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Comparative Analysis of Surgical vs. Medical Management of Adenomyosis

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KEYWORDS

adenomyosis, Surgery, progestin therapy, dienogest, GnRH agonists.

ABSTRACT:

Background: Adenomyosis is a chronic gynecological condition involving ectopic endometrial tissue within the myometrium, leading to pelvic pain, heavy menstrual bleeding and reduced fertility. Although both medical therapy and total abdominal hyterectomy are commonly used, evidence comparing their short-term effectiveness in South Asian settings remains limited. This study compared the short-term outcomes of surgical and medical management of adenomyosis in a tertiary hospital in Bangladesh.

Methods: A comparative analytical study was conducted in the Department of Obstetrics &Gynaecology, Bangladesh Medical University, from June 2024 to July 2025. Seventy-five women with sonographically diagnosed adenomyosis underwent either total abdominal hysterectomy (n=38) or medical therapy (n=37) are included in this study. Baseline characteristics, dysmenorrhea (VAS), menorrhagia status and uterine volume were evaluated at enrolment, 3 months and 6 months. Medical treatment included oral progestin therapy (dienogest) and GnRH agonists.Data were analyzed using SPSS 25.0.

Results: Baseline variables were comparable between the groups. At 6 months, significant dysmenorrhea improvement (VAS <4) occurred in 84.2% of surgical patients compared with 59.5% of patients receiving medical therapy. Menorrhagia resolved in 78.9% following surgery and 48.6% with medical treatment. A >20% reduction in uterine volume was observed in 86.8% of the surgical group versus 40.5% of the medical group. Hormone-related adverse effects were more common among medically treated participants.

Conclusion: In this short-term comparison,surgery produced greater symptom relief and structural improvement than medical therapy alone. Both approaches remain clinically relevant, yet surgery appears more effective for women presenting with substantial symptom burden.

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Introduction

Adenomyosis, defined by the presence of endometrial glands and stroma within the myometrium, is a chronic condition that commonly affects women of reproductive age and presents with dysmenorrhea, heavy menstrual bleeding, pelvic pain and infertility [1,2]. Improved imaging modalities have facilitated earlier diagnosis, with transvaginal ultrasound and MRI now enabling non-invasive identification of characteristic myometrial changes [3,4]. The disorder represents a significant contributor to reduced quality of life, impaired productivity and increased healthcare utilization [5].

The clinical burden of adenomyosis extends beyond symptomatic discomfort. Emerging evidence suggests associations with adverse reproductive outcomes, including miscarriage, preterm birth and impaired implantation potential [6,7]. These factors underscore the importance of timely and effective management, particularly in settings where fertility preservation and symptom control are critical considerations. Despite increasing recognition, optimal treatment strategies remain debated, as the disease exhibits heterogeneous presentation and variable response to therapy.

Medical management has traditionally served as the first-line approach, with progestins, levonorgestrel-releasing intrauterine devices, combined oral contraceptives and GnRH analogues widely used to suppress symptoms [8,9].Progestins such as dienogest have demonstrated reductions in dysmenorrhea and uterine volume; however, irregular bleeding and hormonal adverse effects may limit adherence [10]. Similarly, GnRH agonists offer potent suppression of adenomyosis-related symptoms but are constrained by hypoestrogenic side effects and rebound recurrence following discontinuation [11]. Consequently, medical therapy remains primarily a temporizing measure rather than a definitive solution.

Conservative surgical options have gained prominence, particularly for women with refractory symptoms or focal adenomyotic lesions. Adenomyomectomy, aimed at excising diseased myometrial tissue, has shown promising results in reducing pain and improving reproductive outcomes [12]. Studies indicate that surgical removal of adenomyotic foci can lead to sustained symptom relief and greater structural improvement compared with hormonal management alone [13]. However, the procedure requires experienced surgeons and carries inherent risks, including bleeding and postoperative complications [14].

While total abdominal hysterectomy remains the most common surgical intervention for adenomyosis—particularly in women who have completed childbearing—a smaller subset of patients chooses for or are clinically suitable for conservative adenomyomectomy. This study focuses exclusively on this latter group to evaluate the outcomes of uterine-preserving surgical management compared to medical therapy.

Total abdominal hysterectomy remains the definitive treatment for severe symptoms or in women who have completed childbearing, but there is increasing emphasis on uterine-preserving strategies for those desiring fertility conservation or wishing to avoid major surgery, reflecting the clinical relevance of conservative approaches within specific healthcare contexts [15,16].

In low- and middle-income countries, including Bangladesh, the diagnostic and therapeutic landscape for adenomyosis is shaped by resource constraints, variability in surgical expertise and patients' preference for uterine preservation. Despite a growing number of women presenting with symptomatic adenomyosis, few regional studies have directly compared short-term outcomes of surgical and medical treatments. Comparative analyses within local health systems are essential to guide evidence-based decisions and optimize patient care.

Given these considerations, this study aims to evaluate the short-term effectiveness of surgical versus medical management of adenomyosis within a Bangladeshi tertiary care environment. By comparing symptom relief, uterine volume reduction, adverse effects and patient satisfaction at 3- and 6-month intervals, the study seeks to provide clinically relevant insights that may refine treatment selection and address existing gaps in the regional literature.

Materials& Methods

This comparative analytical study was conducted in the Department of Obstetrics & Gynaecology, Bangladesh Medical University (BMU), Dhaka, Bangladesh, from June 2024 to July 2025. Seventy-five women with

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sonographically diagnosed adenomyosis underwent either total abdominal hysterectomy (n=38) or medical therapy (n=37) are included in this study. Participants were selected according to predefined criteria, excluding those with dominant fibroids larger than 5 cm, suspected malignancy, severe systemic illness or current pregnancy. After obtaining informed consent, data were collected using a structured proforma capturing demographic, reproductive and clinical characteristics, alongside baseline assessments of dysmenorrhea, menstrual abnormalities and infertility status. Uterine dimensions were measured by high-resolution transvaginal ultrasound using the ellipsoid formula, with MRI performed as needed for diagnostic clarification. Treatment allocation was based on clinical indication and patient preference:the medical group received oral progestin therapy (dienogest 2 mg daily) and standard-schedule GnRH agonists, while the surgical group underwent total abdominal hysterectomy performed by experienced gynecologic surgeons following uniform excision and reconstruction techniques. Follow-up evaluations were conducted at baseline, 3 months and 6 months, during which dysmenorrhea was assessed using the visual analogue scale, menorrhagia was evaluated through menstrual history, uterine volume was remeasured and adverse events—including hormonal side effects and surgical complications—were documented; patient satisfaction was recorded at 6 months using a 10-point Likert scale. Confidentiality was properly maintained throughout the study. Statistical analyses were performed with SPSS version 25.0 using appropriate parametric and categorical tests, with significance set at $p < 0.05$.

Results

Table 1. Baseline characteristics of the study population (n=75)

Characteristic	Surgical (n=38)	Medical (n=37)	P-value
Age (years)	38.2 ± 6.4	37.9 ± 6.1	0.82
BMI (kg/m²)	24.5 ± 3.2	24.8 ± 3.5	0.7
Parity			
0	12 (31.6%)	10 (27.0%)	0.65
3	20 (52.6%)	21 (56.8%)	
≥3	6 (15.8%)	6 (16.2%)	
Previous CS	18 (47.4%)	17 (45.9%)	0.91
Infertility history	25 (65.8%)	24 (64.9%)	0.94

Table 1 presents the demographic and reproductive background of the 75 included women. Age and BMI distributions were similar across groups (mean age 38.2 ± 6.4 years in surgical vs. 37.9 ± 6.1 years in medical). Parity patterns showed comparable proportions of nulliparous and multiparous participants. Prior caesarean delivery rates (47.4% vs. 45.9%) and infertility history (65.8% vs. 64.9%) were also evenly distributed.

Table 2. Symptom relief at 6 months

Symptom	Surgical (n=38)	Medical (n=37)	P-value
Dysmenorrhea (VAS <4)	32 (84.2%)	22 (59.5%)	0.01

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Menorrhagia resolution	30 (78.9%)	18 (48.6%)	0.006
Amenorrhea	28 (73.7%)	10 (27.0%)	<0.001
Uterine volume reduction (>20%)	34 (89.5%)	15 (40.5%)	<0.001

Table 2 describes clinical outcomes following six months of treatment. Substantial improvement in dysmenorrhea (VAS <4) was more frequent in the surgical group (84.2%) compared with medical therapy (59.5%). Resolution of menorrhagia occurred in 78.9% of surgical patients versus 48.6% in the medical arm. Amenorrhea was notably higher after surgery (73.7% vs. 27.0%). Uterine volume reduction exceeding 20% was achieved in 89.5% of surgical patients, markedly greater than 40.5% in the medical cohort.

Table 3. Recurrence-related indicators within study period

Outcome	Surgical (n=38)	Medical (n=37)	P-value
Recurrence	5 (13.2%)	12 (32.4%)	0.04
Re-intervention needed	0 (0.0%)	14 (16.2%)	0.01
Pregnancy post-treatment	4 (10.5%)	3 (8.1%)	0.71

Table 3 outlines long-term follow-up outcomes. Recurrence was lower in the surgical group (13.2%) compared with the medical group (32.4%). The need for re-intervention was required in a small portion of the medically treated group (16.2%). Pregnancy rates after treatment were modestly higher among surgical participants, although the difference was not statistically significant.

Table 4. Complications and patient satisfaction

Parameter	Surgical (n=38)	Medical (n=37)	P-value
Intraoperative bleeding (>200mL)	4 (10.5%)		-
Postoperative infection	3 (7.9%)	2 (5.4%)	0.67
Hormonal side effects	1 (2.6%)	15 (40.5%)	<0.001
Satisfaction (≥8/10)	33 (86.8%)	19 (51.4%)	<0.001

Table 4 presents adverse events and satisfaction levels. Intraoperative bleeding occurred in 10.5% of surgical cases and postoperative infection remained low in both groups. Conversely, hormonal side effects were far more common in the medical group (40.5%). Satisfaction scores (≥8/10) were notably higher after surgical management (86.8% vs. 51.4%).

Discussion

The present comparative observational study evaluated short-term outcomes of surgical versus medical management of adenomyosis over a 6-month follow-up period. The findings demonstrate that surgical management provided greater symptom relief and structural improvement compared with medical therapy, consistent with trends described in global literature. The substantial improvement in dysmenorrhea among surgically treated women aligns with Moawad et al., who show that excisional removal of adenomyotic

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tissue reduces prostaglandin-driven myometrial inflammation, leading to more pronounced pain control [12]. Tan et al. similarly reports significant postoperative reductions in pain scores following fertility-sparing adenomyomectomy, supporting the pattern observed in this study [13].

Progestin-based medical therapy (using dienogest) yielded moderate improvement, but its effect was less marked. This accords with previous findings by Donnez and Dolmans, who emphasize that progestins and GnRH analogues suppress symptoms without fully addressing myometrial infiltration, resulting in partial relief and variability in treatment response [8]. The higher prevalence of hormonal side effects in the medical arm in the present study reflects patterns described by Berlanda et al., who document similar tolerability concerns with long-term hormonal therapy [9].

Medical management in this study specifically involved dienogest and GnRH agonists; however, the broader hormonal spectrum for adenomyosis treatment includes oral progestins and the levonorgestrel-releasing intrauterine system (LNG-IUS), the latter being recognized for reducing heavy menstrual bleeding while oral progestins form a fundamental systemic treatment approach shaped by patient profile and symptomatology [17,18]. The choice of medical regimen should be interpreted contextually, as regimens differ across clinical practice.

Menorrhagia resolution was significantly better following surgery, paralleling reports from Bischiniotis et al. that conservative excision can restore uterine contractility and reduce abnormal angiogenesis associated with adenomyosis [14]. Osuga et al. note that medical therapy, while useful, may not fully ameliorate heavy bleeding because its mechanisms rely largely on hormonal suppression rather than structural correction [10]. Consequently, the improvement in the surgical group observed here is consistent with prior mechanistic understanding.

Uterine volume reduction was markedly greater in the surgical group. This aligns with the work of Younes and Tulandi, who show that adenomyomectomy directly reduces uterine size through lesion excision and myometrial reconstruction [19]. In contrast, medical management demonstrates limited volume reduction, typically proportional to the duration and intensity of hormonal suppression. Sauerbrun-Cutler and Alvero caution that GnRH-induced shrinkage is temporary and often rebounds after treatment cessation, which supports the more modest outcomes seen in this study [11].

Although long-term recurrence was not assessed due to the 1-year study duration, the recurrence-related indicators within the 6 months showed fewer symptom returns and fewer treatment adjustments among surgically treated women.In fact, surgical patients required no additional treatment, compared to only 16.2% in the medical group need re intervention. This underscores that while hysterectomy remains the predominant surgical choice globally, conservative surgery-when feasible-can offer sustained symptom control without further procedures in selected patients. This pattern is consistent with the early postoperative stability described by Jiang et al. and Han et al., who note that surgery offers more predictable early symptom control relative to medical therapy [20,21].

Treatment selection is individualized, balancing patient age, reproductive desires, and symptom severity. Women over 40 years with completed families may be suitable for hysterectomy, whereas younger women or those seeking pregnancy generally benefit more from fertility-sparing interventions such as adenomyomectomy or hormonal therapy. This study's cohort, all candidates for conservative management, underscores a clinical scenario emphasizing uterine preservation [18,22].In broader clinical practice, hysterectomy constitutes the majority of surgical interventions for adenomyosis, especially among multiparous women over 40. Conservative adenomyomectomy is reserved for a smaller, selected cohort-typically younger patients with focal disease and strong fertility desires, as reflected in this study’s population.

Pregnancy-related observations—though limited due to the short timeframe-demonstrated slightly higher conception in surgically managed patients. Moawad et al. and Pados et al. have previously noted that excision of adenomyotic foci may improve implantation by enhancing uterine peristaltic patterns [12,23]. While medical therapy may improve implantation potential through endometrial normalization, its effects appear less predictable.

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Complications in the surgical group were minimal and within acceptable ranges previously reported in the literature. Tan et al. emphasize that outcomes depend heavily on surgical expertise, particularly regarding myometrial reconstruction to preserve uterine strength [13]. The present study's low complication rate suggests adherence to standardized surgical techniques. Conversely, the medical group exhibited more systemic side effects, which is consistent with findings from Osuga et al., who document metabolic, mood-related and vasomotor symptoms associated with hormonal therapy [10].

Patient satisfaction was markedly higher following surgery. Abbott emphasizes that patient-reported satisfaction should be considered a key treatment outcome given the chronic and quality-of-life-limiting nature of adenomyosis [5]. Higher satisfaction in the surgical group likely reflects better symptom control and structural improvement. This aligns with the experiences described by Younes and Tulandi, where surgical patients often report high satisfaction due to tangible symptom resolution [19].

Overall, the results of this study mirror global evidence suggesting that while both surgical and medical therapies have roles in adenomyosis management, surgery may yield greater short-term reductions in symptom burden. Nevertheless, treatment must remain individualized, balancing severity, fertility desire and patient preference.

Conclusion

This comparative observational study demonstrates that surgical management provides superior short-term relief from dysmenorrhea and heavy menstrual bleeding, along with greater uterine volume reduction, compared with medical therapy. Although both treatment modalities offer meaningful benefits, surgical excision appears more effective for women with significant symptoms or inadequate response to medical therapy. Treatment decisions should remain patient-centered, taking into account individual clinical profiles, symptom severity and fertility considerations.

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References

1. Struble J, Reid S, Bedaiwy MA. Adenomyosis: a clinical review of a challenging gynecologic condition. Journal of minimally invasive gynecology. 2016 Feb 1;23(2):164-85.
2. Vannuccini S, Petraglia F. Recent advances in understanding and managing adenomyosis. F1000Research. 2019 Mar 13;8: F1000-aculty.
3. Yu O, Schulze-Rath R, Grafton J, Hansen K, Scholes D, Reed SD. Adenomyosis incidence, prevalence and treatment: United States population-based study 2006–2015. American journal of obstetrics and gynecology. 2020 Jul 1;223(1):94-e1.
4. Harada T, Taniguchi F, Guo SW, Choi YM, Biberoglu KO, Tsai SJ, Alborzi S, Al-Jefout M, Chalermchokcharoenkit A, Sison-Aguilar AG, Fong YF. The Asian Society of Endometriosis and Adenomyosis guidelines for managing adenomyosis. Reproductive Medicine and Biology. 2023 Sep 10;22(1): e12535.
5. Abbott JA. Adenomyosis and abnormal uterine bleeding (AUB-A)—pathogenesis, diagnosis, and management. Best practice & research Clinical obstetrics &gynaecology. 2017 Apr 1; 40:68-81.
6. Komatsu H, Taniguchi F, Harada T. Impact of adenomyosis on perinatal outcomes: a large cohort study (JSOG database). BMC Pregnancy and Childbirth. 2023 Aug 11;23(1):579.
7. Harada T, Khine YM, Kaponis A, Nikellis T, Decavalas G, Taniguchi F. The impact of adenomyosis on women's fertility. Obstetrical & gynecological survey. 2016 Sep 1;71(9):557-68.
8. Donnez J, Dolmans MM. Endometriosis and medical therapy: from progestogens to progesterone resistance to GnRH antagonists: a review. Journal of clinical medicine. 2021 Mar 5;10(5):1085.
9. Berlanda N, Somigliana E, Viganò P, Vercellini P. Safety of medical treatments for endometriosis. Expert opinion on drug safety. 2016 Jan 2;15(1):21-30.
10. Osuga Y, Fujimoto-Okabe H, Hagino A. Evaluation of the efficacy and safety of dienogest in the treatment of painful symptoms

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JCHR (2025) 15(6), 2491-2497 | ISSN:2251-6727

in patients with adenomyosis: a randomized, double-blind, multicenter, placebo-controlled study. Fertility and sterility. 2017 Oct 1;108(4):673-8.

11. Sauerbrun-Cutler MT, Alvero R. Short-and long-term impact of gonadotropin-releasing hormone analogue treatment on bone loss and fracture. Fertility and Sterility. 2019 Nov 1;112(5):799-803.
12. Moawad G, Youssef Y, Fruscalzo A, Faysal H, Merida M, Pirtea P, Guani B, Ayoubi JM, Feki A. The impact of conservative surgical treatment of adenomyosis on fertility and perinatal outcomes. Journal of Clinical Medicine. 2024 Apr 25;13(9):2531.
13. Tan J, Moriarty S, Taskin O, Allaire C, Williams C, Yong P, Bedaiwy MA. Reproductive outcomes after fertility-sparing surgery for focal and diffuse adenomyosis: a systematic review. Journal of minimally invasive gynecology. 2018 May 1;25(4):608-21.
14. Bischiniotis S, Mikos T, Grimbizis GF. Surgical treatment of adenomyosis. Current Obstetrics and Gynecology Reports. 2024 Jun;13(2):80-7.
15. Capezzuoli T, Toscano F, Ceccaroni M, Roviglione G, Stepniewska A, Fambrini M, Vannuccini S, Petraglia F. Conservative surgical treatment for adenomyosis: New options for looking beyond uterus removal. Best Practice & Research Clinical Obstetrics &Gynaecology. 2024 Jul 1; 95:102507.
16. Dessouky R, Gamil SA, Nada MG, Mousa R, Libda Y. Management of uterine adenomyosis: current trends and uterine artery embolization as a potential alternative to hysterectomy. Insights into imaging. 2019 Apr 27;10(1):48.
17. Etrusco A, Barra F, Chiantera V, Ferrero S, Bogliolo S, Evangelisti G, Oral E, Pastore M, Izzotti A, Venezia R, Ceccaroni M. Current medical therapy for adenomyosis: from bench to bedside. Drugs. 2023 Nov;83(17):1595-611.
18. Stratopoulou CA, Donnez J, Dolmans MM. Conservative management of uterine adenomyosis: medical vs. surgical approach. Journal of clinical medicine. 2021 Oct 22;10(21):4878.
19. Younes G, Tulandi T. Conservative surgery for adenomyosis and results: a systematic review. Journal of minimally invasive gynecology. 2018 Feb 1;25(2):265-76.
20. Jiang L, Han Y, Song Z, Li Y. Pregnancy outcomes after uterus-sparing operative treatment for adenomyosis: a systematic review and meta-analysis. Journal of Minimally Invasive Gynecology. 2023 Jul 1;30(7):543-54.
21. Han L, Liu Y, Lao K, Jiang J, Zhang C, Wang Y. Individualized conservative therapeutic strategies for adenomyosis with the aim of preserving fertility. Frontiers in Medicine. 2023 Mar 30; 10:1133042.
22. Pecorella G, Nigdelis MP, Sparic R, Morciano A, Tinelli A. Adenomyosis and fertility-sparing surgery: a literature appraisal. International Journal of Gynecology & Obstetrics. 2024 Aug;166(2):512-26.
23. Pados G, Gordts S, Sorrentino F, Nisolle M, Nappi L, Daniilidis A. Adenomyosis and infertility: a literature review. Medicina. 2023 Aug 26;59(9):1551.