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Case Report

Unexpected Rupture of Ectopic Pregnancy with Shock: A Warning to Always Enhance Alertness

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ABSTRACT

Introduction: Ectopic pregnancy (EP) describes a pregnancy that develops outside the uterine cavity. The fallopian tube, specifically the ampulla is the most common site. Positive blood β-hCG levels can identify EP with no ultrasound confirmation of intrauterine or extrauterine pregnancy.

Case Presentation: We report a 37-year-old woman was referred from primary health care with a diagnosis of ileus. The patient complained of abdominal pain, spotting, vomiting, and no defecating since the day before; gestational age was estimated at around seven weeks. Vital signs indicated shock; the physical examination revealed slight abdominal distention, decreased bowel sounds, tenderness throughout the abdominal area, slightly defans muscular, and hyper tympanic. Vaginal touch didn't reveal cervical dilation, absent portio swaying pain. The laboratory found anemia and leukocytosis with a predominance of neutrophils. The pregnancy test was positive in the emergency department. Previously, the primary health care facility did not undergo a pregnancy test. Abdominal x-ray showed low-lying obstructive ileus and ascites in the pelvic cavity. Transabdominal ultrasound revealed free fluid in the rectouterine cavity. The patient underwent an emergency laparotomy, and a rupture in the ampulla segment was found, then a salpingectomy was performed.

Conclusion: Clinicians must be able to diagnose EP correctly and as quickly as possible. In women of childbearing age presenting with acute abdominal complaints and a known or unknown history of menstruation, we strongly recommend a qualitative β-hCG examination, which can be carried out in health facilities with limited resources and at affordable costs, will be very useful for diagnosing and screening ectopic pregnancy.

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INTRODUCTION

Despite progress in diagnostic and therapeutic methods, ectopic pregnancy (EP), defined as a pregnancy that develops outside the uterine cavity, remains a substantial source of illness and mortality for mothers [1,2]. In almost half of the events, there is a rupture, bleeding, and a need for immediate medical attention. According to Panelli et al. (2015), The occurrence of EP ranges from 1-2% in the general population to 3-5% in individuals who experienced assisted reproductive technologies [3]. Eighty-eight percent of ectopic pregnancies implant in the fallopian tube, with the ampullary segment accounting for eighty percent of these cases [4,5]**.** Just under 10% of EPs implant beyond the fallopian tube, in the cervical area, ovary, myometrium, abdominal cavities, interstitial (i.e., intramuscular/ proximal) part of the fallopian tube, or during an intrauterine pregnancy [3].

Minimal vaginal bleeding in the first trimester, unpleasant pelvic pain, and secondary amenorrhea may indicate an extrauterine pregnancy, but they may also happen in an intact intrauterine pregnancy or as a consequence of an early pregnancy loss [6]. Ectopic pregnancy is now diagnosed using serum beta-human chorionic gonadotropin (β-hCG) levels and transvaginal or transabdominal ultrasonography (TVUS/TAUS) findings [7]. When a patient exhibits hemodynamic

instability, indications of a continuing ruptured ectopic mass (such as pelvic discomfort), or signs of intraperitoneal hemorrhage, ectopic pregnancy must be surgically managed [1]. A laparoscopic surgical method is preferred over an open approach [8]. This case report serves as a reminder to doctors to always increase their awareness of ruptured ectopic pregnancies.

CASE PRESENTATION

A 37-year-old woman was referred from primary health care with a diagnosis of ileus. The patient complained of abdominal pain that had been experienced since yesterday, with the pain worsening and felt throughout the entire abdominal region. The patient admitted to experiencing spotting since morning, vomiting, a history of flatus in the morning, and no bowel movement or defecation since the day before. The patient revealed that she hadn't had a menstrual period; according to her last menstrual period, the gestational age was estimated to be around seven weeks. The patient stated that her menstrual cycle was regular, and she is currently not using contraception. She has a history of one previous vaginal delivery approximately eight years ago, with no history of any other diseases or past surgeries.

When the patient arrived at the emergency department (ED), vital signs indicated shock conditions, with decreased blood pressure accompanied by an increased heart rate and respiratory rate. The physical examination revealed anemic signs in the conjunctiva, slight abdominal distention, decreased bowel sounds, tenderness throughout the abdominal area, slightly defans muscular, and hyper tympanic. Vaginal touch assessment did not reveal cervical dilation, absent portio swaying pain, or blood. Laboratory examination showed a hemoglobin level of 5.3 g/dl, leukocytosis (26,200/ul) with a predominance of neutrophils, and an increase in serum creatinine (2.62 mg/dl). The qualitative pregnancy test conducted in the ED yielded positive results. Previously, at the primary health care facility, the patient did not undergo a pregnancy test and was not suspected of having an ectopic pregnancy; instead, she was diagnosed with ileus.

Laboratory examination at that time showed a hemoglobin level of 11.2 g/dl and a slight increase in leukocytes (14,100/ul). The patient underwent an abdominal X-ray examination, which showed suspicion of low-lying obstructive ileus and the presence of ascites in the pelvic cavity. The results of a transabdominal ultrasound examination revealed an accumulation of free fluid in the rectouterine cavity (Douglas cavity). The patient underwent an emergency laparotomy, during which the obstetrician found a rupture in the ampulla segment of the uterine tube, and salpingectomy was performed. Approximately 1.5 liters of blood were found to have accumulated in the rectouterine cavity. The patient received a transfusion of 4 units of packed red blood cells (PRCs) during surgery and received post-operative care).

Fig 1. Radiological Findings Suggest Ileus and Ascites in The Pelvic Cavity

Fig.2 Transabdominal Sonography Suggests Accumulated Fluid in The Rectouterine Cavity

DISCUSSION

Ectopic pregnancy (EP) describes a pregnancy that develops outside of the uterine cavity [1]. It stands as the leading cause of maternal fatality during the first trimester of pregnancy. The fallopian tube is the most prevalent location for EP and is linked to a greater risk of death after tubal rupture; specifically, the ampulla is the most common site in the fallopian tube [9]. EP ruptures are the primary cause of maternal mortality during the first trimester, accounting for 9%-14% of all pregnancy-related fatalities [7]. In the United Kingdom, the frequency of EP is around 11 per 1000 pregnancies, with an estimated 11,000 ectopic pregnancies reported each year [8]. Age, history of EP, pelvic infection, IUD use, progestin tablets, smoking, infertility, and a history

of abortion are all important risk factors for EP [10]. The following symptoms, minor vaginal bleeding in the first trimester of pregnancy, severe pelvic discomfort, and second amenorrhea, may indicate an ectopic pregnancy, but they may also happen in an intact intrauterine pregnancy or as a consequence of an early pregnancy loss [6,11].

The most common diagnostic standard for EP is a combination of ultrasonography and serum β-hCG levels. If an EP diagnosis is established, treatments may be either conservative or aggressive, depending on the location of the EP, the pregnancy timelines, and the size of the gestational sac. Various techniques are employed for treating EPs, including medicinal, surgical, and expectant management [7]. In cases where a patient exhibits hemodynamic instability, symptoms of a continuing ruptured ectopic mass (such as pelvic discomfort), or signs of intraperitoneal bleeding, ectopic pregnancy must be surgically managed [1]. A laparoscopic surgical method is preferred over an open approach [8]. Laparotomy is often reserved for patients with hemodynamic impairment or inadequate laparoscopic abilities [12,13].

This case involves a 37-year-old woman with a history of one vaginal delivery. A study in Iran found that as age increases, the probability of developing recurrent ectopic pregnancy also rises [14]. According to the study, EP is more common in patients under 20 and over 35 years old [15]. Another study from Bali reported that the incidence of ruptured ectopic pregnancy in Wangaya Regional General Hospital in 2021-2022 is highest among women aged 20 to 35, with multigravida accounting for 65% of the total 40 cases [16]. Pregnancy at an age greater than 35 years poses a considerable risk of difficulties due to the diminished function of the female reproductive organs [17].

In this case, the patient complained of worsening stomach pain accompanied by nausea, vomiting, and constipation. Radiology results revealed a low-lying obstructive ileus with ascites in the pelvic cavity. Extrauterine pregnancies are most typically identified between the sixth and ninth weeks of gestation, with the majority of patients presenting with nonspecific problems [6]. Shabbir et al. described a woman diagnosed with a ruptured ectopic pregnancy who presented to the Emergency Department (ED) with complaints of lower abdominal pain and constipation. This was associated with four to five incidents of vomiting, and the pain subsequently became generalized [18]. Pain in ectopic pregnancy varies in nature, location, and degree. As the fallopian tube expands during pregnancy, it frequently causes colicky abdomen or pelvic pain on one side. Once the tube ruptures and the hemoperitoneum develops, the pain may spread throughout the body. Other possible symptoms include presyncope, syncope, vomiting, diarrhea, shoulder discomfort, symptoms of the lower urinary tract, rectal pressure, or pain while defecating [19,20].

The patient was in hypovolemic shock, and during laparotomy, it was discovered that blood had collected in the rectouterine cavity up to 1500 ml. Physical examinations can detect hemodynamic instability (e.g., hypotension, tachycardia) in women with ruptured ectopic pregnancy and hemoperitoneum [19]. A ruptured cornual/interstitial pregnancy in the second trimester can result in significant maternal hemorrhage, hypovolemic shock, or possibly death [12]. The choice between performing a salpingostomy or salpingectomy to treat ectopic pregnancy should be based on the patient's clinical state, desire for future fertility, and the amount of fallopian tube damage [1,21]. In hemodynamically stable patients, more conservative approaches, such as medical intervention and laparoscopic procedures like laparoscopic cornual resection, laparoscopic cornuostomy, or hysteroscopic removal of interstitial ectopic tissue, may be considered [22]. Methotrexate (MTX) is the most often used medicine for treating EP and can be given in single or multiple administrations [7,23]. Expectant management by measuring β-hCG levels may substitute medication treatment for individuals with falling or plateaued levels; however, further research is needed to determine the safety of this method of treatment [7].

This patient received a referral from a first-level health institution with a diagnosis of ileus. Laboratory examination findings revealed a hemoglobin level of 11.2 g/dl and a slight increase in leukocytes to 14,100. The hospital's laboratory examination also revealed positive serum β-hCG and a hemoglobin level of 5.3 g/dL. Ectopic pregnancy is commonly preceded by a diagnosis of a pregnancy in an unknown location. It can be identified by positive blood β-hCG levels with no ultrasound confirmation of intrauterine or extrauterine pregnancy [3,24]. According to Panelli et al., β-hCG levels in the blood may be detected as early as the second week of pregnancy and reach a peak at 10-12 weeks [3,20]. Serum β-hCG levels alone should not be utilized to diagnose ectopic pregnancy; instead, they should be associated with the patient's history, symptoms, and ultrasound results [1,24]. Transvaginal ultrasound is the preferred diagnostic method for tubal ectopic pregnancy; three-dimensional TVUS coupled with color Doppler ultrasonography is preferred [7,25].

CONCLUSION

The rupture of an ectopic pregnancy is a life-threatening condition. Clinicians must be able to diagnose it correctly and as quickly as possible. In women of childbearing age presenting with acute abdominal complaints and a known or unknown history

of menstruation, we strongly recommend a pregnancy test. A qualitative β-hCG examination, which can be carried out in health facilities with limited resources and at affordable costs, will be very useful for diagnosing ectopic pregnancy and screening for it.

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CONFLICT OF INTEREST

The authors declare there is no conflict of interest.

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