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Original Article

Histopathological Pattern of Endometrial Biopsies in Patients with Abnormal Uterine Bleeding in a Tertiary Referral Hospital

Rashmita Bhandari*[1], Jwala Kandel [2]

[1] Department of Pathology, Nobel Medical College Teaching Hospital, Biratnagar, Nepal

[2] Department of Forensic Medicine, Koshi Hospital, Biratnagar, Nepal

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Abstract

Background

Abnormal Uterine Bleeding is the condition wherein symptom deviates from the normal menstrual cycle. The histopathogical examination of the tissue obtained from endometrial biopsy is considered as gold standard for diagnosis. The aim of this study is to identify the histopathological pattern of endometrial biopsies in patients with abnormal uterine bleeding, across different age and parity groups, who have undergone dilation and curettage.

Materials and Methods

A cross sectional study was done in Nobel Medical College Teaching Hospital, Pathology department for period of 1 year (October 2023 to October 2024). Total 385 patients presenting with complains of abnormal uterine bleeding at Gynecology department were included. Endometrial biopsy samples were collected by dilation and curettage,routinely processed, stained with Hematoxylin & Eosin and examined under light microscopy. The data was recorded in standard proforma and entered into the Statistical Package for Social Science software Ver.20 and were analyzed for descriptive and inferential statistics.

Results

Out of 385 specimens examined 35 were inadequate for evaluation. Majority of patients were in reproductive age groups 139 (40%) followed by premenopausal 125 (35%) and post-menopausal 86 (25%). Out of 125 (32.5%) cases diagnosed as functional endometrium, 84 (21.8%) showed secretory changes and 41 (10.6%) showed proliferative changes. This was followed by the weakly proliferative endometrium 25 (6%) cases. Among the organic causes of abnormal uterine bleeding, benign endometrial lesions were commonest comprising 42 (10.9%) cases while 23 (5.9%) were malignant lesions. Pregnancy related changes were seen in 35 (9.2%) cases.

Conclusion

In this study the majority of cases are clustered around the reproductive age group along with the secretory and proliferative endometrium being the major cause for abnormal uterine bleeding.

Keywords: *Dilatation and Curettage, Endometrium, Uterine Bleeding*

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***Corresponding Author:**
Dr. Rashmita Bhandari
Lecturer
Email:rashmitabhandari2@gmail.com
ORCID: https://orcid.org/0009-0009-0969-2465

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Introduction

The normal menstruation comprises of 21-35 day's cycle with 2-7 day's flow comprising 30-80ml total blood loss. The symptom that deviates from the normal menstrual cycle is referred as Abnormal Uterine Bleeding (AUB). It consists of change in frequency, duration and volumeof menstrual flow, commonly presenting with menorrhagia, polymenorrhoea, menometrorrhegia, dyspareunia and intermenstrual bleeding[1, 2].

The etiology of AUB varies with age. Some of the common causes include normal endometrial proliferative and secretory changes; abnormal physiological endometrial changes like disordered proliferation of endometrium, atrophic endometrium, weakly proliferative endometrium and pill endometrium; endometrial lesions like polyps, adenomyosis, leiomyoma, hyperplasia malignancy; other non-structural pathologies like primary endometrial disorders, ovulatory disorders and coagulopathies [3, 4].

Evaluation of AUB is based on the clinical presentation and diagnosis is that of exclusion in absence of any organic causes of bleeding usually in reproductive aged females. After excluding pregnancy, thorough investigation of patient is done.The first line investigation is routine USG. Although USG can assess the uterine contour and the status of ovaries, it fails to provide adequate information regarding endometrium except atrophy and hyperplasia, similar to other investigations like transvaginal sonography and hysteroscopy.The gold standard for diagnosis is histopathological examination of endometrial biopsy which provides guidance for further treatment of the patient based on etiology[5-7].

Present study aims at determining the histopathological pattern of endometrial biopsies in patients with AUB across different age and parity groups who have undergone dilation and curettage (D&C).

Materials and Methods

This was a cross sectional study carried out in Department of Pathology, Nobel Medical College Teaching Hospital, Biratnagar, Nepal for a period of one year(October 2023 to October 2024).Ethical clearance was taken from the institutional review board of the same institution (Ref: 07/2024). Informed expressed consent was taken from the participants prior to their enrollment. Fem-ales presenting with AUB were included in the study. Histopathological samples with scant endometrial tissue and predominance of blood clots were excluded from the study. Sample size was calculated using formula presented below:

Sample size (n) = Z^2PQ/d^2

Where,

Z = Z-score value at 95% confidence limits = 1.96

P = Population proportion = 50 % prevalence = 0.5

Q = 1-P

d = Allowable/ margin of error=5% = 0.05

Hence: n = (1.96)2 x 0.5 x (1-0.5) / (0.05)2 = 384.16

Total of 385 females presenting with AUB were included in the study. Required clinical data were collected from hospital and laboratory records. Detailed clinical history and examination findings were recorded in case proforma. The patients were categorized into three groups according to their ages; Reproductive age (18-39 years), Peri-menopausal age (40-49 years) and Post-menopausal (≥ 50years). Biopsy specimens were obtained by D&C under hysteroscopy. Samples were then sent to the laboratory for histopathological examination. The expected histopathological diagnoses were categorized on the basis of functional and organic causes. The organic causes comprised of chronic endometritis, endometrial hyperplasia, endometrial polyps and endometrial carcinoma. The functional causes included in this study were normal cyclical phases (Proliferative and secretory) of the endometrium and abnormal physiological changes (atrophic endometrium, weakly proliferative phase of endometrium, disordered phase of endometrium and pill endometrium).The data was checked and entered into the Statistical Package for Social Science (SPSS) software Ver.20 and were analyzed for descriptive and inferential statistics.

Results

Out of 385 patients,thecause of AUB could be assessed in only 350,as remaining 35 biopsy specimens were inadequate for evaluation.The age group ranged from 18-75 years. Out of 350 cases of AUB, most of them were to functional causes andremaining due to definite endometrial pathology (Table 1).

Majority of women having endometrial pathology were at the reproductive age, followed by the peri-menopausal age and the least involved was the post-menopausal age (Table 2).

Out of cases 125 (32.5%) diagnosed as functional endometrium, 84 (21.8%) showed secretory changes and 41(10.6%) showed proliferative changes. This was followed by the weakly proliferative endometrium 25 (6%) cases.Among the organic causes of AUB, benign endometrial

lesions were commonest comprising 42(10.9%) caseswhile 23 (5.9%) were malignant lesions. Pregnancy related changes were seen in 35(9.2%) cases (Table 3).

Table 1: AUB based on causes

Causes of AUB	No. of cases	%
Functional Causes	234	66
Endometrial Lesions	116	34
Total	350	100

Table 2:AUB based on parity

Parity/Age in years	No. of cases	%
Reproductive age (18-39)	139	40
Peri menopausal age (40 49)	125	35
Post-menopausal age (=50)	86	25
Total	350	100

Table 3: Histopathological Pattern according to the age group

Histopathological diagnosis	Age group (years)			Total	%
	18-39	40-49	=50		
Functional endometrium	68	38	19	125	32.5
Proliferative phase	28	08	05	41	10.6
Secretory phase	40	30	14	84	21.8
Other abnormal physiological changes	21	33	20	74	19.2
Atrophic endometrium	-	02	18	20	5
Weakly proliferative endometrium	10	15	-	25	6.5
Disordered proliferation of endometrium	08	10	02	20	5
Pill endometrium	03	06	-	09	2.3
Pregnancy related	30	05	-	35	9.2
Product of conception (normal pregnancy)	17	02	-	19	4.9
Partial mole	04	01	-	05	1.2
Complete mole	09	01	-	10	2.5
Arias-stella reaction	00	01	-	01	0.02
Inflammatory endometrium	04	13	01	18	4.3
Endometrial tuberculosis	-	01	-	01	0.3
Chronic endometritis	02	11	-	13	3.0
Acute endometritis	02	01	01	04	1
Endometrial hyperplasia	05	17	11	33	8.5
Endometrial hyperplasia without atypia.	03	09	06	18	4.6
Atypical endometrial hyperplasia	02	08	05	15	3.8
Benign endometrial lesions.	09	13	20	42	10.9
Benign endometrial polyps.	05	10	08	23	6
Leiomyoma	04	03	12	19	5
Malignant lesions	02	06	15	23	5.9
Endometrioid carcinoma	01	02	09	12	3.1
Serous carcinoma	01	04	06	11	2.8
Inadequate for evaluation	06	25	04	35	9.2
Total	145	150	90	385	100

Discussion

AUB comprise a significant amount of outpatient visits and operated gynecological cases [8]. In present study, the most common age group involved was (18-39) years (40%). The study done by Chapagain S et al, found (40-44) years age group to be the commonest (44.5%) [9] and Bindhuja J,showed (31-40) years age group commonest (44%) for AUB of [10].The most commonly affected groups are reproductive followed by peri-menopausal which is similar to the findings of Dangal G[11].

It includes many functional as well as the organic causes like inflammatory endometrium, benign endometrial lesions, endometrial hyperplasia as well as carcinoma. DUB is also a common functional cause for AUB.Among the organic causes, endometrial lesions like endometrial polyps, leiomyoma, endometrial hyperplasia and carcinoma are to be suspected in peri-menopausal and post-menopausal females [12].Inthe study done by Brenner PF, AUB occurs due to the well-defined organic cause in about 25% of the cases [13]. Almost similar results are seen in study done by Ara S et al (21.73%) [14]. In present study, AUB due to organic cause includes34% of cases. Endometrial hyperplasia was the most common organic cause of AUB reported in 34 (8.5%) cases. Similarly, Vakiani M et al, (38%) reported endometrial hyperplasia as the most common organic cause of AUB in their study [15]. While Nedoss BR, found endometrial hyperplasia as least common cause of AUB [16]. Histopathological patterns in the patient with AUB, ranges from different normal physiological to abnormal physiological causes to the organic causes. In this study the normal physiological causes of AUB are due to secretory endometrium and the proliferative endometrium. Similar interpretations were made byAishdaifat EH et al [17]. Bothpattern together were seen in 125 (35.5%) cases. The pregnancy related complications in reproductive females has the largest case rate of 35 (9.5%). Similar interpretation was made by Brenner PF[13]. Atrophic endometrium is one of the common causes of bleeding in post-menopausal females. In this study it comprises of 20 (5%) cases. In other studies, its occurrences vary from 1.1 to 7 % [7,9,14]. The exact cause of bleeding in atrophic endometrium is unknown. The anatomic vascular variations or local abnormal defects in homeostatic mechanisms are believed to be the cause. Pill endometrium which occurs as an effect of exogenous hormones, were seen in 9 (2.3%) patients. Its incidence was similar in other studies which vary from 2-4%.

The occurrences of pill endometrium were common in reproductive and peri-menopausal age groups. Similar findings were seen in other studies also [18,19]. Pill endometrium is commonly due to intra-uterine contraceptive devices (IUCD), pregnancy and abortions. Inflammatory causes of AUB were diagnosed in 18 (4.3%) cases with different inflammatory causes comprising of chronic endometritis, acute endometritis and endometrial tuberculosis. The incidence varies in other literatures with 4-19%–[9,17,19] with chronic endometritis being the commonest and this was found commonly in the reproductive and peri-menopausal age groups. Weakly proliferative endometrium was seen in 25 (6.5%) patients, whichwas common in reproductive and peri-menopausal female. Weakly proliferative endometrium is the intermediate between the atrophic and the normal proliferative phase of endometrium.Total of 23 (5.9%) cases were diagnosed as endometrial carcinoma. The occurrence was common in peri-menopausal and post-menopausal patients. In post and peri-menopausal patients, carcinoma should be the major differential diagnosis who presents with AUB. Thapa S et al, reported 1.5% incidence of endometrial carcinoma [20]. Dilatation and Curettage (D&C) followed by endometrial biopsy is the safe and effective techniques for evaluation of AUB and for the diagnosis of various endometrial pathologies like infection, polyp endometrial hyperplasia and carcinomas[21].

Limitations of the study includes, this being a single centered study which may miss out various types of cases prevalent over other parts of the country. It also does not incorporate comparison of findings with hormonal assays. It also lacksfollow up of patientswho have undergone radical biopsies.

Conclusion

The present study reveals secretory and proliferative endometrium as the most common causes of AUB. Similarly reproductive age group incorporates highest number of cases presenting with AUB.

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Conflict of interest: None

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