

Study of Endometrial Biopsy Findings in Abnormal Uterine Bleeding Across Different Age Groups

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Abstract:

Background: Abnormal uterine bleeding (AUB) is one of the most common gynecological complaints among women of all age groups and accounts for a significant proportion of outpatient visits. Endometrial biopsy is an important diagnostic tool for identifying the underlying causes of AUB and distinguishing between physiological, benign, premalignant, and malignant conditions. Histopathological examination of the endometrium helps guide appropriate clinical management and detect early pathological changes.

Objectives: To evaluate the histopathological patterns of endometrial biopsy in patients presenting with abnormal uterine bleeding and to correlate these findings with different age groups.

Materials and Methods: This descriptive cross-sectional study was conducted on women presenting with abnormal uterine bleeding in the Department of Obstetrics and Gynecology at DMCH Laheriasarai Darbhanga. Patients with pregnancy-related causes of bleeding were excluded. Endometrial samples were obtained through dilatation and curettage or endometrial biopsy and subjected to histopathological examination. Patients were categorized into age groups such as reproductive, perimenopausal, and postmenopausal, and the frequency of different endometrial patterns was analyzed.

Results: Abnormal uterine bleeding was most commonly observed in the perimenopausal age group (40–49 years). The most frequent histopathological findings were normal cyclical endometrium, particularly proliferative and secretory phases. Other lesions identified included disordered proliferative endometrium, endometrial hyperplasia, endometrial polyps, chronic endometritis, and atrophic endometrium. Premalignant lesions and endometrial carcinoma were relatively uncommon but occurred more frequently in older age groups.

Conclusion: Endometrial biopsy is a valuable and reliable diagnostic method for evaluating abnormal uterine bleeding. Histopathological analysis helps differentiate functional from organic causes and aids in the early detection of premalignant and malignant lesions. Age-wise evaluation of endometrial patterns plays a crucial role in guiding clinical management and preventing complications.

Keywords: Abnormal uterine bleeding, Endometrial biopsy, Histopathology, Endometrial patterns, Age groups.

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Introduction

Abnormal uterine bleeding (AUB) is one of the most common gynecological problems encountered in women of all age groups and accounts for a significant proportion of visits to gynecology outpatient departments [1]. It refers to any variation from the normal menstrual cycle, including changes in regularity, frequency, duration, or volume of menstrual flow. AUB can significantly affect a woman's physical health, quality of life, and reproductive well-being [2].

The causes of abnormal uterine bleeding are diverse and vary according to age. In the reproductive age group, hormonal imbalance and ovulatory dysfunction are common causes, whereas structural

abnormalities such as polyps, leiomyomas, and adenomyosis may also contribute [3]. In perimenopausal and postmenopausal women, abnormal bleeding raises concern for endometrial hyperplasia or malignancy, making prompt evaluation essential [4]. The endometrium is a dynamic tissue that undergoes cyclical morphological changes under the influence of ovarian hormones. Any disturbance in this hormonal balance or structural abnormality can lead to alterations in the endometrial pattern, resulting in abnormal bleeding [5]. Histopathological examination of the endometrium therefore plays a crucial role in identifying the underlying pathology and guiding appropriate treatment. Endometrial

biopsy is considered a simple, safe, and reliable diagnostic procedure for evaluating women with abnormal uterine bleeding [6]. It helps differentiate functional causes from organic lesions and assists in detecting premalignant conditions such as endometrial hyperplasia as well as endometrial carcinoma [7]. The histopathological findings of the endometrium often vary according to the patient's age and hormonal status. Understanding the distribution of different endometrial patterns across various age groups is important for early diagnosis, proper management, and prevention of serious complications [8]. Therefore, this study aims to evaluate the histopathological findings of endometrial biopsy specimens in patients presenting with abnormal uterine bleeding and to analyze their distribution across different age groups.

Materials and Methods

This study was conducted in the Department of Pathology in collaboration with the Department of Obstetrics and Gynecology at Darbhanga Medical College and Hospital Laheriasarai, Darbhanga, Bihar. The study design was a descriptive cross-sectional study carried out over a period of one year.

A total of 106 patients presenting with abnormal uterine bleeding (AUB) were included in the study. Patients attending the gynecology outpatient department or admitted to the hospital with complaints of abnormal uterine bleeding were evaluated clinically.

Inclusion Criteria

- Women presenting with abnormal uterine bleeding of any age group
- Patients who underwent endometrial biopsy or dilatation and curettage (D&C) for diagnostic evaluation
- Patients who gave consent for the study

Exclusion Criteria

- Pregnancy-related bleeding
- Patients with known bleeding disorders
- Inadequate endometrial biopsy samples
- Bleeding due to cervical or vaginal lesions

Endometrial samples were obtained by dilatation and curettage or endometrial biopsy. The specimens were collected in 10% formalin and sent to the histopathology laboratory for examination. The tissues were processed routinely, embedded in paraffin, sectioned at appropriate thickness, and stained with hematoxylin and eosin (H&E) stain. Microscopic examination of the stained slides was performed to evaluate the histopathological patterns of the endometrium. The findings were categorized into different patterns such as proliferative endometrium, secretory endometrium, disordered proliferative endometrium, endometrial hyperplasia, endometrial polyp, atrophic endometrium, chronic endometritis, and malignancy.

For analysis, the patients were divided into different age groups, such as:

- Reproductive age group
- Perimenopausal age group
- Postmenopausal age group

The histopathological findings were recorded and correlated with the age groups of the patients. The collected data were compiled and analyzed using appropriate statistical methods and presented in tables and percentages.

Results

A total of 106 patients presenting with abnormal uterine bleeding (AUB) were included in the study. Endometrial biopsy specimens obtained from these patients were examined histopathologically, and the findings were analyzed according to different age groups.

Table 1: Distribution of Cases According to Age Group

Age Group	Number of Cases	Percentage
Reproductive age (20–39 years)	34	32.1%
Perimenopausal age (40–49 years)	48	45.3%
Postmenopausal age (≥ 50 years)	24	22.6%
Total	106	100%

The majority of patients presenting with abnormal uterine bleeding were in the perimenopausal age

group (45.3%), followed by the reproductive age group (32.1%).

Table 2: Histopathological Patterns of Endometrium

Histopathological Finding	Number of Cases	Percentage
Proliferative endometrium	30	28.3%
Secretory endometrium	22	20.8%
Disordered proliferative endometrium	16	15.1%
Endometrial hyperplasia	14	13.2%
Atrophic endometrium	10	9.4%
Endometrial polyp	7	6.6%
Chronic endometritis	5	4.7%
Endometrial carcinoma	2	1.9%
Total	106	100%

The most common histopathological pattern observed was proliferative endometrium (28.3%), followed by secretory endometrium (20.8%). Disordered proliferative endometrium and endometrial hyperplasia were also commonly observed.

Distribution of Histopathological Findings According to Age Group: In the reproductive age group, proliferative and secretory endometrium were the most common findings. In the perimenopausal age group, disordered proliferative endometrium and endometrial hyperplasia were more frequently observed. In the postmenopausal age group, atrophic endometrium was the most common finding, while cases of endometrial carcinoma were also noted in this age group. Overall, functional endometrial changes were more common in younger age groups, while pathological lesions such as hyperplasia and malignancy were more frequently seen in older women.

Discussion

Abnormal uterine bleeding (AUB) is one of the most frequent gynecological complaints among women and accounts for a significant proportion of visits to gynecology outpatient departments [3]. The causes of AUB vary widely depending on age, hormonal status, and underlying pathology. Histopathological examination of endometrial biopsy plays a crucial role in identifying the underlying cause of abnormal uterine bleeding and guiding appropriate management. In the present study, 106 cases of abnormal uterine bleeding were evaluated histopathologically. The majority of patients were found in the perimenopausal age group (40–49 years), accounting for the highest proportion of cases. This finding is consistent with several previous studies, which have reported that abnormal uterine bleeding is more common during the perimenopausal period due to hormonal imbalance and anovulatory cycles [3,6]. During this transitional phase, irregular ovarian function leads to unopposed estrogen stimulation of the endometrium, resulting in abnormal bleeding patterns [5]. In this study, the most common histopathological pattern observed was proliferative endometrium, followed by secretory endometrium. Similar findings have been

reported in other studies, where normal cyclical endometrial patterns were the most frequent findings in patients presenting with abnormal uterine bleeding. These results suggest that a significant proportion of AUB cases may be due to functional or hormonal disturbances rather than structural abnormalities. Disordered proliferative endometrium and endometrial hyperplasia were also observed in a considerable number of cases, particularly in the perimenopausal age group. These conditions are often associated with prolonged estrogen stimulation without adequate progesterone effect. Endometrial hyperplasia is especially important because it is considered a precursor lesion for endometrial carcinoma if left untreated [7]. In the postmenopausal age group, atrophic endometrium was the most common finding in the present study. Atrophic endometrium is a well-recognized cause of postmenopausal bleeding due to thinning and fragility of the endometrial lining [4]. However, postmenopausal bleeding should always be carefully evaluated because it may also indicate serious conditions such as endometrial hyperplasia or carcinoma [9]. A small number of cases in this study were diagnosed as endometrial carcinoma, and these were mostly observed in the postmenopausal age group. Although the incidence was low, the detection of malignancy highlights the importance of routine endometrial sampling in women presenting with abnormal uterine bleeding, particularly in older age groups.

Overall, the findings of this study emphasize that histopathological examination of endometrial biopsy is an essential diagnostic tool in the evaluation of abnormal uterine bleeding. It helps in distinguishing functional causes from organic lesions and plays a significant role in the early detection of premalignant and malignant conditions [3,10].

Conclusion

Abnormal uterine bleeding (AUB) is a common gynecological problem affecting women of different age groups and requires careful evaluation to determine the underlying cause. In the present study, 106 cases of abnormal uterine bleeding were analyzed through histopathological examination of

endometrial biopsy specimens. The study showed that the perimenopausal age group (40–49 years) constituted the majority of cases presenting with abnormal uterine bleeding. The most common histopathological patterns observed were proliferative endometrium and secretory endometrium, indicating that functional or hormonal disturbances are the major causes of AUB in many patients. Pathological lesions such as disordered proliferative endometrium, endometrial hyperplasia, and endometrial polyps were also identified, particularly in the perimenopausal age group. In postmenopausal women, atrophic endometrium was the most common finding, although a small number of cases of endometrial carcinoma were detected. The findings of this study highlight that endometrial biopsy is a simple, reliable, and valuable diagnostic procedure in the evaluation of abnormal uterine bleeding. Histopathological examination helps differentiate functional causes from organic pathology and plays an important role in the early detection of premalignant and malignant lesions, thereby guiding appropriate clinical management and improving patient outcomes.

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