

A CASE OF UNRUPTURED OVARIAN PREGNANCY: DIAGNOSTIC CHALLENGES AND SURGICAL MANAGEMENT

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ABSTRACT

Ovarian pregnancy is an extremely rare form of ectopic pregnancy, accounting for just 0.5% to 3.0% of all cases, though its incidence may be increasing with the growing use of assisted reproductive technologies and improved imaging techniques. The diagnosis remains particularly challenging due to the rarity of intact ovarian gestational sacs and the difficulty in distinguishing it from other conditions like ruptured corpus luteum cysts or tubal abortions.

A recent case involved a 35-year-old woman, gravida 3 para 2 with one prior cesarean delivery, who presented with two days of severe abdominal pain. Ultrasound examination revealed a right adnexal mass consistent with a nonviable pregnancy at 16 weeks and 4 days gestation, showing no fetal cardiac activity and collapsed fetal skull bones. This led to a diagnosis of unruptured ovarian pregnancy requiring emergency laparotomy, where the mass was successfully excised. Histopathological examination later confirmed the diagnosis, and the patient recovered well over a 10-day hospitalization before being discharged.

The case underscores the significant diagnostic and management challenges posed by ovarian pregnancies, which often require surgical exploration for definitive diagnosis. The absence of cardiac activity and fetal collapse in this patient indicated a nonviable pregnancy necessitating urgent intervention to prevent life-threatening hemorrhage. While laparoscopic approaches are preferred for stable patients, the large mass

size and significant blood loss in this case mandated laparotomy. It highlights the importance of maintaining high clinical suspicion for ovarian pregnancy in patients presenting with adnexal masses and absent intrauterine gestation, especially at advanced gestational ages.

Timely surgical intervention remains crucial in these cases, with fertility-sparing techniques being prioritized where possible. Histopathological confirmation continues to serve as the gold standard for definitive diagnosis. This case illustrates both the diagnostic complexities and serious risks associated with ovarian pregnancy, particularly when presenting at later gestational stages, emphasizing the critical need for early recognition and prompt management to prevent potentially life-threatening complications. The increasing use of ART may lead to more frequent encounters with this rare condition, making awareness of its presentation and management increasingly relevant in clinical practice.

Keywords: Ectopic pregnancy, ovarian pregnancy, surgical management

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INTRODUCTION

The fallopian tube is the most common site for ectopic pregnancies (EP), with ovarian pregnancies being a rare occurrence, accounting for only 0.5% to 3.0% of all ectopic pregnancies.¹ The incidence of ovarian pregnancies may be increasing due to improved diagnostic techniques and advancements in assisted reproductive technology (ART).^{2,3} Ovarian pregnancies are typically characterized by a thick surface cortex that lacks elasticity, making them prone to rupture, and as a result, ovarian pregnancies are often found to be ruptured, and an intact

gestational sac on the ovary is rarely seen in clinical practice.^{4,5}

Clinically, ovarian pregnancy is diagnosed based on the normal appearance of the bilateral fallopian tubes, bleeding lesions on the ovarian surface, and visible or absent pregnancy in the pelvic cavity.⁶ However, distinguishing between an ovarian pregnancy and other conditions, such as ovarian corpus luteum rupture combined with tubal pregnancy abortion, can be difficult. The definitive diagnosis of a ruptured ovarian pregnancy is challenging to establish.

METHODS

This is a case report of Mrs. A.F., a 35-year-old woman with an obstetric history of Gravida 3, Para 2 (2 living children) and one previous cesarean section, who presented to our emergency department complaining of severe abdominal pain that had persisted for two days. Initial clinical evaluation revealed stable vital signs with a blood pressure of 120/80 mmHg and pulse rate of 96 beats per minute.

Diagnostic ultrasound imaging identified a right adnexal mass measuring consistent with 16 weeks and 4 days of gestation. The scan revealed concerning findings including absence of fetal cardiac activity, collapse of the fetal head, and overlapping skull bones, leading to the diagnosis of a right ovarian pregnancy.

Given these findings, our team proceeded with emergency surgical intervention. Preoperative

consultations were obtained from both surgical and anesthesia teams. In the operating theater, under general anesthesia, we performed a midline abdominal incision to access the peritoneal cavity. The right adnexal mass was completely excised and immediately sent for histopathological confirmation.

The surgical procedure involved meticulous closure in anatomical layers: Vicryl 1 for muscle

approximation, Nylon 2 for the rectus sheath, and Vicryl 2/0 for subcutaneous tissue and skin closure. The procedure resulted in an estimated blood loss of 1 liter, requiring transfusion of 2 pints of O-positive blood. Postoperative care included administration of intravenous antibiotics as prophylactic measures against potential infection.

RESULTS

The patient's postoperative recovery was uneventful. She remained hemodynamically stable and was closely monitored during her hospital stay. Histopathological analysis of the excised mass confirmed the diagnosis of ovarian pregnancy. After 10 days of hospitalization, she was discharged in stable condition with

instructions for outpatient follow-up. No complications, such as infection or excessive bleeding, were reported during her recovery period. The surgical intervention successfully resolved the condition, and the patient was advised to attend scheduled clinic visits for further monitoring.

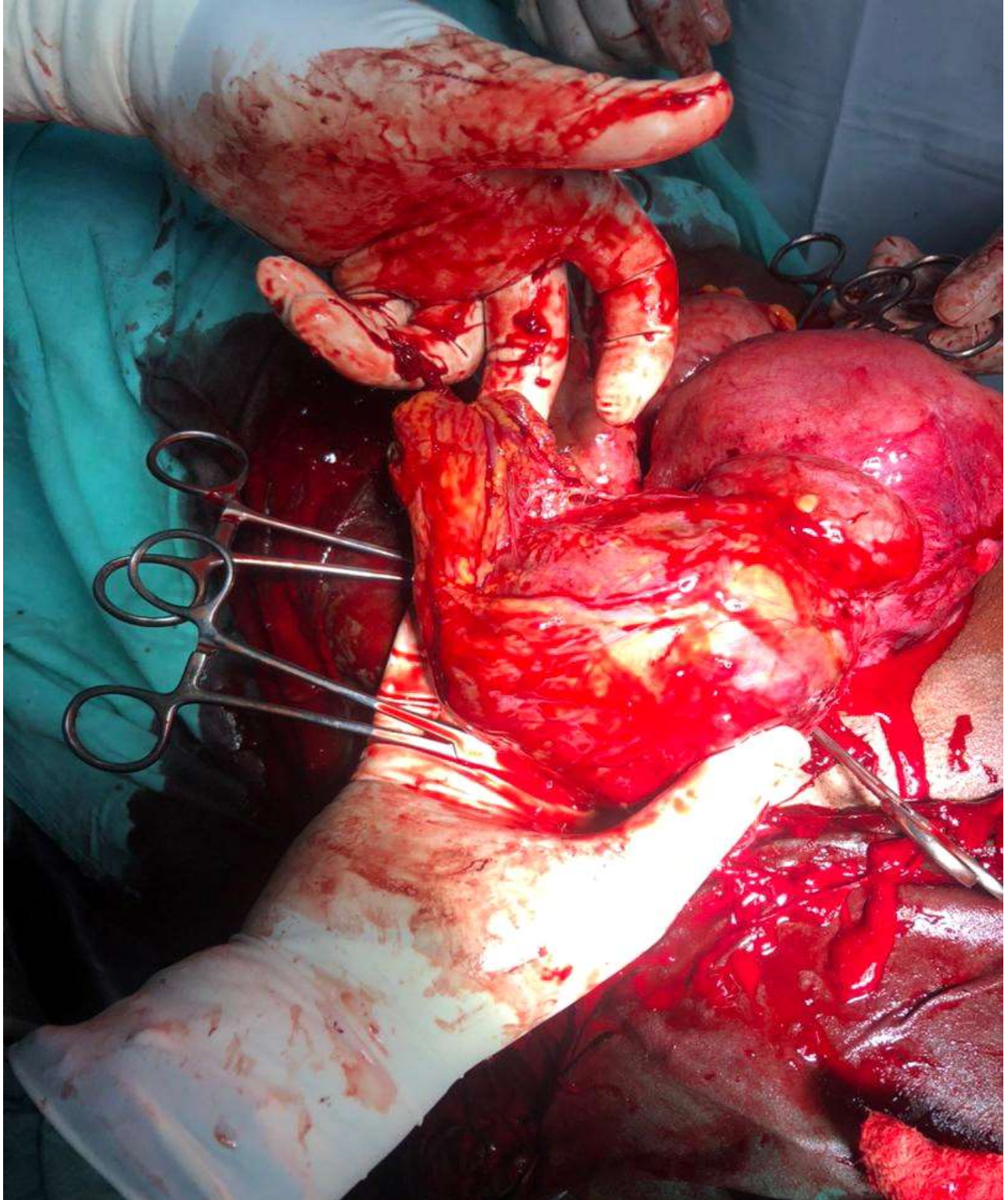


Figure 1: Image showing ectopic ovarian pregnancy

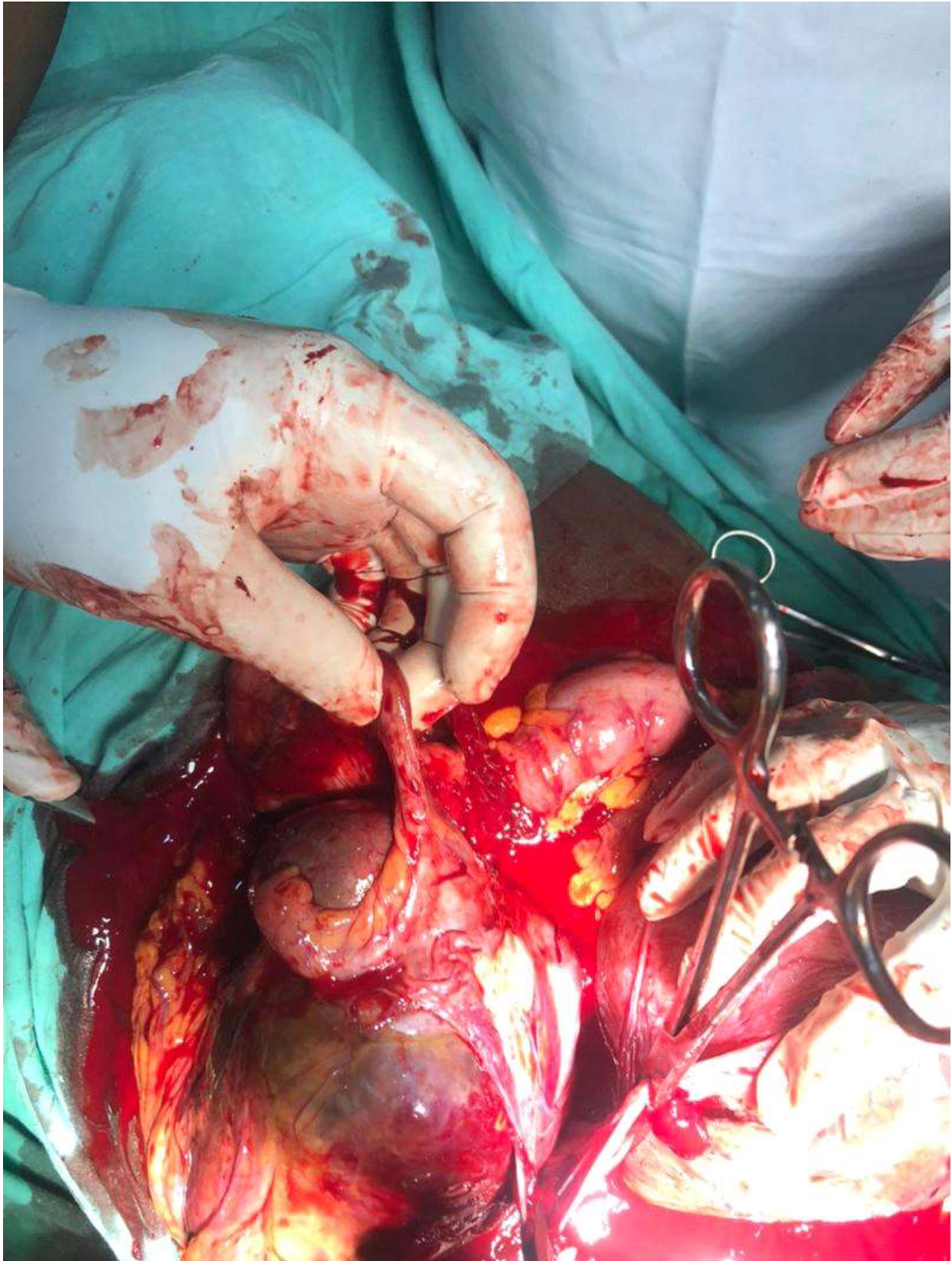


Figure 2: Image showing attachment of the ectopic ovarian pregnancy to the appendix



Figure 3: Image showing total clearance of the right adnexa

DISCUSSION

Ovarian pregnancy represents one of the rarest forms of ectopic gestation, accounting for less than 3% of all ectopic pregnancies.⁷ While the incidence of ectopic pregnancy has shown a global decline, ovarian pregnancies may be increasing due to widespread use of assisted reproductive technologies and improved diagnostic capabilities.^{8,9} The presented case of a 35-year-old woman with an unruptured 16-week ovarian pregnancy emphasizes the diagnostic complexities of this condition, particularly in settings where delayed presentation is common.

The diagnosis of ovarian pregnancy remains challenging despite established diagnostic criteria by Spielberg in 1878, requiring intact fallopian tubes ipsilateral to the affected ovary, gestational tissue within or on the ovarian surface, and histopathological confirmation of ovarian tissue.¹⁰ In clinical practice, preoperative differentiation from other pathologies such as hemorrhagic corpus luteum or tubal abortion proves difficult. While transvaginal ultrasound findings may raise suspicion through characteristic features like a hypervascular adnexal mass inseparable from the ovary, definitive diagnosis often requires surgical exploration.¹¹ The absence of cardiac activity and fetal skull collapse observed in this case suggested a non-viable pregnancy, necessitating urgent intervention to mitigate the significant risk of hemorrhage.

Surgical management in this case involved emergency laparotomy due to hemodynamic instability and the large size of the gestational mass. This approach aligns with current guidelines for advanced or ruptured ectopic pregnancies, particularly in resource-limited settings.¹² Although laparoscopic management has become the gold standard for stable cases, laparotomy remains crucial when dealing with significant hemoperitoneum or in environments

with limited access to advanced laparoscopic expertise. The surgical strategy employed—excision of the ovarian mass with ovarian preservation—reflects an appropriate balance between addressing the immediate life-threatening condition and maintaining future fertility potential. The substantial blood loss and subsequent transfusion requirements in this case highlight the considerable morbidity associated with delayed intervention.

The pathogenesis of ovarian pregnancy differs fundamentally from tubal ectopic pregnancies. Current theories suggest two primary mechanisms: failed follicular extrusion leading to intrafollicular fertilization, or secondary implantation of a tubal-fertilized ovum on the ovarian surface, with recognized risk factors including assisted reproductive technologies, intrauterine device use, and pelvic adhesions.^{2,12} While the patient's history of prior cesarean section might have contributed to altered pelvic anatomy, no direct causal relationship has been established. Notably, unlike tubal ectopic pregnancies where pelvic inflammatory disease plays a significant role, its contribution to ovarian pregnancy remains unclear.

This case highlights several critical lessons for clinical practice. First, maintaining a high index of suspicion is essential when evaluating patients with adnexal masses and absent intrauterine gestation, even at advanced gestational ages. Second, while laparotomy remains a life-saving procedure for hemodynamically unstable patients, efforts should be made to promote laparoscopic expertise in resource-limited settings. Finally, fertility preservation through ovarian-sparing techniques should be prioritized when feasible, with histopathological confirmation remaining crucial for definitive diagnosis.

Future directions should focus on improving early detection through standardized protocols incorporating serial β -hCG monitoring and transvaginal ultrasound, as well as expanding training in minimally invasive surgical

techniques in low-resource areas. Such measures could significantly reduce the morbidity and mortality associated with this rare but potentially devastating condition.

CONCLUSION

This case highlights the diagnostic complexities and life-threatening risks associated with ovarian pregnancy, particularly when it presents as a ruptured mass at an advanced gestational age. Early identification through heightened clinical suspicion and imaging is essential to prevent severe complications. While laparotomy remains

a critical intervention in emergency cases, promoting laparoscopic expertise and fertility-sparing techniques should be prioritized in the management of ovarian pregnancies. Histopathological confirmation remains indispensable for a definitive diagnosis.

AUTHOR CONTRIBUTIONS

All authors were involved in drafting the article or revising it.

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