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Journal of Obstetrics Gynecology and Reproductive Sciences
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Case Report

Saving One, Solving Another: Laparoscopic Success in Advanced Abdominal Heterotopic Pregnancy; A Case Report

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#The First and the second authors made the same effort

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Received date: September 03, 2025; **Accepted date:** October 10, 2025; **Published date:** November 17, 2025.

Citation: Khalid Akkour, Beenish Maqsood, Ghadeer Alniel, Sharyhan Nassar, Maha Yousef, et al, (2025), Saving One, Solving Another: Laparoscopic Success in Advanced Abdominal Heterotopic Pregnancy; A Case Report, *J. Obstetrics Gynecology and Reproductive Sciences*, 9(8) **DOI:10.31579/2578-8965/291**

Abstract:

This case report highlights a rare instance of heterotopic pregnancy with advanced abdominal ectopic gestation in a 33-year-old woman with a history of infertility. She was treated via laparoscopic surgery in the second trimester after experiencing persistent abdominal pain and nausea; initial ultrasounds missed the extrauterine pregnancy. The surgery involved laparoscopic salpingectomy and partial placental removal, despite significant bleeding, ultimately preserving the intrauterine pregnancy, which resulted in a full-term vaginal delivery. This case emphasizes the importance of considering heterotopic pregnancy in high-risk patients and demonstrates the safety of advanced laparoscopic techniques in later gestation stages.

Keywords: heterotopic pregnancy; abdominal pregnancy; laparoscopic surgery; salpingectomy; case report

Introduction

Heterotopic pregnancy (HP), which involves the simultaneous presence of both intrauterine and ectopic pregnancies, is an uncommon and potentially life-threatening condition. Its occurrence has significantly risen from around 1 in 30,000 in natural pregnancies to as high as 1 in 100 with the use of assisted reproductive techniques. [1]. The diagnosis of HP is particularly difficult, and when the ectopic implantation occurs in the abdominal cavity, this rare scenario accounts for less than 1% of all ectopic pregnancies—the chances of severe hemorrhage and maternal complications are greatly increased.[2]

This case presents a rare instance of successfully managing a heterotopic pregnancy with secondary abdominal implantation at 15 weeks of gestation, a relatively late stage. The initial ultrasounds missed the diagnosis, highlighting significant diagnostic difficulties. It offers valuable insights by showing that with careful surgical planning, a minimally invasive method can be effectively utilized in the second trimester to address this complicated situation while maintaining the intrauterine pregnancy, ultimately leading to a full-term delivery.[3]

Case

A 33-year-old woman, pregnant for the third gravida 3, para 1+1, arrived at the emergency department at 15 weeks of gestation, reporting persistent lower abdominal pain. Her clinical examination revealed stable hemodynamic parameters, mild tenderness, and a slightly low hemoglobin level (10gm/dl). She had a significant history of recurrent nausea, vomiting, and abdominal pain since early pregnancy, previously attributed to vomiting with pregnancy, with one episode severe enough to cause dehydration. Earlier ultrasound evaluations at 6 and 12 weeks had not detected any abnormalities. Her reproductive history was notable for a previous term delivery, a biochemical pregnancy loss, and a prolonged phase of secondary infertility that required ovulation induction and intrauterine insemination to achieve the current pregnancy.

During the emergency assessment, ultrasound imaging identified a viable intrauterine fetus along with a second extrauterine gestation exhibiting absent uterine wall interface, ill-defined placental tissue, and severe oligohydramnios, raising concern for heterotopic pregnancy. Subsequent

MRI precisely localized the ectopic implantation to the left adnexal region, showing a highly vascularized placenta adjacent to the rectum (figure 1). The patient underwent laparoscopic surgery, which was performed via Palmer's point entry, confirming the extrauterine fetus in the pouch of Douglas with placental attachment to the rectal serosa (figure 2a). Partial placental excision was performed, though some adherent tissue was deliberately retained to minimize bleeding risk. Significant intraoperative hemorrhage occurred, requiring transfusion of two units of packed red blood cells and one unit of fresh frozen plasma. A salpingectomy was carried out for a ruptured fallopian tube. The ectopic fetus was successfully extracted using an endoscopic bag through a 15mm port at Palmer's point (figure 2b).

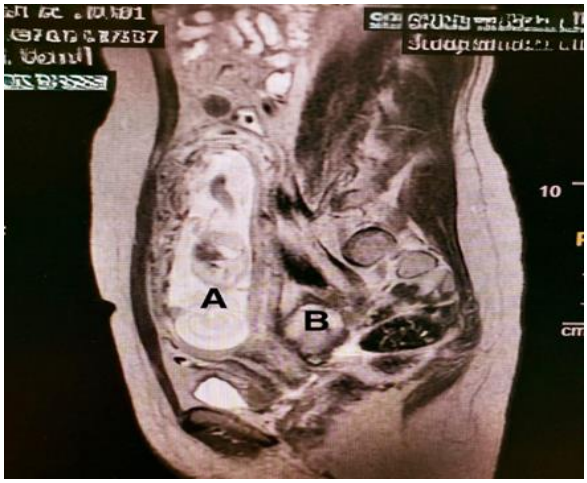

Figure 1: MRI before surgery (A) Intrauterine fetus (B) Extra-uterine fetus

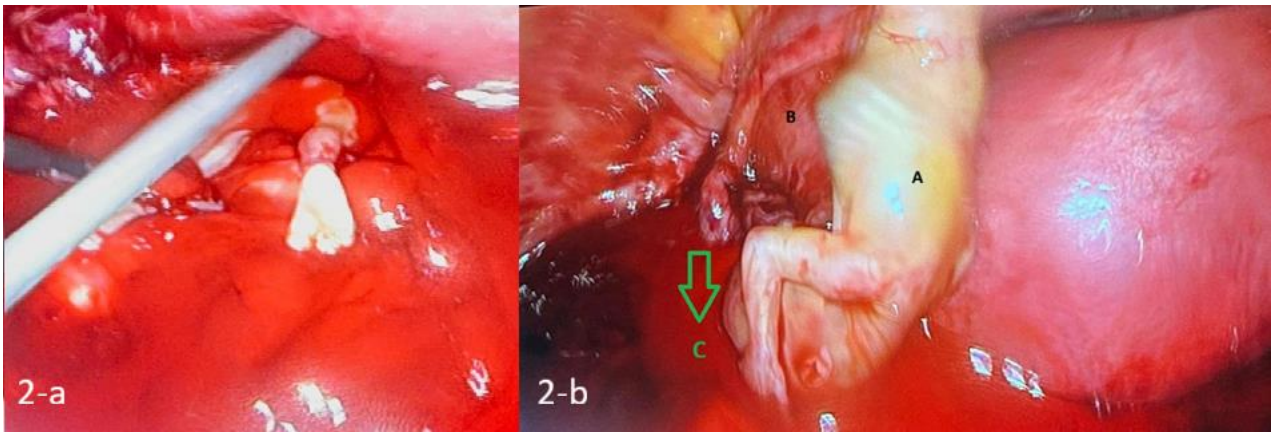

Figure 2-a: Laparoscopic view at the beginning of the surgery, where the fetus was deeply seated in the cul-de-sac with a large placenta invading the rectum and causing massive bleeding. **Figure 2-b:** The fetus being retrieved from the cul-de-sac with a laparoscopic grasper after gentle exploration and understanding of the surgical findings. A=Extrauterine fetus; B= Uterus; C=extensive pelvic blood clots

Following the procedure, the patient was closely monitored and received hormonal support with intramuscular and rectal progesterone. Recovery was uncomplicated, and postoperative ultrasound confirmed the continued viability of the remaining intrauterine pregnancy. Histopathologic analysis of surgical specimens confirmed the presence of chorionic villi and a necrotic fallopian tube, supporting the diagnosis of heterotopic pregnancy with abdominal implantation. The patient subsequently completed the remainder of her antenatal period without further incident and delivered a healthy female infant at term via assisted vaginal delivery.

Discussion

Strengths and Limitations of the Case Report

This case underscores the significant diagnostic and management challenges of heterotopic pregnancy (HP) with an abdominal ectopic gestation—a rare and life-threatening condition. Its incidence has risen markedly with assisted reproductive technologies (ART), from approximately 1 in 30,000 spontaneous pregnancies to as high as 1 in 100 with ART [1]. The principal strength of this report is its demonstration of a successful laparoscopic intervention in the second trimester, showcasing a viable approach for managing this complexity at an advanced gestational age. It highlights the critical need to reassess diagnoses continually, as initial evaluations can be misleading, and emphasizes that meticulous planning and access to specialized surgical expertise are paramount for optimizing outcomes.

A key limitation is inherent to its nature as a single case report, which cannot establish generalized protocols. The successful outcome was contingent on highly specialized resources, including expert MRI interpretation and advanced laparoscopic skills, which may not be universally available. Furthermore, while the postoperative course was uneventful, the report does not provide long-term follow-up data on potential complications from the retained placental tissue.

Discussion of the Relevant Medical Literature

As established, HP is a life-threatening condition that can lead to ectopic rupture, severe maternal morbidity, and potential loss of the intrauterine (IU) gestation; even after treatment, the IU pregnancy remains at risk [1, 2]. Diagnosis is notoriously challenging. While transvaginal ultrasonography (TVS) offers superior sensitivity over transabdominal scans, a retrospective IVF-ET study identified key TVS findings for HP and demonstrated a sensitivity of 92.4% and specificity of 100% [3]. The addition of color

Doppler flow imaging further increases the sensitivity for detecting extra-uterine pregnancy [4].

Abdominal ectopic pregnancy is exceptionally rare, representing <1% of all ectopic cases [5]. It carries a high risk of intraperitoneal hemorrhage and bowel injury [6, 7]. The predominant risk arises from placental implantation onto vascular or visceral structures, which dramatically complicates clinical management and necessitates careful surgical planning to avoid catastrophic bleeding [6, 8].

The management of heterotopic pregnancy aligns with general ectopic pregnancy principles, though medical management is often contraindicated in the presence of a viable IU pregnancy [2]. Most evidence supports surgical intervention as the most effective and safest method [2, 9]. Laparoscopy in pregnancy is supported by current guidelines, which confirm its safety in any trimester when performed by experienced surgeons, with specific recommendations for pneumoperitoneum pressure and the use of modern energy devices [10].

The Scientific Rationale for Conclusions

The diagnostic pathway in this case is strongly supported by the literature. Given that TVS, despite high sensitivity, can yield false-negative results—especially when a viable IU pregnancy provides reassurance—the progression to MRI was justified. MRI is recommended following equivocal ultrasound findings for accurate diagnosis and pre-operative planning of unusual ectopic pregnancies, as it exquisitely delineates fetal, placental, and maternal anatomy [7].

The rationale for employing laparoscopy was multifaceted. First, the patient was hemodynamically stable. Second, literature supports laparoscopy for managing complex ectopics with optimal results, particularly when diagnosis is achieved early [5, 9]. Third, it is associated with improved patient recovery outcomes. The decision to perform only partial placental removal, leaving adherent tissue in situ, was a prudent measure to prevent catastrophic hemorrhage and visceral injury, a well-documented strategy for managing invasive placental implants [6, 8]. The administration of postoperative progesterone support was a prophylactic measure to mitigate the risk of pregnancy loss following surgical stress.

The Primary "Take-Away" Lessons

This case powerfully illustrates that heterotopic pregnancy must remain a key differential diagnosis in high-risk patients, such as those with a history of ART or infertility, who present with persistent or atypical abdominal symptoms, irrespective of prior reassuring ultrasounds. A high index of suspicion, the timely utilization of advanced imaging like MRI, and access to a multidisciplinary team with specialized surgical expertise are paramount. Laparoscopic management is a viable and advantageous approach even at advanced gestational ages. Finally, conservative surgical management of the placenta, prioritizing hemorrhage control, can lead to an excellent maternal and fetal outcome, allowing for the preservation of the intrauterine pregnancy to term.

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DOI:10.31579/2578-8965/291