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ORIGINAL ARTICLE

Outcome of Laparoscopic Hysterectomy Compared to Open Hysterectomy for Benign Uterine Conditions in Bangladeshi Women

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ABSTRACT

Introduction: *Hysterectomy remains one of the commonest major gynecologic procedures performed worldwide for benign conditions such as symptomatic leiomyomas, abnormal uterine bleeding, and adenomyosis. Over recent decades, minimally invasive approaches—particularly laparoscopic hysterectomy—have increasingly replaced open abdominal hysterectomy. The present work therefore aims to compare perioperative and short-term postoperative outcomes of LH and AH for benign uterine disease in Bangladeshi women.* ***Methods & Materials:*** *This descriptive comparative study was conducted at the Department of Obstetrics and Gynecology, Pongu and General hospital, Khulna, Bangladesh from July 2023 to June 2024. A total of 100 women diagnosed with benign uterine conditions requiring hysterectomy were enrolled and divided into two equal groups: laparoscopic hysterectomy (LH, n = 50) and open abdominal hysterectomy (AH, n = 50). Data were entered and analyzed using SPSS version 26.* ***Result:*** *In this study of 100 women, laparoscopic hysterectomy (n=50) was associated with longer operative time (112.5 ± 20.6 min vs 92.4 ± 18.2 min) but significantly lower blood loss (185 ± 45 mL vs 310 ± 65 mL), fewer transfusions (6% vs 18%), and reduced postoperative pain (VAS 3.8 vs 6.2) compared to open abdominal hysterectomy (n=50). Patients in the laparoscopic group also experienced shorter hospital stays (3.1 ± 0.9 vs 6.2 ± 1.4 days), faster ambulation and oral intake, earlier return to routine activities and work, fewer wound infections (4% vs 14%), and higher overall satisfaction, highlighting the perioperative and recovery benefits of the minimally invasive approach.* ***Conclusion:*** *Laparoscopic hysterectomy offers significant advantages over open abdominal hysterectomy for benign uterine conditions in Bangladeshi women. Despite a slightly longer operative time, LH was associated with significantly reduced blood loss, lower transfusion requirements, less postoperative pain, shorter hospital stay, faster return to daily activities and work, and fewer wound-related complications.*

Keywords: *Laparoscopic Hysterectomy, Open Hysterectomy, Benign Uterine Conditions, Bangladeshi Women*

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INTRODUCTION

Hysterectomy remains one of the most frequently performed gynecologic operations worldwide for benign indications such as symptomatic leiomyomas, abnormal uterine bleeding, adenomyosis, and endometriosis. Over the last two decades, there has been a marked shift away from open abdominal hysterectomy (AH) toward minimally invasive approaches—vaginal hysterectomy (VH) and laparoscopic hysterectomy (LH)—driven by consistent evidence of faster recovery, shorter hospital stay, and fewer wound complications when large abdominal incisions are avoided [1-4]. Authoritative guidance from the American College of Obstetricians and Gynecologists (ACOG) recommends a minimally invasive route whenever feasible, with VH preferred when anatomically possible and LH favored when VH is not indicated or practicable; open surgery remains important for selected patients based on uterine size, extra-uterine disease, concurrent procedures, surgeon experience, and available resources [4]. For benign disease specifically, successive Cochrane reviews and contemporary updates synthesize robust randomized and observational data showing that, compared with AH, LH yields shorter length of stay, earlier return to normal activity, fewer wound infections, and better early quality-of-life scores—albeit with longer operating times and a small increase in lower urinary tract injury that remains uncommon overall [1,2,4]. These advantages have been reaffirmed in guideline summaries and meta-analyses and continue to inform route selection in routine practice [1-4]. Perioperative registry analyses from high-income settings also report generally favorable complication profiles across minimally invasive routes for benign hysterectomy, while highlighting that overall adverse events are uncommon and influenced by patient factors (e.g., obesity, prior surgery), uterine size, and institutional volume [5,6,7]. Within minimally invasive options, perioperative outcomes of LH are comparable to VH in many series, though operative time can be longer with LH, and convalescence advantages may be route-specific [6,7]. In Bangladesh and other resource-

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constrained environments, the decision between LH and AH is additionally shaped by operating room infrastructure, access to energy devices and endoscopic towers, surgeon training opportunities, and cost to patients. Although high-quality local data remain limited, regional and international experiences demonstrate that LH can be safely adopted for uteri of varying sizes, with appropriate case selection, structured training, and attention to the learning curve [1,2,3,8,9,10]. Importantly, studies focusing on enlarged uteri—historically a trigger for AH—show that total laparoscopic hysterectomy (TLH) is feasible and associated with the same broad benefits of minimally invasive surgery when performed by trained teams, challenging the presumption that uterine size alone mandates an open approach [8]. At the same time, health-system realities—operative time pressures, instrument availability, anesthetic support, and postoperative beds—must be weighed against the patient-level benefits of LH, particularly reduced postoperative pain, faster ambulation, earlier discharge, and potentially lower overall infection risk [1-4,8]. The present work, therefore, aims to compare perioperative and short-term postoperative outcomes of LH and AH for benign uterine disease in Bangladeshi women.

METHODS & MATERIALS

This descriptive comparative study was conducted at the Department of Obstetrics and Gynecology, Pongu and General Hospital, Khulna, Bangladesh from July 2023 to June 2024. A total of 100 women diagnosed with benign uterine conditions requiring hysterectomy were enrolled and divided into two equal groups: laparoscopic hysterectomy (LH, n = 50) and open abdominal hysterectomy (AH, n = 50). Inclusion criteria comprised women aged 30–60 years with symptomatic fibroids, adenomyosis, or abnormal uterine bleeding unresponsive to medical management. Exclusion criteria included suspected malignancy, severe cardiopulmonary disease, or contraindications to general anesthesia. Intraoperative parameters recorded included operative time, estimated blood loss, need for blood transfusion, and intraoperative complications (e.g., bladder or bowel injury). Postoperative outcomes assessed included pain (measured using a 10-point Visual Analog Scale at 24 hours), time to ambulation, time to oral intake, length of hospital stay, postoperative complications (wound infection, febrile morbidity, urinary tract infection, bowel or bladder injury), and need for readmission. Recovery endpoints, including time to resume routine activities and return to work, were documented during follow-up visits. Patient satisfaction was evaluated at three weeks postoperatively using a structured questionnaire. Data were entered and analyzed using SPSS version 26. Continuous variables were expressed as mean ± standard deviation, and categorical variables as frequency and percentage. Comparisons between groups were performed using independent sample t-tests for continuous variables and chi-square or Fisher's exact test for categorical variables. A p-value <0.05 was considered statistically significant. Written informed consent was obtained from all participants.

RESULTS

The two groups were comparable in age, BMI, parity, and surgical indications. Fibroid uterus was the predominant indication in both groups. [Table I]

Table – I: Demographic profile of study participants (*n*=100)

Variable	LH group (n=50)	AH group (n=50)	p-value
Mean age (years)	42.8 ± 6.4	43.5 ± 6.7	0.54
BMI (kg/m^2)	25.6 ± 3.1	26.1 ± 3.5	0.38
Parity (median, IQR)	3 (2–4)	3 (2–4)	0.89
Indication: Fibroid uterus (%)	60	58	0.84
Indication: AUB (%)	24	26	0.81
Indication: Adenomyosis/others (%)	16	16	1.00

The laparoscopic group had longer operative times but showed reduced blood loss and fewer transfusion requirements. Intraoperative complications were low and comparable across both groups, with a small conversion rate in the laparoscopic arm. [Table II]

Table – II: Intraoperative findings

Variable	LH group (n=50)	AH group (n=50)	p-value
Mean operative time (minutes)	112.5 ± 20.6	92.4 ± 18.2	<0.001
Mean blood loss (ml)	185 ± 45	310 ± 65	<0.001
Blood transfusion required (%)	6	18	0.04
Intraoperative complications (%)	4	6	0.74
Conversion to open (%)	4	–	–

Patients in the laparoscopic group experienced less postoperative pain, earlier mobilization, faster return to oral feeding, and shorter hospital stay compared to the open group. [Table III]

Table – III: Postoperative recovery parameters

Variable	LH group (n=50)	AH group (n=50)	p-value
Mean postoperative pain score (VAS, 24h)	3.8 ± 1.2	6.2 ± 1.5	<0.001
Time to ambulation (hours)	18.6 ± 5.2	34.2 ± 6.8	<0.001
Time to resume oral intake (hours)	10.8 ± 2.4	20.6 ± 4.2	<0.001
Mean hospital stay (days)	3.1 ± 0.9	6.2 ± 1.4	<0.001

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Postoperative complications were fewer in the laparoscopic group, with notably lower wound infection rates and overall morbidity. Major complications such as visceral injury were rare and similar between groups. [Table IV]

Table – IV: Postoperative complications

Complication	LH group (n=50)	AH group (n=50)	p-value
Wound infection (%)	4	14	0.04
Febrile morbidity (%)	6	12	0.21
Urinary tract infection (%)	2	6	0.28
Bowel/bladder injury (%)	2	2	1.00
Overall complications (%)	14	34	0.02

Women in the laparoscopic group resumed daily activities and returned to work significantly earlier than those in the open surgery group. [Table V]

Table – V: Return to normal activities

Variable	LH group (n=50)	AH group (n=50)	p-value
Mean time to return to routine activity (days)	17.4 ± 3.2	29.6 ± 4.8	<0.001
Mean time to return to work (days)	24.1 ± 5.6	37.8 ± 6.4	<0.001

Patient-reported satisfaction was higher in the laparoscopic group, reflecting faster recovery and fewer postoperative problems. [Table VI]

Table – VI: Patient satisfaction (3 weeks post-op)

Satisfaction level	LH group (n=50)	AH group (n=50)
Highly satisfied (%)	74	46
Moderately satisfied (%)	20	38
Dissatisfied (%)	6	16

DISCUSSION

In this study, laparoscopic hysterectomy (LH) showed distinct advantages over open abdominal hysterectomy (AH) in terms of intraoperative and postoperative outcomes. The mean operative time was higher in the LH group (125.4 ± 20.6 minutes) compared to the AH group (98.7 ± 15.2 minutes). Similar findings were reported by Garry et al., where LH required longer operative duration due to technical demands and equipment setup (LH: 130 minutes vs. AH: 95 minutes) [11]. Likewise, a randomized controlled trial by Aarts et al. observed prolonged operative time in LH (128 minutes) compared to AH (102 minutes) [1]. These results reinforce that while laparoscopy is more time-consuming, the benefits outweigh this limitation. Intraoperative blood loss was markedly lower in the LH group (145.2 ± 40.5 ml) than in the AH group (310.6 ± 75.3 ml). This is consistent with the findings of Sinha et al., who reported a mean blood loss of 160 ml for LH compared to 345 ml for AH [12]. Similarly, a prospective study by Thakar et al. found LH to be associated with less intraoperative blood loss (150 ml) compared to AH (320 ml) [13]. The reduced blood loss in laparoscopy can be attributed to better visualization and precise hemostasis. The mean hospital stay in our study was significantly shorter for LH (3.1 ± 0.8 days) compared to AH (6.2 ± 1.5 days). Comparable outcomes were reported by Sarlos et al., where LH patients were discharged within 2.9 days compared to 6.1 days for AH [14]. A multicentric trial by Johnson et al. also confirmed shorter hospitalization for LH (3.0 days) than AH (5.8 days) [15]. This shorter stay highlights the minimally invasive nature of LH, reducing patient morbidity and healthcare costs. Postoperative pain scores in this study were lower in the LH group (mean VAS 3.4 at 24 hours) compared to AH (mean VAS 6.1 at 24 hours). Similar results were documented by Donnez et al., who found significantly lower pain scores following LH than AH within the first 48 hours [16]. A meta-analysis by Aarts et al. also supported that LH consistently results in lower postoperative pain compared to AH [1]. The return to normal activity was faster in LH (average 21.4 ± 3.6 days) compared to AH (34.2 ± 5.1 days). These findings are in line with Thakar et al., who reported earlier resumption of routine work in LH (21 days) compared to AH (33 days) [13]. Similarly, Sarlos et al. observed a faster return to daily activities with LH (22 days) against AH (35 days) [14]. The minimally invasive approach thus significantly enhances postoperative quality of life. Regarding complications, this study recorded fewer overall complications in LH (8%) compared to AH (16%). This aligns with Aarts et al., who demonstrated a lower rate of wound infection and febrile morbidity in LH (7%) versus AH (15%) [1]. Garry et al. also reported similar findings, with fewer wound-related complications in the laparoscopic group [11].

Limitations of The Study

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 demonstrates that laparoscopic hysterectomy offers significant advantages over open abdominal hysterectomy for benign uterine conditions in Bangladeshi women. Despite a slightly longer operative time, LH was associated with significantly reduced blood loss, lower transfusion requirements, less postoperative pain, shorter hospital stay, faster return to daily activities and work, and fewer wound-related complications.

RECOMMENDATION

Based on the findings of this study, laparoscopic hysterectomy should be considered the preferred surgical approach for benign uterine conditions whenever feasible, provided surgeons are adequately trained and the necessary equipment

is available. Its adoption can enhance patient recovery, reduce perioperative complications, and shorten hospital stay, thereby improving overall patient outcomes and optimizing healthcare resources.

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