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RESEARCH ARTICLE

Etiological factors of abnormal uterine bleeding in perimenopausal women in a tertiary care hospital

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ABSTRACT

Background: The most prevalent menstruation issue during perimenopause is abnormal uterine bleeding (AUB). Diagnosis and treatment of abnormal uterine bleeding in perimenopausal women is important to reduce and prevent the negative impact on physical, emotional, sexual and professional aspects of her life. **Aims and objectives**: The aim of the study was to document the etiological factors of abnormal uterine bleeding in perimenopausal women and to classify the etiological factors of AUB according to PALM-COEIN classification. **Materials and methods**: This descriptive hospital based study was conducted in a tertiary care hospital – Silchar Medical College and Hospital, Silchar, Assam, for 1 year from 1st June 2021 to 31st May 2022 after receiving ethical committee approval. The study comprises of 100 perimenopausal patients who presented with AUB to Obstetrics and Gynaecology department. **Results:** Out of 100 patients the most common sonographic finding was fibroid (35%), whereas 22% had a normal scan, 17% had adenomyosis, 11% had bulky uterus, 8% thickened endometrium and 7% patients had endometrial polyp. The most common endometrial pattern (by D & C and hysterectomy) was proliferative endometrium (39%) followed by secretory endometrium (18%), 10% simple hyperplasia without atypia. After classifying the causes according to PALM-COEIN classification, leiomyoma / AUB-L (38%) was found to be the most common cause followed by adenomyosis / AUB-A (22%). There were 19% cases of ovulatory dysfunction / AUB-O, 12% cases of endometrial disorder (AUB-E), 7% cases of polyp/ AUB-P, 1% case of malignancy / AUB-M and 1% case belonged to AUB-N / not otherwise classified. **Conclusion:** AUB-L is the most common etiological factor in perimenopausal women. The patients can be treated medically or surgically with maximum precision, after proper classification of AUB by PALM-COEIN, for better success rate.

Keywords: Abnormal uterine bleeding (AUB), perimenopausal.

Uterine bleeding is a natural physiological occurrence and its prevalence in women varies greatly. The menstrual cycle in women is generally 28 ± 7 days with duration averaging to 5 days. During a menstrual cycle, the blood loss volume does not exceed 80 ml [1]. Menstruation lasts an average of 4.7 days; the average blood loss in one cycle is 35 mL [2]. Abnormal uterine bleeding (AUB) is one of the common gynaecological issues for which women frequently seek medical advice. It accounts for more than 70% of all gynaecological consultations in the premenopausal and postmenopausal years [3] and accounts for two thirds of all hysterectomies [4]. The choreographed relationship between the endometrium and its regulating factors results in regular cyclic menstruation. Any disruption in the regulatory mechanism of the pituitary ovarian axis or pelvic diseases causes abnormal uterine bleeding [5]. Ten to thirty percent of reproductive aged women experience abnormal uterine bleeding and up to 50% of perimenopausal women. The pattern and causes of AUB change depending on the woman's age and reproductive status. Perimenopause is described as transitional years preceding menopause that include the transition from a regular ovulatory cycle to menstruation cessation, finishing 12 months following the last menstruation. The most prevalent menstruation issue

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during perimenopause is abnormal uterine bleeding (AUB). Follicular development has been irregular at this period, with a higher percentage of anovulatory cycles and unpredictability in oestrogen levels. Abnormal uterine bleeding (AUB) is defined as any type of bleeding that is not within the normal range of amount, frequency, and duration[6].

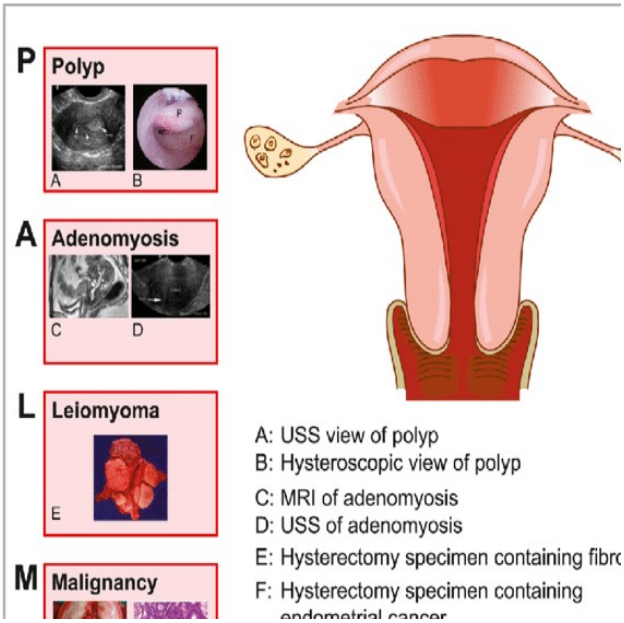

Figure 1: FIGO classification of causes of AUB "PALM-COEIN".

There is widespread discrepancy in the terminology used to characterise abnormal uterine bleeding (AUB), as well as a myriad of probable causes - many of which may coexist in the same individual. In order to develop a consistent and globally acknowledged terminology, the PALM-COEIN classification system for AUB was developed, which has been approved by the International Federation of Gynaecology and Obstetrics (FIGO) executive board as a FIGO classification system. PALM-COEIN acronym stands for polyp; adenomyosis; leiomyoma; malignancy and hyperplasia; coagulopathy; ovulatory dysfunction; endometrial; iatrogenic; and not otherwise classified [7] (figure 1). The aim of the study was to determine the etiological factors of abnormal uterine bleeding in perimenopausal women and to classify the etiological factors of AUB according to PALM-COEIN classification.

Materials and methods

The study was conducted is a descriptive observational hospital based study in a tertiary care hospital – Silchar Medical College and Hospital, Silchar, Assam, from 1st June 2021 to 31st May 2022 after receiving ethical committee approval. The study comprises of 100 perimenopausal patients who presented with AUB to Obstetrics and Gynaecology department.

Inclusion criteria - Perimenopausal women in age group 40 - 55 years with complains of AUB.

Exclusion criteria -

- Other age groups with abnormal uterine bleeding,
- Isolated cervical or vaginal pathology
- Pregnancy related causes of bleeding.
- Cervical cancer

Details of the study protocol were explained to the study participants. Informed consent was taken. Data for this study was collected systematically in a specially designed case recording proforma (CRF) pertaining to patient's particulars, proper history, clinical examinations, investigations and diagnostic procedures among the perimenopausal women presenting with symptoms of chronic AUB during the study period, and were screened for eligibility criteria.

All the perimenopausal patients attending gynaecology department were interviewed meticulously and chief complaints, detailed menstrual history, specifics of the bleeding pattern are recorded diligently. The frequency, duration, and severity of flow along with the pattern of bleeding whether cyclic or acyclic were recorded. Other important features including patient age, possibility of pregnancy, use of other medications or hormonal contraceptives, intrauterine contraceptive device, sexual history (determinant of sexually transmitted diseases), previous gynaecologic disease are also noted.

History obtained regarding the menstrual history, age of menarche, regularity of cycles in the past and present, history of duration of flow, history of passage of clots, number of pads used per day, dysmenorrhoea and first day of last menstrual period. History of postcoital bleeding will be enquired about. Medical history of hypertension, diabetes mellitus, tuberculosis, asthma, bleeding disorders, any drug intake was taken and family history of similar medical condition recorded.

A detailed physical examination carried out to seek for evidences of systemic diseases. Thorough abdominal and pelvic examination was carried out for any organomegaly or any palpable mass arising from pelvis.

Local examination of the external genitalia, per speculum and bimanual examination (including per rectal examination where necessary) was done to know the condition of cervix and position, size, shape, mobility of the uterus and to rule out any adnexal masses. PAP smear sample was taken for all cases to rule out cervical pathology.

In all cases of perimenopausal women with abnormal uterine bleeding, a urine for β-hCG was done initially; if negative then only further investigations were done and the case is included in this study. Basic laboratory tests were done like: blood routine, urine routine, blood grouping and typing, BT, CT, blood urea, serum creatinine, RBS, ECG, chest X-ray - PA view, HbsAg, Anti-HCV, HIV, ultrasonography. Hb was done to know the degree of anaemia. Serum thyroid profile, prolactin was also done. In suspected cases of PCOS serum FSH, serum LH, free testosterone was done. In case of abnormal coagulation screening test BT, CT, PT-INR, APTT, vWF, coagulation profile was done. Imaging techniques included ultrasonography (TAS & TVS), colour doppler study, SIS, MRI. Endometrial sampling was done where necessary.

Statistical analysis: Data were entered in MS Excel and analysis was done using SPSS IBM version 21. Analysis was done in the form of percentages and proportions and represented as tables and figures where necessary. Chi square or Fishers exact test was used to evaluate the possible association of categorical variables. All data were analysed using SPSS version 21 (SPSS Inc, Chicago, IL; PASW Statistics 21.0). A 'p' value less than 0.05 is considered as statistically significant at 5% level of significance.

Results

Most of the patients were in the age group 40-45 years (69%). Majority of the population in the study group belonged to lower socio-economic class followed by lower-middle class. Among the patients in the study group, it was seen that majority of the patients with AUB have high parity of ≥4 (figure 2). 18% of the patients had attained menopause and remaining 82% patients were premenopausal.

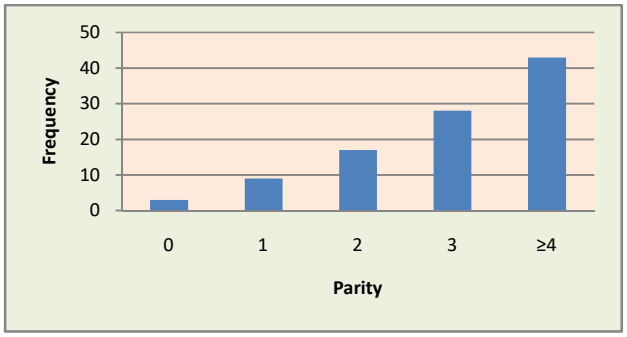

Figure 2: Parity distribution in the study group

Of the total patients studied, most of the patients (39%) presented with heavy menstrual bleeding (HMB) or menorrhagia; 16% presented with metrorrhagia or intermenstrual bleeding (IMB), 15% with postmenopausal bleeding (PMB), 14% with polymenorrhea, 4% patients with hypomenorrhea and 2% patients reported with amenorrhea followed by prolonged bleeding (AFPB) respectively (figure 3).

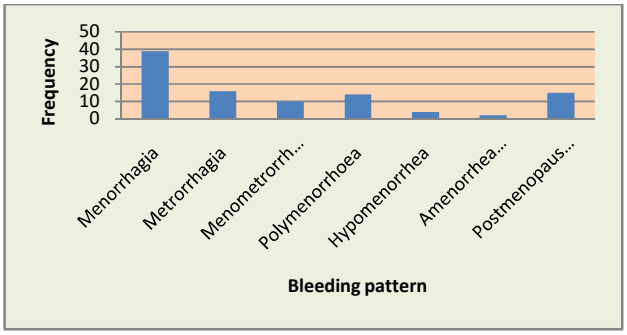

Figure 3: Bleeding pattern in AUB patients

The most common sonographic finding in this study was found to be fibroid (35%), whereas 22% had a normal scan, 17% had adenomyosis, 11% had bulky uterus, 8% thickened endometrium and 7% patients had endometrial polyp on the ultrasonography (table 1). After classifying the causes of AUB according to PALM-COEIN classification, leiomyoma / AUB-L (38%) was found to be the most common cause of

Table 1: Distribution with respect to USG finding and diagnosis

Ultrasonography	AUB-A	AUB-E	AUB-L	AUB-M	AUB-N	AUB-O	AUB-P	Total	P value
Adenomyosis	17	0	0	0	0	0	0	17	<0.001
Bulky uterus	2	4	2	0	1	2	0	11	
Fibroid	0	0	35	0	0	0	0	35	
Normal uterus	3	1	1	0	0	17	0	22	
Endometrial polyp	0	0	0	0	0	0	7	7	
Thicken endometrium	0	7	0	1	0	0	0	8	
Total	22	12	38	1	1	19	7	100	

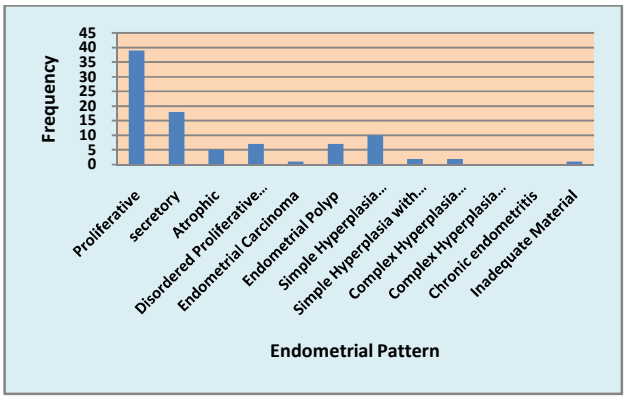

Figure 4: Endometrial pattern in AUB patients

AUB in perimenopausal age followed by adenomyosis / AUB-A (22%). There were 19% cases of ovulatory dysfunction / AUB-O, 12% cases of endometrial disorder (AUB-E), 7% cases of polyp/ AUB-P, 1% case of Malignancy / AUB-M and 1% case belonged to AUB-N / not otherwise classified (table 1).

Discussion

In this study, AUB in perimenopausal women was found to be more common in the age group 41-45 years (69%) followed by in 46-50 years (22%) of age group and only 9% in the age group of 51-55 years. Comparable observations were made in a study by Anupma Kumari et al [8] where the most common age group presenting with AUB in perimenopausal age was found to be 40-45 years (65.55%) followed by 46-50 years (27.77%). Bharat Talukdar et al [9] in a study done in 2014-15 found that most of the perimenopausal patients were between 40 - 45 years of age (67.97%) followed >45-50 years age group (22.33%).

In this study of AUB in perimenopausal women, most of the patients belonged to a high parity ≥4 (43%), followed by parity 3 (28%). Similar study done by Nargis N et al [10] found AUB to be more common in high parity ≥4 (39.96%) followed by parity 3 (32.70%). Comparably, in a study by Bharat Talukdar et al [9] they found AUB more commonly in high parity ≥4 (41.83%) followed by parity 3 (27.45%).

In this study of AUB in perimenopausal women, more patients belonged to lower socioeconomic class (36%), followed closely by lower middle class (33%). In a similar study by Anupma Kumari et al [8] in NMCH, Patna, majority (68.33%) of cases belonged to low socioeconomic status, 25.55% to middle and 6.11% to high class**.** Sreelakshmi U et al [11] in a similar study found that majority of the AUB patients of perimenopausal age belonged to lower class (37.03%), followed by lower middle class (31.11%). This disparity may be attributed to the inclination of higher socioeconomic class to go for private institution for seeking consultation and treatment.

In this present study, heavy menstrual bleeding was the most frequently occurring bleeding pattern (39%) followed by inter menstrual bleeding (16%) and postmenopausal bleeding (15%). In a similar study by Radha Nair et al [12] menorrhagia (64%) was the most common bleeding pattern, followed by polymenorrhoea (28%), metrorrhagia (18%). Menorrhagia was also found to be the most common problem in AUB patients (46.4%) in a study done by Sujata Jetley et al [13]**,** followed by metrorrhagia (20%). In a study by Shobha S Pillai et al [14], it was found that menorrhagia (46.5%) was the most common presenting symptom in patients presenting with AUB. In a study by Kajal Sinha et al [15], it was found that menorrhagia was the most predominant bleeding pattern (58.45%) followed by metrorrhagia (19.12%).

In this study, most common sonographic finding in AUB patients found to be fibroid (35%) followed by normal scan (22%), followed by adenomyosis (17%) and bulky uterus (11%). AUB-L was diagnosed in 38% of the cases and sonographic finding of fibroid in 35% cases. The rest of the 3 AUB-L were diagnosed intraoperatively in addition to histopathological reports. In a study by Bharat Talukdar et al [9], most common sonography finding was found to be fibroid uterus (45.63%), followed by bulky uterus (29.12%) and adenomyosis (10.69%) respectively which is in agreement with our study finding.

In the present study the most frequent HPE finding was found to be proliferative endometrium (39%), followed by secretory endometrium (18%) and simple hyperplasia without atypia (10%) respectively. The present study is in agreement with the study by Sreelakshmi U et al [11] where they found the commonest HPE finding to be proliferative endometrium (30.3%), followed by secretory endometrium (27.4%) and simple hyperplasia without atypia (18.5%) respectively. Anupma Kumari et al [8] in their study also found the most common HPE finding in AUB in perimenopausal women to be proliferative endometrium (43.33%), followed by secretory (28.33%) and hyperplastic (21.11%) endometrium respectively.

Anovulatory cycles, disordered proliferative pattern of endometrium, hyperplasia and benign endometrial polyp are some finding in these studies which are common in the premenopausal age group [16]. Menstrual cycles become shorter or prolonged and often anovulatory because of reduced ovarian reserve and estradiol level. There is rise in S. FSH level owing to the imbalance of hypothalamo-pituitary-ovarian axis. The bleeding occurring in proliferative phase may be due to anovulatory cycles, whereas in secretary phase it may be due to dysfunctional uterine bleeding. Here disordered proliferative endometrium was found as one significant HPE report. In a spectrum consisting of proliferative lesions, at one end lies disordered proliferative endometrium and on the other end lies malignancy, with hyperplasia in the middle. It describes an endometrial appearance that is hyperplastic but without an increase in endometrial volume [17]. The menstrual history alone can confirm the diagnosis with sufficient confidence in

the majority of women with real anovulatory bleeding, and therapy can begin without any additional lab assessment or imaging. Menstrual bleeding that is frequent, irregular, and unexpected in amount, length, and character that is not preceded by any discernible or consistent pattern is not difficult to interpret. Conversely, regular monthly periods that are heavy or prolonged are more likely related to an anatomical cause or a bleeding disorder [18].

In this study malignancy was identified in only one case after endometrial curettage and histological investigation. This is lower than in other related researches. This could be because the majority of patients in this portion of the country come from poor socioeconomic backgrounds and have low rates of associated risk factors such as diabetes, obesity, and sedentary lifestyle. Other considerations could include the fact that many of these patients are diagnosed at an earlier stage of the disordered proliferative phase. Endometrial hyperplasia is thought to be precursors of endometrial carcinoma. Risk increases gradually from simple hyperplasia without atypia to maximum risk in complex hyperplasia with atypia.

Conclusion

From the present study it can be inferred that AUB-L is the most common etiological factor of AUB in perimenopausal women. HPE mostly consisted of proliferative endometrium. It can be concluded from the study that, AUB may adversely affect the quality of a women's life, may provoke serious medical consequences or exacerbate anaemia. The patients can be treated medically or surgically with maximum precision, after proper classification of AUB by PALM-COEIN, for better success rate.

Conflict of interest: None. **Disclaimer:** Nil.

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