A study of PALM-COEIN classification of abnormal uterine bleeding in perimenopausal women: An observational cross-sectional study

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ABSTRACT

Introduction: Abnormal Uterine Bleeding (AUB) is a common gynaecological issue affecting a large number of women of reproductive age group, especially during perimenopause. The International Federation of Gynaecology and Obstetrics (FIGO) developed a new classification system, PALM-COEIN, to standardize the terminology, diagnosis, and investigations of the causes of AUB. Therefore, this study aimed to investigate the structural (PALM) and functional (COEIN) component of the PALM-COEIN system in perimenopausal women complaining of AUB. **Methods:** This observational cross-sectional study was done at Gandaki Medical College, Pokhara among 100 perimenopausal women (aged 40 years and above till 1 year beyond menopause) admitted with complaints of AUB. After thorough history and examination, a clinical diagnosis was made as per PALM– COEIN classification. Analysis was done on the relative contributions of the different causes of the PALM and COEIN components. Then, endometrial sampling and hysterectomy specimen was assessed by histopathology. **Results:** A total of 100 women of perimenopausal age groups were studied. PALM and COEIN groups accounted for 72% and 28% respectively. Leiomyoma was the commonest cause of AUB (39%) followed by polyp (22%). Majority of the women (58%) were between 40 to 44 years of age, 89% were multiparous women. Overweight women (BMI of 25 to 29.99) were 47%. Proliferative endometrium (37.14%) was the most common histopathological finding, followed by secretory endometrium (22.85%). **Conclusions:** In perimenopausal women with abnormal uterine bleeding, leiomyoma was the most common structural cause, and proliferative endometrium was the most common non-structural cause. None of the cases were found to have malignancy or coagulopathy.

Keywords: Abnormal uterine bleeding, PALM–COEIN, perimenopause.

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INTRODUCTION

Abnormal uterine bleeding (AUB) is any bleeding from the uterine corpus that is abnormal in volume, regularity, frequency, or duration and occurs in the absence of pregnancy.[1,2] It is one of the frequent presenting issues a gynaecologist encounters and is a key contributor to hysterectomy, making it a serious health issue.[3]

AUB is the commonest menstrual problem during perimenopause, which is defined as the period between two to eight years before menopause and one year after the last period.[4] During this period, the growth of follicles has been observed to be irregular, leading to fluctuations in estrogen levels and a higher occurrence of anovulatory cycles. This makes individuals more susceptible to encounter unusual uterine bleeding.[5]

According to the acronym PALM-COEIN, AUB have been divided into nine categories, including structural causes (PALM) such as polyp, adenomyosis, leiomyoma, and malignancy/hyperplasia and non-structural causes (COEIN) such as coagulopathy, ovulatory dysfunction, endometrial, iatrogenic, and "not otherwise classified.[1,6]

While the FIGO PALM-COEIN system offers an organized method for categorizing AUB, its use in perimenopausal women is still limited. There is not enough information on this transitional group because the majority of studies have concentrated on women of reproductive age. Management issues are further exacerbated by inconsistent diagnostic techniques and a weak connection between clinical and histological results. By applying the PALM-COEIN categorization to perimenopausal women particularly, this study seeks to close current research gaps and advance precise diagnosis and tailored treatment of AUB in this demographic. Therefore, this study aimed to investigate and evaluate the structural (PALM) and functional (COEIN) components of the PALM-COEIN system in perimenopausal women complaining of AUB.

METHODS

A quantitative observational cross-sectional study was conducted at Gandaki Medical College and Teaching Hospital (GMCTH) for the duration of one year from March 5, 2022 to March 4, 2023. GMCTH is a tertiary care centre where almost 70 to 80 patients come to the outpatient department every day, and among them, 30 to 40 are due to gynaecological causes. All women with a history of AUB between 40 years and above till 1 year beyond menopause, who visited either the outpatient department or were admitted in the Gynaecology ward in GMCTH, fulfilling the inclusion criteria, were included in the study.

The data collection was started after approval from the Institutional Review Committee IRC of GMCTH (Ref. No. 180/079/080). One hundred patients fulfilling the inclusion criteria were enrolled after taking consent. All patients were evaluated by taking demographic data, clinical history, type of menstrual disturbances, body mass index, and presence of comorbidities. Relevant investigations were sent, then further management was planned. Major and minor surgical procedures were performed as per the patient's requirement. The obtained tissue after surgical intervention was sent for histopathological examination (HPE) and reports were followed up. Proforma was filled up from personal interview, clinical records and laboratory findings. Data was entered and analysis was done with Statistical Package for Social Science (SPSS) version 25.0

RESULTS

More than half of the study population were in the age group of 40 to 44 years, accounting for 58%. It was found that 89% of the women had two or more children. Three-fourths (60%) of the women were overweight and obese; however, none of the women was underweight. (Table 1)

Table 1: Distribution of cases with abnormal uterine bleeding according to age group, parity and body mass index (n=100)

Variables	Number	Percentage (%)
Age (Years)		
40-44	58	58%
45-49	37	37%
50 and above	5	5%
Parity		
1	11	11%
2	41	41%
3	39	39%
4	9	9%
Body Mass Index (BMI kg/m^2)		
<18.5		-
18.5-24.9		40%
25-29.9		47%
≥30		13%

Table 2 shows the distribution of AUB according to FIGO PALM-COEIN classification. Out of 100 cases, PALM constituted 72 cases and COEIN constituted 28 cases. The PALM and COEIN components accounted for 72% and 28% respectively. Leiomyoma (AUB-L) was found to be the major cause (39%) in overall and 39/72 (54.16%) in the structural group, whereas endometrial disorders (AUB-E) were the proposed major contributor 16 % in the functional group and 16/28 (57.14 %) of the non-structural group. (Table 2)

Table 2: Distribution of abnormal uterine bleeding according to FIGO PALM–COEIN classification (n=100)

Diagnosis	Number(n)	Percentage (%)
PALM(n=72)		
AUB-P	22	22%
AUB-A	11	11%
AUB-L	39	39%
AUB-M	-	-
COEIN (n=28)		
AUB-C	-	-
AUB-O	9	9%
AUB-E	16	16%
AUB-I	3	3%
AUB-N	-	-

A total of 65 symptomatic cases underwent major surgical procedures, and the remaining 35 underwent minor procedures. Among 39 cases of leiomyoma, endometrial biopsy was done in seven cases and managed medically. The remaining 32 cases of leiomyoma were managed surgically and specimen was sent for histopathological examination. Out of 65 cases who underwent major surgical intervention HPE report were consistent with leiomyoma in 26(40%) cases followed by polyp and adenomyosis. (Figure 1)

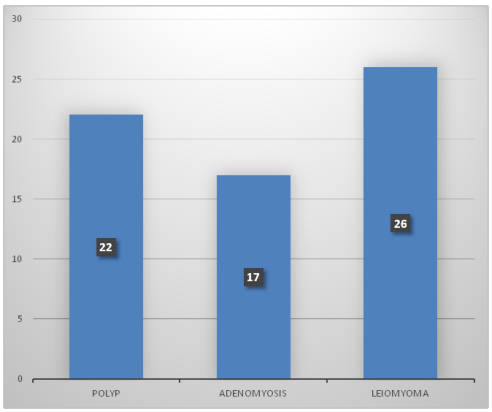

Figure 1: Distribution of cases with abnormal uterine bleeding according to histopathological reports.

Table 3 presents the distribution of cases according to endometrial biopsy histopathological reports. Out of 100 cases, 35 cases underwent an endometrial biopsy. Histopathology showed that more than one-third (37.14%) had proliferative changes. Endometrial hyperplasia with atypia was found in only one patient, and she was referred to the oncology centre to rule out endometrial malignancy, where the malignancy was found to be negative and was managed medically.

Table 3: Distribution of cases according to endometrial biopsy histopathological reports

	Number	Percentage (%)
Proliferative	13	37.14%
Secretory	8	22.85%
Chronic Endometritis	7	20%
Hormone Induced	3	8.57%
Endometrial hyperplasia without atypia	3	8.57%
Endometrial hyperplasia with atypia	1	2.87%
Total	35	100

DISCUSSION

This study found the causes for AUB in perimenopausal women. The PALM and COEIN components accounted for 72% and 28% of the causes, respectively. Leiomyoma (AUB-L) was found to be the major cause (39%) in overall and 39/72 (54.16%) in the structural group, whereas endometrial disorder (AUB-E) was found to be the major contributor in the functional group, accounting for 16% of overall and 16/28 (57.14%) of the non-structural group.

In this study, the highest incidence of AUB was noted in the age group of 40-44 years (58%), which is similar to the study done by Chapagain et al. where most of the cases were within the age group of 40 to 44 years.[7] In the current study, the highest incidence of AUB was seen in multiparous women(89%), which is similar to the studies done by Chapagain et al. and Talukdar et al. where most of the women had three or more than three children.[7,8] One of the reasons behind this might be due to the sociocultural similarities among the study population.

In the present study, 47% of women were overweight, and 13% were obese. It was found that the incidence of AUB increases with BMI, which is similar to the study done by Sharma et al where 81% patients were overweight.[9] One of the possible reason behind this might be that in obese women, there is peripheral aromatization of adipose tissue into estrone, which causes endometrial thickening leading to AUB.

While evaluating the biopsy report, proliferative endometrium is the most common endometrial tissue sampling report, which is similar to the result of Chapagain et al. and Damle et al. where majority of endometrial tissue sampling showed proliferative changes.[7,10]

Out of 100 cases, 65 cases underwent major surgical intervention, where 40% of cases were consistent with leiomyoma, followed by polyp (33.85%) and adenomyosis (26.15%), which is similar to the study done by Singh et al. and Singh et al. where most of the histopathological reports were consistent with leiomyoma.[11,12]

CONCLUSIONS

In perimenopausal women with abnormal uterine bleeding, leiomyoma was the most common finding of structural causes, whereas proliferative endometrium was the most common histopathological finding in non-structural causes. Although malignancy and coagulopathy are not found to be cause of AUB in our study they are important causes of AUB. Hence, when a perimenopausal women presents with AUB, she should undergo detail clinical, radiological, laboratory and histopathological evaluation to identify the cause so that case appropriate intervention can be done timely.

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AUTHORS' CONTRIBUTIONS

SS did concept and design of research, literature review, data collection and entry, analysis and manuscript preparation.

BGS did concept design and manuscript preparation. CP did concept design and editing. AS did the literature review and data collection. PK did literature review, data collection and statistical analysis RP did literature review, manuscript preparation, editing and finalization of manuscript. All the authors have read and approved the final draft.

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