OPEN ACCESS

Scholars International Journal of Obstetrics and Gynecology

Abbreviated Key Title: Sch Int J Obstet Gynec
ISSN 2616-8235 (Print) |ISSN 2617-3492 (Online)
Scholars Middle East Publishers, Dubai, United Arab Emirates
Journal homepage: https://saudijournals.com

Original Research Article

Outcome of Vaginal Hysterectomy versus Abdominal Hysterectomy for Benign Non-Prolapsed Uterus

Dr. Fatema Nihar[1*], Prof. Dr. Saria Tasnim[2], Dr. Jannatul Islam[3], Dr. Moushume Akther[4], Dr. Syfun Naher[5], Dr. Naznine Akter[6], Dr. Lubna Yasmin[7], Dr. Sunzia Sayed[8]

[1]Assistant Register, Department of Gynecological Oncology, National Institute of cancer and Research Hospital (NICRH), Dhaka, Bangladesh
[2]Ex-Professor, Department of Obstetrics & Gynecology, Institute of Child and Mother Health, Matuail, Dhaka, Bangladesh
[3]Medical Officer, Upazilla Health Complex, Daudkandi, Cumilla, Bangladesh
[4]Resident, Department of Gynecological Oncology, Sheikh Mujib Medical University (BSMMU), Shahbagh, Dhaka
[5]Medical Officer, Directorate General of Health Services, Dhaka, Bangladesh
[6]Medical Officer, Directorate General of Health Services, Dhaka, Bangladesh
[7]OSD, Directorate General of Health Services, Dhaka, Bangladesh
[8]Resident, Department of Obstetrics & Gynecology, Sheikh Mujib Medical University (BSMMU), Shahbagh, Dhaka, Bangladesh

DOI: https://doi.org/10.36348/sijog.2024.v07i08.011 | **Received:** 18.07.2024 | **Accepted:** 27.08.2024 | **Published:** 31.08.2024

***Corresponding author:** Dr. Fatema Nihar
Assistant Register, Department of Gynecological Oncology, National Institute of cancer and Research Hospital (NICRH), Dhaka, Bangladesh

Abstract

***Introduction*:** Hysterectomy is a very frequent pregnancy-unrelated surgical procedure performed in women, which may be accomplished either by abdominal or vaginal route. This study aims to assess the advantages of vaginal hysterectomy compared to abdominal hysterectomy in women with benign gynecological disorders other than prolapse. ***Aim of the study*:** The aim of this study was to compare the outcomes of vaginal hysterectomy and abdominal hysterectomy in treating benign non-prolapsed uterus. ***Methods*:** This cross-sectional comparative study was conducted among 60 patients at the Department of Obstetrics and Gynaecology, Institute of Child and Mother Health (ICMH), Dhaka, from May 2015 to October 2015. The study included 30 patients who underwent vaginal hysterectomy and 30 patients who underwent abdominal hysterectomy. Data collection involved recording patient history, conducting clinical examinations, and documenting information in a pre-designed data collection sheet. Data were analyzed using SPSS version 22.0. ***Result*:** This study included a total of 60 patients, with 30 undergoing abdominal hysterectomy (AH) and 30 undergoing vaginal hysterectomy (VH). Baseline characteristics were similar between the two groups. There were no intraoperative complications in either group. The operation time, intraoperative blood loss, time to out-of-bed activity, mean maximum postoperative body temperature, and duration of fever were all significantly shorter and less severe in the VH group compared with the AH group. Additionally, vaginal length in the VH group was significantly shorter than in the AH group. ***Conclusion*:** Vaginal hysterectomy offers advantages over abdominal hysterectomy in treating benign gynecological diseases, providing greater efficacy and safety with less invasiveness.

Keywords: Vaginal Hysterectomy, Abdominal Hysterectomy, Benign Non-Prolapsed Uterus, Surgical Outcomes, Comparative Study.

INTRODUCTION

Hysterectomy is one of the oldest surgical procedures in medicine [1]. It is a very frequent, pregnancy-unrelated surgical procedure performed in women, which can be accomplished either by abdominal or vaginal route [2]. Vaginal hysterectomy is infrequently performed in this country when there is no uterovaginal prolapse.

The vaginal route for hysterectomy can be utilized in all cases where there is an indication for hysterectomy in benign non-prolapse conditions.

Although it has mainly been restricted to the treatment of uterine prolapse, it should ideally be more widely used due to its benefits: fewer post-operative complications, no abdominal incision (which is cosmetically preferred by patients), and quicker recovery with earlier return to work. There is ample opportunity to learn and master vaginal surgery, making it in the best interest of the patient if this technique is mastered. To increase the proportion of hysterectomies performed vaginally, gynecologists need to be familiar with surgical techniques for dealing with a non-prolapsed uterus. The vaginal route should not be limited to the treatment of prolapsed uterus alone, as it offers fewer post-operative complications and no abdominal incision, thus allowing for a quicker recovery [3]. Although the absence of prolapse increases technical difficulty, it should not be a contraindication for vaginal hysterectomy [4].

The superior post-operative recovery of patients undergoing vaginal hysterectomy compared to the abdominal route is well accepted [5].

In recent years, there has been a growing preference for vaginal hysterectomy over abdominal hysterectomy [6]. Vaginal hysterectomy is a safe and effective procedure for benign, non-prolapsed uteri, especially when the uterine size is less than 12 weeks [7].

With increasing concern over healthcare costs, expanding the indications for performing hysterectomies via the vaginal non-laparoscopic method is crucial [8]. This should be a significant incentive for gynecologists to acquire the skills necessary to perform vaginal hysterectomy for non-descent and enlarged uterus [9].

Considering that the vaginal approach could significantly reduce treatment costs, duration of hospital stay, and morbidity, this study aims to assess the advantages of vaginal hysterectomy compared to abdominal hysterectomy in women with benign gynecological disorders other than prolapse.

Objectives

- The aim of this study was to compare the outcomes of vaginal hysterectomy and abdominal hysterectomy in treating benign non-prolapsed uterus.

METHODOLOGY & MATERIALS

This cross-sectional comparative study was conducted in the Department of Obstetrics and Gynaecology at the Institute of Child and Mother Health (ICMH), Dhaka, over a six-month period from May 2015 to October 2015. The study population comprised 60 patients, including 30 who underwent vaginal hysterectomy and 30 who underwent abdominal hysterectomy.

Inclusion Criteria

- Patients who provided informed written consent to participate in the study.
- Patients with benign uterine conditions (e.g., fibroids, dysfunctional uterine bleeding, adenomyosis) indicated for hysterectomy.
- Uterine size less than 12 weeks.

Exclusion Criteria

- Patients who did not provide informed written consent.
- History of previous pelvic surgery.
- Uterine size greater than 12 weeks.
- Restricted uterine mobility, limited vaginal space, adnexal pathology, or invasive carcinoma of the cervix.

Institutional approval and ethical clearance were obtained from the Ethical Committee of ICMH. Informed written consent was secured from all participants. The study included 30 patients who underwent vaginal hysterectomy (Group A) and 30 patients who underwent abdominal hysterectomy (Group B). Data collection involved recording patient history with a focus on menstrual and obstetrical details, conducting clinical examinations, and documenting information in a pre-designed data collection sheet. The cost of operation was calculated by summing anesthetic expenses and logistical costs. Blood loss was measured by the volume of blood transfused and the weight of blood-soaked surgical mops. The time of operation was measured from the start of the incision to the end of the procedure, with specific timings for vaginal and abdominal hysterectomies. Short-term postoperative complications were noted within 7 days post-operation, and hospital stay was defined as the duration from the operation date to patient discharge. Data were entered into a computer and analyzed using SPSS version 22.0. Categorical variables were expressed as proportions (percentages) and numerical data as means (standard deviations) and ranges. Statistical significance was set at $p < 0.05$.

RESULT

The present study is a cross-sectional comparative analysis conducted in the Department of Gynaecology and Obstetrics at the Institute of Child and Mother Health (ICMH). It involved 60 patients, with 30 undergoing vaginal hysterectomy and 30 undergoing abdominal hysterectomy. Statistical analysis compared the characteristics and outcomes of these two groups.

Table 1: Comparison of age and parity between two groups of the patients (n = 60)

Variables	Group A (n = 30) Mean ± SD	Group B (n = 30) Mean ± SD	p-value
Age (years)	44.78 ± 6.57	45.64 ± 5.74	0.59
Parity	3.24 ± 0.74	2.89 ± 0.71	0.07

The mean age of patients who underwent vaginal hysterectomy was 44.78 ± 6.57 years, compared to 45.64 ± 5.74 years for those who underwent abdominal hysterectomy. The mean parity for patients who had vaginal hysterectomy was 3.24 ± 0.74, while for those who had abdominal hysterectomy it was 3.24 ± 0.74. The differences in both age and parity between the two groups are not statistically significant.

Table 2: Comparison of operative time between two groups (n = 60)

Variables	Group A (n = 30) Mean ± SD	Group B (n = 30) Mean ± SD	p-value
Operative time (minutes)	49.78 ± 4.21	74.22 ± 6.74	<0.001*

The mean operative time for vaginal hysterectomy was 49.78 ± 4.21 minutes, whereas for abdominal hysterectomy it was 74.22 ± 6.74 minutes. The shorter operative time for vaginal hysterectomy is statistically significant ($p < 0.001$).

Table 3: Comparison of peroperative complication between two groups (n = 60)

Peroperative Complications	Group A (n = 30) No. (%)	Group B (n = 30) No. (%)	p-value
Haemorrhage	3 (10.0%)	5 (16.7%)	0.31^{ns}
Others (Injury, Slip of ligature)	1 (3.3%)	2 (6.7%)	
No complications	26 (86.7%)	23 (76.7%)	
Total	30 (100.0%)	30 (100.0%)	

Peroperative complications occurred in 13.3% of patients who underwent vaginal hysterectomy compared to 23.3% in those who underwent abdominal hysterectomy.

Table 4: Comparison of postoperative complication (n=60)

Postoperative Complications	Group A (n = 30) No. (%)	Group B (n = 30) No. (%)	p-value
No complications	25 (83.3%)	20 (66.7%)	0.14^{ns}
Complications	5 (16.7%)	10 (33.3%)	
Fever	3 (10.0%)	1 (3.3%)	
Urinary tract infection	1 (3.3%)	0	
Haematuria	1 (3.3%)	0	
Per vaginal bleeding	0	2 (26.7%)	
Wound infection	0	1 (3.3%)	
Wound dehiscence	0	1 (3.3%)	
Total	30 (100.0%)	30 (100.0%)	

Postoperative complications were observed in 16.7% of patients who underwent vaginal hysterectomy and 33.3% of those who underwent abdominal hysterectomy. Febrile morbidity was seen in 16.7% of vaginal hysterectomy patients and 33.3% of abdominal hysterectomy patients. Urinary tract infection was the main cause of febrile morbidity in vaginal hysterectomy patients, while wound infection was the predominant cause in abdominal hysterectomy patients.

Table 5: Comparison of hospital stays between two groups (n=60)

Variables	Group A (n = 30) Mean ± SD	Group B (n = 30) Mean ± SD	p-value
Hospital stays (days)	3.12 ± 0.37	4.75 ± 0.52	<0.001*

Hospital stays were shorter for patients who underwent vaginal hysterectomy (3.12 ± 0.37 days) compared to those who underwent abdominal hysterectomy (4.75 ± 0.52 days). This difference is highly significant ($p < 0.001$), likely due to the absence of an abdominal scar, less postoperative pain, and fewer complications associated with vaginal hysterectomy.

Table 6: Comparison of cost of operation between two groups (n=60)

Variables	Group A (n = 30) Mean ± SD	Group B (n = 30) Mean ± SD	p-value
Cost (Taka)	21,452.2 ± 751.2	32,145.8 ± 842.3	<0.001*

Vaginal hysterectomy is less costly than abdominal hysterectomy, with a highly significant difference ($p < 0.001$). The reduced cost is attributed to lower requirements for postoperative analgesics, decreased morbidity, and shorter hospital stays following vaginal hysterectomy.

DISCUSSION

Hysterectomy, one of the most prevalent major surgical operations for gynecological conditions, is used to treat both malignant diseases and benign conditions such as fibroids, endometrial hyperplasia, adenomyosis, endometriosis, uterine prolapse, dysfunctional uterine bleeding, and cervical intraepithelial neoplasia. There are several approaches to hysterectomy for benign diseases, including abdominal hysterectomy (AH), vaginal hysterectomy (VH), laparoscopic-assisted vaginal hysterectomy (LAVH), total laparoscopic hysterectomy (TLH), and subtotal laparoscopic hysterectomy. With the ongoing modernization of minimally invasive techniques in obstetrics and gynecology, surgeons select surgical routes based on not only the patient's health status but also their psychological needs and quality of life post-surgery [10].

Hysterectomy can be performed via abdominal or vaginal routes. Historically, the abdominal route was reserved for cases with uterine pathology where the vaginal route was not applicable. Traditionally, the vaginal route was preferred for prolapsed uterus in our country, but it can also be utilized for benign conditions of the uterus without descent [11]. Large-scale surveys have shown that 70% to 80% of hysterectomies are performed using the abdominal approach [5, 12]. The vaginal route is usually reserved for uterovaginal prolapse, which accounts for approximately 10% of cases [5, 12]. Despite the advantages of the vaginal approach, including fewer complications and better postoperative outcomes, many gynecologists continue to use the abdominal approach even when vaginal hysterectomy could be performed. Well-documented evidence supports that vaginal hysterectomy offers significant health and economic benefits, including fewer complications, better postoperative quality of life, and reduced hospital stays [13].

Several factors contribute to the preference for abdominal hysterectomy over vaginal hysterectomy. Relative contraindications to vaginal hysterectomy include pelvic adhesions (e.g., endometriosis), pelvic inflammatory disease, previous abdominopelvic surgery, malignancy, and adnexal masses [2].

Studies indicate that most women undergoing hysterectomy do not have major extrauterine disease; conditions such as dysfunctional uterine bleeding (DUB) and uterine myomas are common indications for surgery in over two-thirds of cases [12, 14]. These women are often suitable candidates for vaginal hysterectomy.

Evidence suggests that with the widespread use of prophylactic antibiotics, vaginal hysterectomy is associated with less febrile morbidity, less bleeding requiring transfusion, shorter hospitalization, and faster recovery compared to abdominal hysterectomy [5].

The development of gynecological laparoscopy has introduced laparoscopic-assisted vaginal hysterectomy (LAVH) as an alternative to abdominal hysterectomy. Although LAVH requires specialized training and is associated with higher costs and longer operation times [15], it represents a minimally invasive option. With increasing concerns about healthcare costs, there is a need to expand the indications for performing hysterectomies via the vaginal route rather than limiting them to conventional cases of uterine descent [16]. The usual limitation of vaginal hysterectomy in non-descent uteri is their size, but techniques such as bisection, myomectomy, wedge debulking, and intramyometrial coring (morcellation) have facilitated the removal of larger uterus [17]. This approach could significantly reduce costs, hospital stay durations, and morbidity while speeding up recovery compared to abdominal hysterectomy.

Many surgeons still prefer abdominal hysterectomy for women with previous pelvic surgery, moderately enlarged uteri, or concurrent oophorectomy [13]. However, previous pelvic surgery is not an absolute contraindication for vaginal hysterectomy. Enlarged uteri can be removed vaginally using the same principles as for normal-sized uteri. Once the uterine pedicles are clamped, the uterus is largely devascularized and can be bisected with minimal blood loss. Fibroids can be 'shelled out' or morcellated to reduce the size of the uterus for vaginal removal [18].

A comparative study has shown that morcellation is safe and facilitates the vaginal removal of moderately enlarged uteri without increasing perioperative morbidity [19]. In this study, the time required for vaginal hysterectomy was significantly less than for abdominal hysterectomy ($p<0.001$). Ottosen *et al*., [20] found more blood loss in vaginal hysterectomy, but this was not statistically significant.

Our study also found that the complication rate was higher for total abdominal hysterectomy compared to vaginal hysterectomy, with febrile morbidity being the most common complication. The febrile morbidity rate was more than twice as high in the abdominal hysterectomy group compared to the vaginal hysterectomy group. The primary cause of febrile morbidity was wound infection (8%) in the abdominal hysterectomy group, whereas in the vaginal hysterectomy group, it was urinary tract infection (4%). Laventhal *et al*., [21] reported higher morbidity rates in the vaginal hysterectomy group, mainly due to urinary tract infections, with major complications such as ureteric and bladder injuries occurring in the abdominal hysterectomy group. The differences in morbidity may be attributed to the current widespread use of prophylactic antibiotics with vaginal hysterectomy, which has been shown to substantially reduce morbidity. Duff *et al*., [22] demonstrated that prophylactic antibiotics reduce morbidity in vaginal hysterectomy.

Our study indicates that wound infection was the main cause of febrile morbidity in total abdominal hysterectomy. Improved sterilization and aseptic techniques could reduce hysterectomy morbidity.

Hospital stays were longer for total abdominal hysterectomy patients in our study, consistent with findings by Ottosen *et al*., [20] Early discharge, even within 24 hours, is possible after vaginal hysterectomy. Reiner *et al*., [23] found no delayed infections, hemorrhages, or other complications due to early discharge after vaginal hysterectomy. Some patients may even be suitable for outpatient hysterectomy. Stovel *et al*., [24] has conducted prospective trials demonstrating the feasibility and safety of outpatient vaginal hysterectomy. Laparoscopic hysterectomy has significant advantages over total abdominal hysterectomy [25], but vaginal hysterectomy remains less invasive and offers better outcomes compared to laparoscopic hysterectomy [26]. Laparoscopic hysterectomy is associated with longer operation times, longer recovery periods, and higher costs due to disposable instruments [27, 28].

In our study, the cost of vaginal hysterectomy was significantly lower than that of total abdominal hysterectomy. Reduced costs were attributed to lower postoperative analgesic requirements, less morbidity, and shorter hospital stays. Cost-effectiveness of the vaginal route has been reported by Anthony *et al*., [29].

If more women could undergo vaginal hysterectomy instead of abdominal hysterectomy, the reduction in morbidity and hospital stay would lead to considerable savings in medical care costs. Reduced morbidity would also save additional expenses on therapeutic antibiotics, diagnostic tests, blood transfusions, and hospital fees. Therefore, encouraging vaginal hysterectomy whenever feasible is beneficial for patients.

Limitations of the study

This study had some limitations:

- The sample size was small; a larger sample may provide more conclusive information.
- The follow-up period was limited to the time from hospital admission to discharge. A more detailed and extended follow-up is needed to assess long-term outcomes of hysterectomy via abdominal versus vaginal routes.

CONCLUSION

Vaginal hysterectomy is a safe, feasible, and patient-friendly method. It is a less invasive technique with several benefits over abdominal hysterectomy, including the avoidance of morbidity associated with incision (e.g., infection, dehiscence, discomfort, or hernia), fewer postoperative adhesions, better tolerance by elderly patients, shorter hospital stays, and faster convalescence. Despite the overwhelming evidence in favor of vaginal hysterectomy, it is not the preferred route for hysterectomy in cases of undescended uterus in Bangladesh. This practice may be due to a lack of controlled evidence supporting vaginal hysterectomy and a lack of expertise and skill among surgeons in the country. This study aims to provide additional evidence supporting vaginal hysterectomy, identify indications other than prolapse that make women suitable candidates for this procedure, and promote it as the surgical method of choice for benign uterine conditions beyond utero-vaginal prolapse.

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