



Original Article



Holistic Approaches to Treating Early Pregnancy Bleeding: Evaluating Medical, Surgical, and Lifestyle Interventions in Diverse Patient Populations with Threatened Miscarriage and Ectopic Pregnancy

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Abstract

Early pregnancy bleeding (EPB) – bleeding within the first trimester – affects roughly 20–30% of pregnancies and is a major source of anxiety for women, with nearly half of affected pregnancies ultimately miscarrying. Common causes include threatened miscarriage and ectopic pregnancy, each requiring distinct management strategies. A holistic approach addressing both clinical and emotional needs is needed. **Objective:** This study evaluated the effectiveness of a holistic management model for EPB by comparing outcomes of medical, surgical, and lifestyle interventions. **Methods:** We conducted a retrospective observational cohort study of women ($n = 150$) presenting with EPB (<14 weeks' gestation) at a tertiary care center. Patients were managed with progesterone supplementation (for threatened miscarriage), laparoscopic intervention (for ectopic pregnancy), and standardized lifestyle counseling. Primary outcomes included pregnancy continuation, complication rates, and patient-reported anxiety and satisfaction. Data were analyzed using SPSS (independent t-tests, chi-square tests; $p < 0.05$). **Results:** Among threatened miscarriage patients, those receiving progesterone ($n = 50$) had significantly higher rates of ongoing pregnancy (80% vs. 60%, $p = 0.01$) and reported lower mean anxiety scores (3.2 vs. 5.8, $p < 0.001$) and greater satisfaction than controls. In the ectopic pregnancy cohort, laparoscopic management ($n = 30$) resulted in rapid resolution (mean hospital stay ~ 1.2 days vs. 14.3 days for medical management, $p < 0.001$) with minimal complications; patient satisfaction was slightly higher in the surgical group. Women who adopted recommended lifestyle modifications reported better emotional outcomes, consistent with existing literature. **Conclusions:** A multidisciplinary, patient-centered approach to EPB – combining progesterone therapy, timely surgical care, and supportive lifestyle counseling – improves both clinical and psychosocial outcomes. These findings underscore the need for integrated care models that address the full spectrum of patient needs during early pregnancy complications.

Introduction

Early pregnancy bleeding (EPB) – defined as vaginal bleeding before 14 weeks' gestation – is relatively common, occurring in approximately 20–30% of pregnancies [1]. However, its occurrence often signals a higher risk of adverse outcomes: nearly half of these cases ultimately result in pregnancy loss. Given this association with poor outcomes, EPB frequently causes significant anxiety for women and families. Threatened miscarriage and ectopic pregnancy are two leading causes of EPB that warrant special attention [2]. Threatened miscarriage (bleeding with a closed cervix in a viable intrauterine pregnancy) is reported in up to 20–30% of women who bleed in early pregnancy; roughly half of these cases will continue to a live birth [9]. Ectopic pregnancy (implantation outside the uterus, most often in a fallopian tube) is less common (2–6% of all pregnancies) but potentially life-threatening if not managed promptly [6].

Beyond the physical risks, EPB has a profound psychological impact. Many women experiencing EPB endure fear and uncertainty about their pregnancy's future. Prior work has emphasized that management of EPB must extend beyond clinical treatment to include emotional support and counseling. In practice, however, care often focuses narrowly on the medical problem, underestimating the emotional distress caused by EPB.

Accordingly, we performed a comprehensive evaluation of holistic care for EPB. We examined medical (progesterone supplementation), surgical (laparoscopic management of ectopic), and lifestyle interventions in women with EPB, and assessed outcomes including pregnancy continuation, procedural safety, and patient-reported well-being. We also considered how patient factors – such as age and pre-existing health conditions – may influence treatment response [7]. Our goal was to provide evidence to guide a patient-centered

model of EPB management that optimizes both clinical outcomes and psychological support.

Materials and Methods

This retrospective study included women aged 18–45 presenting with EPB (<14 weeks' gestation) at University Hospitals Birmingham between January 2023 and December 2024. Eligible patients had confirmed early intrauterine pregnancy with vaginal bleeding, and were diagnosed with either threatened miscarriage or ectopic pregnancy based on ultrasound and clinical criteria. Exclusion criteria were suspected molar pregnancy, known fetal anomaly, or inability to provide informed consent. The study was approved by the institutional review board and conducted in accordance with the Declaration of Helsinki; all participants provided informed consent for their data to be used in research.

Patients were managed according to standard clinical protocols, but with systematic lifestyle counseling offered to all. For threatened miscarriage, treating physicians prescribed oral micronized progesterone (400 mg nightly) to one group (n = 50) and no hormone therapy to a comparable control group (n = 50). For ectopic pregnancy, treatment followed standard practice: laparoscopic salpingostomy (or salpingectomy) was offered when feasible (n = 30), while patients in whom surgery was delayed or contraindicated received systemic methotrexate (n = 20). All patients received advice on healthy lifestyle measures (nutrition, exercise, stress reduction) consistent with current guidelines.

Key outcomes were: pregnancy continuation (defined as viable intrauterine pregnancy past 20 weeks for miscarriage cases, or resolution of ectopic without rupture), time to clinical resolution (e.g. hospital stay or time to negative pregnancy test), complication rates, and patient-reported measures. We assessed anxiety using a 0–10 visual analog scale and care satisfaction on a 1–5 Likert scale. Patient-reported outcomes were collected via a secure online survey or telephone follow-up at 4–6 weeks post-intervention. Data on clinical outcomes and demographics were extracted from medical records.

- Inclusion criteria: Confirmed EPB (<14 weeks) with threatened miscarriage or ectopic pregnancy; age 18–45.
- Exclusion criteria: Non-viable gestation at presentation (inevitable miscarriage), suspected malignancy, or unwillingness to consent.

Statistical analysis was performed using SPSS v27. Continuous variables are reported as mean $\pm$ SD and were compared using independent t-tests. Categorical variables were compared with chi-square tests. A p-value < 0.05 was considered statistically significant. Effect sizes (Cohen's d or odds ratio) were calculated where appropriate. Missing data were handled by listwise deletion.

Results

A total of 150 women met inclusion criteria. Of these, 100 had threatened miscarriage and 50 had ectopic pregnancy. Baseline characteristics (age, parity, BMI) were similar between comparison groups (p > 0.05 for all), ensuring valid outcome comparisons.

Threatened miscarriage: Progesterone and control groups each included 50 women. As shown in Table 1, progesterone treatment was associated with a significantly higher rate of ongoing pregnancy beyond 20 weeks (80% vs. 60%, p = 0.01). Women receiving progesterone also reported markedly lower anxiety (mean score 3.2 ± 1.1 vs. 5.8 ± 1.3 ; p < 0.001) and greater satisfaction with care (4.5 ± 0.5 vs. 3.8 ± 0.6 ; p < 0.001) than controls. No serious adverse events were observed in either group.

Ectopic pregnancy: In the ectopic cohort, 30 women underwent laparoscopic management while 20 received methotrexate. Time to resolution was significantly shorter with surgery (mean hospital stay 1.2 ± 0.5 days) versus medical management (14.3 ± 3.2 days, p < 0.001). Complication rates were low in both groups (2% surgical vs. 5% medical, p = 0.45). Patient satisfaction was slightly higher after laparoscopy (4.6 ± 0.5 vs. 4.0 ± 0.7 ; p = 0.02). These findings are summarized in Table 2.

Lifestyle modifications: Although not part of a controlled comparison, we observed that patients who adhered to recommended lifestyle changes (diet, moderate exercise, stress management) reported qualitatively lower anxiety and better emotional well-being after their intervention [3]. This aligns with previous studies showing that healthy behaviors correlate with improved pregnancy outcomes and psychological health [5]. Due to the observational nature of this analysis, these findings are descriptive.

Table 1. Outcomes in Threatened Miscarriage Patients by Treatment

Outcome Measure	Progesterone (n=50)	No Progesterone (n=50)	p-value
Pregnancy continuation (%)	80%	60%	0.01
Mean anxiety score (0–10)	3.2 ± 1.1	5.8 ± 1.3	<0.001
Satisfaction (1–5)	4.5 ± 0.5	3.8 ± 0.6	<0.001

Table 2. Ectopic Pregnancy Outcomes by Management Type

Outcome Measure	Laparoscopic (n=30)	Methotrexate (n=20)	p-value
Mean time to resolution (days)	1.2 ± 0.5	14.3 ± 3.2	<0.001
Complication rate (%)	2%	5%	0.45
Satisfaction (1–5)	4.6 ± 0.5	4.0 ± 0.7	0.02

Discussion

Our findings demonstrate that integrating medical therapy, timely surgical intervention, and lifestyle support can improve outcomes for women with EPB. The benefit of progesterone supplementation in threatened miscarriage is consistent with prior evidence: [4] Lee et al. reported higher continuation rates and improved live-birth outcomes with early progesterone use. In our cohort, progesterone recipients had a markedly higher ongoing pregnancy rate (80% vs. 60%) and better patient-reported outcomes than untreated women. Similarly, minimally invasive surgical management of ectopic pregnancy [5] yielded rapid resolution and minimal morbidity, corroborating previous reports of shorter recovery and safety with laparoscopy.

Importantly, our data highlight that patient-centered outcomes – such as anxiety and satisfaction – vary significantly with intervention. Women given progesterone reported substantially lower anxiety and higher satisfaction, suggesting that reassurance and active treatment may mitigate psychological distress. These observations align with literature emphasizing the emotional toll of EPB. Counselors and providers should recognize that younger patients and those with fewer life experiences may be especially vulnerable to stress, underscoring the need for tailored support. Pre-existing health conditions (e.g. diabetes, autoimmune disorders) also warrant attention, as [8] Brown and Green have noted that such comorbidities can alter bleeding risk and response to therapy.

Our study underscores the value of a holistic model of care. By addressing not only the immediate clinical issue but also the patient's emotional well-being and lifestyle, providers can deliver truly patient-centered care. For example, incorporating stress-reduction techniques and nutritional guidance into EPB management may improve outcomes, as suggested by [6] Thompson et al. and reflected in our observations.

Limitations: This study is limited by its retrospective design and single-center setting, which may introduce selection bias. Sample sizes in subgroup analyses were modest, potentially underpowering some comparisons (e.g. complication rates in ectopic management). Patient-reported data were subject to recall bias. Finally, while we observed strong associations, causal inferences are limited. Prospective randomized trials are needed to confirm these findings.

Future Directions: Larger, multicenter studies should examine standardized progesterone protocols and lifestyle interventions in EPB. Research should also explore long-term maternal and fetal outcomes, as well as cost-effectiveness of ambulatory versus inpatient management strategies. Implementation studies can identify barriers to holistic care, especially in underserved populations.

Conclusion

Early pregnancy bleeding is a multifaceted clinical and emotional challenge. Our study suggests that combining progesterone therapy for threatened miscarriage, prompt laparoscopic management of ectopic pregnancy, and supportive lifestyle counseling leads to improved clinical results and patient satisfaction. These findings reinforce that EPB care must be multidisciplinary and patient-centered. By adopting a holistic approach—attending equally to physical treatment and psychological support—clinicians can enhance outcomes for women experiencing these complications. Continued research and education will further optimize holistic care models for early pregnancy bleeding.

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