

## A Hospital Based Research to Assess the Clinico-pathological Correlation in Abnormal Uterine Bleeding (AUB)

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Received: 03-12-2021 / Revised: 30-12-2021 / Accepted: 28-01-2022

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Conflict of interest: Nil

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### Abstract

**Aim:** To study the clinico-pathological correlation in abnormal uterine bleeding.

**Material and methods:** The study was conducted in the Department of Obstetrics & Gynaecology, Patna Medical College and Hospital, Patna, Bihar, India from June 2020 to June 2021. 100 patients who presented in this hospital with a history of AUB and who underwent D&C or hysterectomy were included in the study. Relevant clinical data regarding age, pattern and duration of abnormal bleeding, menstrual history, obstetric history, use of exogenous hormones, physical and gynecological examination findings, lab investigation results, and sonological and hysteroscopic findings were obtained from case records from Medical Records Department.

**Results:** A total of 100 endometrial specimens submitted with a clinical diagnosis of AUB were studied. Patients' age ranged from 20-69 years and most of them were seen in the age group of 45-55 years, followed by 35-45 years. The commonest complaint was menorrhagia in 51 patients (51%). Parity in the present study ranged from para 1 to para 8. 74 (74%) of them were in the low parity group (para 1-2) followed by para 3-4 (26%). In our study, 74% of the patients were of normal weight, 21% patients were overweight, and 3% were obese. The commonest pathology observed in the study was endometrial hyperplasia in 24 (24%) patients. Secretory endometrium was the next commonly observed pattern seen in 17 (17%) patients, followed by proliferative and disordered proliferative endometrium in 11 (11%) patients each. Endometrial carcinoma was seen in 3(3%) cases. Endometrial hyperplasia and polyps the most common patterns seen in the age group  $\leq 35$  years. Between 35-45 years, secretory pattern was the most common followed by proliferative change. In the 45-55 age group, endometrial hyperplasia was the most common pattern followed by disordered proliferative pattern. Most of the endometrial and other carcinomas were presented after age 55 years.

**Conclusion:** Abnormal uterine bleeding predominantly affects women of perimenopausal age group which is alarming and needs thorough evaluation as it could be the only clinical manifestation of endometrial cancer.

**Keywords:** ABU, perimenopause, endometrial cancer

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## Introduction

Abnormal uterine bleeding is considered as one of the most common and challenging problem presenting to the gynaecologist. It is responsible for as many as one-third of all outpatient gynaecological visits.[1,2]

It may represent a normal physiologic state and observation alone may be warranted. Alternatively the bleeding can be a sign of a serious underlying condition necessitating aggressive treatment that could include a major procedure.[3]

Abnormal uterine bleeding includes both dysfunctional uterine bleeding and bleeding from structural causes like fibroids, polyps and endometrial carcinoma.[4]

Dysfunctional uterine bleeding is defined as abnormal uterine bleeding without a demonstrable organic cause. It may be an ovulatory characterised by irregular, unpredictable bleeding (metro-rhagia) or ovulatory resulting in heavy but regular periods(menorrhagia).[5]

According to the center for disease control and prevention in United States about 5 per 1000 women undergo hysterectomy annually in USA and about 1 in 4 women will have hysterectomy by the age of 60 yrs.[6]

## Material and methods:

The study was conducted in the Department of Obstetrics & Gynaecology, Patna Medical College and Hospital, Patna, Bihar, India from June 2020 to June 2021.

## Methodology:

100 patients who presented in this hospital with a history of AUB and who underwent D&C or hysterectomy were included in the study. Patients with a gestational cause, hemostatic disorders, isolated cervical or vaginal pathology, and leiomyoma excluded. Relevant clinical data regarding age, pattern and duration of abnormal bleeding, menstrual history, obstetric

history, use of exogenous hormones, physical and gynecological examination findings, lab investigation results, and sonological and hysteroscopic findings were obtained from case records from Medical Records Department.

All the specimens were fixed in 10% formalin, processed and embedded in paraffin, and 3-4mm thick sections were made. Sections were stained with hematoxylin and eosin stain. A total of 100 cases were analyzed and histological diagnosis was made. Data were entered in Microsoft Excel and managed in SPSS version 25.0. Analysis was done in the form of percentages and proportions and represented as tables and figures where necessary.

## Results:

A total of 100 endometrial specimens submitted with a clinical diagnosis of AUB were studied. Patients' age ranged from 20-69 years and most of them were seen in the age group of 45-55 years, followed by 35-45 years [Table 1].

The commonest complaint was menorrhagia in 51 patients (51%). Parity in the present study ranged from para 1 to para 8. 74 (74%) of them were in the low parity group (para 1-2) followed by para 3-4 (26%).

In our study, 74% of the patients were of normal weight, 21% patients were overweight, and 3% were obese [Table 2].

The commonest pathology observed in the study was endometrial hyperplasia in 24 (24%) patients. Secretory endometrium was the next commonly observed pattern seen in 17 (17%) patients, followed by proliferative and disordered proliferative endometrium in 11 (11%) patients each. Endometrial carcinoma was seen in 3(3%) cases [Table 3].

Endometrial hyperplasia and polyps the most common patterns seen in the age group  $\leq 35$  years. Between 35-45 years, secretory pattern was the most common followed by proliferative change. In the 45-

55 age group, endometrial hyperplasia was the most common pattern followed by disordered proliferative pattern. Most of the endometrial and other carcinomas were presented after age 55 years [Table 4].

**Table 1: Distribution of patients with abnormal uterine bleeding in different age groups: (n=100)**

Age (in years)	No. of patients	Percentage
Below 35	9	9
35-45	39	39
45-55	44	44
Above 55	8	8
Total	100	100

**Table 2: Distribution of patients according to their body mass index**

BMI	No. of patients	Percentage
19-24.9 kg/m <sup>2</sup> (normal weight)	74	74
25-29.9kg/m <sup>2</sup> (overweight)	21	21
$\geq 30$ kg/m <sup>2</sup> (obese)	3	3
No data	2	2
Total	100	100

BMI: Body mass index

**Table 3: Distribution of endometrial patterns in abnormal uterine bleeding patient**

Endometrial pattern	No. of patients	Percentage
Proliferative phase endometrium	11	11
Secretory phase endometrium	17	17
Mixed patterns (proliferative and secretory)	4	4
Pill endometrium	9	9
Disordered proliferative endometrium	11	11
Luteal phase defect	3	3
Menstrual endometrium	2	2
Atrophic endometrium	5	5
Endometritis	1	1
Endometrial polyps	5	5
Endometrial hyperplasia	24	24
Endometrial carcinoma	3	3
Endometrial Stromal Sarcoma	1	1
Other carcinomas	2	2
Inadequate	2	2
Total	100	100

**Table 4: Correlation of ultrasonography, hysteroscopy and hypersensitivity pneumonitis in diagnosis of endometrial hyperplasia**

	Hysteroscopy hyperplasia	Hyperplasia	ET in mm
Hysteroscopy hyperplasia	1.14	Poor correlation (0.030)	Fair correlation (0.40)
Hyperplasia	0.030	1.14	Fair correlation (0.25)
ET in mm	0.40	0.25	1.14

### Discussion

In the present study, the maximum incidence of AUB was in the 45-55 years age range (44 patients), followed by 35-45 years age group (39 patients). Our study and other studies have found a maximum incidence of AUB in the perimenopausal age group.[8-14] Perimenopause is defined by the World Health Organization as the 2-8 years preceding menopause and the 1 year after the final menses.[15] As women approach menopause, cycles shorten and often become intermittently an ovulatory due to a decline in the number of ovarian follicles and fluctuations in the estradiol level leading to various patterns of abnormal bleeding.[16]

The commonest complaint was menorrhagia in 51 patients (51%).[8-12] Most of our patients were in the low parity category. Other studies reported a higher incidence of AUB with increase in parity.[12,17,18] However, this pattern was not noted in our study and majority of our patients were para [1-2].

Endometrial hyperplasia was the most common histological pattern observed in our study and was seen in 24 cases (24%). A few studies have reported a similar incidence with 24.7% and 26%, respectively.[9,19] However, most other studies have observed a lower incidence with 12.6%, 15%, and 4.33%. [12,20,21] In the present study, the maximum incidence of hyperplasia was noted in the 45-55-year age group. This was consistent with the findings in other studies.[19-23]

In our study, there was a fair correlation between a finding of increased endometrial thickness (ET) by ultrasonography (USG) and histopathological diagnosis of endometrial hyperplasia, but there was a poor correlation between hysteroscopic and histopathological diagnosis of endometrial hyperplasia as calculated by Spearman Correlation Test.

Identification of endometrial hyperplasia is important because they are thought to be precursors of endometrial carcinoma.[10] The overall risk of progression of hyperplasia to cancer is 5-10%. [24] Simple (SH), complex (CH), simple atypical (SAH), and complex atypical hyperplasia (CAH) have different progression risks of 1%, 3%, 8%, and 29%, respectively, to carcinoma.[24] In our study, 74% of the patients were of normal weight, 21% patients were overweight, and 3% were obese. In obese women, there is an increased risk of endometrial hyperplasia (EH) and endometrial carcinoma which can be explained by the increased availability of peripheral estrogens as a result of aromatization of androgens to estrogens in adipose tissue and lower concentrations of sex hormone-binding globulins.<sup>25</sup> Also the occurrence of other concurrent risk factors like diabetes mellitus and increased dietary fat intake probably contribute to the pathology in this group.

In our study, predominant number of patients in the age group 35-45 years showed normal physiological changes like proliferative and secretory phase patterns.

Secretory endometrium was the second most common pattern observed in this study and was seen in 17 (17%) patients. A similar incidence of secretory pattern (16.6%) was noted in another study.[11] The bleeding in secretory phase is due to ovulatory dysfunctional uterine bleeding and is characterized by regular episodes of heavy menstrual blood loss. The main defect is in the control of processes regulating the volume of blood lost during the menstrual breakdown of endometrium.[26]

In the present study, a proliferative pattern of endometrium was observed in 11% patients. Other studies reported incidences of 17.8%, 33%, 32.6%, and 32%.[19,23,27,28] This pattern was commonly observed in the late reproductive and perimenopausal women in our study and other studies and may be due to the hormonal imbalance in this group leading to intermittent an ovulatory cycles.

Disordered proliferative endometrium is an exaggeration of the normal proliferative phase without significant increase in the overall ratio of glands to stroma and is due to persistent oestrogen stimulation.[29] This pattern is particularly seen in perimenopausal women. The disordered proliferative endometrium resembles normal proliferative tissue in consisting of glands lined by cytologically bland, pseudo stratified, proliferative, mitotically active epithelium and in having a normal ratio of glands to stroma. It differs from the normal proliferative endometrium in the absence of uniform glandular development. Disordered proliferative pattern lies at one end of the spectrum of proliferative lesions of the endometrium that includes carcinoma at the other end with intervening stages of hyperplasias.[10] This pattern was seen in 11 (11%) of our cases. Another study reported a similar incidence of 10%.[30]

Atrophic endometrium is the most common cause of bleeding in postmenopausal stage.[18] Thin walled veins, superficial to the expanding cystic glands, make the vessels vulnerable to injury and lead to excessive uterine bleeding.[22] Atrophic endometrium was seen in 5% of the patients in this study and they presented as postmenopausal bleed. A similar incidence was reported in other studies with incidences of 4.34% and 7%, respectively.[18,31]

In our study, pill endometrium was seen in 9 (9%) cases. Other studies reported a lower incidence.[30] In this pattern, the endometrium shows a combination of inactive glands, abortive secretions, decidual reaction, and thin blood vessels.[32] This pattern was predominantly seen in the perimenopausal age group. This was probably due to increased number of patients in this age resorting to early medical management for bleeding.

The other benign patterns included endometrial polyps (4%), luteal phase defect (3%), and menstrual pattern (2%).

The predominant type of endometrial carcinoma was endometrioid type which constituted 3 cases. The most common presentation in these patients was postmenopausal bleeding and incidence of endometrial carcinoma was 21% in the postmenopausal group. This was similar to that reported by Baral R *et al.* with an incidence of 21%.[22] Nulliparity, increased BMI, and chronic anovulation have been implicated as risk factors for endometrial carcinoma.

### Conclusion:

Abnormal uterine bleeding predominantly affects women of perimenopausal age group which is alarming and needs thorough evaluation as it could be the only clinical manifestation of endometrial cancer.

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