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Research Article

Clinico-Pathological Correlation of Endometrial Biopsy and Its Significance

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A B S T R A C T

Background: Menstruation is a natural physiological process, but a significant proportion of women experience abnormal uterine bleeding (AUB), which negatively impacts their physical, emotional, and socio-economic well-being. AUB is closely associated with iron deficiency anaemia and is often under-recognized. Its evaluation and management require a structured approach, such as the PALM-COEIN classification system, to identify underlying structural or functional causes.

Objective: This study aimed to investigate the relationship between clinical presentations of AUB and the morphological phase of the endometrium (proliferative vs. secretory), proposing that endometrial histology may be a more relevant parameter for analysis than age alone.

Methods: A prospective, hospital-based cross-sectional study was conducted in 2024 on 38 cases (29 proliferative, 9 secretory) received in the Department of Pathology. Inclusion criteria involved endometrial samples with isolated endometrial causes of AUB, excluding inadequate specimens and non-endometrial pathologies. Histological analysis was performed using H&E staining, and clinical data were analyzed using the chi-square test.

Results: Of the 38 cases, a greater proportion with AUB were in the proliferative phase (36.84%) compared to the secretory phase (13.16%), though not statistically significant. Menorrhagia was more common in the proliferative group (10.53% vs. 7.89%), and pain was reported in only one proliferative case. These findings were consistent with previous studies that reported higher incidences of AUB and menorrhagia in perimenopausal women, predominantly in the proliferative phase.

Conclusion: The study suggests that histopathological classification of the endometrium provides a valuable framework for analyzing and managing AUB, particularly in the reproductive and perimenopausal age groups. Histological phase may offer better insight into bleeding patterns than age-based classification alone. Early histological evaluation remains critical to exclude precancerous lesions and guide appropriate treatment.

Keywords: Abnormal Uterine Bleeding (AUB), Menorrhagia, Dysmenorrhoea

Introduction

Menstruation is a physiological process that is typically uncomplicated. However, up to one-third of women globally will be affected by abnormal uterine bleeding (AUB) at some point in their reproductive years. Poor menstrual health has a negative impact on a person's physical, mental, social, emotional and financial well-being. On a global scale, iron deficiency and iron deficiency anaemia are closely linked with AUB and are often under-reported and under-recognised. (Varsha et all, 2022).[1]

Abnormal uterine bleeding (AUB) in patients of reproductive age is a bleeding pattern that is not consistent with normal menstrual cycle parameters (frequency, regularity, duration, and volume). The PALM-COEIN system classifies causes of AUB as structural (polyp, adenomyosis, leiomyoma or malignancy or hyperplasia) or non-structural (coagulopathy, ovulatory dysfunction, endometrial, iatrogenic, not yet classified) (pinkerton et al, 2023).[2] Evaluation is with menstrual history, pelvic examination, hormone blood tests, and usually transvaginal ultrasonography. Treatment depends on the cause but may include nonhormonal or hormonal medications or a procedure (e.g. hysteroscopy, myomectomy, hysterectomy) (pinkerton et al, 2023).[2]

Menorrhagia (also known as heavy menstrual bleeding) limits normal activities, affects the quality of life, and causes anaemia in two-thirds of women with objective menorrhagia (loss of 80 mL blood per cycle) (K et all, 2015).[3] Prostaglandin disorders may be associated with idiopathic menorrhagia and with heavy bleeding due to fibroids, adenomyosis, or use of intrauterine devices (IUDs), (K et all, 2015).[3]

Dysmenorrhoea is a Greek term for "painful monthly bleeding." (Vlachou E et al, 2019)[IV] Dysmenorrhoea can be classified as primary or secondary. Primary dysmenorrhoea is recurrent lower abdominal pain that happens during the menstrual cycle and is not associated with other diseases or underlying pathology (Burnett M et al, 2017).[5] It is a diagnosis of exclusion. In contrast, secondary dysmenorrhoea is associated with suspected or clinically identifiable pathology (L et all, 2005).[6] Dysmenorrhoea is a common complaint among menstruating patients during their reproductive years. Dysmenorrhoea may be associated with significant negative emotional, psychological, and functional health impacts. (Nagy et al, Carlson et al, & Khan et al., 2024).[7]

Lacunae

To the best of our knowledge, we scanned through 2024 journals from Medline and Google Scholar.

The data presents an analysis of north India and most of the studies have categorised the clinical picture according to age and not according to pathological entity.

Hypothesis

So, we hypothesised that the treatment of all such cases will depend on the histological picture that is secretory or proliferative. Hence, it perhaps will be more relevant to analyse the data vis-à-vis morphological entity (proliferative and secretory).

Material And Methods

This is a hospital-based cross-sectional study which was performed on 38 cases (29 cases in the proliferative phase and 9 in secretory) received in the Department of Pathology in 2024. The study we conducted is prospective, analytical, and observational.

Inclusion Criteria

All endometrial curettings and hysterectomy specimens were included in the study. Patients with isolated endometrial causes of abnormal uterine bleeding were included in the study.

Exclusion Criteria

Specimens received as products of conception, and inadequate samples consisting of blood clots and mucous were excluded from the study. Haemostatic disorders were excluded.

Tissue sections were cut and stained with haematoxylin and eosin stain (H&E).

Demographic data like the age of the patient and menstrual history were recorded. All the cases were reviewed and the collected data was entered in an Excel sheet. The chi-square test was used to analyse the cases and find the significance of the differences.

Results

A total of 38 cases were analysed, of which, 29 were in the proliferative phase while 9 were in secretory.

Elaborate clinicals

The research started with the age classification, making 2 groups in which the 1st group represented ages between 25 and 45 years and group 2 included age group above 45 years. The agewise distribution is shown in Table 1.

It was observed that a higher percentage of patients with AUB were in the proliferative phase (15 cases, 36.84%) compared to the secretory phase (5 cases, 13.16%). However, these differences were not statistically significant (Table 2).

Around 39.37% (15 cases) in proliferative and 13.16% (5 cases) in secretory showed no signs of AUB.

Out of the total cases, 10.53% cases in proliferative and 7.89% cases in secretory presented with menorrhagia. Around 65.79% of cases in proliferative and 15.79% in

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secretory of the total showed no signs of menorrhagia. Patients experiencing menorrhagia were more common in the proliferative phase than in the secretory phase (Table 3).

In our findings, pain was reported in 2.63% of patients in the proliferative phase, while no cases of pain were observed in the secretory phase (Table 4).

Table 1.Age and Type of Endometrium

AGE	Proliferative endometrium (n,%)	Secretory endometrium (n,%)	Total number of cases	p value
Group 1 (25-45 years)	10	6	16	0.0476
	26.32%	15.79%	42.11%	
Group 2-(45 years above)	19	3	22	
	50%	7.89%	57.89%	
Total	29	9	38	
	76.32%	23.68%	100%	

Table 2.AUB and its Relation with Type of Endometrium

AUB				
Type of Endometrium	Proliferative	Secretory	Total	p value
No	15	5	20	0.8406
	39.47%	13.16%	52.63%	
Yes	14	4	18	
	36.84%	10.53%	47.37%	
Total	29	9	38	
	76.32%	23.68%	100%	

Table 3.Menorrhagia and Its Relation with Type of Endometrium

Menorrhagia				
Type of Endometrium	Proliferative	Secretory	Total	p value
No	25	6	31	0.1865
	65.79%	15.79%	81.58%	
Yes	4	3	7	
	10.53%	7.89%	18.42%	
Total	29	9	38	
	76.32%	23.68%	100%	

Table 4.Pain and Its Relation with Type of Endometrium

Pain				
Type of Endometrium	Proliferative	Secretory	Total	p value
No	28	9	37	0.5724
	73.68%	23.68%	97.37%	
Yes	1	0	1	
	2.63%	0%	2.63%	
Total	29	9	38	
	76.32%	23.68%	100%	

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Discussion

The research was compared with a similar study (Sharma et al, 2022)[8] and it was found that of the total 334 cases, 47 (14%) presented with dysmenorrhoea in the age group of 40 to 50 years, while none of the 84 cases over 50 years of age presented with dysmenorrhoea.

In our analysis of specific clinical manifestations, we observed that 18.42% of patients exhibited menorrhagia, with 10.53% occurring during the proliferative phase and 7.89% during the secretory phase. A similar previous study by Sharma et al.[8] reported that out of 334 total cases, 130 patients (38.92%) presented with menorrhagia, specifically within the age range of 40 to 50 years. Notably, no cases of menorrhagia were identified in patients over 50 years of age.

In comparing these findings (Sharma et al, 2022)[8] with bleeding patterns, our research found that 5.26% of cases exhibited bleeding during the proliferative phase, while no instances of bleeding were recorded during the secretory phase. Additionally, out of the 84 cases, 84 patients experienced post-menopausal bleeding, all of whom were over 50 years of age. This represented a 100% incidence of bleeding in this age group but in 23 cases, 6.89% of cases in the age group of 40–50 years presented with bleeding, while there was no sign of bleeding in the age group of less than 40 years of age.

Upon further examination of abnormal uterine bleeding (AUB) cases, we discovered that out of a total of 20 cases (52.63%), 15 occurred during the proliferative phase, while 5 occurred during the secretory phase (13.16%). Interestingly, none of the patients in the secretory phase presented with AUB, whereas 18 cases in the proliferative phase and 4 cases in the secretory phase did exhibit AUB.

On comparing 29 cases of total 151 cases 19.20% in age group less than 40, 52 cases15.57% patient presented with in age group 40–50 presented with AUB, while no AUB was observed in the age group greater than 50 years. (Sharma et al, 2022).[8]

Reasons

According to a previous study (Sharma et al, 2022),[8] among the different types of menstrual disturbances, menorrhagia was the most prominent (33.045) followed by postmenopausal bleeding (18.81%), and metrorrhagia, (14.24%), while in other studies, menorrhagia was predominantly confined to perimenopausal age. In the present study, no marked difference was observed in the reproductive and premenopausal age groups. Jairajpuri et al. (Sharma et al, 2022),[8] also reported menorrhagia as the most common presenting complaint accounting for 41% of patients with most of them in the 41–50 years age group gradually increasing from the 21–30 years age group. Moghal (Sharma et al, 2022),[8] also reported an incidence of 41%. Other studies have also found menorrhagia as the most common complaint with varying prevalence between 25.9% and 50.25%. (Sharma et al, 2022),[8] Dysmenorrhoea is the most common gynaecological condition worldwide affecting up to 70% of young women. (L et al., 2023).[9]

The reason for the increased incidence of abnormal uterine bleeding in the premenopausal age group (41–50 years) may be attributed to the fact that these patients are in their climacteric period. As women approach menopause, cycles shorten and often become intermittently anovulatory due to a decline in the number of ovarian follicles and the oestradiol level (Sharma et al, 2022).[8] Another reason may be that AUB without structural pathology is more common in the reproductive age group while the causes of bleeding in perimenopausal and postmenopausal women are hormonal or associated with local pathology including malignancy, benign tumours and infections. (Sharma et al, 2022).[8]

Histopathological examination of endometrium remains the gold standard in diagnosing these cases and excluding the possibility of precancerous lesions in advancing age groups. Early diagnosis and treatment in these cases prevents progression to cancer (Sharma et al, 2022).[8]

Conclusion

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Conflict of Interest: None

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