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### RESEARCH ARTICLE

## PRIMARY OVARIAN ECTOPIC PREGNANCY DIAGNOSED PREOPERATIVELY AND TREATED BY CONSERVATIVE OVARIAN SURGERY: A CASE REPORT

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### Abstract

**Background:** Ovarian ectopic pregnancy is a rare form of ectopic gestation, accounting for approximately 0.5 – 3% of all ectopic pregnancies. Its diagnosis remains challenging because clinical and ultrasonographic findings frequently mimic other ovarian pathologies, particularly hemorrhagic corpus luteum cysts. Early diagnosis and prompt management are essential to prevent severe hemorrhagic complications while preserving fertility.

**Case Presentation:** We report the case of a 32-year-old nulliparous woman presenting with pelvic pain and 6 weeks of amenorrhea. Clinical examination revealed a hemodynamically stable patient with no signs of hypovolemic shock. Serum  $\beta$ -human chorionic gonadotropin ( $\beta$ -hCG) level was 5,400 mIU/mL. Transvaginal ultrasonography demonstrated an empty uterine cavity and a right ovarian gestational sac-like structure highly suggestive of ovarian ectopic pregnancy, associated with a moderate hemoperitoneum. Given the risk of ongoing intra-abdominal bleeding, surgical exploration by laparotomy was performed. Intraoperative findings confirmed a ruptured right ovarian ectopic pregnancy with moderate hemoperitoneum and intact ipsilateral fallopian tube. Conservative ovarian surgery consisting of ovarian wedge resection with preservation of the remaining ovarian tissue was successfully achieved. Histopathological examination confirmed the diagnosis by demonstrating chorionic villi embedded within ovarian tissue. The postoperative course was uneventful, and serial  $\beta$ -hCG measurements showed complete resolution.

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**Conclusion:** Ruptured ovarian pregnancy is an uncommon but potentially life-threatening condition. Despite advances in imaging, preoperative diagnosis remains difficult. This case highlights the importance of considering ovarian ectopic pregnancy in women presenting with early pregnancy pain and an adnexal mass. Conservative surgery can be safely performed in hemodynamically stable patients, allowing preservation of ovarian function and future fertility.

**Introduction:-**

Ectopic pregnancy remains a major cause of maternal morbidity during the first trimester of pregnancy and accounts for approximately 1–2% of all pregnancies. Among ectopic pregnancies, ovarian pregnancy is a particularly rare entity, representing only 0.5–3% of all ectopic implantations and occurring in approximately 1 in 7,000 to 40,000 live births [1,2]. Despite advances in diagnostic imaging and biochemical testing, ovarian pregnancy continues to pose a significant diagnostic challenge because its clinical and ultrasonographic features often mimic those of a hemorrhagic corpus luteum cyst, ruptured ovarian cyst, or tubal ectopic pregnancy [3].

The exact pathophysiology of ovarian pregnancy remains unclear. Several risk factors have been implicated, including intrauterine device use, assisted reproductive technologies, endometriosis, and previous pelvic inflammatory disease; however, many cases occur in women without identifiable predisposing factors [4]. The diagnosis is traditionally based on the Spiegelberg criteria, established in 1878, which require demonstration of an intact ipsilateral fallopian tube, localization of the gestational sac within the ovary, ovarian attachment to the uterus through the ovarian ligament, and histopathological identification of ovarian tissue within the gestational sac specimen [5].

Clinical presentation varies from mild pelvic pain to catastrophic intra-abdominal hemorrhage following rupture. Although transvaginal ultrasonography and serial serum  $\beta$ -human chorionic gonadotropin ( $\beta$ -hCG) measurements have improved preoperative detection, definitive diagnosis is frequently established during surgery and confirmed by histopathological examination [3,6]. Early recognition is essential because delayed diagnosis may lead to significant hemoperitoneum and compromise future fertility.

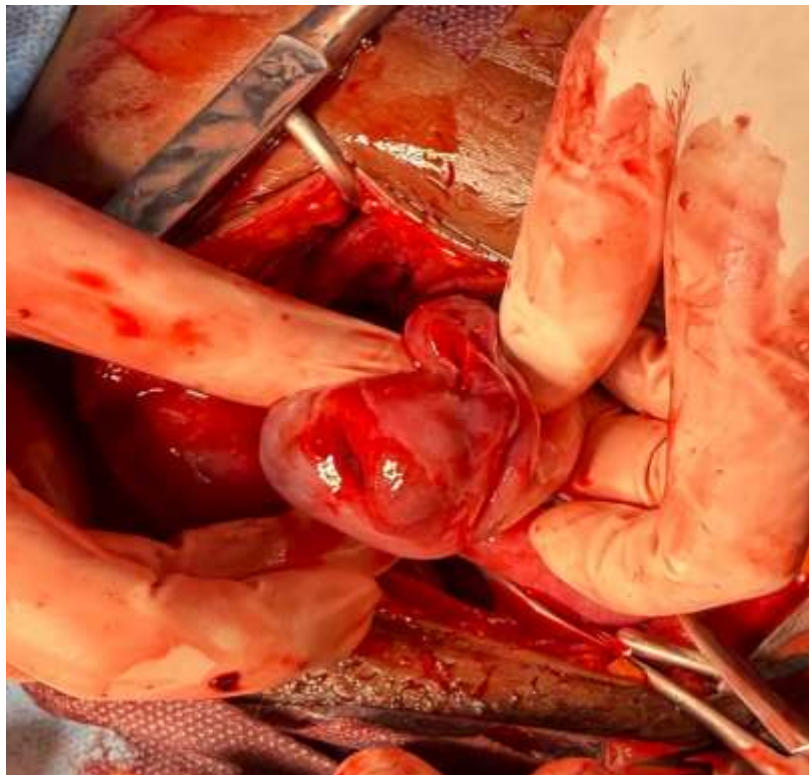
We report a rare case of ruptured primary ovarian ectopic pregnancy in a 32-year-old nulliparous woman presenting at six weeks of amenorrhea with moderate hemoperitoneum. The diagnosis was suspected preoperatively on transvaginal ultrasonography and confirmed surgically and histologically. Conservative ovarian surgery was successfully performed, preserving ovarian tissue and reproductive potential.

**Case Presentation:-**

A 32-year-old nulliparous woman presented to the emergency department with acute lower abdominal pain that had progressively worsened over the preceding 24 hours. She reported a history of 6 weeks of amenorrhea and a positive urine pregnancy test. She had no significant medical or surgical history, no previous ectopic pregnancy, pelvic inflammatory disease, or use of assisted reproductive technologies. There was no history of intrauterine device use. On admission, the patient was hemodynamically stable. Her blood pressure was 120/75 mmHg, pulse rate 82 beats/min, respiratory rate 18 breaths/min, and body temperature 36.8°C. Physical examination revealed tenderness in the right iliac fossa and hypogastric region without signs of peritoneal irritation. Speculum examination showed no active vaginal bleeding. Bimanual pelvic examination revealed mild cervical motion tenderness and right adnexal tenderness.

Laboratory investigations demonstrated a serum  $\beta$ -human chorionic gonadotropin ( $\beta$ -hCG) level of 5,400 mIU/mL. Hemoglobin level was 11.8 g/dL, and the remaining laboratory parameters were within normal limits. Transvaginal ultrasonography revealed an empty uterine cavity with no evidence of an intrauterine gestational sac. A right ovarian heterogeneous cystic lesion measuring approximately 30 × 28 mm was identified, containing a gestational sac-like structure surrounded by a hyperechoic ring. Color Doppler examination demonstrated peripheral vascularity. Moderate free fluid with echogenic content suggestive of hemoperitoneum was observed in the pouch of Douglas and the pelvic cavity. The left ovary and both adnexal regions were otherwise unremarkable. Based on the clinical, biochemical, and sonographic findings, a diagnosis of ruptured right ovarian ectopic pregnancy was strongly suspected.

Considering the presence of hemoperitoneum and the risk of ongoing intra-abdominal bleeding, exploratory laparotomy was performed. Intraoperative findings revealed approximately 500 mL of hemoperitoneum. The right ovary was enlarged and showed a ruptured hemorrhagic lesion actively bleeding from its surface. The ipsilateral fallopian tube appeared macroscopically normal and intact. The contralateral tube and ovary were normal.



**Figure 1-2 :Intraoperative view of the ruptured right ovarian ectopic pregnancy.**

A conservative surgical approach was undertaken. The ectopic gestational tissue was carefully excised by ovarian wedge resection, and the remaining ovarian tissue was preserved. Hemostasis was achieved with meticulous suturing of the ovarian parenchyma. No salpingectomy or oophorectomy was required. Histopathological examination of the surgical specimen demonstrated chorionic villi and trophoblastic tissue embedded within ovarian stroma, confirming the diagnosis of primary ovarian ectopic pregnancy. The operative findings were consistent with the Spiegelberg criteria. The postoperative course was uneventful. The patient remained hemodynamically stable and was discharged on postoperative day 3. Serial serum  $\beta$ -hCG measurements showed an appropriate decline, reaching

negative levels during follow-up. At subsequent outpatient visits, the patient remained asymptomatic, and pelvic ultrasonography demonstrated satisfactory healing of the preserved right ovary.

### **Discussion:-**

Ovarian pregnancy is one of the rarest forms of ectopic pregnancy, accounting for approximately 0.5–3% of all ectopic gestations [1,2]. Despite its rarity, it represents a potentially life-threatening condition because of the risk of ovarian rupture and intraperitoneal hemorrhage. The clinical presentation is often nonspecific and resembles that of tubal ectopic pregnancy or other adnexal pathologies, which contributes to diagnostic difficulties and potential delays in management [3]. The pathogenesis of ovarian pregnancy remains incompletely understood. Several mechanisms have been proposed, including fertilization occurring within the follicle, reflux of the fertilized ovum to the ovarian surface, and disturbances in ovum release. Although risk factors such as intrauterine device use, assisted reproductive technologies, endometriosis, and pelvic inflammatory disease have been associated with ovarian implantation, many cases occur in women without identifiable predisposing factors [4]. In the present case, the patient had no known risk factors, highlighting that ovarian pregnancy may occur in otherwise healthy women.

The diagnosis of ovarian pregnancy remains challenging despite advances in transvaginal ultrasonography. Typical sonographic findings include an empty uterine cavity associated with a gestational sac-like structure located within the ovary and surrounded by a hyperechoic ring. However, these findings may closely resemble a hemorrhagic corpus luteum cyst, which frequently leads to diagnostic uncertainty [3]. In our patient, transvaginal ultrasonography demonstrated an empty uterus and a right ovarian gestational sac-like image associated with moderate hemoperitoneum, raising a strong suspicion of ovarian ectopic pregnancy before surgery. This preoperative suspicion facilitated prompt surgical management and prevented further hemorrhagic complications.

Historically, the diagnosis of primary ovarian pregnancy is based on the Spiegelberg criteria, which remain the gold standard for distinguishing ovarian pregnancy from secondary ovarian involvement by a tubal ectopic pregnancy [5]. These criteria include an intact ipsilateral fallopian tube, localization of the gestational sac within the ovary, attachment of the ovary to the uterus through the ovarian ligament, and histopathological demonstration of ovarian tissue within the gestational sac specimen. In the present case, both intraoperative findings and histopathological examination fulfilled these diagnostic criteria, confirming the diagnosis of primary ovarian pregnancy.

Rupture is a common mode of presentation because ovarian tissue is highly vascular and less distensible than the fallopian tube. Consequently, ovarian pregnancies frequently present with hemoperitoneum and acute abdominal pain during the first trimester [2]. Our patient presented at six weeks of amenorrhea with moderate hemoperitoneum but remained hemodynamically stable, allowing fertility-preserving surgical treatment. Early diagnosis is particularly important because delayed intervention may result in severe hemorrhage requiring oophorectomy or even emergency life-saving procedures.

Management of ovarian pregnancy has evolved considerably over recent decades. Historically, oophorectomy was commonly performed due to difficulties in achieving hemostasis and uncertainty regarding the diagnosis. However, advances in surgical techniques and earlier diagnosis now favor conservative approaches whenever feasible, particularly in young women wishing to preserve fertility [2]. Conservative procedures such as ovarian wedge resection or excision of the ectopic gestation allow preservation of healthy ovarian tissue while ensuring complete removal of trophoblastic tissue. In the present case, conservative ovarian surgery was successfully performed through laparotomy, preserving ovarian function and reproductive potential.

Postoperative monitoring with serial  $\beta$ -hCG measurements remains essential to confirm complete resolution of trophoblastic tissue and exclude persistent ectopic pregnancy. Our patient demonstrated an uneventful postoperative recovery with progressive decline of  $\beta$ -hCG levels to negativity, confirming successful treatment. In conclusion, ovarian pregnancy remains a rare and diagnostically challenging form of ectopic pregnancy. Clinicians should maintain a high index of suspicion when evaluating women presenting with early pregnancy, pelvic pain, an adnexal mass, and hemoperitoneum. Careful ultrasonographic assessment may facilitate preoperative diagnosis, while adherence to the Spiegelberg criteria and histopathological confirmation remain essential for definitive diagnosis. Conservative ovarian surgery represents an effective fertility-preserving treatment option in hemodynamically stable patients.

**Conclusion:-**

Primary ovarian pregnancy is a rare form of ectopic gestation, accounting for only a small proportion of all ectopic pregnancies, yet it remains associated with significant diagnostic and therapeutic challenges [1,2]. Because its clinical and ultrasonographic features often overlap with those of hemorrhagic corpus luteum cysts and tubal ectopic pregnancies, preoperative diagnosis may be difficult despite advances in imaging techniques [3].

The present case illustrates the importance of maintaining a high index of suspicion for ovarian pregnancy in women presenting with early pregnancy, pelvic pain, an adnexal mass, and hemoperitoneum. Definitive diagnosis relies on surgical findings and histopathological confirmation according to the Spiegelberg criteria, which remain the cornerstone for distinguishing primary ovarian pregnancy from other ectopic implantation sites [5]. Early diagnosis and prompt intervention are essential to prevent severe hemorrhagic complications. In hemodynamically stable patients, conservative ovarian surgery represents an effective fertility-preserving treatment option and should be considered whenever technically feasible [2]. Increased awareness of this rare condition among clinicians may contribute to earlier recognition, improved management, and better reproductive outcomes.

**References:-**

1. Bouyer J, Coste J, Fernandez H, Pouly JL, Job-Spira N. Sites of ectopic pregnancy: a 10-year population-based study of 1800 cases. *Human Reproduction*. 2002;17(12):3224–3230.
2. Raziel A, Golan A, Pansky M, Ron-El R, Bukovsky I, Caspi E. Ovarian pregnancy: a report of twenty cases in one institution. *American Journal of Obstetrics and Gynecology*. 2004;190(3):866–871.
3. Comstock C, Huston K, Lee W. The ultrasonographic appearance of ovarian ectopic pregnancies. *Obstetrics&Gynecology*. 2005;105(1):42–45.
4. Choi HJ, Im KS, Jung HJ. Ovarian pregnancy after intrauterine insemination: a case report and review of the literature. *Clinical and Experimental Reproductive Medicine*. 2011;38(2):87–89.
5. Spiegelberg O. Zur Casuistik der Ovarialschwangerschaft. *Archiv für Gynäkologie*. 1878;13:73–79.
6. Bontis JN, Grimbizis GF, Tarlatzis BC, Miliaras DE, Bili H. Intrafollicular ovarian pregnancy after ovulation induction/intrauterine insemination: pathophysiological aspects and diagnostic problems. *Human Reproduction*. 1997;12(2):376–378.