Section: Pathology

Original Research Article

A PROSPECTIVE STUDY ON EVALUATION OF ENDOMETRIUM IN ABNORMAL UTERINE BLEEDING

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Abstract

Background: Abnormal uterine bleeding is a very common gynecological problem and one of the most common debilitating menstrual problems affecting all age group of women. AUB negatively affect patient quality of life and is associated with financial loss, decreased productivity and poor health. The cause of AUB is age related pathology. This study was done to evaluate the histopathology of endometrium for identifying endometrial causes of AUB & their incidence in different age group. **Materials and Methods:** This study was done in the department of Pathology, BRD medical college, Gorakhpur over a period of two year. Total 212 samples were enrolled and analyzed in the study, 90 endometrial specimens obtained for examination were from the dilation and curettage and rest 122 samples were obtained from hysterectomy. **Result:** Histopathology examination of endometrial samples of AUB shows variable changes ranging from normal cyclic endometrium to malignancy. The various pathological patterns observed in endometrial samples are proliferative, secretory, menstrual, atrophic, disordered proliferative endometrium, endometritis, polyps, hyperplasia with or without atypia and endometrial malignancies. **Conclusion:** Histological assessment of endometrial samples remain the gold standard for clinical diagnosis of endometrial pathology in all women presenting with AUB, specially in women over 40years for the early detection of precancerous & cancerous endometrial lesion. Thus, endometrial sample is a valuable tool to indentify benign and malignant pathology in abnormal uterine bleeding.

INTRODUCTION

Menstruation is a physiological process and is a part of women's life. Typically menstruation (that is endometrial shedding) is a phenomenon of repeated tissue injury and repair, is a fine balance between proliferation, decidualization, inflammation, hypoxia, apoptosis, homeostasis, vasoconstriction and finally repair and regeneration.[1]

Abnormal Uterine Bleeding (AUB) may be defined as any variation from the normal menstrual cycle, & include changes in regularity and frequency of menses, in duration of flow, or in the amount of blood loss.[2] It can present as menorrhagia, metrorrahagia, polymenorrhoea, polymenorrhagia, oligomenorrhoea, intermenstrual or postcoital bleeding. AUB is a symptom and not a disease.[3] AUB is a very common gynecological problem & one of the most common debilitating menstrual problems affecting all age group of women. It is estimated to affect up to 1/3rd of reproductive aged women globally.[4] AUB affect around 10-30% of reproductive aged females and up to 50% of perimenopausal women.[5]

AUB is subdivided either acute or chronic. Chronic AUB is "bleeding from uterine corpus that is abnormal that is abnormal in volume, regularity and or timing & has been present for the majority of the past 6 months. Acute AUB is an episode of heavy bleeding require immediate intervention to prevent further blood loss.[5]

MATERIALS AND METHODS

This prospective study was conducted in the department of Pathology at BRD medical college, Gorakhpur for a period of two years. This study included 212 endometrial samples with a clinical diagnosis of AUB. Endometrial samples were obtained from dilatation and curettage or hysterectomy. Inclusion and exclusion criteria followed in the study were:

Inclusion Criteria

- Abnormal uterine bleeding of any type

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- Patient's belonging to any age group

Exclusion Criteria

- Diseases like hypothyroidism, molar pregnancy & coagulation defect.
- Pregnancy complication like abortion, cervical, vaginal pathology
- Haemostatic disorder
- Endocrine disorder (disorder of thyroid, adrenal diabetes mellitus)

Detailed history with previous & current menstrual history, contraception history, medical/ surgical history was followed by general physical, systemic and gynecological examination. Routine investigation like CBC, bleeding time, clotting time, Rh factor, blood sugar random, urine complete examination, thyroid & renal function test , LFT and hormonal assay Preparation of pathology slides were done by fixing the endometrial tissue in 10% formalin & processed in automatic tissue processor. Paraffin embedded tissue were sectioned at 3-4µm & then stained with haematoxylin and eosin stain. Histopathological evaluation was done two pathologists to reduce observer bias.

Endometrial sampling & subsequent histopathological assessment by light microscopy study remains the gold standard for the diagnosis of cause of AUB.[6] The endometrial histology shows different histological patterns ranging from normal physiological cause to endometrial hyperplasia & malignancies. The pathology report contributes significantly to the management of AUB

Statistical Analysis

The statistical analysis was performed using SPSS for windows version 22.0 software (Mac, and Linux). The findings were present in number and percentage analyzed by frequency, percent, and Chi-square test. Chi-square test was used to find the association among variables. The critical value of P indicating the probability of significant difference was taken as <0.05 for comparison.

RESULTS

As per [Table 1] a total 212 endometrium specimens with clinical diagnosis of abnormal uterine bleeding was submitted and studied for histopathological examination.

Table 1: Age group distribution in patients presenting with AUB

S.No	Age Group(Years)	No. of cases	Percentage (%)
1	18-40	70	30.01
2	41-50	90	42.45
3	>50	52	25.52
	Total	212	100%

The patient's age are ranged from 18 to >50 years. The mean age was 34.6 years. The patients were categorized into 3 age groups:

- Reproductive (19-39 years)
- Perimenopausal (40-49 years)
- Postmenopausal (>50 years)

The most common age group affected with AUB was 40-49 years (n= 90, 42.45%), which was followed by 19-39 (n=70, 33.01%). Least common age group affected with AUB is >50 years or above (n= 52, 24.52%).

Table 2: Different pattern of bleeding in patients presenting with AUB

S.No	Pattern of bleeding	No. of cases	Percentage
1	Menorrhagia	82	38.68
2	Metrorrhagia	26	12.26
3	Polymenorrhoea	25	11.79
4	Polymenorrhagia	19	8.96
5	Continous Bleeding	5	2.35
6	Postmenopausal bleeding	55	25.94
	Total	212	100

As per [Table 2] the most common bleeding pattern was Menorrhagia (n=82, 38.68%), followed by Metrorrhagia (n=26, 12.26%), polymenorrhoea (n=25, 11.79%), polymenorrhagia (n=19, 8.96%) and continuous bleeding (n=5, 2.335%).

Table 3: Distribution of cases according to age and types of abnormal uterine bleeding

S. No	Age group (years)	Menorrhagia	Metrorrhagia	Polymenorrhoea	Polymenorrhagia	Continous bleeding	Postmenopausal bleeding	Total
1	18-40	39 (55.71%	8 (11.42%)	12 (17.14%)	6 (8.57%)	5 (7.14)	0	70
2	41-50	36 (40%)	15 (16.67)	10 (11.12%)	13 (14.15%)	0	16 (17.78)	90
3	>50	7 (1.52%)	3 (5.45%)	3 (5.45%)	0	0	39	55
	Total	82 (38.68)%	24 (11.32%)	27 (12.74%)	19 (8.96%)	8 (3.77%)	52(24.53%)	212

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In [Table 3] menorrhagia was the dominant bleeding pattern with the incidence of 55.71%,40% and 1.52% in the age group of 19-39 years, 40-49 years) and >50 years or above respectively. Other bleeding pattern recorded according to the age wise.

Table 4: Various histopathological patterns according to the age group

S.No.	Histological Pattern	Premenopausal (18-40 years)	Perimenopausal (40-50 years)	Postmenopausal (>50 years)	No. of cases	%
1	Proliferative	24 (34.28)	27 (30)	18 (34.61)	69	32.54
2	Secretory	13 (18.57)	18 (20)	0	31	14.62
3	Menstrual phase	1 (1.42)	3 (3.34)	0	4	1.88
4	Disordered prolifertive Endometrium	2 (2.85)	8 (8.89)	4(7.69)	14	6.60
5	Simlple hyperplasia (SH)	16 (22.85)	9 (10)	1(1.92)	26	12.26
6	Complex yperplasia (CH)	9 (12.85)	7 (7.8)	0	16	7.54
7	Atypical hyperplasia	0	3(4.05)	1(2.04)	5	0.94
8	Endometritis	8(8.98)	3(4.05)	6(12.24)	17	8.01
9	Endometrial Polyp	6(6.71)	4(5.40)	0	10	4.71
10	Atrophic Endometrium	1(1.12)	4 (5.40)	15(30.61)	20	9.43
11	Endometial Carcinoma	0	0	2(4.08)	2	0.94
12	Squamous cell Carcinoma infiltrating endometrium	0	0	1(2.04)	1	0.47
	Total	89	74	49	212	100

As per [Table 4] histopathological examination of 212 endometrial specimens revealed variable pattern ranging from physiological to pathological lesion of endometrium. Major histological pattern observed are as follows; Proliferative (n=69,32.54%), secretory (n=31,14.62%), menstrual phase (n=4,1.89%), simple hyperplasia (n=26,12.26%), complex hyperplasia(n=16,7.54%), atypical hyperplasia (n=2,0.94%), endometrial carcinoma (n=2,0.94%), endometritis (n=17,8.01%) & squamous carcinoma infiltrating endometrium (n=1,0.47%).

Table 5: Frequency of different types of endometrial hyperplasia

S.No	Types	No. of cases	Percentage (%)
1	Simple hyperplasia	26	59.09
2	Complex hyperplasia	16	36.36
3	Atypical hyperplasia	2	4.55
	Total	44	100

As per [Table 5] in the reproductive age group, the commonest histological diagnosis was proliferative pattern (n=24,34.28%) followed by simple hyperplasia (n=16,22.85%), secretory pattern (n=13,18.57%), complex hyperplasia (n=9,12.85) and endometritis (n=4,5.71%).In the perimenopausal age group, the commonest histological diagnosis was proliferative pattern (n=27, 30%) followed by secretory pattern (n=18,20%), simple hyperplasia (n=9,10%), endometritis (n=8,8.89%) and disordered proliferative pattern (n=8,8.89%). In the postmenopausal age group, major histopathological diagnosis were proliferative pattern (n=18, 34.61%) followed by atrophic endometrium (n=14,26.92%), endometrial polyp (n=6,11.53%), endometritis (n=5,9.61%) and disordered proliferative pattern (n=4,7.69%).

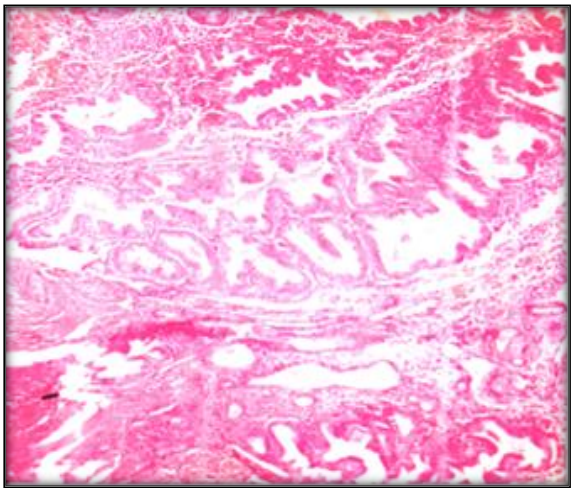

Figure 1: Photomicrograph of Complex Hyperplasia: increased number of gland in relation to stroma; glands are showing complex building (H&Ex100)

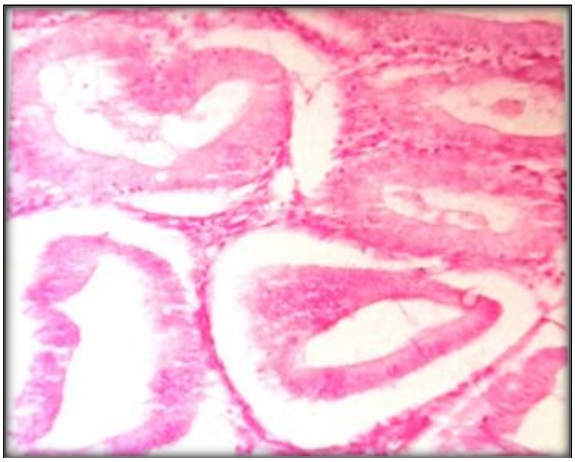

Figure 2: Photomicrograph of Atypical Hyperplasia: overcrowding of the endometrial glands with back to back arrangement, mild degree of atypia is seen (H&Ex400)

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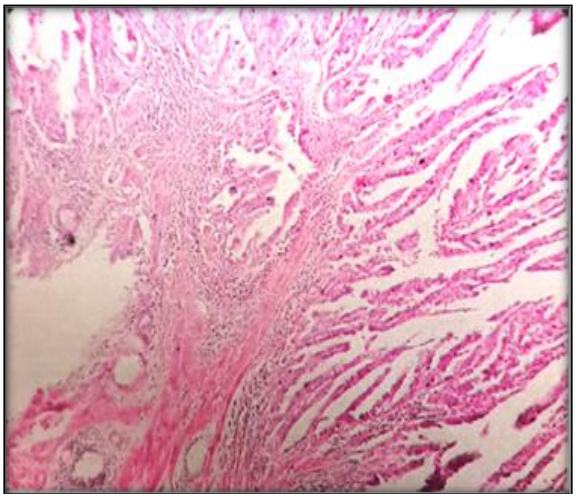

Figure 3: Photomicrograph of endometrial carcinoma: extensive papillary pattern (H&Ex1000)

DISCUSSION

Abnormal uterine bleeding is considered one of the most common and challenging problem presenting gynecologists. AUB can be caused by wide variety of disorders. It might be part of normal physiological state such as adolescence, perimenopausal, lactation& pregnancy or it may be caused by a pathological process that is not directly linked to uterus such as hyper androgenic anovulation in patient with polycystic ovaries, hypothalamic dysfunction, hyperprolactinemia, hypothyroidism, pituitary diseases, premature ovarian failure and iatrogenic causes irradiation or chemotherapy.[7] The bleeding could be sign of an underlying localized condition including tumors, malignancy and infection.

The commonest presentation was menorrhagia (38.68%) which is similar to reporting done by Jaideep M et al (38.67%), Rashmi V (40%) and Pilli GS et al (46%) as the commonest mode of presentation.[8-10] The highest incidence of AUB in our study was in the 40-49 age group (n=90, 42.45%), followed by 19-39 age group (n=70,30.01,%). This is also the commonest age group affected in many studies like Zeeba S Jai rajpuri et al.[11,12,13] The most common age group presenting with AUB in this study was 40-49 years. The reason for AUB at this perimenopausal age group may be due to anovulatory cycles consequent to decrease in ovarian follicles and estradiol level, thus which cannot keep the endometrium growing.

The most common pattern was normal cyclical endometrium; proliferatve (32.54%), secretory (14.62%) and menstrual phase (1.89%), total account for 47.16%. Similar findings of normal cyclical pattern are reported, 49.33%, 51%, 46.6% and 51.9% in similar studies.[14,15]

The incidence of 32.54% proliferative endometrium was in concordance favourably with that of 33% by Riaz S et al,[16] and 42% Patil SG et.[17]

Bleeding in proliferative phase may be due to anovulatory cycles, they tend to be more common around menarche and perimenopause / menopause.[18] Hyperplasia was second common pattern found in total 44 cases (20.75,%), in which simple hyperplasia (n=26,12.26%) was the most common, followed by complex hyperplasia (n=16,7.54%) and atypical hyperplasia constituted (n=1,0.94%) of all hyperplasia pathologies.

Identification of endometrial hyperplasia is important because they are thought to be precursors of endometrial carcinoma.[18] The variation could be attributed to socioeconomic status and occurrence of risk factors like obesity, diabetes, sedentary life style and early diagnosis. Complex hyperplasia with atypia is most likely to progress to endometroid endometrial carcinoma and it is associated with a probable co-existent endometrial carcinoma in approximately 30 to 40% of cases.[19,20]

In comparison to the adjacent normal endometrium, endometrial polyp exhibit increased expression of estrogen and bcl2 and decreased expression of progesterone. Cryptogenic studies indicate anomalies in chromosome 6,7 and 12.[21]

We reported total 20 cases of atrophic endometrium, of which 5 cases of atrophy endometium were noted in the age group of 41-50years, 14 cases were reported in postmenopausal age group and only 1 case seen in 18-40years age group. Incidence of Atrophic endometrium observed in our study was 20 (9.43 %).The exact cause is not known. It is postulated that as consequence of prolonged absence of any exogenous or endogenous estrogenic stimulation resulting thin atrophic endometrium susceptible to minor injury and may be responsible for post menopause bleeding even in the absence of identifiable lesion.[22] The incidence of endometritis in the present is 8.01. In the present study, 4 cases of endometritis were seen in the age group 18-39 years, 8 cases were reported in 40-50 years age women and 5 cases were noted in > 50 or above age women's.

Collectively Endometrial carcinoma and squamous cell carcinoma infiltrating endometrium (n=3,1.41%) were most prevalent in the postmenopause age group and their incidence in this study is 1.41.

CONCLUSION

AUB is one of the common complaints in women of all age group visiting Gynecology OPD. It is a simple, cost effective method that provide accurate diagnostic yield and play important role in the management of AUB. Histological examination of the biopsies and curetting revealed various pattern ranging from physiological to pathological lesion of endometrium. To conclude histopathological assessment of endometrial biopsy should be performed on all women over 40years with AUB to rule out endometrial cancer or premalignant lesion such as atypical hyperplasia. Thus, endometrial

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pathology report may contribute significantly to the management in AUB or facilitate the implementation of optimal treatment strategies so that better treatment modalities can be offered to the patients suffering from AUB.

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