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Original Research Article

Study on abnormal uterine bleeding among adult women in a tertiary care hospital in Bihar, India

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ABSTRACT

Background: Abnormal uterine bleeding (AUB) is the most common problem among patients coming to gynaecology outpatient department. There are various pathologies which can lead to AUB. History, blood investigations, ultrasonography, hysteroscopy and endometrial aspiration are the methods to rule out different causes. Later on, they are classified as per PALM-COEIN classification. It helps in better and successful management of AUB patients.
Methods: It was a retrospective study done in Obstetrics and Gynaecology Department of AIIMS Patna from March 2014 to March 2016. A total of 272 cases were selected and data were collected in structured proforma on excel sheet.
Results: The most common age-group presenting with AUB was 40 to 49 years of age (58%) and the most common histological pattern was secretory (47.7%). Menorrhagia was found to be the most common problem in AUB patients (58.45%). As per PALM- COEIN classification, the most common type in our study was found to be AUB-E (26.8%). In a sub-set of patients, who underwent hysterectomy, histopathological samples were compared to endometrial samples which were similar in 81.6% cases.
Conclusions: Incidence and pattern of AUB varies according to the age of the patient. It is more common in perimenopausal age-group. Classification of AUB as per PALM-COEIN helps in better understanding of disease and successful management of patients.

Keywords: Abnormal uterine bleeding, PALM-COEIN

INTRODUCTION

Abnormal uterine bleeding (AUB) is one of the most common conditions for which women consult their gynaecologists.[1]

AUB is said to be any abnormality from the normal menstrual cycle and is defined as uterine bleeding that is abnormal in volume, cycle, and/or timing, and should be present in the majority for the past 6 months. AUB is further categorised which is based on volume of menstruation, regularity, frequency and duration related to reproductive status.

AUB can occur in any age and has different types of presentation.[2] AUB is a symptom and can arise from different causes like physiological processes in various age-groups, structural lesions, systemic and hormonal causes as well as malignancy. In 2011, the FIGO classification system (PALM-COEIN) was published in order to standardize terminology, diagnosis and investigations in women presenting with AUB.[3] The classification system includes nine categories, organised under the acronym ''PALM-COEIN''. PALM group includes five structural aetiologies of AUB that can be diagnosed with ultrasound and/or histopathology (polyp, adenomyosis, leiomyoma, malignancy, and hyperplasia).

COEIN group includes non-structural entities i.e. coagulopathy, ovulatory dysfunction, endometrial, iatrogenic, and not yet classified.

AUB is a common condition affecting women at all ages and interferes with women's physical, emotional and social quality of life. It is important to reach correct clinical diagnosis and identify the causative factor. Ultrasonography is usually a safe initial investigation as it is non-invasive and can give us an idea about any structural cause. Hysteroscopy has been generally accepted as gold standard in evaluation of the uterine cavity.[4] It has high sensitivity and specificity in diagnosis due to the fact that the uterine cavity and intrauterine pathology are directly visualised. Histopathological evaluation of endometrial tissue by curetting or aspiration is a safe & effective method for determining the cause of AUB after excluding systemic and structural causes.[5]

Indications are failure of medical treatment, >40 yrs of age, inter menstrual bleeding, postmenopausal bleeding, family history of endometrial carcinoma and thick endometrium in ultrasound. Patients with history of anovulation, diabetes, obesity, hypertension, exogenous use of estrogen are at an increased risk of endometrial hyperplasia and endometrial carcinoma.

METHODS

This is a retrospective study done in department of obstetrics and gynaecology, AIIMS Patna. It was done in year from March 2014 to March 2016.

Inclusion criteria

All women of reproductive age groups of year 20-55, suffering from AUB and underwent diagnostic endometrial biopsy were included in the study.

Exclusion criteria

- Postmenopausal women, pregnant women, different types of abortion
- Patients lost to follow up from treatment and who refused diagnostic biopsy.

Relevant clinical data regarding age, pattern and duration of abnormal bleeding, menstrual history, obstetric history, physical and gynaecological examination findings, laboratory investigation results, sonological reports, hysteroscopic findings and histopathological reports were obtained from case records from Medical Records Department. All data were recorded in a carefully structured proforma. A total of 272 cases were analysed and histological diagnosis was made. In the subset of patients undergoing hysterectomy, histopathological reports were recorded for comparison.

Before starting work up of AUB, proper history is to be taken to exclude pregnancy and with the use of urine or serum beta HCG. The second step is to exclude structural etiologies of PALM group i.e. polyp, adenomyosis, leiomyoma and malignancy or premalignant conditions like hyperplasia. So, uterine assessment was performed using a trans-vaginal or trans-abdominal ultrasound. In case of any intrauterine abnormalities, further examination such as hysteroscopy was performed to explore uterine cavity.

An office endometrial biopsy was planned for patients over 40 years and those at higher risk of endometrial cancer: nulliparous, high BMI (30 kg/m^2), PCOS, diabetic, family history of hereditary non-polyposis colorectal cancer syndrome and when treatment failed to stop AUB to rule out any malignant aetiology.[6,7]

After all these steps are completed and structural cause are excluded, the non-structural origin of AUB is suspected, and clinicians have to classify patients of this group in one or a combination of the following etiologies: due to coagulopathy, (AUB-C), primary endometrial disorder (AUB-E), disorder of ovulation (AUB-O), due to iatrogenic cause (AUB-I) like intrauterine contraceptive device, sex steroid hormones, and AUB-N i.e. not yet classified. AUB-E is a diagnosis of exclusion when no other causes are identified.

Statistical analysis

Data were entered in Microsoft Excel and managed in SPSS version 16. Analysis was done in the form of percentages and proportions and represented as tables and figures where necessary. AUB was classified as per PALM-COEIN classification.

RESULTS

In present study, incidences of various age groups are shown in Figure 1.

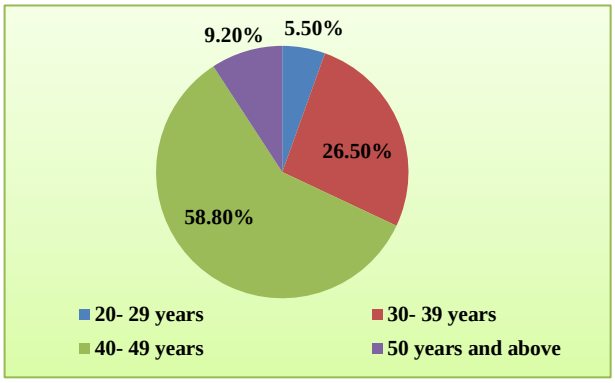

Figure 1: Age distribution pattern of AUB patients.

Highest incidence is found in age groups of year between 40-49 years of age followed by 30-39 years, then 50 years and above. Least incidence was found in 20-30 years age group. Different patterns of abnormal uterine bleeding are shown in Table 1.

Table 1: Different patterns of AUB.

Patterns of AUB	No. of cases	Percentage
Menorrhagia	159	58.45
Metrorrhagia	52	19.12
Polymenorrhoea	32	11.76
Menometrorrhagia	11	4.04
Hypomenorrhoea	03	1.1
Polymenorrhagia	15	5.5
Total	272	

The most common pattern found was menorrhagia followed by metrorrhagia, polymenorrhoea, menometrorrhagia, and hypomenorrhoea. Medical disorders with AUB were found in a sub-set of patients. Medical disorders were listed in present study e.g. hypothyroidism, heart disease, hypertension and hepatitis B positive.

On clinical examination, among 272 patients, 50 patients had endocervical polyp, 126 patients had normal sized uterus and 146 patients had bulky uterus, 6 patients had adnexal mass. Trans-abdominal ultrasonography showed fibroid in 64 patients, adenomyoma in 21 patients, endometrial polyp in 13 patients, thick endometrium in 10 patients and ovarian cyst in 6 cases (Table 2).

Table 2: Different sonographic findings of AUB patients.

Sonographic findings	No. of cases	Percentage
Fibroid	64	23.53
Adenomyoma	21	7.72
Endometrial polyp	13	4.78
Thick endometrium	10	3.68
Ovarian cyst	6	2.2
Normal scan	158	58.01

Endometrial aspiration reported different histological sub types (Table 3). Most common was secretory (47.7%), followed by proliferative pattern (25.7%). Others were disordered proliferative endometrium (7%), and simple hyperplasia without atypia (4.4%). Least incidence was of atrophic endometrium (0.3 %).

All cases were classified as per PALMCOEIN classification (Table 4). Among them, maximum incidence was AUB-E, followed by AUB-L.

There was a subset of 60 patients who underwent endometrial biopsy and later on hysterectomy for their respective indications. The result of histopathological report was similar in 49 cases. In only 11 cases, the result varied. In one case, authors found cavernous hemangioma in hysterectomy samples and proliferative endometrium in endometrial aspiration samples. Sensitivity of the endometrial biopsy report was found to be 81.6%.

Table 3: Different histological subtypes of endometrial biopsy reports.

Histological subtypes	No. of cases	Percentage
Secretory	130	47.8
Proliferative	70	25.7
Disordered proliferative	20	7.35
Mixed pattern	26	9.5
Endometritis	11	4
Simple hyperplasia without atypia	12	4.4
Adenocarcinoma	2	0.7
Atrophic endometrium	1	0.3

Table 4: Incidence as per PALM-COEIN classification.

Classifications	Incidence	Percentage
AUB-E	73	26.8
AUB-L	55	20.2
AUB-O	49	18.1
AUB-P	44	16.2
AUB-A	17	6.2
AUB-M	14	5.1
AUB-I	01	0.4
AUB-N	01	0.4
AUB-L, O	06	2.2
AUB-L, P	03	1.1
AUB-P, O	05	1.8
AUB-A, O	04	1.5

DISCUSSION

Abnormal uterine bleeding is described as any bleeding which does not fulfil the criteria of normal menstrual bleeding. There are various causes of AUB. Organic cause of abnormal uterine bleeding may be subdivided into reproductive tract disease, iatrogenic causes and systemic disease. After exclusion of all organic causes, diagnosis of dysfunctional uterine bleeding (DUB) is assumed. In about 25% of the patients, the abnormal uterine bleeding is the result of a well-defined organic abnormality.[8]

The routine non-invasive investigations for abnormal uterine bleeding include complete blood count, platelet count, prothrombin time (PT), Activated partial thromboplastin time (APTT) and liver function test to rule out any coagulation and bleeding disorders. Thyroid function test, follicle stimulating hormone (FSH), leuteinizing hormone (LH), serum prolactin levels are done to rule out any endocrine causes. The next step in the work up of AUB is trans-abdominal pelvic ultrasound (USG) or trans-vaginal ultrasonography and tissue sampling. Dilatation and curettage can be a diagnostic as well as therapeutic procedure.[9] To rule out pregnancy, serum or urine HCG testing is important. It is mandatory to exclude pregnancy before starting work up of abnormal uterine bleeding. The sensitivity of endometrial

biopsy for the detection of endometrial pathology has been reported to be as high as 96%.[10]

Present study significantly shows that the incidence of menstrual disorders increases with advancing age. The commonest age group presenting with excessive bleeding in present study was 40 years and above. A similar incidence was reported by Yusuf et al and Muzaffar et al in their study of endometrium.[11,12]

Present study like several others showed anovulatory cycles, disordered proliferative pattern, hyperplasia and benign endometrial polyp occurring more commonly in the age group 41-50 years.[12] The reason for increased incidence of abnormal uterine bleeding in this age group may be due to the start of climacteric period. In this phase, cycles shorten or prolong and often become anovulatory due to a decrease in the number of ovarian follicles and the estradiol level. Finally, there is a disbalance in hypothalamo-pituitary -ovarian axis leading to rise in serum FSH level.

The bleeding in the proliferative phase and in the secretory phase may be due to anovulatory cycles and ovulatory dysfunctional uterine bleeding, respectively. A significant number of cases showed disordered proliferative pattern in this study. Disordered proliferative pattern lies at one end of the spectrum of proliferative lesions of the endometrium and carcinoma at the other end with hyperplasia in the middle. It describes an endometrial appearance that is hyperplastic but without an increase in endometrial volume.[13]

It is said to be a proliferative phase endometrium that does not correspond to any one phase of the menstrual cycle and is not abnormal enough to be considered hyperplastic. Diagnosing the patients at the earliest stage of this spectrum will be of definitive help to the practicing gynaecologists to prevent the disease progression and prompt management of premalignant lesions. The incidence of endometrial hyperplasias in this study was less as compared to others.[14]

This is due to the reason that most of the patients belong to lower socioeconomic status and there is low occurrence of risk factors like diabetes, obesity and sedentary lifestyle. Another reason could be that most of these patients are being identified at a much earlier stage that is in the disordered proliferative phase. Endometrial hyperplasia is thought to be precursors of endometrial carcinoma. Risk increases gradually from simple hyperplasia without atypia to its maximum risk in complex hyperplasia with atypia.

The incidence of benign endometrial polyps in this study was high in 41-50 years age group. There is a lower incidence of endometrial polyp in younger age. Due to normal cycling endometrium, endometrial polyp spontaneously regresses which leads to its low incidence in young women. Difference between the endometrial polyp and normal endometrium are in receptor expression, cell proliferation and apoptosis regulation. This is combined with non-random chromosomal aberrations and monoclonality that suggests polyp may provide a suitable microenvironment for the development of malignancy. But there is not much literature over this topic.

75% of fibroids are generally asymptomatic. So, how fibroid contributes in causing AUB is not completely understood till now.

Fibroids are also highly prevalent in women presenting with AUB. In present study, fibroid has been found in approximately 24% of AUB patients. Previous theories suggest an increased endometrial surface area and the presence of fragile and engorged vessels in the perimyoma environment can be the cause of AUB.[15] Position of fibroid decides the pattern of abnormal uterine bleeding. Submucous variety is the least common types but they are the tumor sub-group which is maximum present with symptoms. Subserous fibroid is generally asymptomatic and intramural types present variably. Recent theory suggests that complex cellular and molecular changes found in association with fibroids, with effect on angiogenesis, change in vasoactive substrates and growth factors as well as change in coagulation can be the pathology of AUB in fibroid.[16]

In present study, we see that leiomyoma can alone cause AUB but there were 6 cases where anovulation with fibroid was the culprit of AUB. So, authors concluded them as AUB-L, O. There were 3 cases of AUB where endocervical polyp was contributing to AUB with fibroid with features of menometrorrhagia, so defined collectively as AUB-L, P. The contribution of polyps to AUB varies widely ranging from 3.7% to 65%.[17,18]

In present study we saw that polyp with anovulation was the cause of menometrorrhagia. So, authors described them as AUB-P, O. Polyp present with irregular cycles and anovulation leading to prolonged bleeding after a long gap of amenorrhoea. We can see that multiple factors can be involved to cause AUB in a single patient to cause AUB.

Forgotten IUCD for a long time can cause heavy menstrual bleeding. It can cause chronic inflammation and endometritis leading to prolonged and heavy flow during menstruation. It comes under the category of AUB-I. There are pathologies that are rare and do not fit under the categories described earlier are defined as AUB-N. Examples are arterio-venous malformations, pseudo aneurysms, myometrial hypertrophy, cavernous hemangioma etc.

CONCLUSION

Incidence and pattern of AUB varies according to the age and reproductive state of patient. There are other different

factors causing AUB. One cannot manage every patient in a similar manner. After proper classification of AUB by PALM-COEIN, patients can be treated medically or surgically according to the cause leading to better success rate. After complete work up of patients of abnormal uterine bleeding, full history and diagnosis of the disease can be summarised in one word as per PALM-COEIN and management can be done in a better way.

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