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Histopathological Evaluation of Endometrial Curettage in Patients with Abnormal Uterine Bleeding: A Retrospective Study in Al Kharj City, Saudi Arabia

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Abstract

Background: One of the most common issues that adult females face is abnormal uterine bleeding (AUB). The preferred sampling method for identifying endometrial pathology is still uterine curettage or biopsy. Hormonal imbalance patterns, atrophic endometrium, endometritis, endometrial polyps, endometrial hyperplasia, and endometrial cancer are examples of common diseases. The purpose of this study was to identify the endometrial histological pattern in women of different ages who presented with AUB.

Methods and Results: In this retrospective study, the medical records of 309 women who had endometrial curettage for AUB were reviewed. Every endometrial curettage specimen received for histological examination between January 2025 and June 2025 by the histopathology department of the Al Kharj Military Industries Corporation Hospital, in cooperation with the Department of Obstetrics and Gynecology, PSA Hospital, is included in the study. Endometrial biopsies were taken using a dilation and curettage (D&C) procedure. Following hematoxylin and eosin staining, a microscopic analysis was conducted.

The most common histopathological finding was proliferative endometrial disorders (34.95%), followed by endometrial polyps (32.36%). Endometrial hyperplasia without atypia was found in 91 cases (29.45%). Endometrial adenocarcinoma was the sole diagnosis in four cases (1.29%).

Conclusion: Abnormal uterine bleeding may be the only complaint presented by patients with endometrial lesions. Endometrial curettage and biopsy are reliable procedures for detecting endometrial pathology.(**International Journal of Biomedicine. 2025;15(4):674-678.**)

Keywords: histopathology • abnormal uterine bleeding • endometrial curettage • Al Kharj

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Introduction

The most prevalent gynecologic symptom and complaint among gynecological outpatients is abnormal uterine bleeding (AUB), which affects women of all ages. [1] It has a noticeable impact on quality of life and places a significant financial strain on women's health care. Healthcare professionals routinely deal with this issue. There are several classifications and definitions for AUB. A loose definition of it would be a deviation from the typical menstrual cycle. Variations may occur in the amount of blood loss, regularity, frequency, or length of the flow. Excessive monthly blood loss that interferes with a woman's physical, social, emotional, and/or material quality of life is sometimes referred to as "heavy" bleeding. Abnormal uterine bleeding can have a variety of reasons, including systemic, anatomical, and drug-related ones. Chronic endometritis, endometrial polyps, and endometrial hyperplasia are common reasons for AUB. Patients who have a malignant or premalignant endometrial lesion may present with AUB.[2] Thyroid issues, submucosal fibroids, and coagulation abnormalities can all contribute to ovulatory AUB, or menorrhagia.[3] Following examination and ruling out premalignant and malignant etiology, many of the treatment strategies are the same.[4] Menstrual cycles may be regulated by treatment with progestins or combination oral contraceptives. Treatment options for histologic evidence of hyperplasia without atypia include continuous or cyclic progestin. Gynecologists or gynecologic oncologists should be consulted for women with hyperplasia with atypia or adenocarcinoma, respectively. The most reliable method for determining the causes of atypical uterine bleeding is still endometrial biopsy followed by histological analysis. Endometrial curettage is a simple and safe method for endometrial collection, and its histopathological analysis is regarded as the gold standard for diagnosing the cause of AUB. It also has a fair turnaround time and high diagnostic accuracy.[5]

The purpose of this study was to identify the endometrial histological pattern in women of different ages who presented with AUB.

Materials and Methods

The medical records of 309 women who underwent endometrial curettage for AUB were examined histopathologically in this retrospective study. Endometrial biopsies were taken using a dilation and curettage (D&C) procedure. The study includes every endometrial curettage specimen that was received for histological analysis in the Al Kharj Military Industries Corporation Hospital's histopathology department in collaboration with the Department of Obstetrics and Gynecology, PSA Hospital, between January 2025 and June 2025.

A 10% formalin solution was used to fix the specimens. Sections were collected from each representative area of specimens. Hematoxylin and eosin staining was applied to the tissue fragments after they underwent standard processing. The histological results and clinical information were recorded. All women, regardless of age, who complained of AUB were included. The study excluded patients who met the following criteria: unsatisfactory samples, such as only fibrin and blood clots and no endometrial glands or stroma; AUB from gestational causes, such as tubal pregnancy, molar pregnancy, or abortion; hormone therapy during the previous six months; and cervical pathology, such as cervical cancer. The cause of AUB was confirmed by microscopic examination of the slides. SPSS software was used for statistical analysis.

Results

This study included 309 patients, ranging in age from 34 to 81 years, with a mean age of 48.9±7.9 years. Among 309 patients, 236 (76.38%) were married, 33 (10.68%) were widows, and 40 (12.94%) were divorced. The majority of patients (73.79%) had a parity of three to four. 173 patients (55.99%) experienced AUB for less than six months (Table 1). The percentage of endometrial histological findings after uterine curettage in AUB patients is shown in Table 2.

Table 1.

Age, marital status, and obstetric history of the study population (n=309).

Parameter	Category	No. of patients	Percentage
Age	<40	11	3.56%
	40-50	189	61.16%
	51-60	99	32.04%
	> 60	10	3.24%
Duration of bleeding	<6 months	173	55.99%
	7-12 months	65	21.04%
	One-two years	39	12.62%
	> 2 years	32	10.36%
Marital status	Married	236	76.38%
	Divorced	40	12.94%
	Widow	33	10.68%
Parity	Nulliparous	7	2.27%
	1-2 children	48	15.53%
	3-4 children	228	73.79%
	≥ 5 children	26	8.41%

Table 2.

Histopathological findings after endometrial curettage.

Histopathological findings	No. of patients	Percentage
Disordered proliferative endometrium	108	34.95%
Endometrial hyperplasia without atypia	91	29.45%
Endometrial hyperplasia with focal atypia	4	1.29%
Acute endometritis	1	0.32%
Endometrial polyp	100	32.36%
Endometrial adenocarcinoma	4	1.29%
Endometrial serous adenocarcinoma	1	0.32%

In 108 (34.95%) patients, proliferative endometrial disorders were found. It displays proliferative endometrial glands sporadically scattered with cystically dilated glands (> 2 times normal size). More than 10% of all glands have been seen to be dilated, with dilated glands typically having irregular shapes (branched, convoluted, and scalloped exterior outlines). Furthermore, a relatively typical ratio of glands to stroma (glands occupying less than 50% of the surface area) is also displayed. No cytologic atypia is present (Figure 1).

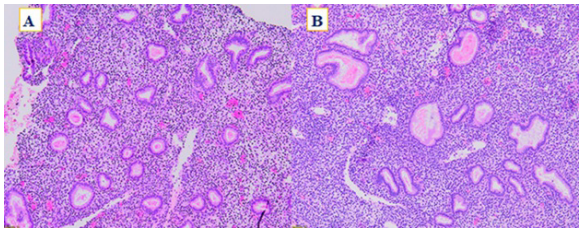

Fig. 1. *A) and B) Images of endometrium stained with H&E demonstrating disordered proliferative endometrium. Cystically dilated glands (> 2x normal size) randomly interspersed among proliferative endometrial glands are shown. Dilated glands usually have irregular shapes (branched, convoluted, and scalloped outer contours), which make up more than 10% of the total number of glands. In addition, a relatively normal gland-to-stroma ratio (glands occupy < 50% of the surface area) is also shown. There is a lack of cytologic atypia. A) (X 200). B) (X 400).*

In 100 patients, an endometrial polyp was discovered (32.36%). It was made up of varying numbers of glands and stroma and exhibits benign hyperplastic overgrowth of endometrial tissue that generates a localized projection into the uterine cavity. Cystically dilated glands and fibrovascular cores with thick-walled blood arteries are present in papillary proliferations (Figure 2).

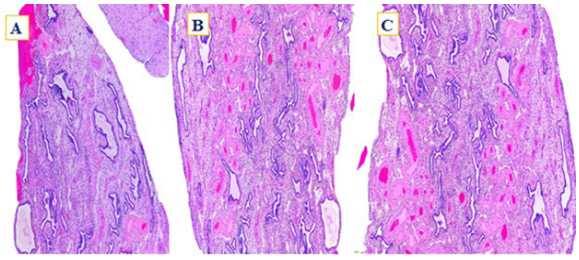

Fig. 2. *A), B), and C) Images of endometrium stained with H&E demonstrating endometrial polyps. It shows benign hyperplastic overgrowth of endometrial tissue that forms a localized projection into the endometrial cavity and is composed of variable amounts of glands and stroma. There are papillary proliferations with fibrovascular cores with thick-walled blood vessels and cystically dilated glands. A) B) and C) (X 400).*

Ninety-one (29.45%) had endometrial hyperplasia without atypia. It demonstrates endometrial gland proliferation, which raises the ratio of glands to stroma. Although there is still stroma between glandular basement membranes, the architecture displays densely packed glands with a gland-to-stroma ratio greater than 3:1. The background endometrium had the same cytologic characteristics as the packed glands. No cytologic atypia was present (Figure 3).

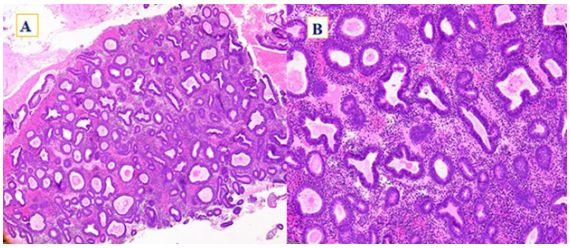

Fig. 3. *A) and B) Images of endometrium stained with H&E demonstrating endometrial hyperplasia without atypia. It shows Proliferation of endometrial glands with a resulting increase in the gland-to-stroma ratio. The Architecture shows closely packed glands such that the gland-to-stroma ratio is > 3:1, but stroma is still present between glandular basement membranes. The cytologic features of the crowded glands must be identical to those of the background endometrium. There is a lack of cytologic atypia. A) (X 200). B) (X 400).*

Endometrial adenocarcinoma was the sole diagnosis in four cases (1.29%). Confluent or back-to-back glands without an intermediate stroma are depicted in the architecture. Cribriform or microacinar layouts are available. There have been observations of intricate villoglandular, micropapillary, or papillary structures. Additionally, it exhibits cytoplasmic eosinophilia, lack of polarity, nuclear rounding (as opposed to elongation) with prominent nucleoli, and cellular or nuclear expansion (Figure 4).

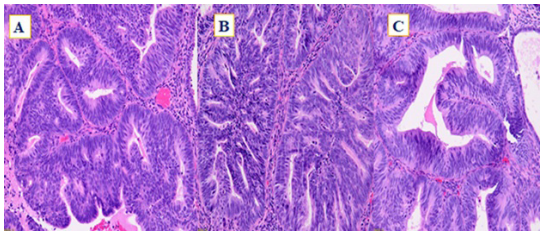

Fig. 4. *A), B), and C) Images of endometrium stained with H&E demonstrating endometrial adenocarcinoma. Architecture shows confluent or back-to-back glands lacking intervening stroma. There are cribriform or microacinar configurations. Complex papillary, micropapillary, or villoglandular structures have been seen. It also shows cellular or nuclear enlargement, nuclear rounding (rather than elongation) with prominent nucleoli, loss of polarity, and cytoplasmic eosinophilia. A) B) and C) (X 400).*

There was only one instance of acute endometritis. It depicts the endometrial epithelium being infiltrated and destroyed by neutrophils. The gland lumen is being filled by neutrophils, whether or not microabscesses are forming (Figure 5).

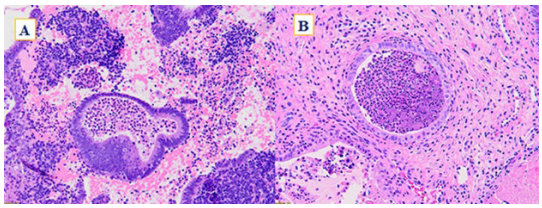

Fig. 5. *A) and B) Images of endometrium stained with H&E demonstrating acute endometritis. Neutrophils infiltrating and destroying the endometrial epithelium are shown. The neutrophils are filling the gland lumen with or without microabscess formation. A) and B) (X 400).*

Discussion

Unusual uterine bleeding is a complex problem that affects women of all ages. A key component of diagnosis and treatment is the endometrium's histopathological assessment. A total of 309 women with complaints of AUB were included in this study. About 61% of the cases in our study were in the 40–50 age range. In contrast, a previous study indicates that the age range of 35 to 39 years accounts for the greatest number of instances.[6] Abnormal uterine bleeding is generally not life-threatening, and from the point of view of the patient, the primary burden of this symptom is its effect on quality of life. Studies on AUB do not consistently evaluate quality of life, and there is a lack of data on how bleeding affects quality of life indicators at the national population level. According to the population-level research that is currently available, women who have uterine bleeding use health services more frequently than women who do not.[7]

An amplification of the typical proliferative phase without an apparent increase in the overall gland to stroma ratio is known as disordered proliferative endometrium. The majority of our cases, 108 (34.95%), had proliferative endometrial disorders. The results of other studies are consistent with this fact.[8] In the endometrium, endometrial polyps are epithelial proliferations made up of connective, fibromuscular, vascular, and glandular tissue.[9]

Compared with other studies,[10,11] the incidence of endometrial polyps in this study was significantly higher, reaching 32.36%. If the patient exhibits atypical uterine bleeding, it is crucial to obtain a history of her bleeding pattern to diagnose endometrial polyps. However, in contrast to other research, the frequency of endometrial cancer was lower in our study. The practice of early childbirth, multiparity, and early intervention may be the cause of the reduced incidence of endometrial cancer in this study.

Women's screening programs aimed at early detection of endometrial cancer precursors enable the development of preventive measures and timely treatment, thereby reducing mortality and morbidity from endometrial cancer.

Particularly for perimenopausal women who are at risk of developing cancer, the significance of endometrial biopsy or curettage performed to gather material for histological study, to aid in diagnosis and future care, cannot be overstated.[12] Determining the diagnostic value of curettage in diagnostically disordered proliferative endometrium was a novel component of this research, and identifying a high diagnostic rate for endometrial cancer by curettage was an essential component.

Conclusions

Abnormal uterine bleeding may be the only complaint presented by patients with endometrial lesions. A specific test that is reliable in identifying endometrial pathology is an endometrial biopsy. A detailed microscopic analysis of the tissue and a skilled endometrial sample are necessary for the final diagnosis.

Ethical Approval

All series of steps that were implemented in this study complied with the Ethics Committee of Prince Sattam bin Abdulaziz University Institutional Review Board (SCBR-444/2025).

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Availability of Data and Materials

The data are available upon request from the authors.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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