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Misdiagnosis of Ectopic Pregnancy in a Patient with Suspected Colorectal Malignancy: A Case Report

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ABSTRACT

Introduction: An ectopic pregnancy is defined as the implantation of a blastocyst outside the endometrium, which is often overlooked in routine antenatal care. Approximately 40% of ectopic pregnancies are initially misdiagnosed due to symptoms that are similar to those of other diseases.
Case Presentation: A 31-year-old female was referred to the Digestive Surgery Department from the local hospital with suspected colorectal malignancy. The patient complained of cramping and abdominal pain that had persisted for five days, along with a history of ignored blood-tinged mucus in her stool 15 days before admission. The patient denied the possibility of pregnancy but was later found to be pregnant with suspected ectopic pregnancy when examined by the Obstetrics and Gynecology Department.
Discussion: Ectopic pregnancy presents various signs and symptoms that can often lead to misdiagnosis. Initially, the patient was suspected of having colorectal malignancy due to the history of blood-tinged mucus in her stool, which occurred 15 days before admission. A pregnancy test was then performed, which heightened the suspicion of ectopic pregnancy. An immediate laparotomy confirmed the rupture of the left tube, followed by a left salpingectomy.
Conclusion: Ectopic pregnancy is an obstetric emergency that requires timely treatment to prevent maternal deaths. However, it is often misdiagnosed due to many symptoms that mimic other diseases. Misdiagnosis poses a concern that can lead to increased mortality and morbidity. Therefore, all obstetrical conditions must be ruled out for female patients of reproductive age presenting with abdominal pain and vaginal bleeding.

INTRODUCTION

An ectopic pregnancy, also known as extrauterine pregnancy, is defined as the implantation of a blastocyst outside the endometrial lining of the uterine cavity (Tulandi, 2019). Approximately 1–2% of all pregnancies are ectopic, with more than 95% occurring in the fallopian tube. This condition is frequently overlooked in routine antenatal care. The estimated incidence of ectopic pregnancy is 1–2% in the general population and 2–5% among patients undergoing assisted reproductive technology. Non-tubal ectopic pregnancies account for less than 10% of cases, with locations including the cesarean scar, interstitial region, myometrium, and abdominal cavity. These rare locations carry a higher risk of severe hemorrhage and mortality (Hendriks, 2020; Maheux-Lacroix et al., 2017; Riyanti et al., 2020). Maternal mortality is estimated to range

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between 0.5% and 18%, while perinatal mortality is reported to be significantly higher, at 40–95%.

Patients with ectopic pregnancy typically present with abdominal pain and vaginal bleeding between 6 and 10 weeks of gestation. However, these symptoms are common in early pregnancy, with one-third of women experiencing pain and/or bleeding. (Karkee et al., 2019; Tulandi, 2019) The pain associated with ectopic pregnancy, particularly in cases of rupture, is notably intense. This pain may be persistent and severe, often presenting as unilateral. However, unilateral pain is not always indicative of ectopic pregnancy, as a prominent and painful corpus luteum cyst is commonly observed in early pregnancy. Additional symptoms include shoulder pain, syncope, and shock, which occur in 20% of women, while abdominal tenderness is reported in over 75% of cases. Recent studies indicate that one-third of women with ectopic pregnancy exhibit no clinical signs, and 9% remain asymptomatic (Tulandi, 2019). Hence, misdiagnosis is common, further complicating early detection and management. (Li et al., 2022)

Colorectal cancer (CRC) is a malignancy that originates from the epithelial tissue of the colon and rectum. In Indonesia, CRC is one of the most prevalent cancers among both men and women, following prostate and breast cancer, and it accounts for 11.5% of all malignancies. The diagnosis of colorectal cancer is established through a staged approach, which incorporates thorough medical history-taking, physical examination, and supporting laboratory investigations, including clinical laboratory tests and anatomical pathology assessments. The exact etiology of CRC remains unknown; however, several factors are believed to contribute to local recurrence, including tumor location, depth of intestinal wall invasion, lymph node involvement, rectal perforation during surgical resection, and tumor differentiation. (Sayuti, 2019)

CASE PRESENTATION

A 31-year-old female presented to the Department of Digestive Surgery with complaints of cramping and abdominal pain persisting for five days. The pain was partially relieved by analgesics; however, it later became complicated by weakness, nausea, and vomiting. The patient had a history of blood-tinged mucus in her stool 15 days before admission, but she had ignored it. She also denied the possibility of pregnancy.

On physical examination, muscular defense and tenderness were observed. Laboratory examination revealed a hemoglobin level of 6.1 g/dL, a hematocrit of 18%, a mean corpuscular volume (MCV) of 75 fL, a mean corpuscular hemoglobin (MCH) of 26 pg, a mean corpuscular hemoglobin concentration (MCHC) of 34%, a thrombocyte count of 201 × 10^3/mm^3, and a leukocyte count of 12.6 × 10^3/mm^3. The patient was diagnosed with suspected colorectal malignancy, acute abdomen, and grade 2 hypovolemic shock. The patient was consulted to the Obstetrics and Gynecology Department to rule out the possibility of obstetrical and gynecological issues. Further history taking revealed that the patient's last menstrual period was 2 months ago. She also reported blood spotting that had started five days earlier and a history of recurrent vaginal discharge. Menarche occurred at the age of 12 without dysmenorrhea. She had been married once, at the age of 26, and had never used contraception.

Obstetrical history with two previous cesarean sections, with two living children aged 5 and 3 years old. Gynecological examination revealed positive fluxus, a smooth cervix, a closed external os (OUE), an enlarged corpus uterus with positive cervical motion tenderness, and a protrusion in the Douglas pouch. No adnexal mass was palpable. The Plano test was positive. A transvaginal ultrasound revealed an Arias-Stella phenomenon (a condition mimicking endometrial line

decidualization), hematocele, and free fluid in the pelvic cavity. The patient was diagnosed with ectopic pregnancy at 7 weeks and 5 days of gestation based on transvaginal USG.

The patient was immediately taken to the operating room for an emergency laparotomy. A Cullen sign was present in the intraoperative findings, indicating hemoperitoneum with an estimated 1500 cc of intraperitoneal blood. Further exploration revealed a rupture at the left ampulla, leading to a left salpingectomy. The right adnexa and uterus were intact and in good condition. After 3 days of postoperative monitoring in the High Care Unit with six bags of PRC transfusion, the patient showed clinical improvement and was monitored in the ward for an additional 2 days before being discharged in stable condition with a hemoglobin level of 10.5 g/dL.

Figure 1. Transvaginal USG revealed the Arias-Stella phenomenon with hematocele and free fluid

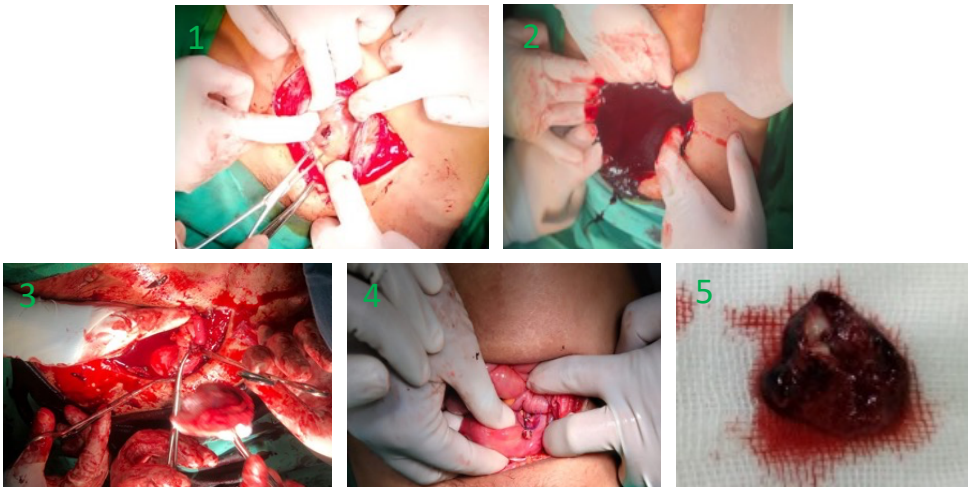

Figure 2. Intraoperative documentation: (1) Cullen sign; (2) hemoperitoneum; (3) rupture of the left tube; (4) salpingectomy of the left tube; (5) conception mass

DISCUSSION

An ectopic pregnancy, also known as an extrauterine pregnancy, occurs when a fertilized ovum implants outside the uterine cavity, leading to significant morbidity and, in some cases, mortality in women of reproductive age. The exact etiology remains uncertain, but several risk factors have

been identified. Diagnosis is challenging and relies on a combination of ultrasound imaging and serial serum beta-human chorionic gonadotropin (β-hCG) measurements. Management can be either medical or surgical. (Buckshee & Buckshee, 2018; Li et al., 2022)

Risk factors include advanced maternal age, smoking, prior ectopic pregnancy, tubal damage or surgery, previous pelvic infection, intrauterine device (IUD) use, and assisted reproductive technology. Women with a prior ectopic pregnancy have up to ten times the risk compared to the general population. In vitro fertilization (IVF) increases the risk of heterotopic pregnancy—a simultaneous intrauterine and ectopic pregnancy—with an estimated incidence of 1 in 100 IVF pregnancies. (Hendriks, 2020; Li et al., 2022)

The pathophysiology of ectopic pregnancy involves disrupted embryo transport due to tubal damage or dysfunction. Inflammation, often resulting from Chlamydia trachomatis infection, upregulates pro-inflammatory cytokines, promoting implantation and angiogenesis in the fallopian tube. Smoking and hormonal variations further impair ciliary function, increasing the risk of ectopic implantation (Curry et al., 2019; Hendriks, 2020). Clinically, ectopic pregnancy typically presents with abdominal pain and vaginal bleeding between 6 and 10 weeks of gestation. Symptoms such as shoulder pain, syncope, and hemodynamic instability may indicate rupture. One-third of women may exhibit no clinical signs, making early diagnosis challenging and leading to misdiagnosis. (Buckshee & Buckshee, 2018; Li et al., 2022)

Ruptured ectopic pregnancy should be suspected in women with a positive pregnancy test and symptoms of shock, such as tachycardia, pallor, and collapse. Clinical findings may include abdominal tenderness, cervical motion tenderness, and adnexal masses. In cases of suspected rupture with hemodynamic instability, immediate surgical intervention is necessary (Barnhart, 2018; Li et al., 2022). Ectopic pregnancy and colorectal malignancy can both cause abdominal pain and vaginal bleeding, making them difficult to distinguish based on symptoms alone. However, ectopic pregnancy usually presents with more acute and localized pelvic pain, sometimes accompanied by shoulder tip pain due to blood irritating the diaphragm. Colorectal malignancy typically involves more chronic and persistent abdominal pain, often accompanied by changes in bowel habits like constipation, diarrhea, or rectal bleeding. Misdiagnosis remains a concern, with reports indicating that maternal deaths frequently result from failure to consider ectopic pregnancy in primary care and emergency settings (Jha et al., 2019; Li et al., 2022). Misdiagnosis usually occurs due to the similarity of the symptoms, especially if the patient was not treated in the Obstetrics and Gynecology Department, despite the lack of facilities and knowledge of healthcare workers, demographic location, and patient education level (Kumar et al., 2016; Vadakekut & Gnugnoli, 2025; Wang et al., 2014). Early diagnosis is crucial, with transvaginal ultrasonography (TVS) and serial β-hCG measurements as the gold standard. However, 50% of ectopic pregnancies are not diagnosed at initial presentation, necessitating close monitoring (Li et al., 2022).

Diagnostic Evaluation and Management of Ectopic Pregnancy

Laboratory Examination

Serial quantitative β-hCG testing is helpful in diagnosing ectopic pregnancy. In normal intrauterine pregnancies, β-hCG levels rise by 65–100% every 48 hours. A slower increase or decrease indicates pregnancy loss but does not confirm ectopic implantation. The discriminatory β-hCG threshold, once believed to indicate ectopic pregnancy when no intrauterine gestation was visible, is now regarded as unreliable due to individual variability. (Barnhart, 2018; Hoffman, 2020; Rajuddin & Rini, 2016)

Imaging

Transvaginal ultrasound is the preferred imaging modality in early pregnancy. A gestational sac is typically visible by five weeks, and the presence of a yolk sac confirms an intrauterine pregnancy. However, a pseudo-sac can mimic a gestational sac, necessitating follow-up imaging. An adnexal mass, hemoperitoneum, and increased blood flow on Doppler imaging aid in diagnosing ectopic pregnancy. (Hoffman, 2020; Ramanathan et al., 2018). Ectopic pregnancy management options include surgical, medical, or expectant approaches. Proper clinical, sonographic, and biochemical assessment documentation is crucial in guiding treatment decisions. (Cunningham & Leveno, 2022; Li et al., 2022)

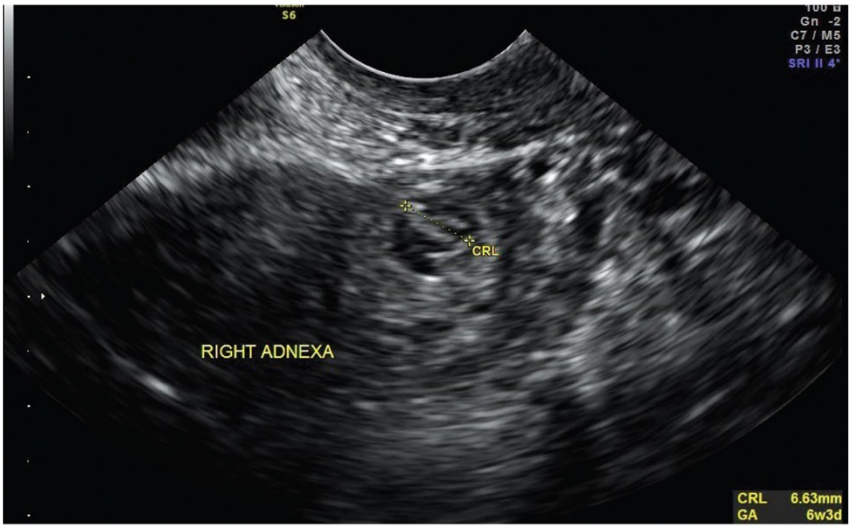

Figure 3. Right ectopic pregnancy. A live embryo with a fetal heartbeat is seen in the right adnexa. (Ranchal & Dunne, 2021)

Salpingectomy vs. Salpingostomy

Surgical management is essential for ruptured ectopic pregnancy, with laparoscopy preferred in stable patients because of shorter recovery times and less blood loss. Laparotomy is indicated for hemodynamically unstable patients. If the contralateral tube is healthy, salpingectomy is the preferred approach, while salpingostomy is considered for fertility preservation. (Li et al., 2022; Mikhail et al., 2018)

Salpingostomy preserves the fallopian tube but carries a risk of trophoblastic tissue retention, requiring close follow-up. Trophoblast persistence rates range from 9.0% to 12.0% for salpingostomy, compared to 1.8% for salpingectomy. A randomized trial found higher postoperative trophoblast persistence in the salpingostomy group but no significant difference in long-term fertility outcomes. Thus, salpingectomy is often recommended for women with a healthy contralateral tube, while salpingostomy is reserved for those with compromised fertility potential. (Mol et al., 2014; Ranchal & Dunne, 2021)

CONCLUSION

Ectopic pregnancy is an obstetric emergency that must be treated timely to prevent maternal deaths. Treatment options vary and may include observation, medical management, or surgical intervention, depending on the patient's clinical condition. Ectopic pregnancy is often

misdiagnosed because many symptoms mimic those of other diseases. Misdiagnosis is a significant concern that can lead to mortality and morbidity. A lack of facilities and knowledge among healthcare workers, demographic location, and the patient's level of education can contribute to misdiagnosis. Therefore, obstetric conditions must be ruled out for all female patients of reproductive age who present with abdominal pain and vaginal bleeding. A combination of physical examination, serum human chorionic gonadotropin (hCG) measurement, and transvaginal ultrasonography is an effective approach for diagnosing an ectopic pregnancy.

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