

Previously asymptomatic ruptured tubal ectopic pregnancy at over 10 weeks' gestation: Two case reports

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ABSTRACT

Ectopic pregnancy is a life-threatening condition affecting up to 2% of gestations. Implantation in the fallopian tube is most common, with symptoms typically presenting earlier for gestations in the ampulla and isthmus compared with the cornua and non-tubal sites. In this paper, the cases are described of two patients with advanced ectopic pregnancies that ruptured. One woman aged 36 years presented at 17 1/7 weeks' gestation with a ruptured cornual ectopic pregnancy. The other woman, aged 35 years, presented at 11 1/7 weeks' gestation with a ruptured ectopic pregnancy in the left tubal ampulla. To our knowledge, there are no other reported cases of a tubal ampulla pregnancy presenting at such an advanced gestation with no prior symptoms.

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1. Introduction

Ectopic pregnancy is a relatively common and potentially life-threatening condition affecting approximately 2% of pregnancies in the United States [1,2]. It occurs when a fertilized ovum implants at an extra-uterine location, most commonly the ampulla of the fallopian tubes [1]. Other reported implantation sites include the abdomen, cervix, caesarean-section scar, and ovary [3,4]. While improvements in diagnostic technique and treatment have been made, ectopic pregnancy can be initially missed and remains a significant contributor to pregnancy-related deaths and decreased fertility [1,2,5].

Classic presenting symptoms include lower quadrant abdominal pain, vaginal bleeding, and amenorrhea [5]. Approximately half of patients present atypically and may in fact be asymptomatic at earlier gestations [1,5]. Severe abdominal and pelvic pain as well as a bulge in the vaginal fornix can occur in cases of ectopic rupture [1]. Transvaginal ultrasound is the gold-standard diagnostic approach, with the extra-uterine gestational sac identified as either a heterogeneous mass ("blob sign") or a hyperechoic ring ("bagel sign") [2,5].

In this report, we present a small case series: a patient diagnosed with a ruptured cornual ectopic pregnancy at 17 1/7 weeks' gestation, and a patient diagnosed with a ruptured ectopic pregnancy in the ampulla of the fallopian tube at over 11 weeks' gestation. Typically, tubal ectopic pregnancies in the isthmus rupture within the first few weeks of gestation, with the ampulla being slightly more expandable [1].

Other implantation sites, including the cornua and abdomen, allow for further gestational development due to increased space and ability to distend [1]. The novelty of this series lies not only in the delayed presentation given the corresponding implantation sites, but also in the patients' previous lack of symptoms despite fetal size (Figs. 1–3).

2. Case Reports

2.1. Patient 1

A 36-year-old female, G5P3013 at 17 1/7 weeks' gestation, presented to the emergency department complaining of abdominal pain for the past few hours. The patient reported that she had seen her obstetrician one week prior to presentation for a routine ultrasound scan, which demonstrated a normal intrauterine pregnancy. She had also visited her physician earlier that day for antibiotics to treat a urinary tract infection. She had one episode of non-bilious, non-bloody vomiting, but denied having other symptoms. Surgical history included three caesarean sections and a left salpingectomy for ectopic pregnancy. In the emergency department her heart rate was 117 beats per minute (bpm), blood pressure 91/54 mmHg, and oxygen saturation 94% on room air.

On physical exam, the patient was diffusely tender to palpation of the abdomen. Bedside sonogram revealed a fetus of 17-week size, and the fetal heart rate was recorded at 165 bpm. Abdominal ultrasound yielded a moderate amount of free fluid in the right lower quadrant, and ultrasound of the kidneys also detailed moderate intraperitoneal fluid. The appendix could not be visualized.

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Fig. 1. Gross image of a dilated uterine tube with sponge-like material expanding lumen (arrow).

The patient was taken to the operating room for suspected appendicitis. Laparoscopic evaluation demonstrated significant adhesions to the pelvic sidewall and significant hemoperitoneum extending from the pelvis to the liver. The case was converted to a laparotomy, and evaluation of the uterine fundus revealed a ruptured left cornua with an exposed fetus. The pregnancy was removed and the uterus was repaired. The appendix was within normal limits. Estimated blood loss was 2500 mL necessitating blood product administration. The patient was admitted to the intensive care unit, where her vital signs stabilized, and she was discharged home on post-operative day three.

2.2. Patient 2

A 35-year-old female, G2P1001 at 11 1/7 weeks' gestation, presented to the emergency department complaining of sudden suprapubic and abdominal tenderness. It began after a single episode of nausea and vomiting earlier that morning. She described the pain as cramping and had noticed some spotting as well. She denied having any prior symptoms, and also denied significant medical or obstetric history. Her vital signs in the emergency department were stable.

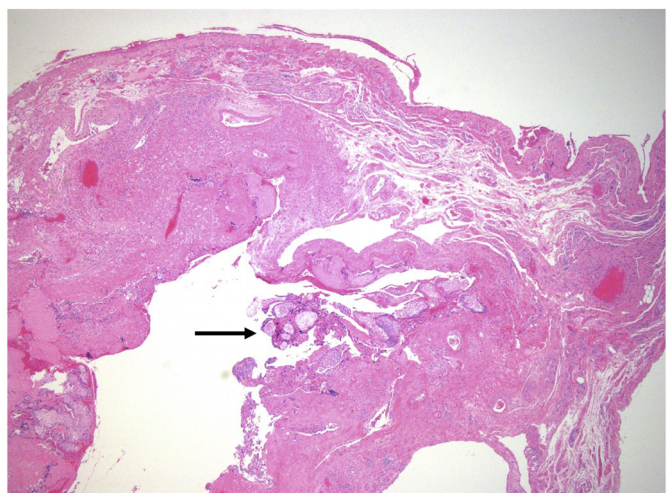


Fig. 2. Low power section of dilated uterine tube with intraluminal chorionic villi present (arrow).

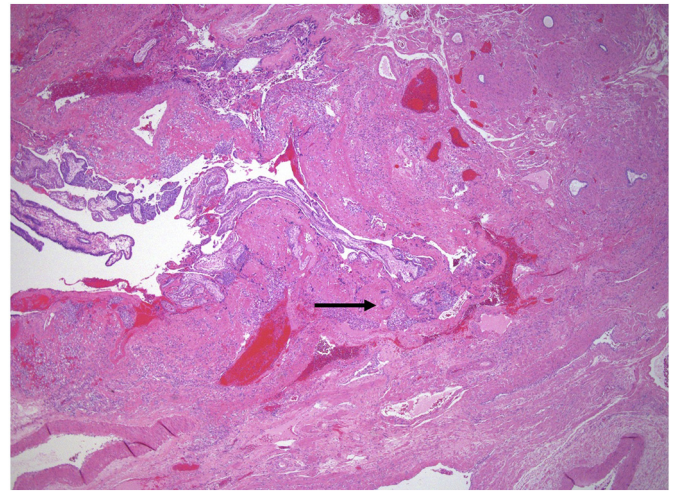


Fig. 3. High power section of dilated uterine tube showing chorionic villi involving the superficial muscular layer of the uterine tube (arrow).

On physical exam, the patient was distressed. Her abdomen was non-distended but diffusely tender to palpation in the suprapubic region, worse on the left side. She was guarding with no rigidity. Laboratory results were positive for anemia (Hemoglobin – 5.77 mmol/L) and a beta-human chorionic gonadotropin (beta-HCG) of 155,583 IU/L.

Ultrasound demonstrated an 11 1/7 weeks' (crown-rump length was over 41 mm) left adnexal ectopic pregnancy with a fetal heart rate of 178 bpm. There was free fluid in the cul-de-sac and in Morrison's pouch, suggesting ectopic rupture. Intrauterine pregnancy was not identified.

Diagnostic laparoscopy revealed 1500 mL of hemoperitoneum, and the left adnexa was partially adhered to the bowel. The fallopian tube was ruptured and the fetus was expelled. The procedure was converted to exploratory laparotomy due to extensive bleeding, which needed to be controlled with manual pressure and packing. The patient was administered blood products and transferred to the surgical intensive care unit. She recovered well and was discharged home on post-operative day four.

3. Discussion

Ectopic pregnancy affects up to 2% of gestations [1,2]. While fallopian tube involvement is the most common, abdominal, cervical, ovarian, and caesarean section scar implantation have also been reported [1–4]. Risk factors predisposing women to ectopic pregnancies hinge on disrupted fallopian tube anatomy [1]. This can be congenital, but often results instead from prior tubal ectopic pregnancies, elective abortions, prior miscarriages, and sexually transmitted infections [1,5,6]. Smoking and advanced maternal age have also been implicated [6].

One of the presented cases describes a ruptured ectopic pregnancy in the tubal ampulla at 11 weeks 1 day of gestation with a beta-HCG over 155,000 IU/L. Cases of large ectopic pregnancies have previously been published in sites other than the fallopian tube, which are more distensible and accommodating for a developing fetus [1,7–9]. The literature, however, on large tubal ectopic pregnancies is much more limited.

A report published in 2015 described a non-ruptured twin tubal ectopic pregnancy with fetal crown-rump length of 2 cm [10]. There was also a report of a bilateral tubal ectopic pregnancy with unruptured gestational sacs of over 4 cm [11]. A paper published in Pakistan detailed ectopic rupture up to 10 weeks of gestation in an analysis of 80 patients [12]; however, the authors have not come across a publication detailing a tubal pregnancy of over 10 weeks as seen in the present report. Similarly, the lack of symptoms prior to presentation

in the current case was also impressive, and literature describing initial symptom presentation at a comparable gestation is equally sparse [13–15].

The other case report, detailing a ruptured cornual ectopic pregnancy at over 17 weeks' gestation, is also remarkable. While literature has been published describing large cornual ectopic pregnancies, most cases have presented substantially earlier than 17 weeks [8,16–20]. The authors found only one published report demonstrating a cornual ectopic pregnancy at approximately 19 weeks' gestation; however, this was specifically in the context of an incomplete uterine septum [21].

While diagnostic technique has improved over time, it is not without error, and cases such as these can go unnoticed. Ultrasound is not necessarily able to detect intrauterine pregnancies below the beta-HCG discriminatory zone (1500–2000 IU/L), and thus levels are re-drawn 48 h before management is begun in suspected cases [1]. In the first case, ultrasound was also unable to distinguish between the cornual ectopic pregnancy and an intrauterine pregnancy.

Furthermore, using reported risk factors and presenting symptoms to monitor likelihood of ectopic pregnancy has its limitations as well. These patients were previously asymptomatic, and the patient with the ruptured tubal ectopic pregnancy was only positive for advanced maternal age, indicating that close monitoring of individuals at low to moderate risk can be equally as important. The patient with the ruptured cornual ectopic pregnancy had a prior tubal ectopic pregnancy on the same side as well as adhesions, which may have distorted her reproductive anatomy, increasing the likelihood of ectopic implantation.

Management of ectopic pregnancy, like diagnosis, has been enhanced by medical advances and yet carries its own risks. Gestations that sonographically appear as extrauterine lesions measuring smaller than three and a half cm in hemodynamically stable women may be amenable to the non-invasive expectant or medical management; however, in women who are hemodynamically unstable, have a beta-HCG greater than 5000 IU/L, or have a pregnancy that sonographically appears as an extrauterine lesion larger than three and a half cm, surgical management is recommended [5]. Laparoscopic salpingectomy or salpingotomy are the preferred surgical options in hemodynamically stable women as these options are less invasive than open surgery; however, conversion to open surgery is warranted if the ectopic pregnancy cannot be adequately excised and bleeding is uncontrolled [1]. Salpingotomy carries an increased risk of persistent trophoblast compared to salpingectomy; thus, it is important to monitor beta-HCG following surgery [2,22].

The extensive hemoperitoneum experienced in these cases demonstrates well the life-threatening nature of ectopic pregnancy and the increased risk associated with higher gestational age. Ectopic pregnancy, in general, causes the largest morbidity and mortality in early pregnancy [23]. Not only can it cause future pain and impaired fertility, but it can also more acutely cause intraperitoneal bleeding and anemia, potentially necessitating blood transfusion [2,24]. A report published in 2016 stated that approximately 5% of all maternal deaths are directly connected to ectopic pregnancy, with over half of those cases not being evaluated for the diagnosis [2].

The American College of Obstetricians and Gynecologists recommends that pregnant patients receive a minimum of one standard ultrasound exam, typically between 18 and 22 weeks of gestation [25]. It notes that first-trimester exams are not considered standard, given the inability to distinguish detailed fetal anatomy during this period. This case series highlights the importance of considering routine, early first-trimester ultrasound to determine implantation site despite lack of risk factors or lack of symptoms. It also elucidates an opportunity for enhanced patient education regarding the potential for ectopic pregnancy, the associated signs and symptoms, and the overall importance of early and consistent prenatal care for prompt detection and reduction of maternal morbidity and mortality.

Contributors

Caitlin Gauvin participated in data collection, drafted the manuscript, and participated in revising the manuscript.

Melissa Amberger participated in data collection and revising and approval of the final manuscript.

Kevin Louie participated in revising the manuscript.

Olga Argeros participated in data collection and revising and approval of the final manuscript.

Conflict of Interest

The authors declare that they have no conflict of interest regarding the publication of this case report.

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Patient Consent

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Provenance and Peer Review

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