Original Article
DOI: https://doi.org/10.70749/ijbr.v3i5.1171

INDUS JOURNAL OF BIOSCIENCE RESEARCH
https://induspublishers.com/IJBR
ISSN: 2960-2793/ 2960-2807

Indications of Hysterectomy for Benign Gynecologic Conditions in a Tertiary Care Hospital

Zehra Somjee[1], Pooja Seetlani[2], Mahrukh Aslam[3], Shaista[4]

[1]Department of Obstetrics & Gynaecology, Civil Hospital, Karachi, Sindh, Pakistan.
[2]Department of Obstetrics & Gynaecology, Civil Hospital Makli, Thatta, Sindh, Pakistan.
[3]Department of Obstetrics & Gynaecology, Indus Hospital, Karachi, Sindh, Pakistan.
[4]Department of Obstetrics & Gynaecology, United Medical & Dental College, Karachi, Sindh, Pakistan.

ARTICLE INFO

Keywords

Hysterectomy, Benign Gynecologic Conditions, Preoperative Diagnoses.

Corresponding Author: Zehra Somjee, Department of Obstetrics & Gynaecology, Civil Hospital, Karachi, Sindh, Pakistan.
Email: zehrasomjee@gmail.com

Declaration

Authors' Contribution: All authors equally contributed to the study and approved the final manuscript.
Conflict of Interest: No conflict of interest.
Funding: No funding received by the authors.

Article History

Received: 30-03-2025, Revised: 22-04-2025
Accepted: 01-05-2025, Published: 06-05-2025

ABSTRACT

Objective: To identify the indications and acute complications of hysterectomy performed for benign gynecologic conditions in a tertiary care hospital. **Study Design:** Descriptive Longitudinal Study. **Place and Duration of Study:** Department of Obstetrics and Gynecology, Unit 1, Civil Hospital Karachi in the duration from 24 November, 2024 to 23 March, 2025. **Methodology:** Data was collected from women aged 18–65 years undergoing hysterectomy for benign gynecologic conditions. Demographic details, preoperative diagnoses, intra-operative findings, and post-operative outcomes were analyzed. The primary outcome was the frequency of indications, while secondary outcomes focused on complications. SPSS Version 22 was used for statistical analysis, with a p-value <0.05 considered significant. **Results:** Common indications included uterine fibroids in 105 cases (53.6%), adenomyosis in 40 (20.4%) patients and uterine prolapse in 30 patients (15%). Complications such as wound infections (14 patients, 7%), hemorrhage (10 patients 5%), and burst abdomen (2 patients, 1%) were observed. **Conclusion:** Understanding indications and outcomes of hysterectomy can guide better clinical practices and improve patient safety.

INTRODUCTION

Hysterectomy, the surgical removal of the uterus, is one of the most commonly performed gynecologic procedures worldwide. While it serves as a definitive treatment for gynecologic malignancies, the majority of hysterectomies are carried out for benign gynecologic conditions. Globally, over 600,000 hysterectomies are performed annually in the United States[1], highlighting its widespread use in managing women's health issues, particularly in industrialized nations[2]. Studies have reported incidence rates of 42 per 100,000 in the UK, 143 per 100,000 in the USA, and 236 per 100,000 in Germany, reflecting significant geographic variation[2]. Among women of all ages, the rate of hysterectomy ranges from 6.1 to 8.6 per 1000[3]. However, regional distribution, patient characteristics, and surgeon-related factors all affect the rate of hysterectomy[3]

In Pakistan, hysterectomy is also a prevalent procedure; with abdominal hysterectomy accounting for 39.5% of all gynecologic surgeries in certain regions[4]. This underscores the importance of the procedure in addressing benign gynecologic conditions in resource-constrained settings. However, the indications, outcomes, and complications of hysterectomy in Pakistan remain underexplored, creating a critical gap in local healthcare knowledge.

The primary indications for hysterectomy include uterine fibroids, uterine prolapse, and abnormal uterine bleeding (AUB) [5, 6, 7, 8, 9]. Uterine fibroids, or leiomyomas, are the most common cause of abdominal hysterectomy. Globally, fibroids account for 84% of hysterectomies in Tanzania [5], 41.6% in Saudi Arabia[6] and 40% in India [7]. In contrast, uterine prolapse is the leading indication for vaginal hysterectomy, with a reported incidence of 86.5% in Arabia[6].

Abnormal uterine bleeding (AUB) is a major symptom presentation of women undergoing

hysterectomy globally[6, 8, 9]. The FIGO PALM-COEIN classification system standardizes AUB diagnosis into structural and non-structural causes: COEIN (Coagulopathy, Ovarian dysfunction, Endometrial, Iatrogenic, and Not yet diagnosed) and PALM (Polyp, Adenomyosis, Leiomyoma, Malignancy and Hyperplasia). The PALM group generally refers to distinct entities that are quantifiable using imaging and histological methods. The COEIN group, on the other hand, is associated with causes that call for additional hematological and endocrinological testing[10]. According to a clinical audit conducted in India, AUB accounts for 51% of hysterectomy cases[7].

Despite being a frequent surgical procedure for benign gynecologic problems, hysterectomy has a wide range of indications and results. It remains particularly critical in low-resource settings like Pakistan, where socioeconomic factors limit alternatives, emphasizing the need for studies to improve outcomes and guide evidence-based practices.

Therefore, the objective of our study is to identify the indications of hysterectomy done for benign gynecologic reasons and observe acute complications of this procedure.

METHODOLOGY

This descriptive longitudinal study was conducted at the Obstetrics and Gynecology Department, Unit 1, Dr. Ruth K.M. Pfau Civil Hospital Karachi in the duration from 24 November, 2024 to 23 March, 2025 after approval from the College of Physicians and Surgeons Pakistan (CPSP) and the Institutional Review Board (IRB).

The study population comprised of women undergoing hysterectomy for benign gynecologic conditions. Inclusion criteria were set to include women aged 18 to 65 years, encompassing both premenopausal (18–45 years) and postmenopausal (≥45 years) groups. Exclusion criteria involved women with proven gynecological malignancies, those undergoing hysterectomy for obstetric reasons, and patients with incomplete medical records or who did not provide informed consent. A consecutive sampling technique was employed to recruit participants who met the inclusion criteria.

The required sample size was calculated using the OpenEpi software. With an expected frequency of abnormal uterine bleeding (AUB) as 51% [8], a confidence interval of 95%, and a margin of error of 7%, the sample size was determined to be 196.

Primary outcomes included the frequency and distribution of indications for hysterectomy, while secondary outcomes focused on intra-operative and post-operative complications. To ensure objectivity, outcome assessments were conducted by a senior gynecologist not involved in the surgical procedures.

Data was collected systematically and structured into three distinct phases: pre-operative, intra-operative, and post-operative. In the pre-operative phase, a trained research assistant recorded demographic and clinical details from patient interviews and medical records. This included data on age, BMI (calculated using a weighing scale and height measurement), parity, marital status, menopausal status, and pre-existing medical co-morbidities such as hypertension, diabetes, and thyroid disorders.

During the intra-operative phase, the operating surgeon and surgical team documented the type of hysterectomy performed: abdominal; vaginal; or laparoscopic. They also recorded the primary indication for surgery; intra-operative blood loss quantified using the gauze visual analogue technique[11]; and any complications such as hemorrhage or iatrogenic injuries, including damage to the bowel or ureters.

In the post-operative phase, data was collected on follow up of patient on 10th post-operative day by the attending gynecologist with assistance from the research assistant. Information gathered included the length of hospital stay, postoperative complications such as wound infections, burst abdomen and overall patient outcomes. This structured approach ensured comprehensive data collection throughout all phases of the patient's care.

The collected data was entered into a predesigned pro forma and analyzed using SPSS Version 22. Descriptive statistics summarized variables, while chi-squared tests and t-tests/ANOVA analyzed categorical and continuous variables, respectively.

RESULTS

The study provides comprehensive insights into patient demographics, medical histories, indications for surgery, intra-operative findings, and postoperative outcomes, highlighting key trends and complications associated with the procedure.

The study included a total of 196 women who met the inclusion criteria and underwent hysterectomy for benign gynecologic conditions. The mean age of this population was 43.8 years with a range of 33–67 years and BMI ranging from 21.2 to 32.8. Parity averaged 4.5, reflecting the typical reproductive history of the study participants. Marital status analysis revealed that 78% of the patients were married, while 22% were divorced or widowed. The menopausal status of the participants showed that 62% were premenopausal, and 38% were postmenopausal.

Among the pre-existing medical conditions, hypertension was the most common co-morbidity, affecting 40% of the participants. Diabetes was reported in 23% of cases, while hypothyroidism was observed in

3%.

Abnormal uterine bleeding (AUB) was the most common presentation of patients undergoing hysterectomy which accounted for 156 patients (77%). Uterine fibroid was the most common cause of AUB accounting for 105 cases (53.6%) followed by adenomyosis that was present in 40 (20.4%) patients. Hysterectomy performed for utero-vaginal prolapse was the second most common cause accounting for 30 (15%) patients. Prolapse surgery was performed vaginally while the rest 166 (85%) patients underwent hysterectomy via abdominal route. No laparoscopic hysterectomies were conducted during the study period.

The average length of hospital stay for patients undergoing hysterectomy was 4 days, with a range of 2 to 9 days. Intra-operative complications included hemorrhage in 10 cases (5%) and iatrogenic injuries in 8 cases (4%) while most common post-operative complications was wound infection that was present in 14 patients (7.1%) and burst abdomen present in only 2 patients (1%).

Table 1

Demographics and clinical data of 196 women undergoing hysterectomy

Characteristics	No of patients, n	Frequency, %
Age (years)		
30-40	4	2
40-50	114	58.2
50-60	67	34.2
>60	11	5.6
Pre-menopausal	122	62
Post-menopausal	74	38
Married	153	78
Parity		
Nulliparous	16	8.2
1-5	132	67.3
>5	48	24.5
BMI (kg/m^2)		
18.5-24.9	62	31.6
25-29.9	116	59.2
30-34.9	18	9.2
Hypertension	79	40
Diabetes	45	23

Table 2

Indications of hysterectomy performed on 196 women

Indications	No of patients, n	Frequency, %
Fibroid (AUB-L)	105	53.6
Adenomyosis (AUB-A)	40	20.4
Utero-vaginal prolapsed	30	15.2
Endometrial Hyperplasia (AUB-E)	9	4.6
Ovarian mass (AUB-O)	5	2.6
Endometrial polyp (AUB-P)	2	1
Others	5	2.6

Table 3

Intra-operative and Post-operative clinical data of hysterectomy performed on 196 women

Characteristics	No of patients, n	Frequency, %
Route of hysterectomy		
Abdominal	166	84.8
Vaginal	30	15.2
Total hospital stay		
<4 days	179	91.3
>4 days	17	8.7
Intra-operative complications		
Hemorrhage	10	5.1
Iatrogenic injury	8	4.1
Post operative complications		
Wound infection	14	7.1
Burst abdomen	2	1.0

DISCUSSION

In our study, abnormal uterine bleeding (AUB) emerged as the most common presentation (77%) of women undergoing hysterectomy. FIGO has categorized AUB into two groups: PALM-COEIN. Among AUB, uterine fibroids (AUB-L) emerged as the most common cause accounting for 53.6% of cases. Besides abnormal uterine bleeding, these benign tumors often present with symptoms of abdominal pain, fullness and reproductive issues, necessitating surgical intervention. This result aligns with global data, where uterine fibroids remain the leading cause of hysterectomy, as seen in studies from Tanzania (84%) [5] and Saudi Arabia (41.6%) [6]. The high prevalence of fibroids underscores the need for early diagnosis and non-surgical management options, such as uterine artery embolization or medical therapies, to reduce surgical burden. Adenomyosis was the second most frequent cause of AUB, observed in 20.4% of cases. This condition significantly impacts women's quality of life due to severe menstrual pain and heavy menstrual bleeding.

Uterine prolapse, often associated with aging and multiparity was the second most cause indication of hysterectomy accounting for 15.3% of cases. These findings are in line with the association of this condition with higher parity with normal vaginal delivery that is prevalent in the region. Similar rates of vaginal hysterectomy and utero-vaginal prolapsed was found in a audit performed for hysterectomies in India [7]. AUB and prolapse both have a negative impact on the quality of life of women [12] therefore this highlights the importance of raising awareness regarding contraception, physical therapy to strengthen pelvic floor muscles and non-surgical treatments such as hormonal treatment and use of pessary to reduce the surgical burden.

The choice of the abdominal route for the majority of hysterectomies (84%) is although similar to studies conducted in Saudia Arabia [6] and India [7] but it does

reflect both clinical considerations and resource constraints. While abdominal hysterectomy remains a standard approach for complex cases, expanding access to minimally invasive techniques such as laparoscopic and vaginal hysterectomy could reduce recovery times, hospital stay, post operative complications such as wound infection and improve patient satisfaction. [13]

The observed complication rates, including hemorrhage (5%) and wound infection (7.1%), are within acceptable ranges but highlight areas for improvement in meticulous surgical planning, intra-operative vigilance and infection control measures.

This study provides a comprehensive analysis of the indications, intra-operative findings, and postoperative outcomes of hysterectomy for benign gynecologic conditions in a tertiary care hospital. The findings highlight key trends and align with global data, while also shedding light on specific regional healthcare challenges. However, the study has its limitations due to being a descriptive study design. Therefore, no associations of key trends in hysterectomy can be made.

Expanding access to minimally invasive surgical options and conservative management strategies for conditions like AUB and uterine prolapse could reduce the burden of hysterectomy and improve patient outcomes. Additionally, strengthening infection control protocols and enhancing surgical training in tertiary care settings are crucial steps toward improving the overall quality of gynecologic care.

CONCLUSION

Hysterectomy remains a crucial procedure for managing benign gynecologic conditions, with uterine fibroids, adenomyosis and uterine prolapse identified as the primary indications in this study. These results are consistent global trends, with uterine fibroids being the most common indication. The study highlights the importance of early diagnosis and individualized treatment plans, including minimally invasive alternatives, to reduce complications. Addressing patient-specific factors, such as BMI and comorbidities, can further enhance surgical outcomes, particularly in resource-constrained settings like Pakistan.

REFERENCES

1. Wu, J. M., Wechter, M. E., Geller, E. J., Nguyen, T. V., & Visco, A. G. (2007). Hysterectomy rates in the United States, 2003. *Obstetrics & Gynecology*, *110*(5), 1091-1095. https://doi.org/10.1097/01.aog.0000285997.38553.4b
2. Hymavathi, K., Madhuri, P. V., Brahmini, M., & Madhubala, S. (2021). Hysterectomy for benign conditions in a tertiary care centre: A clinical audit. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, *10*(3), 975. https://doi.org/10.18203/2320-1770.ijrcog20210719
3. Majeed, T., Adnan, R., & Mahmood, Z. (2016). Audit of gynaecological hysterectomies. *Pak J Med Health Sci*, *7*(3), 684-7. https://pjmhsonline.com/2013/july_sep/pdf/684%20%20%20Audit%20of%20Gynaecological%20Hysterectomies.pdf
4. Shaikh, A. G., & Shaikh, S. N. (2018). Abdominal hysterectomy for benign diseases. *Journal of Surgery Pakistan (International)*, *23*, 3. https://www.old.jsp.org.pk/Issues/JSP%2023%20(3)%20July%20-%20Sep%202018/Aneela%20Gul%20Shaikh%20OA.pdf
5. Chale, G. J., Salim, R. M., & Leshabari, K. M. (2021). Clinical indications for total abdominal hysterectomy among women seen in Dar es Salaam regional referral hospitals, Tanzania: a prospective, observational hospital-based study. *Pan African Medical Journal*, *38*(1). https://doi.org/10.11604/pamj.2021.38.10.17695
6. Sait, K., Alkhattabi, M., Boker, A., & Alhashemi, J. (2008). Hysterectomy for benign conditions in a university hospital in Saudi Arabia. *Annals of Saudi Medicine*, *28*(4), 282. https://doi.org/10.4103/0256-4947.51699
7. Pandey, D., Sehgal, K., Saxena, A., Hebbar, S., Nambiar, J., & Bhat, R. G. (2014). An audit of indications, complications, and justification of hysterectomies at a teaching hospital in India. *International Journal of Reproductive Medicine*, *2014*, 1-6. https://doi.org/10.1155/2014/279273
8. Hymavathi, K., Madhuri, P. V., Brahmini, M., & Madhubala, S. (2021). Hysterectomy for benign conditions in a tertiary care centre: A clinical audit. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, *10*(3), 975. https://doi.org/10.18203/2320-1770.ijrcog20210719
9. Manandhar, T., Sitaula, S., Thapa, B. D., Agrawal, A., & Thakur, A. (2020). Prevalence of hysterectomy among Gynecological surgeries

in a tertiary care hospital. *Journal of Nepal Medical Association*, *58*(232). https://doi.org/10.31729/jnma.5315

10. Munro, M. G., Critchley, H. O., Broder, M. S., & Fraser, I. S. (2011). FIGO classification system (PALM-COEIN) for causes of abnormal uterine bleeding in nongravid women of reproductive age. *International Journal of Gynecology & Obstetrics*, *113*(1), 3-13. https://doi.org/10.1016/j.ijgo.2010.11.011
11. Ali Algadiem, E., Aleisa, A. A., Alsubaie, H. I., Buhlaiqah, N. R., Algadeeb, J. B., & Alsneini, H. A. (2016). Blood loss estimation using gauze visual analogue. *Trauma Monthly*, *21*(2). https://doi.org/10.5812/traumamon.34131
12. Liu, Z., Doan, Q. V., Blumenthal, P., & Dubois, R. W. (2007). A systematic review evaluating health-related quality of life, work impairment, and health-care costs and utilization in abnormal uterine bleeding. *Value in Health*, *10*(3), 183-194. https://doi.org/10.1111/j.1524-4733.2007.00168.x
13. Chen, B., Ren, D., Li, J., & Li, C. (2014). Comparison of vaginal and abdominal hysterectomy: A prospective non-randomized trial. *Pakistan Journal of Medical Sciences*, *30*(4). https://doi.org/10.12669/pjms.304.4436