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Global Perspectives on Early Pregnancy Bleeding: Clinical Predictors, Hormonal Interventions, and Outcome Optimization

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Annotation: This research investigates clinical indicators together with hormonal variables that affect pregnancy results in women who face threatened abortion during early pregnancy stages at the Multidisciplinary Clinic of Samarkand State Medical University between 2023 and 2025 with 89 participating patients. The medical condition threatened abortion causes bleeding through the vagina in the early pregnancy phase when the cervix stays sealed with a living fetus inside. This obstetric issue exists globally yet different healthcare systems handle it differently because of unequal diagnostic skills along with treatment method variations and variable medical system resources. Because of this investigation all pregnant women who experienced first-trimester bleeding received both ultrasound evaluation and serum progesterone screenings. A system evaluated patients through hormone levels and bleeding severity before following their pregnancy outcomes to establish their variables' associations. The results of statistical analysis showed that women who had progesterone measurements below 10 ng/mL were more likely to experience miscarriage compared to those whose tests showed values above 20 ng/mL. The medical outcome of patients depended heavily on the extent of bleeding they experienced. The research both supports findings already presented in international literature and shows how practical progesterone screening combined with symptom-based management works when resources are limited. The study demonstrates both the requirement for national prenatal protocols to adopt hormonal diagnostics and the critical necessity of maternal healthcare interventions that start early. The research links clinical findings to worldwide proof to create implementable guidelines which help Uzbekistan and similar poor-resource settings lessen preventable pregnancy deaths and advance maternal wellness.

Keywords: threatened abortion, early pregnancy bleeding, progesterone, pregnancy outcome, Uzbekistan, miscarriage prevention.

Introduction

Threatened abortion remains as one of the most frequent early pregnancy complications since it involves vaginal bleeding between the first 20 weeks of gestational duration and a closed cervix with a normal fetus. The medical and emotional challenges faced by expectant mothers occur during threatened abortion since this condition impacts approximately 15–20% of all recognizable pregnancies worldwide. The majority of early bleeding pregnancies maintain their normal course but a large percentage of them eventually end in miscarriage followed by intrauterine growth restriction and preterm birth developments. Different nations adopt different clinical responses to this medical condition based on their access to diagnosis technology along with hormonal tests and uniform treatment protocols. Medical teams within high-resource early pregnancy units perform both transvaginal ultrasound examinations and serum progesterone tests to enable proper risk evaluation and specific treatment protocols for expectant mothers. The delivery of such services persistently remains challenging to low- and middle-income countries across their rural regions. The main function of progesterone in early pregnancy includes stabilization of endometrium tissue and prevention of

uterine muscle contractions. Studies worldwide combined with large randomized controlled experiments prove that low progesterone levels in serum lead to worse pregnancy outcomes but selected patients receiving hormone therapy improves their likelihood to carry their pregnancy. Evidence demonstrates the value of progesterone testing and treatment innovations yet Uzbekistan alongside various other nations have not adopted standardized practices. International studies have expanded our knowledge of early pregnancy bleeding yet locally collected data from Central Asia remain scarce especially regarding Uzbekistan because the country has yet to adopt a uniform approach to hormone-based early pregnancy care. This research examined 89 pregnant women with threatened abortion symptoms at the Multidisciplinary Clinic of Samarkand State Medical University during 2023 and 2025. Local observations from this study compare results against global findings to enhance clinical decision-making power in resource-constrained environments and help create more effective prenatal hormone-directed care processes.

Literature Review

Threatened abortion, or early pregnancy bleeding with fetal viability, remains a global maternal health concern. It affects nearly one in five pregnancies during the first trimester, yet outcomes can vary widely depending on early recognition and appropriate intervention[1]. In many countries, including those with limited medical resources, the lack of standardised diagnostic protocols makes it difficult to manage this condition effectively.

A key element in understanding and treating threatened abortion is the role of progesterone. This hormone plays a central role in maintaining pregnancy by stabilizing the endometrial lining and preventing uterine contractions. One of the most influential clinical trials in recent years demonstrated that women experiencing early pregnancy bleeding showed improved live birth outcomes when treated with micronized progesterone. This trial led to revised clinical guidelines in several countries, including the UK, where hormonal supplementation is now recommended in specific patient groups[2].

Advanced diagnostic tools such as transvaginal ultrasound and β-hCG testing are commonly used in high-income countries to assess fetal health and predict outcomes. The presence of a fetal heartbeat on ultrasound is one of the most reassuring signs, while findings like subchorionic hematomas or reduced sac size often indicate increased risk of pregnancy loss[3]. In contrast, many clinics in low-income countries lack access to such tools, making it harder to offer evidence-based care.

A study conducted in India highlighted the value of combining clinical symptoms with serum progesterone testing even in resource-limited settings. It concluded that low-cost hormone analysis could significantly improve early pregnancy care risk prediction and patient triage[4].

Closer to Central Asia, research in Uzbekistan has begun to address the need for biochemical testing. Investigators emphasised the importance of routine progesterone screening, especially in rural regions where access to obstetric specialists is delayed. They recommended integrating these tests into national prenatal care protocols to reduce preventable pregnancy losses[5].

Beyond physiological risk, threatened abortion also carries a significant psychological impact. Many women report intense anxiety, fear of miscarriage, and depressive symptoms when experiencing early

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[4] hrestha, A., Sharma, S., & Koirala, S. (2020). Prognostic value of serum progesterone in early pregnancy bleeding. *Journal of Obstetrics and Gynaecology Research, 46*(2), 212–218.
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pregnancy bleeding. These emotional challenges can be just as debilitating as the physical ones and highlight the necessity of holistic care approaches[6].

Taken together, these findings underscore the urgency of establishing unified yet adaptable clinical strategies that not only treat the physical aspects of threatened abortion but also address its hormonal and emotional dimensions.

Materials and Methods

The research took place at Samarkand State Medical University Multidisciplinary Clinic from February 2023 through January 2025. The investigators studied the relationship between maternal clinical signs and serum progesterone measures and their influence on maternal pregnancy results among patients with early pregnancy bleeding. The study enrolled 89 pregnant women aging between 18 to 40 years. During the first trimester of pregnancy, all women displayed threatened abortion signs including uterus tension coupled with light bleeding and minor period-like discomfort. These participants had gestational ages between 6 weeks and 20 weeks. Clearness in the sample selection emerged from the utilization of specific exclusion standards. The study researchers excluded from its participant group women who were pregnant with more than one fetus or had known uterine abnormalities or genetic diseases or chronic conditions that included hypertension and diabetes. Incomplete clinical records served as an exclusion point for the study. All remaining subjects had to undergo transvaginal ultrasound testing for verifying their viable intrauterine pregnancy together with their closed cervix. The imaging procedure enabled medical professionals to determine gestational sac dimensions and detect fetal heart motion and subchorionic hematoma formation because both factors strongly affect early pregnancy prognosis.

The admissions process included a thorough clinical evaluation for collecting information about patient age along with obstetric background, gestational age and symptom severity and imaging results. Healthcare providers used both visual assessments and patient reports to determine bleeding intensity which was rated as mild moderate or severe. The doctor carried out physical tests to examine whether the patient was experiencing abdominal pain and variations in the uterus. Blood collection samples served to measure hormone concentrations by using enzyme-linked immunosorbent assay (ELISA) technology. The experimental data allowed researchers to divide hormone results into three separate groups: low below 10 ng/mL, borderline between 10 and 20 ng/mL and adequate above 20 ng/mL. International research has confirmed that these cut-off values help predict early pregnancy outcomes thus making them suitable for our study. The medical protocols were created for each patient according to their diagnosed symptom intensity and hormone analysis findings. Healthcare providers treated women with normal hormone levels and minimal bleeding cases as outpatients. The healthcare professionals instructed patients to maintain bed rest and activity restriction while prescribing oral micronized progesterone between 200 to 400 milligrams daily. Hospital admission required patients to receive intramuscular and vaginal progesterone treatments while healthcare professionals provided continuous support along with close medical monitoring. Staff members offered patients emotional assistance while educating them about making lifestyle modifications to help them cope with stress and anxiety and thus minimize uterine irritability. The pregnancy status evaluation consisted of follow-up ultrasound tests and phone correspondence to track patient health conditions. The research group classified pregnancy results into two distinct outcomes between continued gestation over 20-weeks and pregnancy termination. All data entry was performed into a safe database before researchers analyzed the information through SPSS version 25.0. The patient characteristics were evaluated through means and standard deviations combined with percentage breakdowns. Chi-square and independent t-tests evaluated the connection between hormone levels, bleeding severity and outcomes. The authors considered any p-value under 0.05 as statistically significant.

[6] Lok, I. H., & Neugebauer, R. (2007). Psychological morbidity following miscarriage. *Best Practice & Research Clinical Obstetrics & Gynaecology*, *21*(2), 229–247.

Results and Discussion

89 pregnant women during their first trimester underwent assessment for threatened abortion. Researchers studied the connection between progesterone biological measurements together with pregnancy symptoms like bleeding combined with abdominal discomfort for determining total pregnancy completion. The research findings demonstrated that the evaluation of pregnancy hormones and clinical manifestations together determined the fate of pregnancy continuation or termination through miscarriage. The research divided the degrees of progesterone in blood serum into three distinct groups. The continuation rate of women with progesterone levels under 10 ng/mL reached only 21.1% until week 20, while pregnancy loss occurred in 78.9% of cases. The pregnancy continuation rate for women in the 10-20 ng/mL progesterone range amounted to 53.7%. Of all study participants, women who measured above 20 ng/mL in their progesterone levels achieved the best pregnancy success rate at 81.8%. The study data confirms that early gestational predictions about pregnancy outcomes depend heavily on progesterone tests and establishes global evidence regarding low progesterone levels as prime contributors to first-trimester pregnancy termination.

Table 1. Pregnancy Outcome by Progesterone Level

Progesterone Level (ng/mL)	Number of Patients	Pregnancy Continued (%)	Pregnancy Loss (%)
<10	38	21.1%	78.9%
10–20	41	53.7%	46.3%
>20	10	81.8%	18.2%

The presented table demonstrates how pregnancy loss shows a direct relationship pattern with progesterone measurement levels. High progesterone levels within women resulted in elevated pregnancy maintenance rates indicating that serum progesterone functions as a vital predictive element in early bleeding of pregnancy. Clinical presentation of symptoms together with hormone evaluations generated important diagnostic information. The symptom of mild vaginal bleeding occurred most often as it was reported in 47.2% of studied patients. Between them moderate bleeding affected 30.3% of participants and severe bleeding led to 22.5% of cases. Among the affected group of women abdominal pain emerged as the prevalent issue (65.2%) with decreased uterine relaxation experienced by 44.9% of them. Among gestational bleeding complications, subchorionic hematomas occurred rarely at 21.3% but predicted adverse pregnancy results when patients showed both heavy bleeding and lower progesterone numbers.

Table 2. Clinical Symptoms in Threatened Abortion

Symptom	Number of Patients (n=89)	Percentage (%)
Mild vaginal bleeding	42	47.2%
Moderate bleeding	27	30.3%
Severe bleeding	20	22.5%
Lower abdominal pain	58	65.2%
Uterine hypertonicity	40	44.9%
Subchorionic hematoma (ultrasound)	19	21.3%

Women experiencing threatened abortion show these clinical signs as indicated in this summarized table. Pain along with mild bleeding were typical findings during assessment while subchorionic hematoma emerged less frequently but managed to cause serious bleeding and unfavorable results. Hormone testing in conjunction with clinical assessments produced more effective evaluation of the patient's risks. Maternal outcomes proved most beneficial when women presented with mild bleeding symptoms along with sufficient progesterone levels in their blood streams but poor results emerged when both severe bleeding and low progesterone levels occurred. The research demonstrates that practitioners must employ biochemical and clinical assessments right after pregnancy onset. Even limited diagnostics in Uzbekistan combined with minimal hormonal testing and careful symptom

monitoring increases early pregnancy decision quality and prevents preventable fetal loss. The research outcomes validate both international standards and demonstrate the clinical applicability of basic evidence-based methods for local healthcare institutions to adopt into standard treatment protocols.

Conclusion

This research establishes that using serum progesterone analysis alongside symptom examinations creates beneficial practices for managing threatened abortions at the early pregnancy stage. Women who suffered from both low progesterone levels and severe bleeding during early pregnancy evaluation showed a substantially elevated chance of miscarriage yet those with sufficient hormone production and milder bleeding rates delivered better results. The research highlights that progesterone works well as a marker for forecasting pregnancy outcomes thus validating its use in diagnosing early pregnancies. The study proves that low-cost hormonal screening systems used in Uzbekistan result in enhanced medical choices despite such organizations operating within limited funding scenarios. Uterine hypertonicity together with subchorionic hematomas indicated poor prognosis when they appeared alongside hormonal deficiency. Clinical care protocols which include hormone-based triage assessment serve as a practical method for decreasing the rate of early pregnancy loss while maintaining individualized healthcare strategies. Prenatal care guidelines in every nation should implement standard progesterone tests combined with early sonographic examinations for better maternal and fetal results. The available data demonstrates why healthcare providers need to create hormone-based guidance systems with local service considerations to offer rapid support and comfort to vulnerable pregnant women.

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