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Endometrial Biopsy Audit and its Clinico-Pathological Correlation in Patients with Abnormal Uterine Bleeding in a Zonal Care Centre

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Abstract

Background: Abnormal uterine bleeding is the commonest problem affecting premenopausal, perimenopausal, and postmenopausal females and is the most common cause of the premalignant and malignant endometrial lesions resulting in endometrial samples.

Aim & Objective: To study the clinicopathological correlation of abnormal uterine bleeding in premenopausal, perimenopausal, and postmenopausal female.

Material and methods: The retrospective study was conducted in the Military Hospital, Allahabad (UP), by the Department of Pathology from Aug 2021 to Aug 2022. A total of 135 patients who presented with abnormal uterine bleeding were studied.

Results: The age of the patients ranged from 20 to 70 years in the study. There were a total of 63 cases in the age group of 41 to 50 years. The major bleeding pattern observed was menorrhagia, followed by post menopausal bleeding, polymenorrhagia, metrorrhagia, oligomenorrhagia, and menometrorrhagia. The histopathological patterns observed in abnormal uterine bleeding were proliferative phase endometrium, followed by secretary phase, disordered proliferative phase, endometrial hyperplasia, atropic endometrium, malignancy, and inadequate.

Conclusion: Endometrial biopsies are the first line diagnostic tool for diagnosing endometrial pathology because of its diagnostic accuracy, safety, quickness, and convenience. But lesion such as leiomyoma and adenomyosis can be missed.

Keyword: endometrium, dilatation & curettage, dysfunctional uterine bleeding, hormone imbalance, hyperplasia, endometrial adenocarcinoma.

Introduction

Endometrium is the inner lining of the uterus, which is extraordinary hormone sensitive tissue & undergo cyclic changes during the reproductive age group. The endometrial morphology, as a consequence, is continually altering depending on the

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levels of oestrogen and progesterone. The endometrial samples are collected during the investigation of abnormal uterine bleeding in premenopausal, perimenopausal or post menopausal bleeding. Dysfunctional uterine bleeding is the most common problem in the life of an adult female.[1] Dysfunctional uterine bleeding is defined as the abnormal uterine bleeding in a premenopausal women resulting from alteration in the normal cyclic changes of endometrium. Dysfunctional uterine bleeding may be the common cause of the premalignant and malignant endometrial lesion[2]. The common causes of abnormal uterine bleeding include endometritis, polyps, exogenous hormones, hyperplasia, or carcinoma. Most of the endometrial samples are taken by cervical dilatation and curettage to diagnose the true pathology. This technique is now considered the first line diagnostic tool because of its diagnostic accuracy, safety, quickness, and convenience [1.]

Material and Methods

The retrospective study was conducted in the Military Hospital, Allahabad (UP) by the Department of Pathology from Aug 2021 to Aug 2022. A total of 135 patients who presented with abnormal uterine bleeding, were studied. Patients on hormonal therapy, intrauterine contraceptive devices, pregnant females with bleeding, leiomyoma, & malignancy were excluded from the study. A detailed clinical history, menstrual history, pattern and duration of abnormal uterine bleeding, obstetric history, and past history were recorded. Endometrial curettage samples were fixed in 10% formal saline and processed in histopathology laboratory. After a detailed gross examination, the tissue was embedded, paraffin blocks of the tissue were made, and sections were cut and stained with hematoxylin and eosin.

Results

A total of 135 endometrial curettages were studied from Aug 2021 to Aug 2022. The patients in the study ranged in age from 20 to 70 years. The patients were divided into 5 age groups (table-1). The maximum frequency of abnormal uterine bleeding was observed in the age group of 41 to 50 years, followed by the age group of 51 to 60 years (table-1). The maximum number of patients presenting with menorrhagia was (48.1%), followed by postmenopausal bleeding (20.7%), polymenorrhagia (11.8%), metrorrhagia (11.1%), oligomenorrhagia (5.9%) and menometrorrhagia (2.2%) (table-2). Histopathological examination by age group revealed endometrium in the proliferative phase accounted for 30.3% of total, with the secretary phase accounting for 22.9%,the disordered proliferative phase accounting for 22.2%,endometrial hyperplasia accounting for 8.8%, atropic endometrium accounting for 3.7%, malignancy accounting for 0.74% and inadequate endometrium accounting for 5.9% (table-3).

Table 1: Abnormal uterine bleeding with age

S. No	Clinical symptoms	No. of cases	%
1	20-30	16	11.8
2	31-40	23	17.03
3	41-50	64	47.4
4	51-60	28	20.7
5	61-70	04	2.9
	Total	135	100

Table 2: Distribution of cases according to clinical presentation.

S.No	Clinical symptoms	No. of cases	%
1	Menorrhagia	65	48.14
2	Polymenorrhagia	16	11.85
3	Metrorrhagia	15	11.1
4	Menometrorrhagia	03	2.2
5	Oligomenorrhagia	08	5.9
6	Postmenopausal bleeding	28	20.74
	Total	135	100

Table 3: Histopathological pattern of endometrium

S. No	Histopathology	No. of cases	%
1	Proliferative Phase	41	30.37
2	Secretory Phase	31	22.96
3	Disorderd proloferative phase	30	22.22
4	Hyperplasia	12	8.88
5	Endocervical polyp	07	5.18
6	Malignant	01	0.74
7	Atropic (pill)	05	3.7
8	Inadequate	08	5.9
	Total	135	100

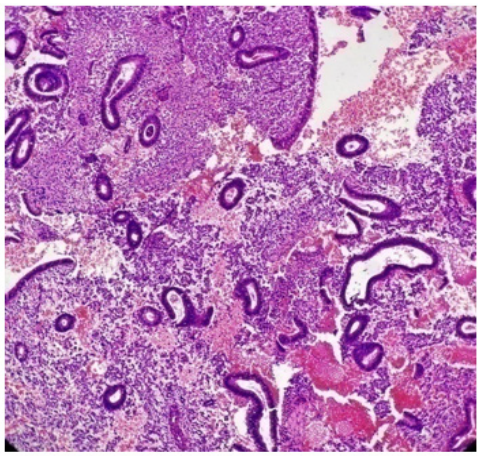
Table 4: Clinico-pathological correlation with age and bleeding pattern.

S.No	Histopathology	20-30	31-40	41-50	51-60	61-70	Total
1	Proliferative phase	10	06	23	02	00	41(30.37%)
2	Secretory Phase	03	09	18	01	00	31(22.9%)
3	Disorderdproloferative phase	01	03	17	09	00	30(22.2%)
4	Hyperplasia	–	–	06	04	02	12(8.8%)
5	Endocervical polyp	02	02	00	00	00	07(5.1%)
6	Malignant	–	–	–	01	00	01(0.7%)
7	Atropic	–	02	00	06	01	05(3.7%)
8	Inadequate	00	01	01	04	01	08(5.9%)
	Total	16	23	65	29	04	135(100%)
	%	11.8	17.03	48.1	21.4	2.9	

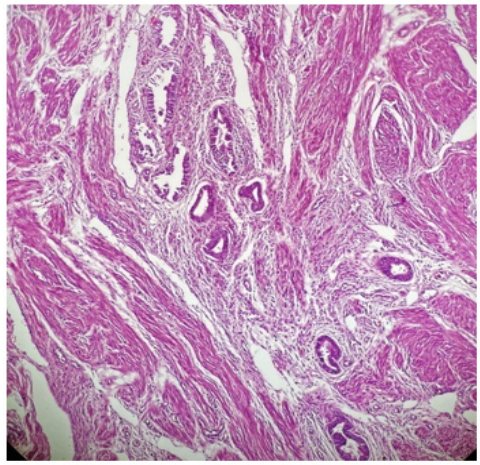
When abnormal uterine bleeding was correlated with age and endometrial biopsy pattern, it was observed that out of 65(48.1%) cases in the age group 41-50 years, the proliferative pattern was seen in 23 (35.3%) cases, the secretary pattern was seen in 18(27.6%), disorder proliferative pattern 17(26.15%), endometrial hyperplasia06(9.2%) and 01(1.5%) was inadequate. All the patients were presented with menorrhagia followed by post menopausal bleeding (21.4%) (table-4).

The disordered proliferative pattern was observed in 9(31.3%) cases of post menopausal bleeding in the age group 51to 60 years, atropic endometrium in 06 (20.6%) cases, endometrial hyperplasia in 04(13.7%) cases, proliferative pattern in 02 (6.8%) cases, secretary endometrium in 01(3.4%) cases and malignancy in 01(3.4%) cases (table-4).

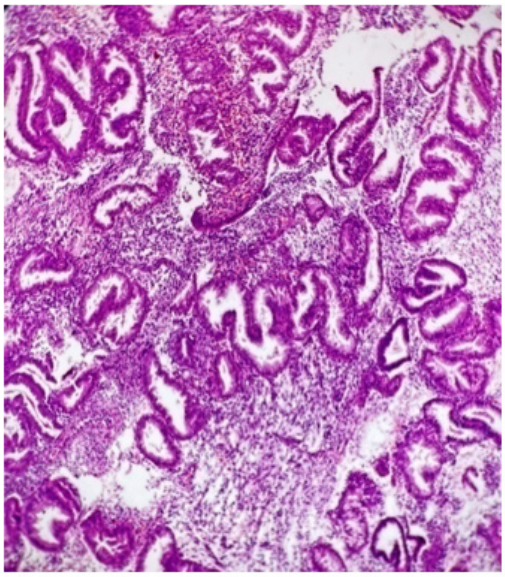
Polymenorrhagia was observed in 23(17.03%) cases between the age group of 31 to 40 years, the secretary endometrium were seen in 09 (39.1%) cases, the proliferative 06 (26.08%) cases, disordered proliferative 03(13.04%) cases, the endocervical polyp 02 (8.6%)cases, atropic endometrium 02(8.6%)cases and inadequate 01(4.3%) cases (table-4).The irregular menstrual cycle could be caused by persistent oestrogen predominance and resultant endometrial proliferation in absence of progesterone. Inadequate cycling with progesterone causes structural instability and irregular shedding from the thickened lining of the endometrium.



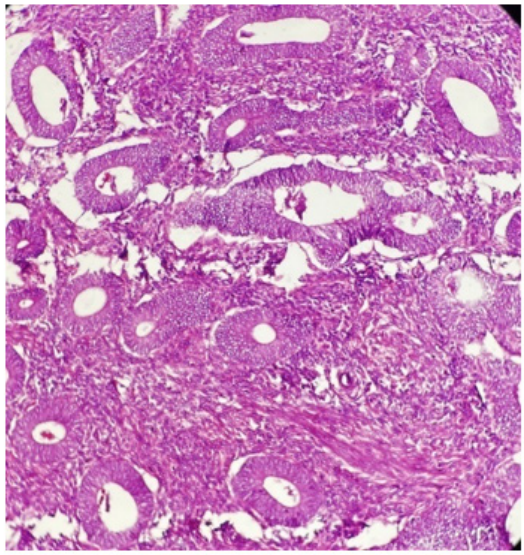
Microphotograph of disordered proliferative phase showing normal proliferative pattern with mild irregular branching, budding and cystic dilation. H&E 20X



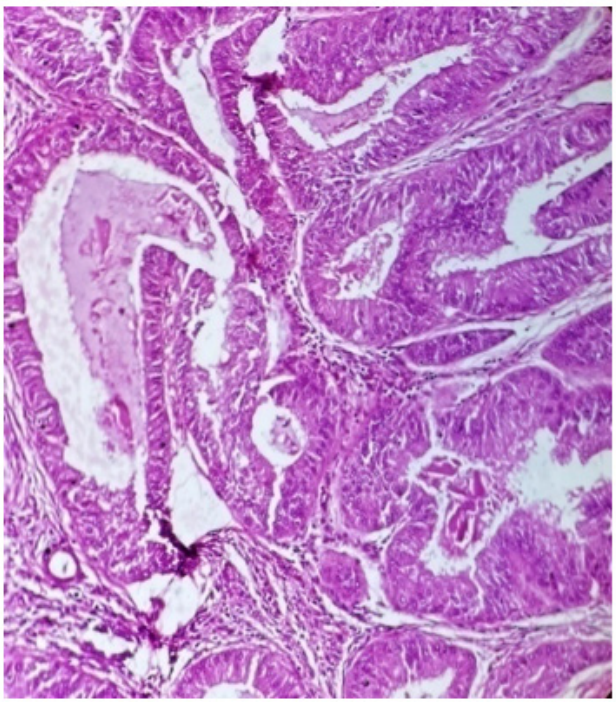
Microphotograph of adenomyosis showing benign endometrial gland surrounded by endometrial stroma in myometrium. H&E 20X



Microphotograph of endometrial hyperplasia showing increase gland to stroma ratio with variability in size of gland and glandular budding. No cytological atypia. H&E 20X



Microphotograph of atypical hyperplasia showing increase gland to stroma ratio, crowded glands, enlarged nucleus, coarse clumped chromatin and prominent nucleolus H&E-20X



Microphotograph of endometrial adenocarcinoma showing closely packed gland lined by endothelial cell with cytological atypia. H&E 20X

Discussion

Abnormal uterine bleeding (AUB) is a broad term that describes irregularities in the menstrual cycle involving frequency, regularity, duration, and volume of flow[3]. Uterine bleeding affects up to one-third of women at the same point in their lives, most commonly during at menarche and premenopausal. A normal menstrual cycle occurs every 28 days plus or minus 7days and last 2-7 days, containing 10-80ml of blood. When there is any change in these parameters there is abnormal uterine bleeding. Endometrial histopathology is recommended in cases of abnormal uterine bleeding in women below 40 years of age and in women above 40 years of age who have a high risk of endometrial carcinoma, such as irregular bleeding ,obesity associated with hypertension, PCOS, endometrial thickness greater than 12mm, diabetes, family history of malignancy like ovary, breast, endometrium, colon, late menopause and use of tamoxifen for HRT or breast cancer.

In our study, the patients ranged in age from 20 to 70 years old. The age group of 41 to 50 years of age (premenopausal) followed by 51-60 years of age(postmenopausal) and 31-40 year of age group (reproductive) had the highest patient number, at 47.4%, 20.7% and 17.03% respectively. The most common age group for abnormal uterine bleeding in our study is 41 to 50 years old. Similar observation was noted by S.Vaidya et al[4], Zeeba S et al [5] and Doraiswami S et al[11] . The increased number of cases in this premenopausal age group may be due to a decrease in the number of graafian follicles, resulting in a low level of oestrogen that cannot maintain the normal growth of the endometrium.

On analysing the bleeding pattern, the most common presenting complaint in our study was menorrhagia (48.14%), followed by postmenopausal bleeding (20.74%), polymenorrhagia (11.85%) and metrorrhagia (11.1%). Menorrhagia as common complain often revealed by many literature 41% Zeeba S[5], and 42.7% Mahmoud & Aseel[6], which is similar with the present study.

In the present study, the histopathological evolution revealed proliferative phase endometrium in 30.37% of cases followed by secretary phase endometrium in 22.96% of cases & disordered proliferative phase endometrium in 22.22% of cases. Muzzafar et al [7] and Fakhar S et al [8] reported proliferative phase in 46.6% and 54% of cases respectively, which was significantly higher as compared with our study. The proliferative phase and secretary phase endometrium together were most prevalent entity with other author Kundan J & Sharma A et al [9], Shah R et al[10], Vaidya S et al [4] . Similar results were reported in our study.

The disorderd proliferative phase was seen in 22.2% in our study which was compared well with 20.5% Doraiswami S et al[11], .It was high in comparison with other study 13% Mirza T et al,[12]. Disordered proliferative phase of endometrium and hyperplasia were seen in the age group of 41 to 50 years.

In present study, the endometrial hyperplasia was seen 8.8% which was compared well with 9.1% in Abdullah LS et al[13]. It was high in comparison to 6.11% in Doraiswami S et al [11]. Identification of focal and diffuse endometrial hyperplasia is important as it is thought to be a precursor to endometrial carcinoma. Reed SD et al [14] also reported endometrial hyperplasia peak in the perimenopausal and post menopausal groups, which was similar to our study (table-4).

Endometrial carcinoma was reported at 0.7% in our study and seen in the age group of 51 to 60 years. Similar result was reported with 0.6% S Afghan and A Yasmeen et al[15]. It is lower as compared with 3.14% Sandeepa S et al[16]. The risk factors for endometrial carcinoma are obesity, hypertension, dibetetes and exogenous hormones. Abnormal uterine bleeding in peri menopausal and post menopausal group requires proper evaluation and follow up to rule out the possibility of malignancy.

The atropic endometrium was 3.7% in our study, which compared well with 4.7% in Vaidya S et al[4] and 2.4% in Doraiswami S et al[11].

Conclusion

The present study provides fair insight into the histopathological pattern of lesions in endometrial sampling of abnormal uterine bleeding in our hospital. Though the histopathological analyses correlate well with clinical diagnoses. Some pathologies like disordered proliferative phase endometrium, hyperplasia, and carcinoma endometrium are more commonly seen in the perimenopausal and postmenopausal groups of females ; hence, it is important to rule out any malignancy in women over 40 years of age presenting with abnormal uterine bleeding.

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Conflict of Interest: None

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