https://doi.org/10.34883/PI.2023.12.3.009

ALdeewan M.A.[1], Hameed O.F.[2]✉, Maktoof Z.A.[2]
[1] Ports Teaching Hospital, Basrah, Iraq
[2] University of Basrah, Basrah, Iraq

Histopathological Evaluation of Biopsy Material of the Endometrium of Premenopausal and Postmenopausal Women with Abnormal Uterine Bleeding

Conflict of interest: nothing to declare.
Authors' contribution: ALdeewan M.A. – conceptualization, methodology, formal analysis, investigation, resources, data curation, writing – original draft, writing – review & editing; Hameed O.F. – conceptualization, methodology, formal analysis, investigation, resources, data curation, writing – original draft, writing – review & editing, visualization; Maktoof Z.A. – conceptualization, methodology, formal analysis, investigation, resources, data curation, writing – original draft, writing – review & editing, visualization, supervision, project administration.
The article is published in the author's edition.

Submitted: 13.06.2023
Accepted: 12.09.2023
Contacts: medicalresearch602@yahoo.com

Abstract

Introduction. Abnormal uterine bleeding (AUB) is defined as a fluctuation in the menstrual cycle that can occur at any age in women, the changes happen in the cycle frequency, in the duration, in the intermenstrual periods and in the amount of the blood loss.
Purpose. To evaluate the histopathological changes of the endometrium in curetting specimens of premenopausal and postmenopausal women who complain of AUB.
Materials and methods. A retrospective study of a total of 159 cases of AUB collected from the pathology department in the period between (2019–2021). This study was done by slides review of formalin-fixed paraffin-embedded endometrial tissue stained by hematoxylin and eosin to be examined microscopically for any abnormalities.
Results. Histopathologic examination of the 159 cases showed various patterns in AUB. Normal cyclic changes including the proliferative phase represent the most common finding (18.5%) at the mean age of 40.21±8.38. While Arias Stella reaction represents the least percentage (1.3%) at the mean age of 42.00±5.66. The most common clinical presentation was seen as irregular vaginal bleeding in cases of a retained product of gestation (RPOG) (30.1%).
Conclusions. The importance of evaluation of histological changes of endometrium in AUB in different age groups from (16–70 years) is to detect the diagnosis precisely and determine the underlying etiology, thus, helping in the management of a disease. In the postmenopausal age group, excluding or confirming malignancy in this age group is the most important objective.
Keywords: abnormal uterine bleeding, endometrial biopsy, endometrial hyperplasia, hematoxylin, eosin, Arias Stella reaction, irregular vaginal bleeding, postmenopausal women, premenopausal women

Альдиван М.А.[1], Хамид О.Ф.[2]✉, Мактуф З.А.[2]
[1] Портовая учебная больница, Басра, Ирак
[2] Университет Басры, Басра, Ирак

Гистопатологическая оценка биопсийного материала эндометрия женщин пременопаузального и постменопаузального возраста с аномальными маточными кровотечениями

Конфликт интересов: не заявлен.
Вклад авторов: Альдиван М.А. – концептуализация, методология, формальный анализ, исследование, ресурсы, курирование данных, написание – первоначальный проект, проверка и редактирование; Хамид О.Ф. – концептуализация, методология, формальный анализ, исследование, ресурсы, курирование данных, написание – первоначальный проект, проверка и редактирование, визуализация; Мактуф З.А. – концептуализация, методология, формальный анализ, исследование, ресурсы, курирование данных, написание – первоначальный проект, проверка и редактирование, визуализация, надзор, администрирование проекта.
Статья опубликована в авторской редакции.

Подана: 13.06.2023
Принята: 12.09.2023
Контакты: medicalresearch602@yahoo.com

Резюме

Введение. Аномальные маточные кровотечения (АМК) определяют как колебания менструального цикла, которые могут возникать в любом возрасте у женщин. Изменения происходят в частоте цикла, продолжительности, межменструальных периодах и объеме кровопотери.
Цель. Оценить гистопатологические изменения эндометрия в препаратах выскабливания женщин пременопаузального и постменопаузального возраста с жалобами на АМК.
Материалы и методы. Проведено ретроспективное исследование 159 случаев АМК, собранных в патолого-анатомическом отделении в период с 2019 по 2021 г. Это исследование было проведено путем просмотра слайдов ткани эндометрия, фиксированной формалином и залитой парафином, окрашенной гематоксилином и эозином, для микроскопического исследования на наличие каких-либо аномалий.
Результаты. Гистопатологическое исследование 159 случаев показало различные паттерны АМК. Нормальные циклические изменения, включая пролиферативную фазу, представляют собой наиболее частую находку (18,5%) в среднем возрасте 40,21±8,38 года. В то же время реакция Ариаса-Стеллы составляет наименьший процент (1,3%) в среднем возрасте 42,00±5,66 года. Наиболее частой клинической картиной были нерегулярные вагинальные кровотечения в случаях задержки продукта гестации (30,1%).
Выводы. Важность оценки гистологических изменений эндометрия при АМК в различных возрастных группах (от 16 до 70 лет) заключается в точной постановке диагноза и установлении основной этиологии, что помогает в лечении заболевания. В постменопаузальной возрастной группе наиболее важной задачей является исключение или подтверждение злокачественного новообразования.

Ключевые слова: аномальные маточные кровотечения, биопсия эндометрия, гиперплазия эндометрия, гематоксилин, эозин, реакция Ариаса-Стеллы, нерегулярные вагинальные кровотечения, женщины в постменопаузе, женщины в пременопаузе

■ INTRODUCTION

Abnormal uterine bleeding (AUB) is defined as a fluctuation in the menstrual cycle that can occur at any age in women, it is described as changes in the frequency of the cycle, duration, or bleeding in the intermenstrual periods, but sometimes it is seen as changes in the amount of the blood loss [1].

AUB may occur due to many different causes; these causes can be structural as fibroids, polyps, endometrial hyperplasia, endometrial carcinoma, and complications of pregnancy or cause related to disorders in function as dysfunctional uterine bleeding (DUB) [2].

A menstrual cycle frequency can be decreased (less than 21 days cycles) or increased (more than 35 days cycles) and the duration of fewer than 2 days or more than 7 days, all these cases are considered AUB [3].

Biopsies from the endometrium are required in certain situations and ages mainly in cases of suspected neoplasia, and incomplete abortion and to determine the cycle phases in the treatment of infertility, but also it is important to obtain a biopsy from the endometrium in cases of AUB to direct the diagnosis and treatment [4].

AUB is due to many etiologic reasons ranging homeostasis like infections, hormonal imbalances, malignancy and structural lesions. In 2011, International Federation of Gynaecology and Obstetrics (FIGO) devised a classification named PALM-COEIN for the AUB etiology. Adenomyosis, polyps, malignancy and leiomyoma are the structural features of PALM. Ovulatory dysfunction, coagulation defects, iatrogenic causes, endometrial causes, and non-classified causes are addressed as non-structural causes of COEIN [5]. Endometrial biopsies are used as a diagnostic aid in the AUB. Initially test done in females >45 years and done in women <45 years of age with a history of failed medical management, unopposed estrogen exposure and persistent AUB [6]. The prime advantage is to rule out the precursor lesions of cancer like aggressive endometrial carcinoma and hyperplasia [5].

This study is designed to present the histopathological findings of endometrium biopsies in cases of AUB in different age groups in Basrah city.

■ PURPOSE OF THE STUDY

To evaluate the histopathological changes of the endometrium in curetting specimens of premenopausal and postmenopausal women who complain of AUB.

■ MATERIALS AND METHODS

A retrospective study of a total of 159 cases of DUB collected from the pathology department in Almawanee teaching hospital in Basrah City received in the period between (2019–2021). Routinely, suspected samples received by our team of laboratory. All samples

put and fixed in a solution of 10% formalin. Then each sample examined macroscopically for gross features. After that, samples processing and embedded in paraffin blocks. Thereafter, the paraffin blocks were sectioned by a microtome into 4 to 8 μ which fixed into glass slides, then stained by Hematoxylin and Eosin. Then slides microscopically examined by a histopathologist. Copies of reports archived in the laboratory. The reports retrieved and the diagnosis of the gross and histological characters were extracted. If there are doubts a review of slides, blocks of tissue, and gross specimens for second look must be done. The data collected for the study were statistically analyzed using a one-way ANOVA test. P-value <0.0001 was considered significant.

■ RESULTS

Histopathologic examination of the 159 cases showed various patterns in AUB. Normal cyclic changes including the proliferative phase represent the most common finding (18.5%) at a mean age of 40.21±8.38.

While Arias Stella reaction represents the least percentage (1.3%) at the mean age of 42.00±5.66 as shown in Table 1.

The most common clinical presentation was seen as irregular vaginal bleeding in cases of a retained product of gestation RPOG (30.1%) as seen in Table 2.

Table 1
The frequency of occurrence of certain forms of pathological and physiological conditions in women of premenopausal and postmenopausal age

Diagnosis	No.	%	Age Mean±SD (years)
Proliferative phase	29	18.5	40.21±8.38
Retained product of gestation (RPOG)	25	15.9	29.96±7.22
Endometrial polyp	19	12.1	48.89±9.94
Endometrial hyperplasia without atypia	19	12.1	46.79±4.29
Hormonal related changes	14	8.9	33.29±9.99
Hydatidiform mole	12	7.6	32.50±8.46
Endocervical polyp	9	5.7	56.00±9.94
Secretory phase	7	4.5	42.71±7.65
Nonsecretory phase	5	3.2	49.20±0.84
Carcinoma of cervix	4	2.5	59.75±7.76
Chronic endometritis	3	1.9	47.33±9.0
Atypical endometrial hyperplasia	3	1.9	53.67±10.21
Endometrial adenocarcinoma	3	1.9	62.00±9.00
Atrophic endometrium	3	1.9	51.33±4.93
Arias Stella reaction	2	1.3	42.00±5.66
Total	157	100	42.06±11.82

Table 2
The frequency of occurrence of bleeding in various forms of physiological and pathological conditions

Diagnosis	Clinical presentation			Total	Significant
	Menorrhagia	Irregular vaginal bleeding	Postmenopausal vaginal bleeding		
Secretory phase	3	2	2	7	
	5.8%	2.7%	6.3%	4.5%	
RPOG	3	22	0	25	
	5.8%	30.1%	0	15.9%	
Proliferative phase	13	14	2	29	
	25%	19.2%	6.3%	18.5%	
Endometrial polyp	11	2	6	19	
	21.2%	2.7%	18.8%	12.1%	
Endocervical polyp	0	3	6	9	
	0	4.1%	18.8%	5.7%	
Endometrial hyperplasia without atypia	12	2	5	19	
	23.1%	2.7%	15.6%	12.1%	
Hydatidiform mole	0	12	0	12	
	0	16.4%	0	7.6%	
Carcinoma of cervix	1	1	2	4	FE=99.32 P=0.0001
	1.9%	1.4%	6.3%	2.5%	
Hormonal related changes	2	12	0	14	
	3.8%	16.4%	0	8.9%	
Chronic endometritis	1	1	1	3	
	1.9%	1.4%	3.1%	1.9%	
Atypical endometrial hyperplasia	1	0	2	3	
	1.9%	0	6.3%	1.9%	
Non-secretory phase	2	2	1	5	
	3.8%	2.7%	3.1%	3.2%	
Endometrial adenocarcinoma	1	0	2	3	
	1.9%	0	6.3%	1.9%	
Atrophic endometrium	0	0	3	3	
	0	0	9.4%	1.9%	
Arias Stella reaction	2	0	0	2	
	3.8%	0	0	1.3%	

■ DISCUSSION

Endometrium as a dynamic tissue undergoes cyclic proliferation and shedding under hormonal control, however, these hormonal changes depending on the patient's age can be Physiological or pathological leading to uterine bleeding continuing from menarche to menopause [7].

Endometrial biopsy and curettage are important for the diagnosis of AUB, it is also necessary to obtain a complete clinical history of the menstrual cycle and the drug history especially the exogenous hormones, yearly about 6% of women aged 25–44 years had consulted their physician about excessive blood loss during menstruation [8].

In this study, the most common cause of AUB was a proliferative phase (18.5%) which was consistent with a previous study carried out by Vaidya et al. which mentioned that

endometrial hyperplasia was the most common finding because of the stimulation of proliferation by estrogen [2].

The second finding was Retained product of gestation RPOG (15.9%) at a mean age of 29.96±7.22, also in another study done by Asuzu and Olaofe (2018) there was a high percentage of AUB because of Products of conception retention especially in childbearing age [4].

Endometrial hyperplasia without atypia represents 12.1% which was inconsistent with a study done by Vaidya et al. (30%) and also, Azim et al. study showed a percentage of only 4.9%, this may be explained by the difference in the selected age group since the estrogen effect becomes more obvious in later ages leading to different rates among adolescence, reproductive age with largely perimenopausal and menopausal age groups [2, 3].

AUB related to hormonal changes represents 8.9% at a mean age of 33.29±9.99 this may relate to anovulatory cycles were described by Elmaoğulları and Aycan, 2018 that many physiological causes or polycystic ovary syndrome lead to Delayed or absent ovulation and due to endometrium proliferation induced by lack of progesterone and excessive E2 production from ovarian follicles which make the endometrium more prone to changes in amount and timing of menstrual bleeding [9].

1.9% of cases diagnosed as adenocarcinoma which causes AUB since it is preceded by endometrial hyperplasia [10]. The carcinoma of cervix and adenocarcinoma were seen in older age groups since there is an elevated risk of cancerous changes with age.

■ CONCLUSIONS

The importance of evaluation of histological changes of endometrium in AUB in different age groups from (16–70 years) is to detect the diagnosis precisely and determine the underlying etiology, thus, helping in the management of a disease. In the postmenopausal age group, excluding or confirming malignancy in this age group is the most important objective.

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