



Ruptured Ectopic Pregnancy: An Emergency Physician Perspective



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Abstract

Early diagnosis of an ectopic pregnancy remains challenging in a medical emergency. Despite advances in diagnostic methods and management, ruptured ectopic pregnancy continues to cause 6% pregnancy related deaths, often because of failure to recognize the early signs and symptoms. The common teaching is that pregnancy should always remain in the list of clinical possibilities for abdominal pain in a woman of reproductive age. Moreover, acute abdomen in hemodynamically unstable young women with a history of one or two missed menstrual periods suggests a ruptured ectopic pregnancy. There is no substitute for a high index of clinical suspicion. Emergency physician should maintain a low threshold for diagnosing the condition, given its fatal outcomes.

Keywords: Pain abdomen; Shock; Ruptured Ectopic Pregnancy; Emergency Department

Introduction

Abdominal pain accounts for 5-10% of emergency department admissions and has the broad differential diagnosis [1]. A detailed history, physical examination, and diagnostic abdominal imaging facilitate a correct and efficient diagnosis. Recognition of the conditions like mesenteric ischemia, acute intermittent porphyria, ruptured abdominal aortic aneurysm, and ruptured ectopic pregnancy are frequently problematic and elusive in the emergency room. In unstable patients, bedside ultrasound and upright plain radiograph have promised to provide a time-critical diagnosis [1,2].

Ectopic pregnancy (EP) is a major complication of pregnancy and causes considerable morbidity and mortality among the women of reproductive age is responsible for approximately 10% of the emergency department admission in women [3]. Emergency physicians rarely think of EP as an obvious diagnosis on initial presentation. Patients may have typical or atypical abdominal pain with or without vaginal bleeding. Combination of careful history, physical examination, and abdominal ultrasound provide the diagnostic clues [4]. To illustrate, we describe two patients where the pregnancy was not suspected initially, and later the diagnosis of ruptured EP was made.

Case 1

A 32-year-old lady admitted to the emergency department because of severe abdominal pain and hypotension. The patient had been in her usual health three days back when she developed acute onset pain abdomen, which was diffuse and progressively increasing in severity. It was non-colicky and non-radiating. It was

not associated with vomiting, diarrhea, constipation or fever. The patient had no addictions or known allergies. She was married with two children and underwent tubal ligation seven years back. On examination, the patient was in constant pain, restless, and appeared acutely ill. She was febrile. The blood pressure was 90/56 mm, and the pulse was 124 beats per minute and weak. Her mucous membranes were dry, and conjunctivae were pale. The abdomen was uniformly distended with marked generalized tenderness and rigidity on palpation. Shifting dullness was present. The remainder of the clinical examination was normal. Complete blood count showed hemoglobin 9.6 g/dl, white blood cell count 14500 per cubic mm with 84% neutrophilia and normal platelet counts. The blood chemistries including liver and pancreatic enzymes as well as urine microscopic examination were normal. The chest radiograph was read as a normal study. Abdominal ultrasound revealed moderate ascites with echogenic contents.

The ascitic tap was attempted; however, the procedure was abandoned because of a bloody tap. The diagnosis of acute abdomen and shock was made. The patient received broad-spectrum antibiotics, despite that the absence of fever argues against an infectious process. After the initial stabilization of the patient, computed tomography of the abdomen was planned. As the cause of shock was not apparent and the diagnosis was not established, the history was reviewed and available laboratory investigations were re-checked. Her menstrual history revealed that she did not attain her last menstrual cycle. On careful looking at the chest radiograph, the free air was present under right diaphragm

suggesting pneumoperitoneum (consistent with perforation of an abdominal viscus) (Figure 1). Subsequently, a urinary pregnancy test came positive, and a diagnosis of ruptured ectopic pregnancy was kept. The patient was evaluated by the surgery team and sent to the operating room for emergency exploratory laparotomy.

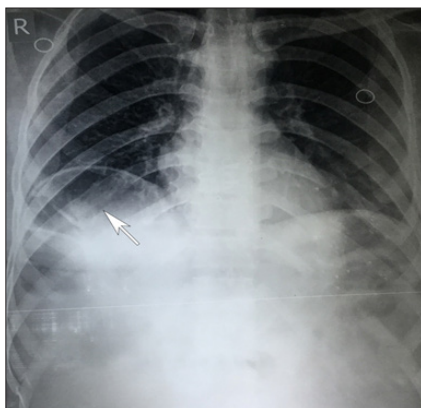


Figure 1: An erect chest radiograph showing air under diaphragm (arrow)

Case 2

A young girl, a second-year college student, presented to the emergency room complaining of six hours of abdominal pain. She stated that the pain was in the lower abdomen and associated with nausea and vomiting. Her bowel movements were normal. She had no addiction. She was unmarried and currently living in a hostel for two years. On examination, her vitals were normal except for the tachycardia of 114/min. Per abdomen examination showed diffuse tenderness, worse in right lower quadrant and hypochondrium, with voluntary guarding. Complete blood counts, blood chemistries, urine analysis, and chest radiograph were within the normal limit. An ultrasound abdomen showed a localized collection involving the right paracolic and adnexal regions. Intravenous antibiotics and analgesics were given. Retrospectively the menstrual history revealed that the patient had amenorrhea for one month and she had used an emergency contraceptive pill after an unprotected sexual intercourse. The urinary pregnancy test came positive. Subsequently, the transvaginal ultrasound showed ectopic pregnancy with rupture. The patient left against medical advice after revealing the diagnosis.

Discussion

Definition, incidence and risk factors

EP refers to the extrauterine pregnancy, i.e., the implantation of a fertilized ovum outside the endometrial cavity, within the distal portion of the fallopian tube (in about 95% of EP cases) [5]. It occurs in 1-2% of pregnancies and accounts for 6% of all pregnancy-related deaths [6-9]. It is the leading cause of first-trimester maternal death in the developed world. Risk factors for EP include older age, smoking, prior EP(s), pregnancy with an intrauterine device in place, history of salpingitis or sexually transmitted disease, failure of tubal ligation (in case 1) and rarely, use of progestin-only contraceptives (in case 2) [10,11].

Clinical Features and Diagnosis

The clinical features depend on the timing of the presentation. Most cases present before rupture and show nonspecific symptoms including abdominal pain or cramping, and/or first trimester vaginal bleeding. Pain in ruptured EP is often severe, and patients may present with peritoneal signs (guarding, rigidity, rebound tenderness) or shock (hypotension, tachycardia, or cold peripheries). Per vaginal examination may reveal a soft cervix and excruciating tenderness on the cervical motion. If significant intra-peritoneal hemorrhage has occurred, shifting dullness may be noted, and rarely, ecchymosis about the periumbilical area (the Cullen's sign) or in the flank(s) (the Grey Turner's sign) may occur [12-14]. A normal physical examination does not rule out the diagnosis. Diagnosis is confirmed by elevated serum human chorionic gonadotropin level (serial measurements) in combination with a transvaginal ultrasound [12-14].

Management

Treatment options for unruptured EP include medical (methotrexate), surgical (laparoscopic salpingectomy or salpingostomy) or conservative approaches. Ruptured EP with significant intra-peritoneal hemorrhage, peritoneal signs or shock should be immediately resuscitated and referred for emergency laparotomy [12-14].

Conclusion

The cases emphasize important learning points for emergency physicians. First, pain abdomen with shock in a woman of reproductive age is ruptured ectopic pregnancy until proven otherwise. Second, although an abdominal radiograph has limited value in the assessment of acute pain abdomen, it continues to serve a valued adjunct to the physical examination in the presence of peritonitis or shock where it may be sufficient to determine treatment (such as laparotomy for perforation). Third, the case 2 scenario highlights the importance of the sexual history (or the history of contraceptive use) in the emergency room regardless of the marital status of the patient.

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