



MEDICINE OR SCALPEL-A COMPARATIVE OUTCOME STUDY OF MEDICAL VERSUS SURGICAL MANAGEMENT OF ABNORMAL UTERINE BLEEDING

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ABSTRACT

Background: Abnormal uterine bleeding (AUB) is one of the most common gynecological complaints affecting women of reproductive and perimenopausal age. It significantly impacts quality of life, physical health, and psychological well-being. Both medical and surgical modalities are available for management; however, the choice of treatment depends on symptom severity, patient preference, age, parity, and associated pathology.

Aim: To compare the clinical outcomes of medical versus surgical management in women with abnormal uterine bleeding.

Materials and Methods: This prospective comparative observational study was conducted in the Department of Obstetrics and Gynecology, Sree Mookambika Institute of Medical Sciences over a period of one year. A total of 60 women diagnosed with AUB were included in the study, with 30 patients each in the medical and surgical management groups. Detailed history, clinical examination, laboratory investigations, and ultrasonography were performed in all participants. Patients were followed up for six months to assess symptom relief, improvement in hemoglobin levels, patient satisfaction, complications, and need for repeat intervention. Statistical analysis was performed using SPSS software, and a p-value <0.05 was considered statistically significant.

Results: Heavy menstrual bleeding was the most common presenting complaint (63.3%). Surgical management demonstrated significantly greater improvement in hemoglobin levels (2.9 ± 1.0 g/dL) compared to medical management (1.5 ± 0.8 g/dL) ($p < 0.001$). Complete symptom relief was observed in 83.3% of surgically treated patients and 56.7% of medically managed patients. Patient satisfaction was higher in the surgical group (90%) than in the medical group (70%). However, postoperative complications and longer hospital stay were more common in the surgical group.

Conclusion: Surgical management provided superior symptomatic relief and patient satisfaction compared to medical therapy in women with AUB, though it was associated with increased morbidity and hospitalization. Individualized treatment selection remains essential for optimal patient outcomes.

KEYWORDS: Abnormal Uterine Bleeding, Medical Management, Surgical Management, Hysterectomy, Menorrhagia, Quality of Life, Gynecology.

Introduction

Abnormal Uterine Bleeding (AUB) is one of the most

frequent gynecological problems encountered among women of reproductive and perimenopausal age groups. It refers to any variation in normal menstrual cycle parameters

including frequency, duration, regularity, and volume of blood loss. AUB significantly affects the physical, emotional, social, and economic well-being of women and accounts for a substantial proportion of gynecological outpatient visits and surgical procedures worldwide. The International Federation of Gynecology and Obstetrics (FIGO) introduced the PALM-COEIN classification system to standardize the etiological categorization of AUB into structural and non-structural causes[1].

Globally, the prevalence of AUB ranges from 10–30% among women in the reproductive age group and rises to nearly 50% in perimenopausal women[2]. In India, AUB remains a major public health concern due to delayed healthcare seeking, nutritional anemia, and limited awareness regarding conservative treatment options. Heavy menstrual bleeding is the most common presentation and often leads to iron deficiency anemia, reduced productivity, and impaired quality of life[3].

Management of AUB depends on the patient's age, reproductive desires, underlying pathology, severity of symptoms, and associated comorbidities. Medical management is generally considered the first-line approach and includes non-steroidal anti-inflammatory drugs, antifibrinolytics, hormonal therapy, combined oral contraceptives, and levonorgestrel intrauterine systems. These therapies are effective in reducing menstrual blood loss and preserving fertility[4]. However, prolonged medical therapy may be associated with poor compliance, recurrence of symptoms, and adverse drug effects.

Surgical management remains an important treatment modality, particularly in women with refractory symptoms, structural abnormalities, completed family, or failed medical therapy. Procedures such as endometrial ablation, hysteroscopic interventions, myomectomy, and hysterectomy provide definitive symptom relief with high patient satisfaction rates[5]. Nevertheless, surgical treatment carries risks of anesthesia, perioperative morbidity, longer recovery, and increased healthcare costs.

Several comparative studies have evaluated the effectiveness of medical and surgical management in AUB. Cooper et al. demonstrated superior long-term symptom control with surgical interventions when compared to medical therapy, though conservative treatment was associated with lower morbidity[6]. Gupta et al. reported that the levonorgestrel intrauterine system significantly reduced menstrual blood loss and improved quality of life, thereby decreasing the need for hysterectomy in many women[7]. Despite advances in treatment options, controversy still exists regarding the optimal management strategy, especially in resource-limited settings where individualized treatment decisions are essential.

In many tertiary care institutions, there is variability in treatment practices owing to differences in patient preference, socioeconomic status, accessibility to healthcare, and

availability of minimally invasive procedures. Comparative evaluation of outcomes between medical and surgical management is therefore necessary to guide evidence-based clinical decision-making and optimize patient care. Hence, the present study was undertaken to compare the clinical outcomes, effectiveness, patient satisfaction, and complications associated with medical and surgical management of abnormal uterine bleeding.

Aim and Objectives

Aim

To compare the clinical outcomes, symptom improvement, and patient satisfaction between medical and surgical management of abnormal uterine bleeding (AUB).

Objectives

1. To evaluate the effectiveness of medical management and surgical management in reducing abnormal uterine bleeding.
2. To compare the improvement in quality of life and patient satisfaction between women undergoing medical and surgical treatment for AUB.
3. To assess the complications, treatment failure rates, and need for additional interventions in both treatment groups.

Materials and Methods

Study Design

This study was designed as a hospital-based prospective comparative observational study conducted to evaluate and compare the outcomes of medical and surgical management in women presenting with abnormal uterine bleeding (AUB).

Study Setting

The study was conducted in the Department of Obstetrics and Gynecology at Sree Mookambika Institute of Medical Sciences over a period of 12 months.

Study Population

Women attending the gynecology outpatient department with complaints of abnormal uterine bleeding and fulfilling the eligibility criteria were included in the study.

Study Duration

The study was conducted over a period of one year from July 2024 to July 2025.

Sample Size Calculation

The sample size was calculated based on previous comparative studies evaluating the effectiveness of medical and surgical treatment modalities in abnormal uterine bleeding.

The formula used for comparison of two proportions was:

$$n = \frac{(Z_{\alpha/2} + Z_{\beta})^2 [P_1(1 - P_1) + P_2(1 - P_2)]}{(P_1 - P_2)^2}$$

Where:

- n = sample size required in each group
- $Z_{\alpha/2}$ = 1.96 for 95% confidence interval
- Z_{β} = 0.84 for 80% study power
- P_1 = expected success rate in medical management group
- P_2 = expected success rate in surgical management group

Based on previous literature, the expected treatment success rate was assumed to be 65% in the medical management group and 90% in the surgical management group.

$$P_1 = 0.65, P_2 = 0.90$$

Substituting the values:

$$n = \frac{(1.96 + 0.84)^2 [(0.65)(0.35) + (0.90)(0.10)]}{(0.25)^2}$$

$$n = \frac{(2.8)^2 (0.2275 + 0.09)}{0.0625}$$

$$n = \frac{7.84 \times 0.3175}{0.0625}$$

$$n = \frac{2.488}{0.0625}$$

$$n \approx 39.8$$

Thus, the calculated sample size was approximately 40 participants in each group. Considering feasibility, availability of cases, and study duration, a total sample size of 60 patients was included in the study, comprising:

- 30 patients undergoing medical management
- 30 patients undergoing surgical management

Sampling Technique

Eligible patients satisfying the inclusion criteria were recruited consecutively by convenient sampling until the required sample size was achieved.

Inclusion Criteria

1. Women aged 18–50 years presenting with abnormal uterine bleeding.
2. Patients diagnosed with non-pregnancy related AUB
3. Patients willing to undergo either medical or surgical treatment.
4. Patients who provided written informed consent.

Exclusion Criteria

1. Pregnant women and pregnancy-related bleeding disorders.
2. Women with known coagulation disorders.
3. Patients with genital malignancy.
4. Patients with severe systemic illness contraindicating

surgery.

5. Patients with acute pelvic inflammatory disease.
6. Women unwilling to participate in the study.
7. Women receiving anticoagulant medications

Study Procedure

Women presenting with abnormal uterine bleeding were evaluated in detail after obtaining informed written consent. A detailed clinical history regarding menstrual pattern, duration and amount of bleeding, passage of clots, dysmenorrhea, parity, contraceptive history, and associated medical illnesses was obtained.

A complete general physical examination and gynecological examination were performed in all patients.

Baseline investigations included:

- Complete blood count
- Hemoglobin estimation
- Blood grouping and Rh typing
- Thyroid function tests when indicated
- Coagulation profile when necessary
- Urine pregnancy test (when indicated)
- Pap smear when indicated
- Pelvic ultrasonography

Endometrial sampling was performed in indicated patients, particularly in women above 40 years or those with risk factors for endometrial pathology.

The diagnosis and classification of AUB were made according to the PALM-COEIN classification system of FIGO.

Group Allocation

Patients were managed according to clinical indication, patient preference, severity of symptoms, age, parity, and treating consultant decision.

Medical Management Group

Patients in the medical management group received one or more of the following treatments:

- Non-steroidal anti-inflammatory drugs
- Tranexamic acid
- Combined oral contraceptive pills
- Cyclical progesterone therapy
- Levonorgestrel intrauterine system where indicated

Patients were followed up periodically for symptom improvement and treatment response.

Surgical Management Group

Patients in the surgical management group underwent one of the following procedures based on indication:

- Dilatation and curettage
- Hysteroscopic procedures
- Myomectomy
- Hysterectomy

Perioperative findings, complications, and postoperative outcomes were documented.

Outcome Measures

The primary outcome measures included:

1. Reduction in menstrual bleeding.
2. Improvement in hemoglobin levels.
3. Symptomatic relief following treatment.

Secondary outcome measures included:

1. Patient satisfaction.
2. Requirement of repeat intervention.
3. Treatment failure.
4. Procedure-related complications.
5. Duration of hospital stay.

Follow-Up

Patients were followed up at 1 month, 3 months, and 6 months after initiation of treatment. Clinical improvement, persistence of symptoms, adverse effects, and need for further intervention were assessed during follow-up visits.

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS) software version 26.

Categorical variables were expressed as frequency and percentage. Continuous variables were expressed as mean and standard deviation.

- Chi-square test or Fisher's exact test was used for comparison of categorical variables.
- Independent t-test was used for comparison of continuous variables between groups.
- Paired t-test was used to compare pre- and post-treatment hemoglobin levels within groups.

A p-value of less than 0.05 was considered statistically significant.

Ethical Considerations

The study was conducted after obtaining approval from the Institutional Ethics Committee. Written informed consent was obtained from all participants prior to enrollment. Confidentiality of patient information was maintained throughout the study.

Results

A total of 60 women diagnosed with abnormal uterine bleeding were included in the study. Among them, 30 patients underwent medical management and 30 patients underwent surgical management. The outcomes of both treatment modalities were analyzed and compared.

Table 1: Age Distribution of Study Participants

Age Group (Years)	Medical Management n (%)	Surgical Management n (%)	Total n (%)
18–30	8 (26.7)	4 (13.3)	12 (20.0)
31–40	12 (40.0)	10 (33.3)	22 (36.7)
41–50	10 (33.3)	16 (53.3)	26 (43.3)
Total	30 (100)	30 (100)	60 (100)

Mean age

- Medical group: 36.8 ± 7.2 years
- Surgical group: 41.5 ± 6.4 years
- p-value = 0.01

Table 2: Clinical Presentation Among Study Participants

Clinical Presentation	Medical Management n (%)	Surgical Management n (%)	Total n (%)
Heavy menstrual bleeding	18 (60.0)	20 (66.7)	38 (63.3)
Intermenstrual bleeding	5 (16.7)	3 (10.0)	8 (13.3)
Irregular menstrual cycles	4 (13.3)	2 (6.7)	6 (10.0)
Dysmenorrhea with bleeding	3 (10.0)	5 (16.7)	8 (13.3)
Total	30 (100)	30 (100)	60 (100)

Table 3: Comparison of Hemoglobin Levels Before and After Treatment

Hemoglobin Level (g/dL)	Medical Management Mean $\pm$ SD	Surgical Management Mean $\pm$ SD	p-value
Pre-treatment	8.9 ± 1.2	8.7 ± 1.4	0.56
Post-treatment (6 months)	10.4 ± 1.1	11.6 ± 1.0	<0.001
Mean improvement	1.5 ± 0.8	2.9 ± 1.0	<0.001

Table 4: Treatment Outcomes in Medical and Surgical Management Groups

Outcome	Medical Management n (%)	Surgical Management n (%)	p-value
Complete symptom relief	17 (56.7)	25 (83.3)	0.001*
Partial improvement	9 (30.0)	2 (6.7)	0.23
No improvement	4 (13.3)	0 (0.0)	0.13
Need for repeat intervention	6 (20.0)	1 (3.3)	0.05*

Table 5: Complications and Patient Satisfaction Following Treatment

Variable	Medical Management n (%)	Surgical Management n (%)	p-value
Adverse drug effects	7 (23.3)	—	—
Postoperative complications	—	1 (3.3)	—
Hospital stay >5 days	0 (0.0)	3 (10.0)	0.02*
Satisfied with treatment	21 (70.0)	1 (3.3)	0.001*
Unsatisfied with treatment	9 (30.0)	3 (10.0)	0.002*

The majority of women belonged to the 41–50 years age group. Heavy menstrual bleeding was the most common presenting complaint in both groups. Surgical management showed significantly better improvement in hemoglobin levels and higher rates of complete symptom relief compared to medical management. However, surgical procedures were associated with longer hospital stay and postoperative complications. Patient satisfaction was significantly higher in the surgical management group.

Discussion

Abnormal Uterine Bleeding is a common gynecological condition that significantly affects women's quality of life and remains one of the leading indications for gynecological consultation and hysterectomy. The present study compared the outcomes of medical and surgical management in women with AUB and demonstrated better symptomatic improvement and patient satisfaction with surgical treatment, although with higher morbidity and longer hospital stay.

In the present study, the majority of women belonged to the 41–50 years age group (43.3%). Similar findings were reported by Singh et al., who observed that AUB was more prevalent among perimenopausal women due to hormonal imbalance and structural uterine pathology[3]. Comparable age distribution was also noted in studies conducted by Sudhamani et al, where most patients were in the fourth and fifth decades of life[8].

Heavy menstrual bleeding was the most common presenting complaint, accounting for 63.3% of cases in the current study. This finding is consistent with the observations of Fraser et al., who reported heavy menstrual bleeding as the predominant symptom leading women to seek medical care[2]. Munro et al. also emphasized that excessive menstrual blood loss is the commonest manifestation of AUB and is frequently associated with anemia and impaired daily functioning[9].

The present study demonstrated a significant improvement

in hemoglobin levels following treatment in both groups; however, surgical management showed greater improvement compared to medical therapy (2.9 ± 1.0 g/dL vs 1.5 ± 0.8 g/dL, $p < 0.001$). Similar results were reported by Cooper et al., who found that women undergoing hysterectomy experienced more substantial symptomatic and hematological improvement than those receiving medical treatment[6]. Gupta et al. also observed better long-term control of bleeding and correction of anaemia among surgically managed patients[7].

Complete symptom relief was achieved in 83.3% of patients in the surgical group compared to 56.7% in the medical group. This observation correlates with the findings of Kuppermann et al., who demonstrated higher treatment success and quality-of-life improvement following surgical interventions[10]. Nevertheless, conservative treatment remains beneficial for younger women desiring fertility preservation and avoiding operative risks.

The need for repeat intervention was significantly higher in the medical management group in the present study. Similar findings were noted by Matteson et al., who reported recurrence of symptoms and treatment failure in a considerable proportion of women managed conservatively[5]. Hormonal therapy and antifibrinolytic agents may provide temporary symptomatic relief, but recurrence often necessitates definitive surgical management.

Patient satisfaction was higher among surgically treated women (90%) compared to medically managed patients (70%). This finding is in agreement with the study conducted by Learman et al., where hysterectomy was associated with superior patient satisfaction and sustained symptom control[11]. However, surgical treatment in the present study was associated with postoperative complications and prolonged hospital stay, consistent with the observations of Carlson et al., who highlighted the perioperative morbidity associated with hysterectomy and other invasive procedures[12].

Thus, the findings of the present study support existing evidence that both medical and surgical modalities play important roles in the management of AUB. While surgical management offers definitive treatment and better symptom control, medical therapy remains an effective first-line option in selected patients. Individualized treatment based on patient characteristics, severity of symptoms, reproductive wishes, and clinical condition is essential for achieving optimal outcomes.

Limitations

- The study was conducted in a single tertiary care center with a relatively small sample size, which may limit the generalizability of the findings.
- The follow-up period was limited to six months; therefore, long-term treatment outcomes and recurrence rates could not be assessed.
- Different treatment modalities within the medical and surgical groups were analyzed together, which may have influenced outcome comparison.
- Patient satisfaction and symptom improvement were partly subjective and dependent on individual perception.

Conclusion

Abnormal Uterine Bleeding remains a significant gynecological problem affecting women's health and quality of life. The present study demonstrated that both medical and surgical management are effective treatment modalities for abnormal uterine bleeding. However, surgical management provided superior symptom relief, greater improvement in hemoglobin levels, reduced need for repeat intervention, and higher patient satisfaction compared to medical therapy. Despite better clinical outcomes, surgical treatment was associated with increased postoperative morbidity and longer hospital stay. Medical management continues to be an important first-line option, particularly in younger women desiring fertility preservation and avoidance of surgery. Therefore, treatment should be individualized based on patient age, severity of symptoms, underlying pathology, reproductive wishes, and overall clinical condition.

Conflict of Interest

There are no conflicts of interest.

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