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The Histopathological Features of Endometrial Tissue Specimens in Women With Peri and Post-Menopausal Bleeding in Hillah City, Iraq

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Abstract

Abnormal bleeding from the uterus is one of the most common concerns in gynecological clinics. The main purpose of this research was to investigate the histopathological characteristics of endometrial tissue samples in women suffering from peri-menopause and post-menopausal bleeding in Hillah, Iraq. This is a cross-sectional descriptive-analytical study on 110 patients with abnormal uterine bleeding who visited a private laboratory in Hillah, Iraq, from January 2022 to December 2023 and were hospitalized and underwent diagnostic curettage (C and D), total abdominal hysterectomy (TAH), bilateral salpingo-oophorectomy (BSO) or TAH and BSO were placed. The results showed that the most common type of abnormal uterine bleeding among the women studied was Menorrhagia, followed by Post-menopausal bleeding. Also, the results of this study showed that the relationship between the bleeding pattern and the histopathological pattern is significant with age ranges, but there was no significant relationship between the cause of bleeding and age range. Due to the prevalence and importance of this disease, many similar studies have been conducted all over the world, but since this is an epidemiological issue, the results may not be the same in different populations and races. The results of the study showed that the evaluation of histopathology is valuable and provides more accurate information about the cause of abnormal uterine bleeding, such as polyps and hyperplasia. This evaluation will help early detection of endometrial malignancy, which has a worse prognosis, to be identified earlier and to receive appropriate treatment as soon as possible.

Keywords: Endometrial Polyps, Atypical Hyperplasia, Hormonal Imbalance, Endometritis, Molar pregnancy.

الخصائص النسيجية المرضية لعينات أنسجة بطانة الرحم لدى النساء المصابات بنزيف ما حول سن اليأس وما بعد انقطاع الطمث في مدينة الحلة، العراق.

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الخلاصة

يُعد النزيف الرحمي غير الطبيعي أحد أكثر الشكاوى شيوعًا في عيادات أمراض النساء. كان الهدف الرئيسي من هذا البحث هو دراسة الخصائص النسيجية المرضية لعينات الأنسجة البطانية للرحم لدى النساء اللواتي يعانين من نزيف في فترة ما قبل انقطاع الطمث وما بعده في مدينة الحلة، العراق. هذه دراسة وصفية تحليلية مقطعية شملت 110 مريضات يعانين من نزيف رحمي غير طبيعي، وراجعن مختبرًا خاصًا في مدينة الحلة، العراق، خلال الفترة 2022-2023. وقد خضعن للإجراءات التشخيصية مثل الكحت، استئصال الرحم البطني الكلي، استئصال الرحم مع استئصال المبيضين والبيوقين، أو استئصال الرحم الكلي مع المبيضين والبيوقين. أظهرت النتائج أن النوع الأكثر شيوعًا من النزيف الرحمي غير الطبيعي بين النساء المدروسات هو غزارة الطمث، يليه النزيف بعد انقطاع الطمث. كما أظهرت الدراسة أن العلاقة بين نمط النزيف والنمط النسيجي المرضي ذات دلالة إحصائية مع فئات عمرية محددة، لكنها لا ترتبط بشكل كبير بسبب النزيف أو الفئة العمرية. وبسبب انتشار وأهمية هذا المرض، أجريت العديد من الدراسات المماثلة في جميع أنحاء العالم، لكن بما أن هذه القضية ذات طابع وبائي، قد تختلف النتائج بين المجتمعات والأعراق المختلفة. أظهرت نتائج الدراسة أن تقييم الأنسجة المرضية ذو قيمة كبيرة ويوفر معلومات أكثر دقة عن أسباب النزيف الرحمي غير الطبيعي، مثل الأورام الحميدة وفرط التنسج. ويساعد هذا التقييم في الكشف المبكر عن سرطان بطانة الرحم، الذي يُعد أسوأ من حيث التوقعات، مما يتيح التدخل العلاجي المناسب في وقت مبكر.

Introduction

Abnormal uterine bleeding (AUB) refers to cases where uterine bleeding occurs at a time other than the expected time of menstruation or with an abnormal volume and duration [1,2]. Abnormal uterine bleeding is one of the most common reasons for women to visit a gynecology clinic, and it imposes a heavy burden on society economically and psychologically [3,4]. Abnormal uterine bleeding in peri-menopausal age can be a manifestation of endometrial hyperplasia or carcinoma. For this reason, investigating the causes of abnormal uterine bleeding is important [5,6].

Most women experience irregular menstrual cycles at some point in their lives, which can be caused by stress [7], intense physical activity, the use of certain drugs such as aspirin, warfarin, diets accompanied by severe weight loss, and the use of protein products containing unusually high levels of growth hormone [8,9]. If this irregularity in cycles occurs repeatedly (three consecutive cycles in one year) or its intensity and duration are annoying for the patient, it needs a more detailed investigation [10,11]. In fact, abnormal uterine bleeding is a symptom and a sign of a disorder in the hormonal system or the female reproductive system [12,13].

Generally, each of the abnormal uterine bleeding patterns, i.e. menorrhagia, metrorrhagia, and polymenorrhoea, occurs in a group of diseases such as lack of ovulation, uterine cancer, cervical cancer, uterine masses, uterine polyps, coagulation disorders, hormonal problems, and pregnancy complications [14,15]. Hypomenorrhoea occurs in analysis of uterine tissue, use of birth control pills, hormone therapy during menopause, adhesions of the uterus, intrauterine injuries, uterine outlet obstruction such as cervical stenosis, congenital defects, and anorexia or heavy exercise [16,17]. Oligomenorrhoea is observed in other disorders, such as the pituitary gland, thyroid, adrenal, ovary, etc. [18,19].

To diagnose the cause, it is important to examine the patient and take a history and check the symptoms associated with the family history of bleeding disorders, drug use, and organ failure, including the liver, discarding the causes of bleeding caused by the cervix or vagina [20,21]. Also, paraclinical examinations, including hormonal tests, pap smears, transvaginal

ultrasounds, blind sampling of the endometrium and diagnostic hysteroscopy and, if necessary, diagnostic curettage (C&D) are performed to screen for uterine cancer [22,23]. The main purpose of this research is to investigate the histopathological characteristics of endometrial tissue samples in women suffering from peri-menopause and post-menopausal bleeding in Hillah, Iraq.

Material and Methods

This is a cross-sectional descriptive-analytical study on 110 patients with abnormal uterine bleeding who visited the private laboratory in Hillah, Iraq, from January 2022 to December 2023 and were hospitalized and underwent diagnostic curettage (C and D), total abdominal hysterectomy (TAH), bilateral salpingo-oophorectomy (BSO) or TAH and BSO were placed. This article was approved by the guide committee for research ethics at Al Zahraa University for women in with ref. no. 2 in 2022. All demographic, sonographic, histopathological and clinical information were completed. Clinical information includes the type of bleeding in the form of: polymenorrhea, oligomenorrhea, menorrhagia, metrorrhagia, monometrorrhagia and hypermenorrhea [24], history of bleeding diseases or malignancies in the individual or family members, the presence of diseases in other organs, drug use (which until hospitalization the hospital has continued to use them) and the ultrasound findings that were performed at the time of the patient's visit, including the thickness of the endometrium and its report in the ranges of post menopause (4-5 mm), peri-menopause (5-8 mm) and reproductive (8-12 mm) was the pathology results were generally classified into two groups of functional and organic causes, such as well differentiated adenocarcinoma, endometrial polyp, histopathology features like hyperplasia without atypia, serous papillary adenocarcinoma and endometrial carcinoma in the organic category and secretory phase endometrium, hormonal imbalance (both) secretory and functional, chronic endometritis, endometrial atrophy, hormonal imbalance, disordered proliferative endometrium, partial molar pregnancy and products of conception were placed in the functional category.

Statistical analysis

Study data were entered into SPSS version 26 software. The normal distribution of data was confirmed by the Kolmogorov-Smirnov test. Chi-square or t-tests were used to investigate the relationship between demographic and clinical information with ultrasound and pathology characteristics. The significance level for all samples was considered $P < 0.05$.

Result

This study evaluated 110 endometrial samples done on patients with AUB and submitted for histological examination. The samples of patients with endometrial were divided into three groups based on age: reproductive age, peri-menopausal, and post-menopausal. The peri-menopausal category accounted for 59% of instances, the highest across all groups. 7% of AUB patients were found to be of reproductive age. The post-menopausal group was (34%).

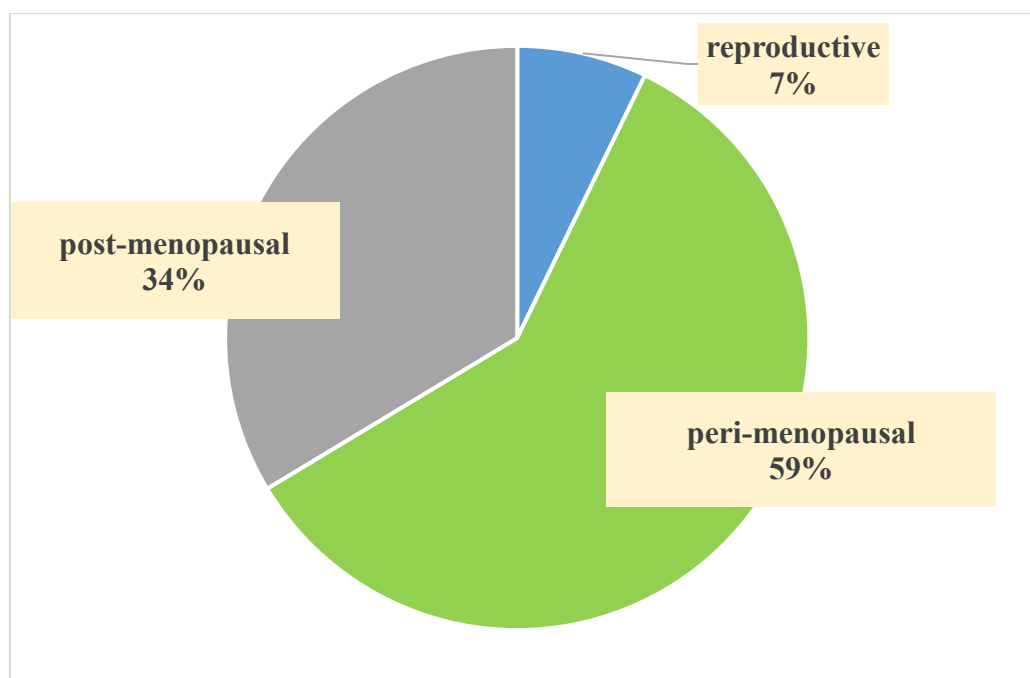


Figure 1. Age frequency distribution of the studied population

Among the 110 patients studied, 8 cases (7.2%) mentioned a personal history of cancer, and 10 cases (9.0%) mentioned a history of cancer in their relatives. In addition, 1 case of patients (0.9%) was suffering from hemorrhagic diseases, but none of them had a history of this disease in the family.

The results showed that menorrhagia was the most common pattern of bleeding, with 55 people (50%) of cases. Metrorrhagia was the least bleeding pattern, which accounted for only 8 patients (7.3%). Hypomenorrhea and PMB patterns were observed in 17 (15.4%) and 30 (27.3%) subjects, respectively. Analysis of the association of menorrhagia with age clearly showed that it is the most common complaint observed in the peri-menopausal age group and reproductive age group, and it had a significant association with it ($p=0.00$). Hypomenorrhea was the second most frequent complaint noted in post-menopausal bleeding and as well before metrorrhagia. Post-menopausal bleeding complaints were found in 30 cases.

Table 1: Distribution of bleeding patterns by age in patients with abnormal uterine bleeding.

S. no	Age 30-40	Age 41-50	Age >50	Total (%)
Menorrhagia	1	47	7	55(50)
Metrorrhagia	0	8	0	8(7.3)
Hypomenorrhea	7	10	0	17(15.4)
Post-menopausal bleeding	0	0	30	30(27.3)
Total	8(7.2)	65(59.1)	37(33.6)	110 (100)

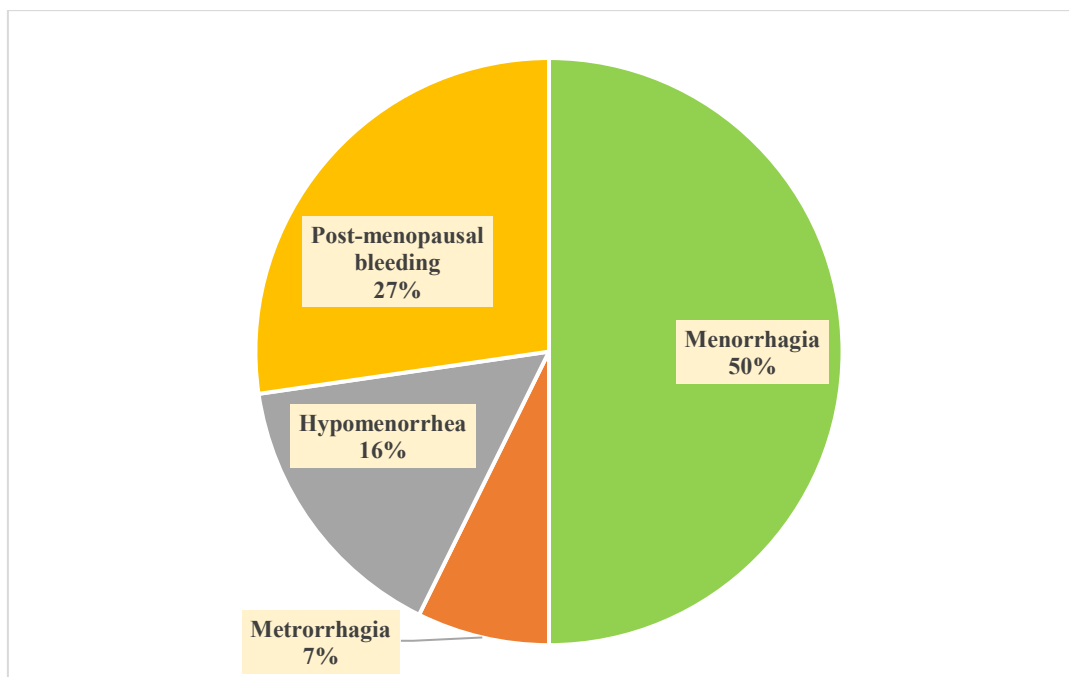


Figure 2: Bleeding Pattern Frequency Distribution of the Studied Population

In addition, these observations showed that 73 people (66.4%) of the studied population had a functional cause, and 37 people (33.6%) had a natural organic cause.

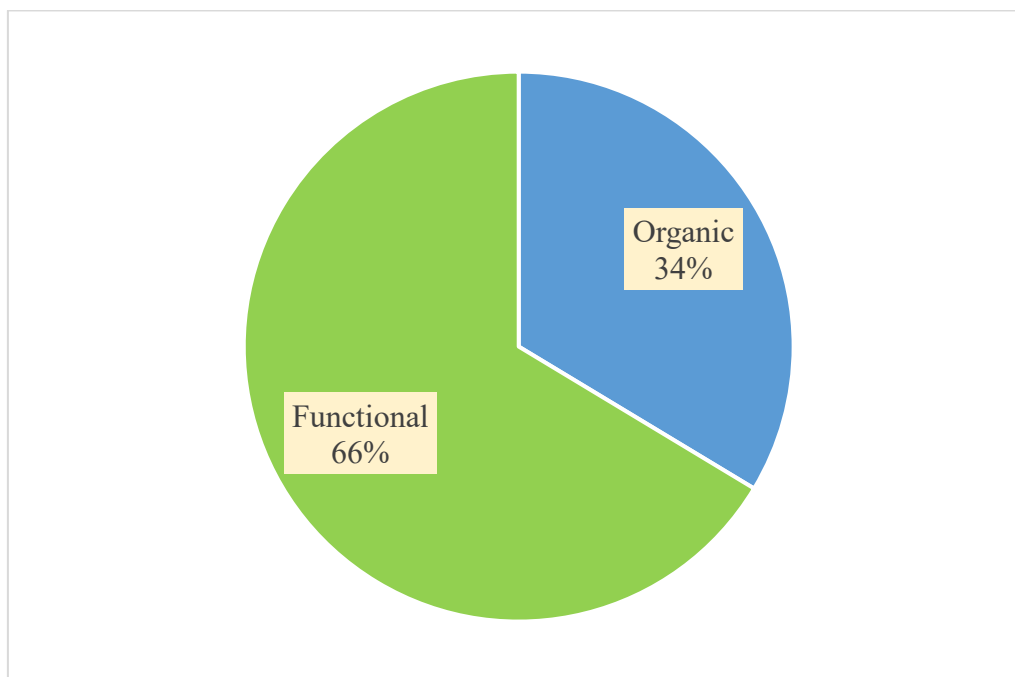


Figure 3: Cause distribution of the studied population

Table 2: Agewise distribution of AUB due to functional and organic causes

Cause	Histopathological Pattern	Age 30-40	Age 41-50	Age >50	Total (%)
Organic	Well Differentiated Adenocarcinoma	0	0	7	7(13.5)
	Endometrial Polyps	0	9	3	12(32.4)
	Endometrial hyperplasia without atypia	0	2	8	10(27)
	Atypical endometrial hyperplasia	0	1	5	6(10.8)
	Chronic Endometritis	0	2	0	2(5.4)
	partial mole	0	2	0	2(5.4)
	Total	0	16	21	37(100)
Functional	Secretory Phase Endometrium	7	10	0	17(23.2)
	Hormonal Imbalance (both Secretory and Functional)	0	10	0	10(13.7)
	Disordered Proliferative Endometrium	1	26	14	41(56)
	Products of Conception	0	3	0	3(4.1)
	Total	8	49	16	73(100)

In the functional group, the highest frequency was related to the disordered proliferative endometrium category with 41 people (56%) and the lowest frequency was related to products of conception with 3 people (3%). In the organic group, the highest frequency was related to endometrial polyps with 12 people (32.4%) and the lowest frequency was associated with chronic endometritis and partial mole with 4 people (5.4%). Also, in the age group of 30-40 years, secretory phase endometrium. In the age group of 41-50 years and more than 50 years, disordered proliferative endometrium had the highest frequency. A significant relationship was found between age group and histopathological pattern ($P < 0.001$).

Discussion

The results of this study provide valuable insights into the histopathological characteristics of abnormal uterine bleeding (AUB) among women in Hillah, Iraq, emphasizing the role of histopathology in identifying underlying causes. The findings indicate that menorrhagia was the most common bleeding pattern (50%), predominantly affecting peri-menopausal women, followed by post-menopausal bleeding (27.3%). These results are consistent with a previous study [2] that suggest hormonal fluctuations during peri-menopause contribute to excessive or irregular menstrual bleeding due to unopposed estrogen stimulation and anovulation.

The agewise distribution of AUB cases in this study highlights a strong correlation between bleeding patterns and reproductive stage. Peri-menopausal women (41-50 years) constituted the largest group (59.1%), whereas post-menopausal women (>50 years) accounted for 33.6%. The high frequency of AUB in peri-menopausal women aligns with previous research, which associates this age group with increased rates of endometrial hyperplasia due to prolonged estrogen exposure without adequate progesterone opposition [5]. In contrast, post-menopausal bleeding was primarily attributed to endometrial atrophy and, in some cases, malignancy, as supported by the significant number of organic causes in this group.

Histopathological analysis in this study categorized AUB into functional and organic causes, with functional causes (66.4%) being more prevalent. Among functional causes, disordered proliferative endometrium was the most frequent (56%), particularly in peri-menopausal women. This condition is often linked to estrogen dominance, which leads to irregular endometrial proliferation without adequate shedding [10].

On the other hand, organic causes were found in 33.6% of cases, with endometrial polyps (32.4%) and endometrial hyperplasia without atypia (27%) being the most common. These

findings suggest that structural abnormalities, in addition to hormonal imbalances, play a critical role in AUB [25]. While endometrial polyps are generally benign, their association with irregular bleeding necessitates histopathological evaluation to rule out atypical hyperplasia or malignancy [15].

Notably, well-differentiated adenocarcinoma was identified in 7 cases (13.5% of organic causes), all of whom were post-menopausal women. This reinforces the critical need for early screening and histopathological assessment in post-menopausal AUB, as endometrial carcinoma remains a primary concern in this population. Previous study has shown that endometrial cancer risk increases significantly with advancing age, obesity, and unopposed estrogen therapy [23].

Future research should focus on the molecular mechanisms underlying AUB-related pathologies to enhance diagnostic accuracy and treatment strategies. Additionally, large-scale, multicenter studies would provide a broader epidemiological perspective on AUB patterns and risk factors in different populations.

Conclusion

The results of the study showed that the evaluation of histopathology is valuable and provides more accurate information about the cause of abnormal uterine bleeding, such as polyps and hyperplasia. This evaluation will help early endometrial malignancy, which has a worse prognosis, to be identified earlier and to receive appropriate treatment as soon as possible. Based on the conducted studies, it is suggested that for all patients suffering from abnormal uterine bleeding, especially post-menopausal patients, in whom endometrial atrophy is the common cause of bleeding, transvaginal ultrasound should be performed first, and if the ultrasound result is positive, endometrial sampling should be performed for accurate histopathological diagnosis.

Conflict of interest

Regarding this paper's publication, the authors state that they have no conflicts of interest.

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