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Clinico-Pathological Spectrum of Endometrium in Abnormal Uterine Bleeding

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ABSTRACT

Aim: To study the prevalence of various histomorphological spectrum of endometrium in cases of abnormal uterine bleeding (AUB).

Background: Endometrium being a dynamic, hormonally sensitive and active organ undergoes structural and functional changes throughout the lifetime of females. Due to such dynamic nature of endometrium, it is prone to spectra of functional derangements. Abnormal Uterine Bleeding (AUB) and Dysfunctional Uterine Bleeding (DUB) are most commonly reported derangements in uterine function/endometrium with significant morbidity and mortality associated with them. Endometrial Biopsy is a gold standard diagnostic modality for diagnosis of AUB and DUB.

Methods: A Cross-sectional study was conducted over a period of 2 years in patients from age groups 18-75 years at Tertiary care hospital in a tribal area of Northern Maharashtra. Samples collected by either endometrial biopsy or endometrial curettage, from 176 patients were studied and reviewed systematically.

Results: The results of this study show most common age group of abnormal uterine bleeding was 41-50 years (perimenopausal) i.e. 61.01%. Most common histomorphological pattern observed was proliferative phase 47.72% of endometrium followed by secretory phase 9.09%. Amongst all the cases most common group of symptoms reported were menorrhagia, polymenorrhagia and abdominal pain. Disordered proliferative endometrium were reported in 10 cases i.e. 5.70%.

Conclusions: Abnormal uterine bleeding (AUB) poses a significant challenge for gynecologists and pathologists. Study of histomorphological spectrum of endometrium along with further collaborative research related to cases of AUB and DUB can provide an essential data pertaining to conditions such as premalignant changes, hormonal imbalance, physiological changes, pathological lesions, etc. which can significantly guide gynecologists, clinicians and pathologists to establish a definitive diagnosis and plan an early, effective and appropriate intervention strategy accordingly.

Keywords: Abnormal Uterine Bleeding(AUB), Dysfunctional Uterine Bleeding(DUB), Endometrial Biopsy.

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INTRODUCTION

The endometrium is a hormonally sensitive tissue, which undergoes rhythmically undergoes changes in the active reproductive life. Abnormal uterine bleeding (AUB) is one of the commonest complaints leading to endometrial sampling by curettage. It affects 10-30% of reproductive-aged women and upto 50% of premenopausal women. (1)

AUB is defined as a bleeding pattern that differs in frequency, duration and amount from a normally observed pattern during menstrual cycle or after menopause. (2) Causes include functional causes like normal cyclical endometrium, abnormal physiological changes like (atrophic endometrium, disordered proliferative) and organic lesions like hyperplasia, polyp, carcinomas and pregnancy associated complications.

Dysfunctional uterine bleeding (DUB) is defined as a type of AUB where no underlying cause can be defined. (3) It can be diagnosed after exclusion of structural, iatrogenic, medications and systemic disorders by various diagnostic techniques. (4)

Histopathological examination of endometrial biopsies is gold standard diagnostic tool in evaluation of AUB and a specific diagnosis helps to plan the therapy for successful, resourceful management of AUB. (5)
Other indications include to determine response of endometrium to hormonal therapy, cancer screening, follow-up previously diagnosed endometrial hyperplasia with atypia or without atypia, detection of precancerous lesion, evaluation of infertility. (6) Patients were classified into reproductive age group (18- 40yrs), perimenopausal (41yrs-50yrs) and postmenopausal (≥51yrs) (7)

AIM

To study the prevalence of various histomorphology in cases of abnormal uterine bleeding (AUB).

OBJECTIVES

1. To evaluate the prevalence of simple/complex hyperplasia with and without atypia in AUB cases.
2. To categorize the endometrial causes according to their age group.
3. To analyze histopathology spectrum of endometrium for diagnosing various organic & functional causes of AUB.

MATERIALS AND METHODS

A retrospective cross-sectional study, conducted on the patient from age group of 18-75 years diagnosed with AUB undergoing endometrial biopsy over a duration of 2 years (1 STJAN 2021 to 31STDEC 2023) in a Tertiary Care Hospital of North Maharashtra. Details of clinical history, menstrual histroy including painful bleeding, heavy menstrual bleeding, periodicity & regularity of cycle were obtained from the case records. The calculated sample size is 132.3 ≈133 sample.

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Statistical Analysis Plan-Demographic data was analysed by using Descriptive Statistics. Prevalence rate of AUB proportion was calculated with 92% confidence Interval. This study included 176 cases, taking any losses into consideration.

The study included collection of data from Department of pathology, thus the waiver of consent was acquired from Institutional Ethics Committee of SMBT IMS&RC, Nashik.
Endometrial samples were obtained from dilatation and curettage or endometrial biopsy procedures. Specimens were received and processed according to the routine histopathological tissue processing. Detailed microscopic examination was done in each case.

INCLUSION CRITERIA:
Patients with complaints of heavy menstrual blood flow, menorrhagia, abdominal pain and polymenorrhagia were included for study. Endometrial samples (Biopsy or Dilation & Curettage) obtained from those patients were studied.

EXCLUSION CRITERIA:
Patients presenting with complaints of menorrhagia and pain in abdomen due to cervical or vaginal pathology were excluded from the study. Scant endometrial tissue with predominantly blood clot, autolyzed samples and tissue with suboptimal fixation were considered inadequate.

RESULTS
The results of this study show most common age group of abnormal uterine bleeding was 41-50 years (perimenopausal) i.e. 61.36%, and most common histomorphology is proliferative phase of endometrium (84 cases out of 176) 47.72%, secretory phase in 16/176 (9.09%). The commonest clinical symptoms were menorrhagia, polymenorrhea and abdominal pain (79 cases out of 176) i.e. 44.88%. Endometrial carcinoma was found in 6 cases out of 176 patients i.e. 3.40%, similarly complex hyperplasia with atypia (1 case out of 176 cases) i.e. 0.57% and complex hyperplasia without atypia (1 case out of 177 cases) i.e. 0.57%. A total of 10 cases identified as disordered proliferative endometrium, and categorized as (7/108 cases)70% in perimenopausal age group and (3/30 cases)30% postmenopausal age group.

DISCUSSION
The histomorphological spectrum of endometrium associated with AUB is broad, emphasizing the pivotal role of pathologists in early detection of pre-malignant changes, such as endometrial hyperplasia with atypia, endometrial polyps with atypia, and endometrial carcinoma. This enables the initiation of clinical management at an early disease stage.

This study was focused to determine various histomorphological patterns of endometrium in cases of abnormal uterine bleeding which were commonly reported in OBGY OPD. The study recorded the presence of proliferative phase in maximum cases i.e.47.72% (84 out of 177), second most common finding in about 16.47% cases was simple endometrial hyperplasia without atypia which was found common in perimenopausal age group, secretory phase was found in 9.09% cases of AUB. These findings align with comparable studies by Prathipaa R et al, reporting 50.39% proliferative phase and 12.89% secretory phase, as well as Dwivedi SS et al, indicating 46.25% proliferative phase and 53.85% secretory phase. [8-9]

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Hormonal imbalance was yet another significant factor in AUB reported in 8.52% cases. Disordered proliferative endometrium was finding common in perimenopausal women of age (41-50 years) 70% (7/176 cases) and 30% (3/176) in postmenopausal age group out of all cases of AUB. Endometrial carcinoma was significant in postmenopausal women with prevalence of 3.40% whereas endometrial polyp was common in reproductive age group with prevalence of 2.84%.

A parallel study by Germin Prabha et al in the postmenopausal age group demonstrated a higher incidence of simple hyperplasia at 30%, compared to our study's 16.38%. Nevertheless, the incidence of endometrial carcinoma in our study i.e.3.40% harmoniously corresponds with 3.7%. (10)

Sadikchha Chapagain et al in Kathmandu reported proliferative phase amongst 37.7% and secretory phase amongst 31.2% as compared to 47.72% and 9.09% found in our study. They also reported 2.60% cases of endometrial carcinoma which was less as compared to 3.40% which was observed in our study. (11)

Khan et al in his study suggest that in postmenopausal age group they found 9 malignant tumours, majority of cases were of endometrial carcinoma 7 (77.78%) cases, similar to our study 5 cases (83%) of endometrial carcinoma in postmenopausal age group. (12)

CONCLUSION

Abnormal uterine bleeding (AUB) poses a significant challenge in gynecology, and the histomorphological spectrum of endometrial changes associated with AUB requires careful consideration. The role of pathologists in diagnosing AUB is crucial for the early detection of pre-malignant and malignant conditions, facilitating timely clinical management.

The comprehensive examination of histomorphological patterns in AUB underscores the importance of pathologists in guiding clinical decisions and initiating early interventions for patients with pre-malignant or malignant changes in the endometrium. Further collaborative research and data-sharing efforts will contribute to a deeper understanding of AUB and enhance the overall management of this common clinical problem in gynecology.

KEYWORDS

AUB**:** Abnormal uterine bleeding, DUB: Dysfunctional uterine bleeding, Histopathological examination

ABBRIVATION

AUB**:** Abnormal uterine bleeding
DUB: Dysfunctional uterine bleeding,
H& E stain: Hematoxylin & eosin stain

DATA ANALYSIS

TABLE.1 Distribution according to Age Group

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Sr. No	Age Group	Frequency	Percent
1	18-40	38	21.59%
2	41-50	108	61.36%
3	>51	30	17.04%
5	**TOTAL**	**176**	**100.00%**

TABLE.2 Distribution of cases according to clinical symptoms

SR. no	Clinical symptoms	Frequency	Percent
1	Abdominal pain	5	2.84%
2	Menorrhagia	12	6.81%
3	Menorrhagia , Polymenorrhea and Abdominal pain	79	44.88%
4	Menorrhagia and Abdominal pain	73	41.47%
5	Polymenorrhea	2	1.13%
6	Polymenorrhea and Abdominal pain	5	2.84%
7	**TOTAL**	**176**	**100.00%**

TABLE.3 Histomorphological spectrum of AUB cases

Diagnosis	Frequency	Percent
Complex Endometrial Hyperplasia with atypia	1	0.57%
Complex Endometrial Hyperplasia without atypia	1	0.57%
Cystic atrophy	1	0.57%
Disordered Proliferative endometrium	10	5.70%
Endometrial Polyp	5	2.84%
Endometrial polyp with simple hyperplasia without atypia	1	0.57%
Endometrioid adenocarcinoma	6	3.40%
Hormonal imbalance	15	8.52%

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Products of conception	3	1.70%
Progesterone induced effect	4	2.27%
Proliferative Phase	84	47.72%
Secretory phase	16	9.09%
Simple endometrial hyperplasia without atypia	29	16.47%
TOTAL	**176**	**100.00%**

TABLE.3 Histomorphological spectrum of AUB cases

Diagnosis	**Age Groups**			**Total**
	Reproductive Age (18-40	**Perimenopausal 41-50**	**Postmenopausal >50**	
Complex Endometrial Hyperplasia with atypia	0(0%)	0(0%)	1(100%)	1
Complex Endometrial Hyperplasia without atypia	0(0%)	0(0%)	1(100%)	1
Cystic atrophy	0(0%)	0(0%)	1(100%)	1
Disordered Proliferative endometrium	0(0%)	7(70%)	3(30%)	10
Endometrial Polyp	4(80%)	0(0%)	1(20%)	5
Endometrial polyp with simple hyperplasia without atypia	0(0%)	1(100%)	0(0%)	1
Endometrioid adenocarcinoma	0(0%)	1(17%)	5(83%)	6
Hormonal imbalance	4(27%)	10(67%)	1(7%)	15
Products of conception	3(100%)	0(0%)	0(0%)	3
Progesterone induced effect	1(25%)	3(75%)	0(0%)	4
Proliferative Phase	12(14%)	59(70%)	13(15%)	84
Secretory phase	8(50%)	8(50%)	0(0%)	16
Simple endometrial hyperplasia without atypia	6(21%)	19(66%)	4(14%)	29

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TOTAL	**38**	**108**	**30**	**176**

IMAGES

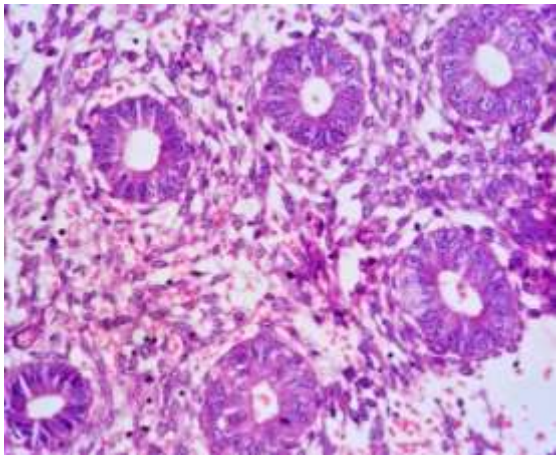

Fig 1. H& E stain, High power view, showing Proliferative phase in endometrium. Endometrial glands are round to oval with scant stroma.

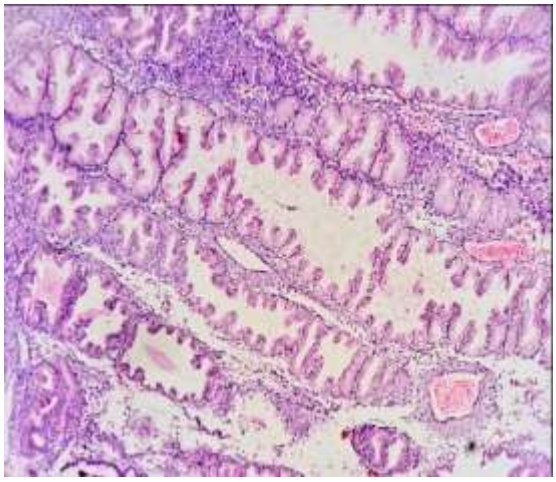

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Fig 2. H& E stain, low power view, showing Secretory phase in endometrium. Dilated and tortuous endometrial glands.

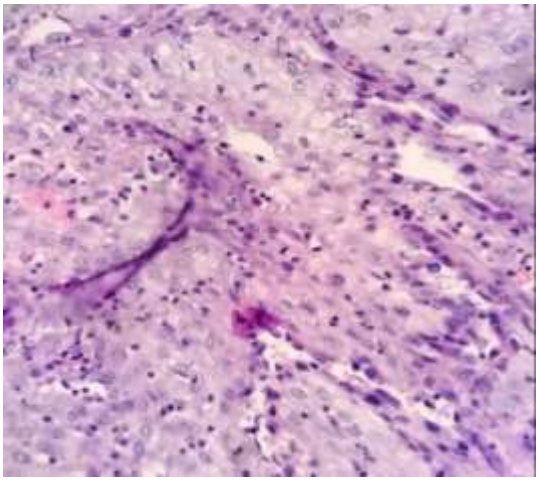

Fig 3. H& E stain, High power view, showing decidual change in endometrium.

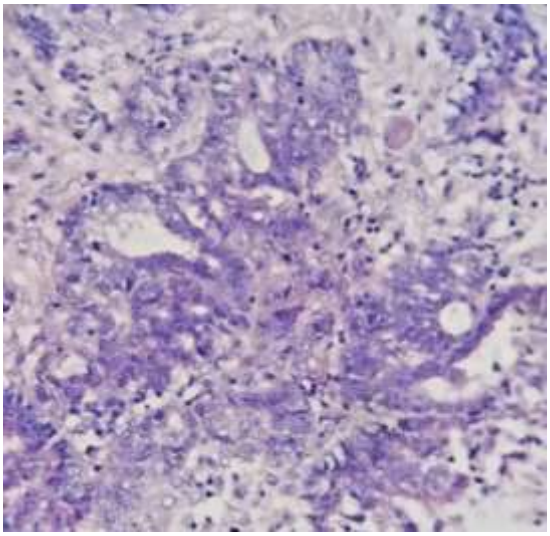

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Fig 4. H& E stain, High power view, showing endometrioid adenocarcinoma, with inflammatory infiltrate in surrounding stroma.

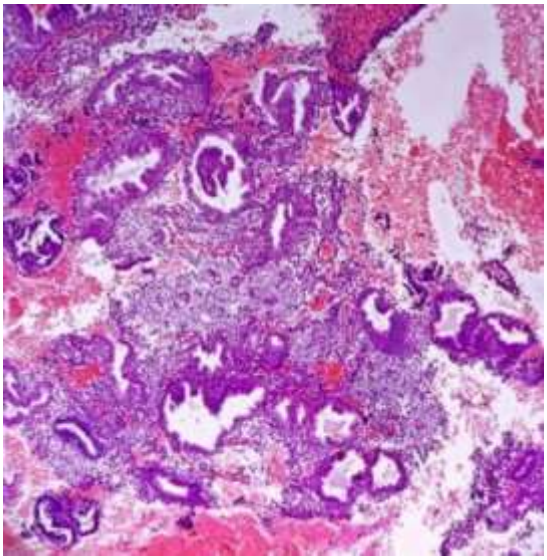

Fig 5. H& E stain, Low power view, showing Disordered proliferative endometrium.

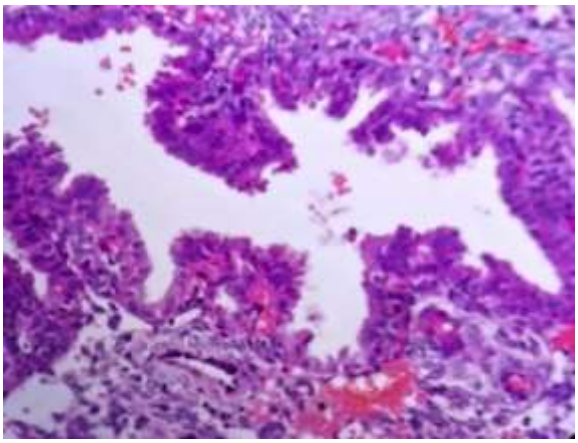

Fig 6. H& E stain, High power view, showing Disordered proliferative endometrium.

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