sac of 9 × 4 cm

with an embryo whose crown–rump length corresponded to 12 weeks of gestation, with positive cardiac activity — a gestational age exceeding the two months estimated from the last menstrual period, a discrepancy consistent with the diagnostic

the diagnosis of a pregnancy of extrauterine location. The combination of an empty uterine cavity, an adnexal gestational mass with cardiac activity, and free intraperitoneal fluid is considered highly specific for ruptured ectopic pregnancy [9]. Together with the clinical picture — pelvic pain, dark vaginal bleeding, a violaceous cervix, and mild pallor — these findings established the diagnosis of a ruptured right ampullary tubal ectopic pregnancy complicated by hemoperitoneum.



mass — containing the gestational sac with positive cardiac activity described above — in a state of tubal abortion (**Figure 2**), (**Figure 3**). The left adnexa were normal. A right salpingectomy was performed, followed by aspiration and lavage of the peritoneal cavity and placement of a Redon drain (**Figure 4**).

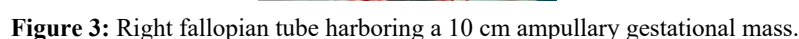
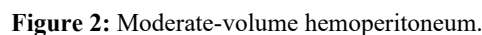




Figure 4: Gross specimen from the right salpingectomy, showing the ampullary segment of the fallopian tube distended by the gestational sac and hemorrhagic products of conception (left), along side the extracted embryo.

Follow-up and Outcomes

The post-operative course was uneventful. Repeat blood count on post-operative day 1 showed a hemoglobin of 11.4 g/dL (hematocrit 34.1%, MCV 81.6 fL, MCHC 33.4 g/dL), a Intraoperative Moderate-volume hemoperitoneum((**Figure 2**). Right fallopian tube: 10 cm ampullary gestational mass in tubal abortion. Left adnexa normal. Right salpingectomy, peritoneal aspiration/lavage, Redon drain placement. Postopera-

tive day 1 Stable vital signs. Post-operative hemoglobin 11.4 g/dL (hematocrit 34.1%), platelets 259,000/mm³, WBC 7730/mm³ — no evidence of ongoing bleeding; no transfusion required. Time point Event white cell count of 7730/mm³, and a platelet count of 259,000/mm³ — findings consistent with hemodynamic stability and no evidence of ongoing intra-abdominal bleeding. No blood transfusion was required.

Laboratory Summary

Parameter	Pre-operative	Post-operative (Day 1)
Hemoglobin	11.7 g/dL	11.4 g/dL
Hematocrit	—	34.1 %
MCV	—	81.6 fL
MCHC	—	33.4 g/dL
White cell count	6,830 /mm ³	7,730 /mm ³
Platelets	301,000 /mm ³	259,000 /mm ³
CRP	67.5 mg/L	—
AST / ALT	19 / 9 U/L	—
Serum β -hCG	> 1395 mIU/mL	—

Table 2

Discussion

This case highlights two features that distinguish it from the typical presentation of ampullary tubal rupture. First, rupture occurred at a gestational age corresponding to 12 weeks by

crown–rump length, later than the window in which ampullary pregnancies most commonly rupture; isthmic and interstitial pregnancies are more classically associated with later, more catastrophic rupture, whereas the ampulla — the site of roughly 70% of tubal pregnancies — is generally regarded as low-



er-risk and more likely to present earlier or to resolve as a tubal abortion rather than a violent rupture [1,3]. Second, the embryo remained viable, with positive cardiac activity documented on the pre-operative ultrasound performed shortly before surgery — an unusual finding, since ongoing hemorrhage into the tube and peritoneal cavity is more often associated with a non-viable gestation.

No conventional risk factor for ectopic pregnancy — prior pelvic inflammatory disease, previous ectopic pregnancy, tubal or pelvic surgery, intrauterine device use, smoking, or assisted reproduction — was identified in this patient, consistent with the observation that a substantial proportion of women who develop an ectopic pregnancy have no recognizable risk factor [2]. This reinforces that a reassuring history cannot be used to lower clinical suspicion when a woman presents with first-trimester pain and bleeding.

Diagnostically, the discordance between the gestational age estimated from the last menstrual period (approximately 8 weeks) and the sonographic crown-rump length (12 weeks) illustrates a recognized difficulty in dating ectopic pregnancies, and the elevated β -hCG value Parameter Pre-operative Post-operative (Day 1) Hemoglobin 11.7 g/dL 11.4 g/dL Hematocrit — 34.1 % MCV — 81.6 fL MCHC — 33.4 g/dL White cell count 6,830 /mm³ 7,730 /mm³ Platelets 301,000 /mm³ 259,000 /mm³ CRP 67.5 mg/L — AST / ALT 19 / 9 U/L — Serum β -hCG > 1395 mIU/mL — in this case — above commonly cited discriminatory thresholds [8] — together with an empty uterine cavity, appropriately raised suspicion for an extrauterine gestation. Diagnosis was corroborated by the combination of an adnexal mass with a live embryo and free peritoneal fluid, findings with high specificity for ruptured tubal ectopic pregnancy on ultrasound [9].

Regarding management, salpingectomy — as performed in this case — is generally recommended when the tube is extensively damaged or ruptured, when bleeding is not readily controlled, or when the ectopic mass is large (5 cm or greater), as was the case here [1]. Randomized data comparing salpingectomy with the more conservative salpingostomy show similar rates of subsequent intrauterine pregnancy and ectopic recurrence between the two approaches [1], supporting salpingectomy as an appropriate choice in the presence of rupture and a large tubal mass, irrespective of future fertility considerations,

particularly when the contralateral tube is normal, as in this patient.

This case adds to the literature illustrating that the classical teaching — that ampullary rupture occurs early and is associated with a non-viable pregnancy — does not preclude later, still-viable presentations. It reinforces the importance of early, protocolized use of transvaginal ultrasound and serum β -hCG in any woman of reproductive age presenting with pelvic pain and abnormal bleeding, and of maintaining surgical readiness even when initial hemodynamic parameters are reassuring.

Patient Perspective

Not available for this report.

Declarations

Conflicts of interest: none declared. Funding: none received. This report was prepared in accordance with the CARE guidelines for case reports.

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