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Case Series

Atypical Ectopic Pregnancies - A case Series Clinical Scenarios and Management Challenges

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Abstract

Atypical ectopic pregnancies represent an uncommon yet clinically relevant category of ectopic gestations, characterized by heightened diagnostic challenges and an elevated risk of severe maternal morbidity. Their atypical implantation sites, diverse clinical manifestations, and absence of standardized management protocols sometimes result in delayed diagnosis and intricate treatment decisions. This case series delineates five instances of unusual ectopic pregnancies, encompassing cesarean scar pregnancy, cornual ectopic pregnancy, heterotopic pregnancy, tubal ectopic pregnancy with ambiguous first findings, and cervical ectopic pregnancy. The clinical spectrum extended from minor vaginal spotting in hemodynamically stable patients to acute abdomen accompanied by hypovolemic shock. A combination of a clinical exam, serial serum β-human chorionic gonadotropin tests, and transvaginal ultrasound were used to make the diagnosis. Management techniques were tailored according to implantation site, gestational age, hemodynamic stability, and fertility preservation objectives, encompassing systemic and local methotrexate medication, laparoscopic surgery, and emergency laparotomy. All instances had good outcomes when they were treated quickly. This case series underscores the necessity of sustaining a heightened index of suspicion for atypical ectopic pregnancies, even when an intrauterine pregnancy or abnormal symptoms are present. Early diagnosis, precise imaging, and customized therapy are crucial to mitigate morbidity and enhance maternal outcomes while conserving future reproductive health.

Keywords: Atypical Ectopic Pregnancy; Cesarean Scar Pregnancy; Cornual Ectopic Pregnancy; Cervical Ectopic Pregnancy; Heterotopic Pregnancy; Methotrexate; Laparoscopy

Introduction

Ectopic pregnancy is a potentially life-threatening condition that continues to be a significant cause of maternal morbidity and mortality in the first trimester of pregnancy. It is traditionally characterized as the implantation of a fertilized ovum outside the endometrial cavity, with the fallopian tube representing around 95% of instances [1]. Nevertheless, a minor yet clinically important percentage of ectopic pregnancies manifest in unconventional sites, such as the cesarean section scar, interstitial or cornual region, cervix, ovary, and, in rare instances, concurrently with an intrauterine pregnancy as heterotopic gestation [2]. These unusual ectopic pregnancies provide significant diagnostic and therapeutic difficulties owing to their infrequency, diverse clinical manifestations, and elevated risk of severe hemorrhagic consequences [3].

The prevalence of atypical ectopic pregnancies appears to be rising, owing partly to shifting reproductive trends and medical

procedures. The rising number of cesarean deliveries, the widespread use of assisted reproductive technologies, the trend of having children later in life, and better diagnostic imaging have all led to both a real increase in these rare entities and a better way to find them [4]. Even while transvaginal ultrasonography and sensitive serum β-human chorionic gonadotropin (β-hCG) tests have improved, it is still hard to make an early diagnosis because the symptoms can be mild, unusual, or misleading. Moreover, the existence of an intrauterine pregnancy does not consistently rule out a simultaneous ectopic gestation, highlighting the necessity for increased clinical vigilance [5].

Atypical ectopic pregnancies carry a significantly elevated risk of maternal morbidity relative to tubal ectopic pregnancies. Implantation at non-tubal sites frequently occurs in highly vascular tissues, such as the cervix or cornual area, which predisposes individuals to significant hemorrhage, uterine rupture, and the necessity for emergency surgical intervention [6]. A delay in diagnosis can have terrible effects, such as hypovolemic shock, loss of reproductive organs, and, in the worst circumstances, death of the mother. As a result, timely recognition and proper management are essential for enhancing outcomes [7].

Management techniques for atypical ectopic pregnancies are intricate and necessitate individualization, considering the implantation site, gestational age, hemodynamic stability, aspirations for future fertility, and the expertise available [8]. Therapeutic alternatives encompass conservative medicinal care employing systemic or local methotrexate, as well as minimally invasive techniques and definitive surgical approaches. Improvements in interventional radiology and laparoscopic methods have made more alternatives available for preserving fertility. However, there is no one-size-fits-all care plan because different cases present differently and there isn't enough high-quality evidence to support any one plan [9-11].

Because atypical ectopic pregnancies are so rare, most of the research on them is based on single case reports or small series, which makes it hard to apply the findings to other situations. In this setting, case series are still useful because they show how things work in real life, point up diagnostic mistakes, and show the actual problems that come up in management. By methodically detailing diverse appearances and therapeutic strategies, such studies enhance the comprehension of atypical ectopic pregnancies and facilitate the advancement of informed, personalized clinical decision-making [12].

This study seeks to augment the existing knowledge regarding atypical ectopic pregnancies by delineating several clinical scenarios and highlighting the diagnostic and therapeutic difficulties inherent to these rare yet high-risk illnesses.

Case Presentation

Case 1

A 30-year-old gravida 2 para 1 woman with a history of one previous lower-segment cesarean section appeared at 7 weeks of gestation with light vaginal spotting, absent stomach pain or hemodynamic instability. During the examination, the vital signs were stable (BP 112/72 mmHg, pulse 82 bpm), and the abdominal and pelvic examinations were normal save for a small amount of bleeding with a closed cervical os. The lab tests showed that the hemoglobin level was 11.8 g/dL and the serum β-hCG level was 18,500 IU/L. Transvaginal ultrasonography revealed an empty uterine cavity, with a gestational sac situated in the anterior lower uterine segment at the location of the prior cesarean scar, indicative of cesarean scar ectopic pregnancy. Due to the early gestational age, lack of fetal heart activity, stable clinical condition, and intention to preserve fertility, medical therapy with systemic methotrexate was commenced. The patient was thoroughly watched with repeated β-hCG tests and clinical observation. There were no negative consequences throughout treatment. After treatment, the vital signs stayed stable, and the vaginal spotting slowly subsided. She was released with counseling on contraception, instructed to prevent pregnancy for three months, and arranged for consistent follow-up until β-hCG levels were no longer detectable.

Case 2

A 34-year-old multiparous woman reported at 11 weeks of gestation with acute severe stomach pain followed by syncope. When she got there, she was in hypovolemic shock with low blood pressure (BP 86/54 mmHg), a fast heart rate (pulse 128 bpm), and indications of an acute abdomen. Tests in the lab showed that the person was quite anemic, with a hemoglobin level of 7.2 g/dL and a β-hCG level of 42,000 IU/L. Emergency ultrasound showed free fluid in the abdomen, which could be a sign of hemoperitoneum or a ruptured cornual ectopic pregnancy. The patient was immediately

resuscitated with intravenous fluids and a blood transfusion, and then an emergency laparotomy was done. During the operation, a ruptured cornual pregnancy with a lot of bleeding inside the peritoneum was found, and surgery was done to fix it and stop the bleeding. After the surgery, the patient was taken care of in a high-dependency ward where they continued to have transfusions and were watched closely. Within 24 hours, her vital signs normalized, and she had a smooth recovery. She was sent home with iron supplements, told to limit her physical activity for 4 to 6 weeks, and told to come back for a follow-up.

Case 3

A 28-year-old primigravida, at 6 weeks of gestation, had lower abdomen pain despite a previously verified intrauterine pregnancy. She had conceived spontaneously without prior utilization of artificial reproductive technologies. She was in good health when she was examined. Ultrasonography showed a healthy pregnancy inside the uterus and an adnexal mass that looked like a tubal ectopic pregnancy, which confirmed that the pregnancy was heterotopic. The hemoglobin level was 10.9 g/dL, while the β-hCG level was 21,000 IU/L. Due to the risk of rupture and the necessity to maintain the intrauterine pregnancy, laparoscopic salpingectomy was conducted. Intraoperative findings verified an unruptured tubal ectopic pregnancy, which was effectively removed with no blood loss. The intrauterine pregnancy continued to be viable after the operation. The patient had a smooth recovery and was sent home with instructions for regular prenatal care and close monitoring by an obstetrician.

Case 4

A 32-year-old lady came in at 6 to 7 weeks into her pregnancy with vaginal bleeding that kept happening over the course of several days. The first tests done somewhere else didn't give any clear answers. She was stable when she came in, with a hemoglobin level of 10.5 g/dL. Serial β-hCG readings exhibited plateauing values, and subsequent ultrasonography did not reveal an intrauterine pregnancy, hence heightening the suspicion of ectopic gestation. Due to ongoing symptoms and biochemical results, a diagnostic laparoscopy was performed, which showed a tubal ectopic pregnancy. There were no problems with the laparoscopic salpingectomy. The patient had a quick recovery after surgery and was sent home with advice on future fertility, told to wait three months before trying to get pregnant, and told to report any persisting symptoms.

Case 5

A 29-year-old lady presented at 8 weeks of gestation with abrupt onset profuse painless vaginal bleeding. She had a fast heart rate (118 beats per minute) and low blood pressure (94/60 mmHg). Her hemoglobin level was 8.6 g/dL and her β-hCG level was 15,200 IU/L. Transvaginal ultrasonography verified the presence of a gestational sac within the cervical canal, indicative of cervical ectopic pregnancy. A fertility-preserving strategy was implemented, involving local methotrexate injection under ultrasound supervision, succeeded by balloon tamponade to manage bleeding. The patient did well, with vital signs stabilizing and the hemorrhage slowly stopping. She was advised to avoid pregnancy for three months and given stern instructions to follow up with regular β-hCG tests.

Discussion

Atypical ectopic pregnancies constitute a diverse array of implantation anomalies that persistently pose challenges for doctors due to their infrequency, inconsistent clinical manifestations, and absence of conventional therapy guidelines. This case series illustrates a wide range of atypical ectopic pregnancies, from clinically quiet and early-detected instances suitable for conservative management to severe ones necessitating urgent surgical intervention. In comparison to previous research, our findings bolster several critical themes: diagnostic ambiguity, the significance of clinical suspicion beyond traditional symptomatology, and the necessity for tailored, fertility-aware management regimens.

When compared to the study of Lee., *et al*. (2025), both series emphasize the diagnostic intricacy of atypical ectopic pregnancies and the ramifications of delayed or overlooked diagnosis. Lee., *et al*. documented instances of ectopic pregnancies that were initially misdiagnosed or identified inadvertently, encompassing heterotopic and chronic cornual ectopic pregnancies recognized only after considerable morbidity had ensued. In our series, heterotopic pregnancy was detected despite the existence of a viable intrauterine gestation, highlighting that the confirmation of an intrauterine pregnancy does not preclude the possibility of concomitant ectopic implantation. In contrast to Lee., *et al*., where delayed diagnosis resulted in rupture or significant surgical

interventions including omentectomy and appendectomy, early ultrasonographic identification in our heterotopic pregnancy facilitated prompt laparoscopic salpingectomy while safeguarding the intrauterine pregnancy. This difference shows how important it is to do early targeted imaging and keep a close eye on the patient [13].

Birch., *et al*. (2022) also talked about how cognitive biases such anchoring and premature diagnostic closure led to missed ectopic pregnancy diagnoses. This is another example of aberrant or misleading presentations. Our case series also shows that not all ectopic pregnancies show the traditional signs of amenorrhea, abdominal discomfort, and vaginal bleeding. For example, cesarean scar and cervical ectopic pregnancies in our cohort primarily manifested with vaginal bleeding, without stomach pain or first hemodynamic instability. These similarities back up Birch., *et al*.'s claim that only relying on classical symptoms could lead to a late diagnosis and stress the importance of a comprehensive investigation of early pregnancy hemorrhage, no matter how severe the symptoms are [14].

The significance of precise clinical judgment and ultrasound assessment, especially in uncommon instances, aligns with the findings of Nkwelle., *et al*. (2025). Their report of a second-trimester unruptured ectopic pregnancy, despite previous ultrasound indications of intrauterine pregnancy, exemplifies the ongoing diagnostic problems that can occur even with imaging. In contrast, our series mostly included diagnoses made in the first trimester, which meant that treatment could start sooner and the risk of complications was lower. Nonetheless, both investigations emphasize the essential role of physician suspicion and the understanding that ultrasonography results must be assessed alongside clinical manifestations, particularly when symptoms are persistent or biochemical patterns are irregular [15].

Our results align with the case series of Nongrum., *et al*. (2023), which underscored the necessity of a robust index of suspicion and prompt intervention in the management of life-threatening atypical ectopic pregnancies. Nongrum., *et al*. documented heterotopic pregnancy, cesarean scar pregnancy, and other uncommon forms, all necessitating expeditious decision-making to avert negative consequences. Likewise, our data illustrates that early diagnosis enabled conservative medical care in cesarean scar and cervical ectopic pregnancies, but delayed or acute presentations, such as cornual rupture, required prompt surgical intervention. Both studies together show that care should be based on clinical stability, the site of implantation, and reproductive aims [16].

The difficulties related to cornual and interstitial ectopic pregnancies, as outlined by Thanasa., *et al*. (2024), are similarly evident in our series. Thanasa., *et al*. emphasized the challenges in detecting interstitial ectopic pregnancy, especially in cases of unusual painless bleeding, and underscored the necessity of prompt surgical intervention to mitigate morbidity. In our series, cornual ectopic pregnancy manifested with abrupt rupture and hypovolemic shock, highlighting the aggressive characteristics of these implantations. Our findings demonstrate the limited diagnostic window and the risk of fast deterioration when diagnosis is postponed, in contrast to the unruptured patient reported by Thanasa., *et al*. [17].

One of the features of our case series is that it shows a balanced management approach that includes medicinal therapy, minimally invasive surgery, and emergency laparotomy, depending on the patient's stability and fertility. This is in line with recent research that supports personalized treatment over a one-size-fits-all approach. Fertility-preserving methods, including systemic or local methotrexate medication, proved effective in stable patients, but surgical surgery continued to be life-saving in unstable instances.

It is important to note that one of the papers mentioned Katsura., *et al*. 2022 is about fetal junctional ectopic tachycardia and not directly about ectopic pregnancy implantation. Consequently, it lacks significance in the comparative analysis of ectopic pregnancy diagnosis or care, highlighting the necessity of contextual relevance in literary interpretation [18]. Our case series supports the idea that atypical ectopic pregnancies need more clinical attention, careful interpretation of imaging and biochemical markers to lower the risk of complications.

Conclusion

Atypical ectopic pregnancies continue to pose diagnostic challenges and possibly life-threatening risks due to their diverse presentations and infrequent implantation sites. This case series emphasizes the essential necessity of a heightened clinical suspicion, prompt and focused imaging, and prudent analysis

of β-hCG trends. Individualized care, ranging from conservative medicinal therapy to emergency surgical intervention, is critical for improving maternal outcomes and preserving fertility whenever possible.

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Conflict of Interest

The authors declare no conflict of interest.

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