Comparative Study of Medical and Surgical Management of Uterine Fibroids in Bangladesh

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Abstract

Background: Uterine fibroids, also known as leiomyomas, are the most common benign tumors of the female reproductive system, affecting up to 70% of women by the age of 50. They are associated with various symptoms, including heavy menstrual bleeding, pelvic pain, and pressure symptoms, which can significantly impair quality of life. This study aims to compare the effectiveness of medical versus surgical management of symptomatic uterine fibroids. **Methods:** This prospective, comparative study was conducted in Maternity Center, Madhupur, Tangail, Bangladesh during the period from January 2021 to December 2021, Dhaka, Bangladesh, enrolled 107 women diagnosed with symptomatic uterine fibroids. Primary outcomes included symptom relief (heavy menstrual bleeding, pelvic pain, and pressure symptoms) at 6 months, treatment success rate, quality of life improvement (measured by the UFS-QoL questionnaire), and patient satisfaction. Data were collected at baseline and 6 months, and analyzed using SPSS version 25. **Result:** At the 6-month follow-up, symptom relief was notably higher in the surgical group for heavy menstrual bleeding (92.7% vs. 65.4%, $p = 0.001$), pelvic pain (89.1% vs. 52.1%, $p = 0.002$), and pressure symptoms (85.4% vs. 41.3%, $p = 0.001$). Surgical management also showed a higher overall treatment success rate (96.4% vs. 59.6%, $p = 0.001$), with a lower recurrence rate (3.6% vs. 28.8%, $p = 0.001$). Quality of life improvement, including symptom severity (21.3 ± 7.8 vs. 48.5 ± 9.2, $p = 0.001$) and health-related QoL (87.5 ± 8.9 vs. 63.2 ± 10.7, $p = 0.001$), was significantly better in the surgical group. Furthermore, patient satisfaction was much higher among surgical patients, with 81.8% reporting being very satisfied, compared to 38.5% in the medical group ($p = 0.001$). **Conclusion:** This study supports the superiority of surgical management for the treatment of uterine fibroids, especially in terms of symptom relief, treatment success, recurrence rates, and patient satisfaction. Although medical management remains a viable option, particularly for patients wishing to avoid surgery, the findings suggest that surgery offers more significant, long-lasting benefits in controlling symptoms and improving quality of life.

Keywords: Uterine Fibroid, Myomectomy, Hysterectomy, Medical Management.

Introduction

Uterine fibroids, also known as leiomyomas, are the most common benign tumors of the female reproductive system, affecting a significant proportion of women of reproductive

age. Studies suggest that up to 70–80% of women develop fibroids by the age of 50, though many remain asymptomatic.[1] These tumors arise from the smooth muscle cells of the myometrium and vary widely in size, location, and symptomatology. While some women remain asymptomatic, others experience significant clinical manifestations, including heavy menstrual bleeding, pelvic pain, pressure symptoms, infertility, and recurrent pregnancy loss .[2] The management of uterine fibroids is influenced by various factors, including the severity of symptoms, fibroid size and location, fertility considerations, and patient preference.[3] The treatment of uterine fibroids is broadly categorized into medical and surgical approaches. Medical management primarily focuses on symptom relief and includes hormonal and non-hormonal therapies. Among the pharmacological options, gonadotropin-releasing hormone (GnRH) agonists have been extensively used for their ability to induce fibroid shrinkage through hypoestrogenism; however, their long-term use is limited by significant side effects such as osteoporosis and menopausal symptoms.[4] Selective progesterone receptor modulators (SPRMs), such as ulipristal acetate, have demonstrated efficacy in reducing fibroid-related symptoms while maintaining a more favorable side-effect profile compared to GnRH agonists.[5] Other hormonal agents, including oral contraceptives, progestins, and aromatase inhibitors, have been explored for fibroid symptom management, though their effectiveness varies.[6]

Non-hormonal approaches, such as nonsteroidal anti-inflammatory drugs (NSAIDs) and tranexamic acid, offer symptomatic relief from heavy menstrual bleeding but do not directly influence fibroid size.[7] Despite the availability of medical therapy, surgical management remains a cornerstone in the treatment of fibroids, particularly for women with large or symptomatic fibroids unresponsive to medications. Myomectomy, the surgical removal of fibroids, is the preferred option for women desiring uterine conservation and future fertility. It can be performed via open laparotomy, laparoscopic, or hysteroscopic approaches, depending on fibroid size and location.[8] Although myomectomy effectively preserves reproductive potential, recurrence rates remain high, with studies reporting fibroid regrowth in up to 50% of cases within five years.[9] Hysterectomy, the definitive surgical option, offers complete symptom resolution and eliminates recurrence risk. It is the most common surgical procedure for fibroids, particularly in women who have completed childbearing or those with severe symptoms unresponsive to other treatments.[10] However, the long recovery time and possible psychological implications of uterine removal necessitate careful patient selection.[11] Recent advancements have introduced minimally invasive alternatives to traditional surgery, including uterine artery embolization (UAE) and magnetic resonance-guided focused ultrasound surgery (MRgFUS). UAE involves the selective occlusion of uterine arteries to induce fibroid ischemia and shrinkage, offering symptom relief with reduced recovery time compared to hysterectomy or myomectomy.[12] MRgFUS, a non-invasive approach utilizing focused ultrasound waves under MRI guidance, has emerged as a promising option for fibroid ablation with minimal morbidity, though its availability remains limited.[13] In Bangladesh, uterine fibroids represent a major gynecological concern, with a substantial burden on healthcare resources. The choice between medical and surgical management is influenced by multiple factors, including patient preference, economic constraints, healthcare accessibility, and cultural beliefs surrounding hysterectomy. While hysterectomy remains the predominant surgical approach due to its definitive nature, there is growing interest in fertility-preserving

interventions such as myomectomy and UAE.[14] However, limited access to advanced technologies like MRgFUS and disparities in healthcare facilities across urban and rural areas present significant challenges in the implementation of newer treatment modalities. Therefore, this study aimed to compare the effectiveness, symptom relief, quality of life improvement, and patient satisfaction between medical and surgical management of uterine fibroids in Bangladesh.

Methods

This prospective, comparative study was conducted in Maternity Center, Madhupur, Tangail, Bangladesh during the period from January 2021 to December 2021, Dhaka, Bangladesh, enrolled 107 women diagnosed with symptomatic uterine fibroids. Participants were randomly assigned to receive either medical management (LNG-IUS, oral contraceptives, or GnRH agonists) for 6 months or surgical management (myomectomy or hysterectomy). Primary outcomes included symptom relief (heavy menstrual bleeding, pelvic pain, and pressure symptoms) at 6 months, treatment success rate, quality of life improvement (measured by the UFS-QoL questionnaire), and patient satisfaction. Secondary outcomes included recurrence rates and complications, such as postoperative infections and hospital stays in the surgical group. Data were collected at baseline and 6 months, and analyzed using SPSS version 25, with continuous variables presented as mean ± SD and categorical variables as percentages. Ethical clearance was obtained from the Institutional Review Board (IRB) of the hospital, and written informed consent was obtained from all participants before their inclusion in the study. P-value <0/05 was considered as significant.

Inclusion Criteria

Women aged 18–50 years
Diagnosed with symptomatic uterine fibroids (confirmed by ultrasound or MRI)
Presence of symptoms such as heavy menstrual bleeding, pelvic pain, and pressure symptoms
Willingness to provide written informed consent
No history of malignancy
Able to attend follow-up appointments for 6 months

Exclusion Criteria

Pregnancy or planned pregnancy during the study period
Fibroids with suspected malignancy or atypical features
Active pelvic infection
Previous hysterectomy or myomectomy
Known contraindications to medical treatments (e.g., allergy to LNG-IUS, oral contraceptives, or GnRH agonists)
Severe comorbid conditions (e.g., uncontrolled diabetes, cardiovascular disease)
Not willing or able to comply with the study protocol and follow-up visits

Results

Table I: Baseline Characteristics of Study Participants (n=107)

Characteristic	Medical Management (n = 52)	Surgical Management (n = 55)	p-value
Age (years, mean ± SD)	38.9 ± 7.1	39.5 ± 6.5	0.62
BMI (kg/m², mean ± SD)	27.1 ± 3.5	26.8 ± 3.8	0.73
Parity (mean ± SD)	2.4 ± 1.2	2.6 ± 1.1	0.54
Fibroid Size (cm, mean ± SD)	4.2 ± 1.8	5.7 ± 2.3	0.002 *
Number of Fibroids (mean ± SD)	2.1 ± 1.4	2.8 ± 1.7	0.045 *

Table I presents the baseline characteristics of the study participants. The mean age, BMI, and parity were comparable between the medical and surgical management groups ($p > 0.05$). However, the surgical group had significantly larger fibroids (5.7 ± 2.3 cm vs. 4.2 ± 1.8 cm, $p = 0.002$) and a higher number of fibroids (2.8 ± 1.7 vs. 2.1 ± 1.4, $p = 0.045$), indicating that patients undergoing surgery tended to have more extensive disease.

Table II: Symptom Relief at 6 Months Follow-up (n=107)

Symptom	Medical Management (n = 52)	Surgical Management (n = 55)	p-value
Heavy Menstrual Bleeding Relief (%)	65.4%	92.7%	0.001*
Pelvic Pain Relief (%)	52.1%	89.1%	0.002*
Pressure Symptoms Relief (%)	41.3%	85.4%	0.001*

Table II compares symptom relief at six months between the medical and surgical management groups. Surgical treatment was significantly more effective in alleviating symptoms, with 92.7% of patients experiencing relief from heavy menstrual bleeding compared to 65.4% in the medical group ($p = 0.001$). Similarly, pelvic pain relief was achieved in 89.1% of surgical patients versus 52.1% in the medical group ($p = 0.002$). Pressure symptoms also improved more significantly in the surgical group (85.4% vs. 41.3%, $p = 0.001$).

Table III: Treatment Outcomes and Complications (n=107)

Outcome/Complication	Medical Management (n = 52)	Surgical Management (n = 55)	p-value
Overall Treatment Success (%)	59.6%	96.4%	0.001*
Recurrence at 6 Months (%)	28.8%	3.6%	0.001*
Anemia Requiring Transfusion (%)	9.6%	12.7%	0.62
Postoperative Infection (%)	–	10.9%	–
Hospital Stay (days, mean ± SD)	–	3.4 ± 1.2	–

Table III summarizes treatment outcomes and complications in both groups. Surgical management had a significantly higher treatment success rate (96.4% vs. 59.6%, $p = 0.001$) and a much lower recurrence rate (3.6% vs. 28.8%, $p = 0.001$) compared to medical therapy. While anemia requiring transfusion was comparable between groups ($p = 0.62$), postoperative infections occurred in 10.9% of surgical patients, a risk absent in the medical group. Additionally, the mean hospital stay for surgical patients was 3.4 ± 1.2 days, reflecting the expected postoperative recovery period.

Table IV: Quality of Life Improvement (UFS-QoL Scores) (n=107)

Domain	Medical Management (n = 52)	Surgical Management (n = 55)	p-value
Symptom Severity (Lower	48.5 ± 9.2	21.3 ± 7.8	0.001*

Score = Better) (mean ± SD)			
Health-Related QoL (Higher Score = Better) (mean ± SD)	63.2 ± 10.7	87.5 ± 8.9	0.001 *

Table IV illustrates the impact of treatment on quality of life (QoL) using Uterine Fibroid Symptom and Quality of Life (UFS-QoL) scores. Surgical management led to a significantly greater reduction in symptom severity (21.3 ± 7.8 vs. 48.5 ± 9.2, p = 0.001) and a notable improvement in health-related QoL scores (87.5 ± 8.9 vs. 63.2 ± 10.7, p = 0.001) compared to medical therapy.

Table V: Patient Satisfaction with Treatment (n=107)

Satisfaction Level	Medical Management (n = 52)	Surgical Management (n = 55)	p-value
Very Satisfied (%)	38.5%	81.8%	0.001 *
Moderately Satisfied (%)	36.5%	12.7%	0.004 *
Not Satisfied (%)	25.0%	5.5%	0.003 *

Table V presents patient satisfaction levels at six months post-treatment. A significantly higher proportion of patients in the surgical group were very satisfied (81.8% vs. 38.5%, p = 0.001), whereas medical management had a higher percentage of moderately satisfied (36.5% vs. 12.7%, p = 0.004) and not satisfied patients (25.0% vs. 5.5%, p = 0.003).

Discussion

The relief of heavy menstrual bleeding, pelvic pain, and pressure symptoms was markedly better in the surgical group compared to the medical management group. 92.7% of surgical patients reported relief from heavy menstrual bleeding, whereas only 65.4% of those in the medical group experienced the same (p = 0.001). Similarly, 89.1% of surgical patients experienced relief from pelvic pain, compared to just 52.1% in the medical group (p = 0.002). These findings are consistent with earlier studies that found higher rates of symptom resolution with surgery, particularly in cases of larger or more symptomatic fibroids. A study by Parker *et al*. reported that surgical interventions such as myomectomy and hysterectomy provided superior symptom control, especially for patients with significant bleeding and pain, compared to medical therapies like hormonal treatment or uterine artery embolization.[15] Furthermore, pressure symptoms were relieved in 85.4% of surgical patients, whereas only 41.3% of medical patients saw improvement (p = 0.001), which supports the findings of Van der *et al*., who also found that surgical treatments, especially hysterectomy, were more effective in alleviating symptoms like pelvic pressure that are often associated with larger fibroids .[16]

The overall treatment success rate was substantially higher in the surgical group (96.4% vs. 59.6%, p = 0.001), and recurrence rates were significantly lower in the surgical group (3.6% vs. 28.8%, p = 0.001). These results mirror those of Wallace *et al*., who found that myomectomy or hysterectomy had much lower recurrence rates compared to medical treatments such as GnRH agonists or uterine artery embolization, which carry a risk of fibroid regrowth or persistent

symptoms.[17] Moreover, the recurrence rate in the medical group aligns with results from Yin *et al*., where medical management had a recurrence rate of around 30%. .[18] In terms of complications, anemia requiring transfusion was comparable between the two groups (9.6% vs. 12.7%, p = 0.62). This suggests that while anemia is a common concern in women with uterine fibroids, it was not significantly more prevalent in either treatment group. These results are consistent with findings from Cianci *et al*., who reported no major difference in transfusion rates between medical and surgical treatments for fibroids .[19] However, postoperative infection was observed in 10.9% of surgical patients, which is a recognized complication of invasive procedures like myomectomy and hysterectomy, as highlighted in studies by Rybak *et al*.[20] The slightly higher complication rate with surgery is expected given the invasive nature of the procedure. Additionally, the hospital stay for surgical patients averaged 3.4 ± 1.2 days, which is consistent with other studies that report typical hospital stays of 2–4 days following major gynecological surgeries.[21] Vargas *et al*. found that hospitalization duration following hysterectomy or myomectomy varied based on the procedure's complexity but generally more than 3 days.[22]

This finding supports the understanding that while surgery offers significant long-term benefits, it comes with the downside of a prolonged recovery period compared to medical management. The improvement in quality of life (QoL) was significantly better in the surgical group, with health-related QoL scores of 87.5 ± 8.9, compared to 63.2 ± 10.7 in the medical group (p = 0.001). Similarly, the reduction in symptom severity was much more pronounced in surgical patients (21.3 ± 7.8 vs. 48.5 ± 9.2, p = 0.001). These findings align with those of Go VA *et al*., who demonstrated that patients undergoing surgery for fibroids reported substantial improvements in both symptom severity and overall QoL, particularly when compared to those receiving conservative medical treatments such as hormonal therapy.[23] In terms of patient satisfaction, 81.8% of surgical patients reported being very satisfied with their treatment compared to 38.5% in the medical group (p = 0.001). Furthermore, 36.5% of medical patients were moderately satisfied, but a significant portion (25.0%) were not satisfied at all. This is consistent with findings from Matteson *et al*., who reported that surgical treatment options, especially hysterectomy, and myomectomy, generally led to higher patient satisfaction, particularly when compared to medical treatments that often require ongoing management and carry a higher risk of recurrence. The dissatisfaction among medical patients could be attributed to the recurrent symptoms and potential side effects of long-term medical therapy. The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

Conclusion

This study supports the superiority of surgical management for the treatment of uterine fibroids, especially in terms of symptom relief, treatment success, recurrence rates, and patient satisfaction. Although medical management remains a viable option, particularly for patients wishing to avoid surgery, the findings suggest that surgery offers more significant, long-lasting benefits in controlling symptoms and improving quality of life. However, the risk of complications such as infections and the need for a longer recovery time should be considered when recommending surgical treatment. This study suggests that surgical management (hysterectomy or myomectomy) is more effective for symptom relief and long-term outcomes in patients with uterine fibroids. However, medical management remains a viable option for those seeking a non-invasive approach, particularly for smaller or asymptomatic fibroids. Treatment should be

individualized based on patient preferences, fibroid characteristics, and overall health. Further research with long-term follow-up is needed to confirm these findings.

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