International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Archana A et al. Int J Reprod Contracept Obstet Gynecol. 2025 Feb;14(2):668-670
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20250216

Case Report

Ruptured ovarian ectopic pregnancy: a rare and challenging diagnosis

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Received: 23 December 2024
Accepted: 16 January 2025

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ABSTRACT

Ovarian ectopic pregnancy is a rare and serious condition that can result in significant maternal morbidity and mortality. This report details the presentation, diagnosis, and surgical management of a 27-year-old woman with a ruptured ovarian ectopic pregnancy. Due to their nonspecific symptoms, ovarian ectopic pregnancies are often only diagnosed intraoperatively and confirmed through histopathological analysis. Prompt diagnosis and timely treatment are essential to prevent life-threatening complications. Whenever possible, fertility preservation should be prioritized through conservative surgical techniques or medical management for carefully selected patients. This case underscores the critical need for heightened awareness and prompt intervention in managing ovarian ectopic pregnancies.

Keywords: Ovarian ectopic pregnancy, Laparotomy, Oophorectomy, Spiegelberg criteria

INTRODUCTION

Ectopic pregnancy happens when trophoblastic tissue implants out of the uterine endometrium and accounts for about 1.5% to 2% of all pregnancies.[1] Ovarian ectopic pregnancy can be detected using Spielberg's criteria, which include an intact fallopian tube on the affected side, the fetal sac in the ovarian position, an ovarian ligament connecting the ovary and uterus, and histopathological confirmation of ovarian tissue in the sac wall.[2,5] Traditional indicators of risk for ovarian ectopic pregnancy are similar to those for tubal pregnancy; however, the use of intrauterine devices (IUDs) appears to be more strongly related.[6]

CASE REPORT

A 27-year-old women, married for 5 years, G2P1L1 at 7 weeks of gestation/previous lower segment caesarean section (LSCS) presented on 28 July 2024 with complaints of lower abdominal pain for one week. Urine pregnancy test (UPT) was done which was found to be positive one day back. She had no complaints of bleeding PV or spotting PV. Upon examination, she had moderate pallor, a pulse of 82 beats per minute, and blood pressure of 110/70 mmHg. Abdominal examination revealed no discomfort, guarding, or rigidity. Per vaginal examination revealed a normal-sized uterus, no mass palpable in bilateral adnexa, and cervical mobility was painful.

Investigation

A pelvic ultrasound was performed, revealing a uterus of normal size and shape with an endometrial thickness of 5 mm. No gestational sac was observed within the endometrium. In the left adnexa, a well-defined heterogeneous area measuring 5.2×3.4 cm with increased peripheral vascularity was identified. The left ovary could not be visualized separately, as shown in Figure 1. Mild free fluid with internal echoes was noted in the pelvis, indicative of hemoperitoneum. These findings were suggestive of a ruptured left tubal ectopic pregnancy.

The patient was promptly taken for emergency laparoscopy. Intraoperatively, minimal omental adhesions to anterior surface of uterus noted and the uterus normal in size with ventral suspension to anterior abdominal wall, hemoperitoneum~500 ml noted, right ovary and fallopian

tube normal, left fallopian tube normal along its entire length, blood clots noted over left adnexa. After removing the clots, bleeding ectopic gestation sac noted over the lower surface of left ovary as shown in Figure 2, lower surface of left ovary coagulated, cut and sent for histopathological examination (HPE) as shown in Figure 3.

Figure 1: Ultrasound appearance of left ovary.

Figure 2: Intra-op findings during emergency laparoscopy showing ruptured ectopic gestation in left ovary.

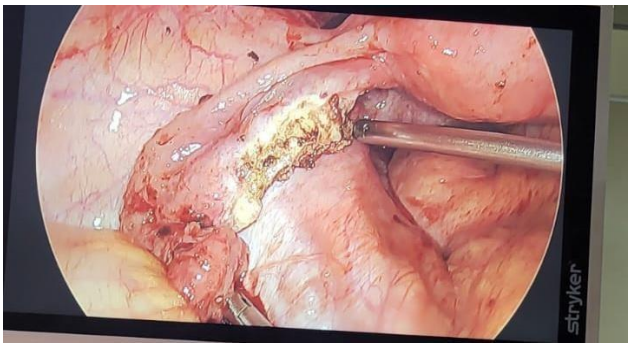

Figure 3: Intraop findings during emergency laparoscopy showing left adnexa after left partial oophorectomy.

Her surgery recovery was unremarkable, and she was discharged in stable condition on postoperative day two. Histopathological examination confirmed left ovarian ectopic pregnancy.

DISCUSSION

The exact cause of ovarian ectopic pregnancy remains uncertain. However, its occurrence has been associated with factors such as assisted reproductive technology (ART) procedures, likely due to increased progesterone levels from the corpus luteum and ovarian hypervascularity induced by hyperstimulation. Other contributing factors include pelvic inflammatory disease (PID), prior pelvic surgeries, polycystic ovarian disease (PCOD), and uterine fibroids.[8] Additionally, intrauterine contraceptive devices (IUDs) are implicated in 15–32% of non-ovarian ectopic pregnancies and 60–92% of ovarian ectopic pregnancies. The exact cause of implantation in ovarian ectopic pregnancies is uncertain, but several hypotheses have been proposed: delayed ovum release, thickening of the tunica albuginea, tubal dysfunction, and use of IUDs.[3]

Diagnosis is often delayed because the gestational sac of an ovarian ectopic pregnancy on ultrasound resembles a hemorrhagic ovarian cyst, corpus luteal cyst, or ovarian endometrioma.[7] Ovarian pregnancies pose a higher risk of morbidity and mortality than tubal pregnancies due to their location in the highly vascularized pelvis. The erosion of utero-ovarian anastomoses by developing chorionic villi can lead to severe hemorrhage, potentially resulting in hemorrhagic shock.

Ovarian ectopic pregnancies are classified into two types.

Intrafollicular pregnancy

The ovum remains trapped within the follicle, as it is not expelled or picked up. Fertilization occurs within the follicle, with potential causes including hormonal factors, thickened tunica albuginea, or fimbrial dysfunction on the ovarian surface.

Extrafollicular pregnancy

The mature ovum is fertilized outside the ovary and implants on its surface, often accompanied by endometrial decidual reactions. Primary ovarian ectopic pregnancies typically rupture during the first trimester.[4]

Recurrent ovarian ectopic pregnancies have not been reported, unlike tubal pregnancies.

Follow-up and resolution

Resolution time is defined as the duration required for serum human chorionic gonadotropin (hCG) levels to drop below 20 IU/l. Among reported ovarian ectopic pregnancy cases, 18 out of 20 patients (85%) were monitored as outpatients with serial serum hCG measurements, while two were followed elsewhere. After laparoscopic salpingotomy, the time to resolution (serum hCG <20 IU/l) was 10, 12, and 15 days, respectively.

CONCLUSION

The incidence of ectopic pregnancies has been increasing in recent years due to factors such as tubal surgeries, pelvic inflammatory diseases, genital tuberculosis, and the use of intrauterine contraceptive devices (IUDs). Diagnosing an ovarian ectopic pregnancy presents a significant challenge to obstetricians, as outlined by Spiegelberg's criteria. Radiological and intraoperative diagnoses may sometimes be inconclusive. While ultrasound can distinguish between tubal and ovarian ectopic pregnancies in unruptured cases, it becomes difficult to differentiate them in ruptured scenarios, as they may resemble a tubo-ovarian mass.

The primary goal of treatment is to prevent mortality; however, preserving fertility should also be prioritized whenever feasible. This can be achieved through conservative surgical techniques or medical management for carefully selected patients. In the case described, both fallopian tubes were unaffected, and the contralateral ovary appeared healthy and normal. This led to a provisional diagnosis of a ruptured ovarian ectopic pregnancy, which was subsequently confirmed through histopathological analysis. The histopathology revealed the presence of chorionic villi and trophoblastic tissue on the ovary. A conservative surgical approach is generally preferred, with the final confirmation of an ovarian ectopic pregnancy relying on histopathological evaluation.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Archana A, Jaget N, Saranya S, Sekar S, Priyanka R. Ruptured ovarian ectopic pregnancy: a rare and challenging diagnosis. Int J Reprod Contracept Obstet Gynecol 2025;14:668-70.