

ORIGINAL ARTICLE

PALM-COEIN CLASSIFICATION FOR ABNORMAL UTERINE BLEEDING, A STUDY OF INDICATIONS OF HYSTERECTOMIES IN TERTIARY CARE HOSPITAL

Nazish Hayat, Laila Zeb, Sawara Gul

Department of Gynaecology, Lady Reading Hospital MTI, Peshawar, Pakistan

ABSTRACT

Background: One of the most commonly performed gynaecological procedure worldwide is hysterectomy. Important indication for hysterectomy is abnormal uterine bleeding. Due to common use, there has been a need to standardize causes of abnormal uterine bleeding. To fulfil the need PALM-COEIN classification has been recommended that incorporates structural and non-structural causes contributing to abnormal uterine bleeding. The objective of this study was to examine the indications for hysterectomies performed in a tertiary care hospital, using the PALM-COEIN classification

Materials & Methods: It was a retrospective observational study, carried out in Lady Reading Hospital Peshawar. Data was collected over 5 years (from 2016-2022 with two years (2020 and 2021) of Covid surge excluded). Data was collected, on specially designed proformas for all cases undergoing total abdominal hysterectomies for abnormal uterine bleeding. Obstetric and vaginal hysterectomies as well as those done for reasons other than uterine bleeding i.e large fibroids and ovarian malignancies were excluded from the study. Demographic data was noted and indications were grouped according to PALM COEIN classification and compared over the mentioned years. Data was entered and analysed using SPSS v23. Continuous variables were reported as mean and standard deviation and categorical variables as frequencies and percentages.

Results: A total of 854 cases were collected over the 5 years, with 634 hysterectomies happening from 2016 till 2019 for AUB. Mean age of study sample was 48.5 years \pm 1.7. Forty Six patients (5.3%) of the total 854 cases were due to polyps (predominantly endometrial). Two hundred and twenty one cases (25.8%) were having adenomyosis. Fibroids were the most frequently detected finding, occurring in 293 (34.3%) of cases. Malignancies accounted for 54 (6.3%) of cases. Ovulatory disorders accounted for 11 (1.2%) of cases. One hundred and fifty five (18%) cases had endometrial cause. About 8.6% (n=74) of cases had no identifiable specific cause.

Conclusion: Our study demonstrates that PALM COEIN classification system can provide a suitable tool to classify women presenting with AUB.

KEY WORDS: Abnormal uterine bleeding; PALM COEIN classification; Hysterectomy; Adenomyosis; Leiomyoma.

Cite as: Hayat N, Zeb L, Gul S. Palm-coein classification for abnormal uterine bleeding, a study of indications of hysterectomies in tertiary care hospital. *Gomal J Med Sci* 2024 Jan-Mar;22(1):71-5. <https://doi.org/1046903/gjms/22.01.1568>

INTRODUCTION

Globally, one of the most common gynecological surgery performed is hysterectomy. The incidence varies not only across countries, race, age, and ethnicity but also has been varying over time.^{1,2} in the

U.S. alone, 600000 hysterectomies have been documented in a year.³ The situation is not much different in Pakistan, with a study reporting a rise of incidence from 7% to 17% over a period of 3 years from 2013 to 2016.⁴ Hysterectomies are currently being performed by a variety of routes for a variety of reasons. The various routes of performing hysterectomies include, total abdominal, vaginal, total laparoscopic, vaginally assisted laparoscopic and vNOTES (vaginal natural orifice transluminal endoscopic surgery). While there is trend towards more and more use of minimally invasive techniques⁵, total (open) abdominal hysterectomies are still being performed especially in the developing and underdeveloped world, where acquisition of high tech expensive equipment is not easy due to economic constraints.⁶

Corresponding Author:

Dr. Laila Zeb
Department of Gynaecology,
Lady Reaing Hospital
Peshawar, Pakistan.
E-mail: Laila.zeb@lrh.edu.pk

Date Submitted: 26-10-2023

Date Revised: 20-02-2024

Date Accepted: 02-03-2024

Although many alternatives are in place⁷, there are many clinical conditions, where hysterectomy becomes the desired treatment modality for uterine problems.⁸ The indication for hysterectomy may be menstrual disorders, uterine masses, malignancies and prolapse etc. One of the most frequently encountered situation is menstrual disorders like abnormal uterine bleeding where medical treatment has failed and fertility is not desired. Being a frequent reason for hysterectomy, it becomes pertinent to have a proper classification system of abnormal uterine bleeding (AUB), so that information and data can be standardized and universally accepted.

The PALM-COEIN system is a widely used classification system for abnormal uterine bleeding (AUB) in non-pregnant women of reproductive age.⁹ This system helps healthcare providers categorize the cause of AUB based on the underlying pathology, which guides diagnosis and treatment decisions. The acronym PALM-COEIN (Polyps, Adenomyosis, Leiomyoma, Malignancy and hyperplasia, Coagulopathy, Ovulatory dysfunction, Endometrial (other than polyps or hyperplasia), Iatrogenic and Not yet classified) includes both structural and non-structural causes. Polyps, Adenomyosis, and leiomyoma account for the structural causes while non-structural causes include coagulopathies, ovulatory dysfunction, endometrial causes like inflammation or infection, iatrogenic, and having an unknown causes.

PALM-COEIN system has standardized terminology, improving diagnosis and treatment planning. It allows categorization based on underlying pathology leading to more targeted treatment options. It also facilitates research on different causes and treatments for AUB. However, the PALM-COEIN system is not a diagnostic tool and is used in conjunction with other clinical information and investigations to diagnose AUB accurately.

This study aims to assess the indications for hysterectomies in tertiary care hospitals, examining which cause of abnormal uterine bleeding is a common reason for the surgical procedure. The findings of this study will help in focusing on more prevalent reasons for hysterectomy, aiming to improve overall management and outcomes of patients with abnormal uterine bleeding, ultimately leading to a reduction in unnecessary hysterectomies and better patient care.

MATERIALS AND METHODS

It was a retrospective observational study, carried out in Lady Reading Hospital Peshawar. Ethical approval was obtained from hospital ethical review board, prior to commencement of the study. Data was collected over 5 years. Initial 4 years were consecutive i.e. from 2016 till 2019. After that data was interrupted due to Covid surge and lock down situation, during which hospital services were cut off for elective gynaecological procedures. The final year for which statistics

were obtained was 2022, when hospital services were again stabilized and regular. Data was collected, on specially designed proformas for all cases undergoing total abdominal hysterectomies for abnormal uterine bleeding. Obstetric and vaginal hysterectomies as well as those done for reasons other than uterine bleeding i.e large fibroids and ovarian malignancies were excluded from the study. Indications were grouped according to PALM COEIN classification and compared over the mentioned years. Data was analysed using IBM SPSS Statistics for Windows, Version 23.0 (IBM Corp., Armonk, NY). Continuous variables were reported as mean and standard deviation and categorical variables as frequencies and percentages.

RESULTS

A total of 854 cases were collected over the 5 years, with 634 hysterectomies happening from 2016 till 2019 for AUB while 220 cases were recorded for the year 2022 . Mean age of study sample was 48.5 years ± 1.7. The Demographics of the cases included are presented in table 1.

Table 1: showing patient demographic characteristics. (n=854)

	Frequency	Percentage
Age		
40-45 years	23	2.6%
45-50 years	628	73.5%
>50 years	203	23.7%
Social class		
Middle and higher	239	27.98%
Lower	615	72.01%
Background		
Urban	274	32%
Rural	580	68%
Education status:		
Uneducated	787	92.15%
Primary	56	6.55%
Middle	2	0.2%
Metric	5	0.58%
Intermediate	3	0.35%
Graduate	1	0.1%
Parity		
Para 0	32	3.74%
1-2	53	6.2%
3 or more	769	90%

Table 2: The break up pf indications over years

Indications for tah / stah (elective)	2016	2017	2018	2019	2022
Aub	203	117	195	119	220
A. Polyp	18	4	3	3	18
B. Adenomyosis	49	7	80	26	59
C. Leiomyoma	72	47	38	46	90
D. Malignancies and hyperplasias	17	12	14	4	7
E. Coagulopathy	0	0	0	0	0
F. Ovulatory dysfunction	8	0	0	3	0
G. Endometrial	25	26	47	25	32
H. Iatrogenic	0	0	0	0	0
I. Not otherwise classified	14	21	13	12	14

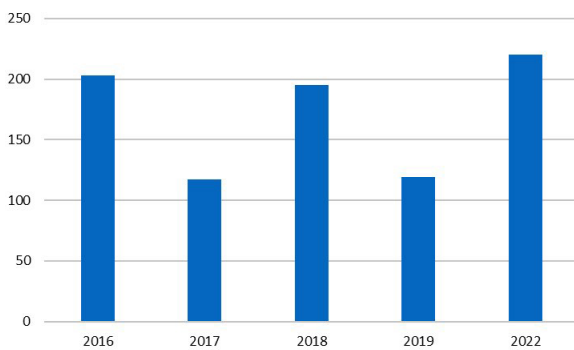


Figure 1: The distribution of cases over 5 years is as presented in Fig 1.

Overall, 5.3 % (n=46) of the total 854 cases were due to polyps (predominantly endometrial). Two hundred and twenty one cases (25.8%) were having Adenomyosis. Fibroids were the most frequently detected finding, occurring in 293 (34.3%) of cases. Malignancies accounted for 54 (6.3%) of cases. Ovulatory disorders accounted for 11 (1.2%) of cases. One hundred and fifty five (18%) cases had endometrial cause. About 8.6% (n=74) of cases had no identifiable specific cause. The break up pf indications over years is as presented in table 2.

DISCUSSION

Upto a third of women in their reproductive life face the problem of abnormal uterine bleeding.⁹ Although medical treatment options work for many, a significant proportion of these still end up in hysterectomy due to failed medical treatment or due to other associated complaints. A study in India by Shubham et al showed that hysterectomy was needed in 87% of patients needing admission

in hospital for AUB.¹⁰ In our study we collected data of patients who underwent hysterectomy for abnormal uterine bleeding. Our study showed that the main structural pathology found in these patients was fibroids (34.3%). Similar finding was noted by Ansari et al in their study conducted in tertiary care hospital in Kharian, where it was reported in 53.7% of patients presenting with AUB.¹¹ Similarly Emrah et al also found leiomyoma in 66% of sample studied, consisting of patients presenting with menstrual disorders.¹² While submucous fibroids can contribute directly to menstrual disturbances, intramural fibroids can also affect uterine vasculature and endometrial integrity.¹² The high incidence of this pathology may also be accounted for by the fact that present day imaging techniques identify and localize fibroids very easily and hence these may be found in upto 70% of women of reproductive age.¹³

Second most associated finding was adenomyosis (affecting 25.8% of studied patients). In study by Emrah et al, 31% of cases were affected by adenomyosis.¹² They also suggested that subclassifying according to adenomyosis type (focal/generalized) can further help towards understanding the contribution of pathology to clinical presentation. In the study by Ansari, adenomyosis was found in 23% of cases. Another study stated adenomyosis as the cause of AUB in 8.5% of cases.¹⁴ This low incidence can probably be explained by the fact that they focused mainly on patients presenting with AUB, not limiting to those who ended up in hysterectomy or may indicate geographical distribution as a study in India looking at patients presenting with AUB found adenomyosis in 29.66% of cases with 91% concordance in clinicopathological picture when patients underwent hysterectomy and sample was examined.¹⁵

In our study, polyps were identified in 46 patients (5.3%). Ansari found polyps in 6.7% of cases.¹¹ Vasava reported this pathology in 2.5% of cases¹⁴ while in study by Emrah, 19.5% of patients had polyps.¹² Incorporating use of diagnostic modalities like hysteroscopy can improve detection of polyps. It can also improve detection of hyperplasias and malignancies by allowing for targeted sampling of endometrium. However, since endometrial biopsy by conventional curettage was mostly employed in our study, malignancy was detected in 6.3 % of the cases. Study by Vasava in India detected malignancies and hyperplasias in 8% of their patients' sample¹⁴ while Ansari et al found the pathology affecting 16.1% of cases studied.¹¹

However, from our study, we felt that there was a need to clarify ovulatory, endometrial, iatrogenic and coagulaopathy related causes, mostly by structured history taking, since the diagnosis of these appears to be vague and overlapping otherwise, and hence, is prone to be under or over represented in study sample. While we had no hysterectomy done for coagulopathy or iatrogenic causes, ovulatory dysfunction was diagnosed in only 1.2% and endometrial pathology in 18% of cases. Different studies provide variable figures for incidence of these ranging from 64% (combined ovulatory and endometrial)¹⁰ to 37.6% for ovulatory and 3.4% for endometrial.¹¹ This may indicate variation in diagnostic definitions/markers used. There is a need to assign specific diagnostic modality or definition to these causes. This becomes even more important in low resource settings where diagnostic modalities may not be as thorough and vigorous as in developed countries. The incorporation of these can strengthen its utility as a pretreatment classification system in low-resource settings like ours. This study has few limitations. It was conducted on patients admitted for hysterectomy, and hence does not include women who presented in outpatient department and were managed conservatively. Therefore, the results cannot be generalized to all patients' population presenting with abnormal uterine bleeding. Also, since histopathological correlation was not done, hence accuracy of pre op diagnosis could not be judged adequately.

CONCLUSION

Our study demonstrates that PALM COEIN classification system can provide a suitable tool to classify women presenting with AUB.

Ethical Consideration: Ethical approval was obtained from hospital Ethical Review Board.

REFERENCES

1. Lykke R, Blaakaer J, Ottesen B, Gimbel H. Hysterectomy in Denmark 1977e2011: changes in rate, indications, and hospitalization. *Eur J Obstet Gynecol Reprod Biol* 2013;171: 333-8. <https://doi.org/10.1016/j.ejogrb.2013.09.011>
2. Hill EL, Graham ML, Shelley JM. Hysterectomy trends in Australia-between 2000e2001 and 2004e2005. *Aust N Z J Obstet Gynaecol* 2010;50:153-8. <https://doi.org/10.1111/j.1479-828X.2009.01130.x>
3. Wu JM, Wechter ME, Geller EJ, Nguyen TV, Visco AG. Hysterectomy Rates in the United States, 2003. *Obstet. Gynecol.* 2007;110(5):1091-95. <https://doi.org/10.1097/01.AOG.0000285997.38553.4b>
4. Majeed T, Adnan R, Mehmood Z, Mehmood H. Audit of gynaecological hysterectomies. *PJMHS* 2013;7(3):684-87. https://pjmhsonline.com/2013/july_sep/pdf/
5. Boone RM, Polin M, Lim F, Hur C, May BL, Arora C, et al. Institutional Trends in Hysterectomy Volume and Route of Surgery. *J Min Invasive Gynecol* 2022;29(11):S8. <https://doi.org/10.1016/j.jmig.2022.09.036>
6. Oseki C, Osaikhuwuomwan JA. A Review of indications and outcome of total abdominal hysterectomy at a tertiary public health facility in Southern Nigeria. *New Niger J Clin Res* 2018;7(11):21. https://doi.org/10.4103/nnjcr.nnjcr_49_16
7. Corona LE, Swenson CW, Sheetz KH, Shelby G, Berger MB, Pearlman MD, et al. Use of other treatments before hysterectomy for benign conditions in a statewide hospital collaborative. *Am J Obstet Gynecol* 2015;212(3):304-e1. <https://doi.org/10.1016/j.ajog.2014.11.031>
8. Neis KJ, Zubke W, Römer T, Schwerdtfeger K, Schollmeyer T, Rimbach S, et al. Indications and route of hysterectomy for benign diseases. Guideline of the DGGG, OEGGG and SGGG (S3 Level, AWMF Registry No. 015/070, April 2015). *Geburtshilfe Frauenheilkd* 2016;76(04):350-64. <https://doi.org/10.1055/s-0042-104288>
9. Munro MG, Critchley HOD, Fraser IS, Committee FMD. The two FIGO systems for normal and abnormal uterine bleeding symptoms and classification of causes of abnormal uterine bleeding in the reproductive years:2018 revisions. *Int J Gynaecol Obstet* 2018;143:393-408. <https://doi.org/10.1002/ijgo.12666>
10. Shubham D, Kawthalkar AS. Critical evaluation of the PALM-COEIN classification system among women with abnormal uterine bleeding in low-resource settings. *Int J Gynecol Obstet* 2018;141(2):217-21. <https://doi.org/10.1002/ijgo.12388>
11. Ansari A, Urooj U. Study of causes behind abnormal uterine bleeding according to PALM-COEIN classification at a tertiary care hospital. *JPMA* 2020;70(1). <https://doi.org/10.5455/JPMA.2749>
12. Töz E, Sancı M, Özcan A, Beyan E, İnan AH. Comparison of classic terminology with the FIGO PALM-COEIN system for classification of the underlying causes of abnormal uterine bleeding. *Int J Gynecol Obstet* 2016;133(3):325-8. <https://doi.org/10.1016/j.ijgo.2015.09.033>
13. Baird DD, Dunson DB, Hill MC, Cousins D, Schectman JM. High cumulative incidence 315 of uterine

- leiomyoma in black and white women: ultrasound evidence. *Am J Obstet Gynecol* 2003;188(1):100-7. <https://doi.org/10.1067/mob.2003.99>
14. Vasava VH, Airao BB, Shingala MR. Palm-coein classification of abnormal uterine bleeding and clinic histopathological correlation. *Int J Reprod Contracept Obstet Gynecol* 2021;10(4):1587-91. <https://doi.org/10.18203/2320-1770.ijr-cog20211141>
15. Singh K, Agarwal C, Pujani M, Raychaudhuri S, Sharma N, Chauhan V. A clinicopathological correlation of international federation of gynecology and obstetrics's PALM-COEIN classification of abnormal uterine bleeding: Indian scenario. *J Midlife Health*. 2019 Jul;10(3):147. https://doi.org/10.4103/jmh.JMH_128_18

CONFLICT OF INTEREST

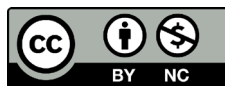
Authors declare no conflict of interest.
GRANT SUPPORT AND FINANCIAL DISCLOSURE
None declared.

AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design:	NH
Acquisition, Analysis or Interpretation of Data:	NH, LZ, SG
Manuscript Writing & Approval:	NH, LZ, SG

All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.



Copyright © 2024. Nazish Hayat, et al. This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License, which permits unrestricted use, distribution & reproduction in any medium provided that original work is cited properly.