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Original Research Article

Diagnostic value of endometrial samples in women with abnormal uterine bleeding at a teritiary care centre

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ABSTRACT

Background: Abnormal uterine bleeding (AUB) is a most common gynecological complaint associated with co morbidities that affects quality of life in women. The Aim of the study was to ananlyze the hisopathological patterns of endometrium in women with AUB and to determine the various histopatterns among different age groups of women presenting with AUB.

Materials and Methods: This is a prospective study conducted at Government medical college, Anantapuramu, from January 2021 to December 2022.Endometrial samples with clinical diagnosis of AUB, in whom Gestational causes were ruled out, were included in this study, Statistical data ananlysis was done using SSPS software.

Results: A total of 360 cases were analyzed. The prevalence of AUB most common in perimenopausal age group women. Mennorhagia (79.8%) was the common bleeding pattern. The bleeding pattern was significantly associated with age groups(p=0.00).The functional cause (64.2%) of AUB was more common than Organic cause (35.8%).The association of functional and organic causes with age group was not significant. The most common histological pattern was the normal cyclical pattern showing proliferative phase (54.1%). 94 cases showed hisopathological pattern of Hyperplasias that are more common among perimenopausal and postmenopausal age groups. Five cases of Endometrial carcinoma were seen among postmenopausal age group. Three cases were Stage IA, two cases were Stage IB. Obesity and hypertension were most common comorbid conditions seen in this study.

Conclusion: Endometrial biopsy should be considered during the workup of women with a clinical diagnosis of AUB to exclude organic pathology especially early detection of precursor lesion of malignancy among perimenopausal and post-menopausal age groups.

1. Introduction

Abnormal uterine bleeding (AUB) is the major gynaecological problem in women of different age groups with prevalence rate of 17.9% in India.[1] It is a term used to describe any type of bleeding that differs from within normal ranges for amount, frequency, duration or cyclicity.[1] It has varied presentations like heavy menstrual bleeding, irregular cycles,post coital bleeding and postmenopausal bleeding.[1,2]

AUB is due to several factors deranging homeostasis like hormonal imbalances, infections, structural lesions and malignancies. Based on these possible underlying etiologies, the International federation of gynaecology and obstetrics (FIGO) in 2011 devised a classification named PALM – COEIN for etiology of AUB. PALM stands for structural causes like polyps, adenomyosis, leiomyoma and malignancy. COEIN for nonstructural causes like

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coagulopathies, ovulatory dysfunction, endometrial causes, iatrogenic causes and not otherwise classified ones.[2,3] Diabetes, Hypertension, thyroid dysfunction are known risk factors associated with AUB in developing endometrial malignancy and its precursor conditions.[2,4]

Endometrial biopsy is used as a diagnostic tool in AUB patients. It is a safe and first line test done in women of > 45 years of age presenting with AUB. It is done in women of <45 years of age, with a history of unopposed estrogen exposure, failed medical management and persistent AUB as they are at greater risk for precursor lesions like hyperplasia and malignancy.[2]

The WHO 2014 classifies endometrial hyperplasia into 2 categories: Hyperplasia without atypia and Hyperplasia with atypia. Hyperplasia with atypia shares molecular genetic changes that are typical for endometrial carcinoma. Approximately 60 percent of such cases have coexisting endometrial carcinoma are at increased risk of malignancy.[1] Early evaluation in the perimenopausal and postmenopausal women is essential to confirm the exact nature of the lesion and to rule out malignancy, thereby improving the quality of life in these women. The present study was done to know the prevalence of medical comordities and to determine the histomorphological spectrum of endometrium in women presenting with AUB.

2. Materials and Methods

The present prospective study was done in the department of Pathology, Government medical college, Anantapur, Andhra Pradesh. The period of study was two years, from January 2021 to December 2022 with Institutional ethical committee approval. All the endometrial biopsies/curretages and hysterectomy specimens sent for Histopathological examination with history of AUB were included in the study. Women with AUB of gestational causes were excluded from this study. The relavant clinical documents were collected. Histological features of all the cases were studied using Haemotoxylin and Eosin stained sections. The various histomorphological patterns were studied and classified. Statistical analysis was done using SPSS software version.

3. Results

A total of 360 endometrial specimens with a clinical diagnosis of AUB were analysed by histopathological examination in the present study.

Based on the patients age, data was categorised in to 3 groups: Reproductive, Perimenopausal and Postmenopausal. Out of 360 cases, 210 cases (58.3%) were seen in Perimenopausal group followed by 118 cases (32.8%) in Reproductive age group and 32 cases (8.9%) in Postmenopausal age group (Table 1). Majority of the cases of AUB were seen among multiparous women (57.8%)(Table 1). Among 360 cases of AUB, 67.22% cases were of normal weight, 21.7% cases were over weight and 7.8% cases were obese (Table 1). Majority of the women with clinical presentation of AUB were associated with Hypertension (35.5%) followed by Diabetes (25.5%) and Thyroid dysfunction (15%) (Table 1).

Table 1: Demographic and clinical data distribution of cases

Parameters	Number of cases	Percentage (%)
Age		
Reproductive group (18-40)	210	58.3
Perimenopausal group (41-50)	118	32.8
Postmenopausal group (>50)	32	8.9
Parity		
Nulliparous	24	6.7
Primiparous	128	35.6
Multiparous	208	57.8
BMI		
19-24.9kg/m^2(normal weight)	242	67.22
25 – 29.9kg/m^2(overweight)	78	21.67
>30kg/m^2(obese)	28	7.8
No data	12	3.33
Medical comorbidity		
Hypertension	128	35.5
Diabetes	92	25.5
Thyroid dysfunction	54	15
Unknown	86	24

Menorrhagia was the most common bleeding pattern seen in 79.8% cases followed by Metrorragia and Postmenopausal bleeding pattern with 8.9% and 7.3% cases respectively. Menometrorrhagia pattern was the least common with 4.2% cases (Figure 1).

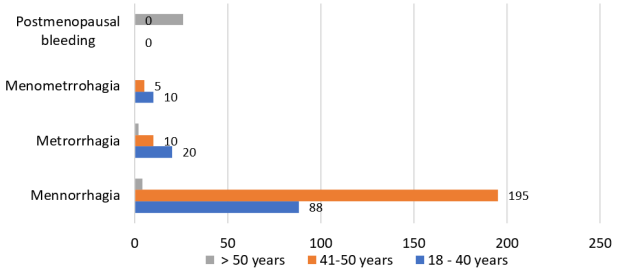

Figure 1: Graph showing distribution of bleeding pattern according to age group

The Age specific analysis was done. Menorhagia was the most common bleeding pattern seen among perimenopausal and reproductive age groups and was significantly associated (p = 0.00). Metrrohagia was the second common bleeding pattern seen among Reproductive and Perimenopausal age groups. Postmenopausal bleeding pattern was most commonly seen among Perimenopausal and postmenopausal age groups and was significantly

associated (p = 0.00).

Out of 360 cases of AUB, Proliferative Endometrium (34.7%) was the commonest histopathological pattern observed among all age groups. Hyperplasia without atypia (21.94%) was second most common pattern followed by Secretory phase (18.9%), Endometrial polyp (7.77%), Disordered proliferative endometrium (5.83%). Menstrual endometrium and Hyperplasia with atypia was observed in 15 cases each (4.2%). Endometrial carcinoma was observed in 5 cases (1.38%). Least common pattern observed was Atropic endometrium and Arias Stella Reaction (0.5% each respectively).

Endometrial polyp and Endometrial hyperplasia were seen among all age groups. Endometrial carcionoma was observed among perimenopausal and postmenopausal age groups.

Out of 360 cases of AUB, the functional cause (64.2%) of AUB was more common than organic cause (35.8%). In the reproductive and perimenopausal age groups functional cause of AUB was more common than organic cause. In postmenopausal age group both functional and organic causes were responsible for AUB. The functional and organic cause of AUB was not significantly associated with age group (p= 0.67 and p=0.99 respectively).

Among all age groups, the functional causes of AUB with histological patternsin descending order were proliferative endometrium (54.11%), secretory endometrium (29.44%), disordered proliferative endometrium (9.10%), menstrual endometrium (6.51%) and atrophic endometrium (0.86%)(Table 2).

Among organic causes of AUB, Hyperplasia without atypia (61.24%) was the most common histological pattern followed by endometrial polyp (21.71%), hyperplasia with atypia (11.62%), endometrial carcinoma (3.87%) and arias stella reaction (1.55%).

The most common histopathological pattern observed in Menorrhagia, Metrorragia, Menomettrohagia and Postmenopausal bleeding was Proliferative phase. Endometrial polyp and hyperplasia with atypia histopatterns presented with menorrhagia and postmenopausal bleeding in reproductive and postmenopausal age groups. Hyperplasia without atypia was most commonly presented with menorrhagia among reproductive age group. Endometrial carcinomas mostly presented with postmenopausal bleeding and menorrhagia among perimenopausal and postmenopausal women age group (Figure 2).

Out of 5 cases of endometrial carcinoma, 3 cases presented with histological grade II, one case each was seen with grade III and grade I. Two cases presented with less than half myometrial invasion and 2 cases presented with more than half myometrial invasion.one case did not show myometrial invasion. One case showed lymphovascular invasion among five cases. According to FIGO staging, three cases were in stage IA, two cases were in stage IB.

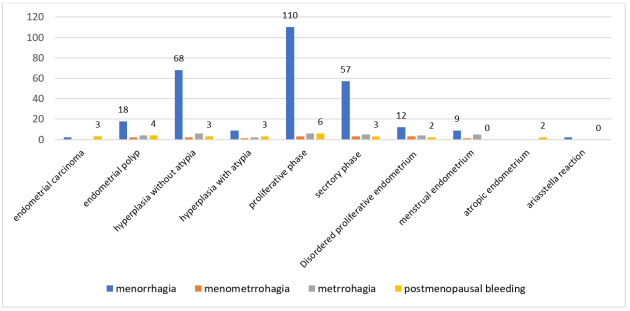

Figure 2: Graph showing correlation between bleeding patterns and histopathological findings

4. Discussion

A total of 360 cases of endometrial samples with a clinical diagnosis of AUB were analysed.In this study, AUB was commonly seen among perimenopausal age group(58.3%) which is in concordance with Rajani Vaidya et al.,[1] Vijayaraghavan et al.,[3] Jagadalekunda et al.[5] Sajitha et al,[6] Sharma et al,[7] Khan et al.[8]

Majority of the cases of AUB were of multiparous women (57.8%) which is a similar finding in other studies.[3,5–14] In the present study, high body mass index (BMI) was observed in women with hyperplasia and malignancy. Out of 94 cases of hyperplasia, 55 cases were overweight, 15 cases were obese. All 5 malignant cases were obese. Similar findings were obsereved by other studies.[3–9,15] Hypertension is the most common co morbid condition that is associated with AUB in the present study which is a similar finding in Rajini Vaidya et al.[1] study.

Menorrhagia (79.8%) was the most common bleeding pattern seen in perimenopausal and reproductive age group. Post menopausal bleeding was common among Perimenopausal and Postmenopausal age groups. Similar findings were observed in other studies.[3,5–13]

Functional causes (64.2%) of AUB are more common than organic causes (35.8%) in this study which is in concordance with study done by Sharma et al.,[7] Vijayaraghavan et al,[3] Dwivedi et al,[9] Prathipa et al,[10] J Bindhuja et al,[12] Neha Khanam et al.[15]

Normal cyclical endometrium patterns are commonly seen in the present studywhich is similar to other studies.[3–15]Proliferative phase (34.7%) was the most common followed by secretory phase (18.9%) among all age groups of women in the present study.Similar findings were observed by Vijayaraghavan et al,[3] Jagadale Kunda et al,[5] Sharma et al.[7] Disordered proliferative endometrium was seen in 5.83% of cases. Majority of the cases were in the age group of 18-40 years. Similar findings were observed by Vijayaraghavan et al,[3] Sharma et al.[7] Earliest stage detection of this pattern is useful to prevent spectrum of

Table 2: Age wise and pattern wise distribution of histopathological findings in AUB due to functional and organic causes

	Histopathological pattern	18 - 40 years	41 – 50 years	>50 years	Total (%)
	Proliferative phase endometrium	45 (58.9%)	72 (53.7%)	8 (53.3%)	125(54.11)
Functional Cause (64.2%)	Secretory endometrium	20 (24.4%)	44 (32.9%)	4 (26.7%)	68(29.44)
	Disordered proliferative endometrium	12 (14.6%)	8 (6%)	1 (6.7%)	21(9.10)
	Menstrual endometrium	5 (6.1%)	10 (7.5%)	-	15(6.51)
	Atrophic endometrium	-	-	2 (13.3%)	2(0.86)
	Total	82	134	15	231
	Arias stella reaction	2 (5.6%)	-	-	2(1.55)
	Endometrial polyp	8 (22.2%)	18 (23.7%)	2 (11.8%)	28(21.71)
Organic Cause (35.8%)	Hyperplasia without atypia	22 (61.1%)	51 (67.1%)	6 (35.3%)	79(61.24)
	Hyperplasia with atypia	4 (11.1%)	6 (7.9%)	5 (29.4%)	15(11.62)
	Endometrial carcinoma	-	1 (1.3%)	4 (23.5%)	5(3.87)
	Total	36	76	17	129

disease progression from proliferative pattern to hyperplasia and endometrial carcinomas. Atrophic endometrium was seen in 0.5% of cases among postmenopausal age group with similar findings seen in Vijayaraghavan et al.[3]

In the present study, among organic causes of AUB, endometrial hyperplasias are the most common pattern. Hyperplasia without atypia (Figure 3) was observed in 21.9% of total cases and 4.2% of cases were endometrial hyperplasia with atypia (Figure 4). Majority of these cases were seen among perimenopausal age group. Similar finding were observed by Vijayaraghavan et al,[3] Sajitha et al,[6] Jagadale Kunde et al,[5] Khan et al,[8] Sharma et al.[7] The higher incidence was observed because these cases were not identified at earlier stages of disordered proliferative endometrium. As endometrial hyperplasia is thought to be a precursor of endometrial carcinoma, the identification of this pattern is important.

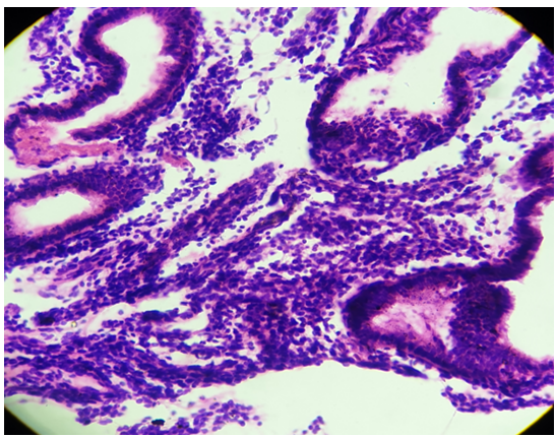

Figure 3: HPE: 40X: Hyperplasia without Atypia

In the present study endometrial polyp was seen in 7.7% of the cases among reproductive, perimenopausal age groups which is in concordance to Vijayaraghavan et al,[3] Sajitha et al.[6]

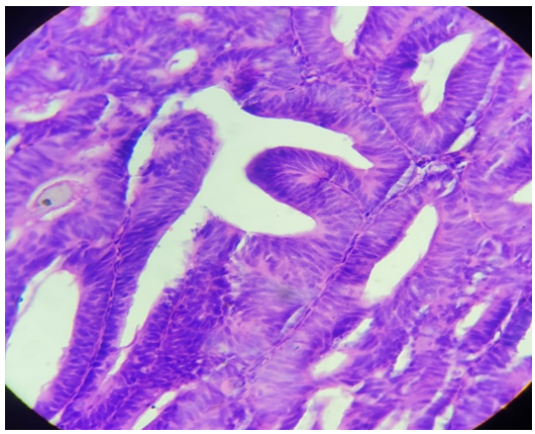

Figure 4: HPE: 40X: Hyperplasia with Atypia

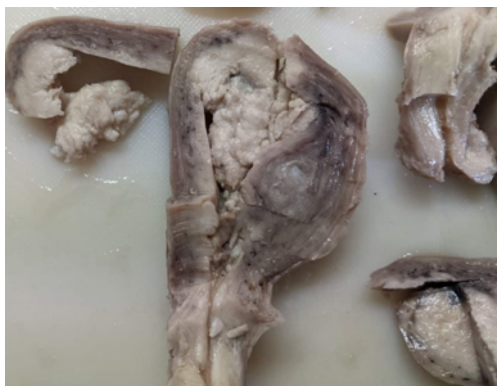

Figure 5: Gross: Endometrial carcinoma, cavity filled with irregular extending LUS

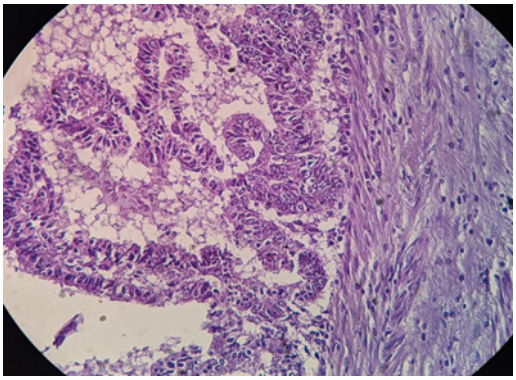

Figure 6: HPE:40X: Endometroid carcinoma endometrial NOS type grey white mass

In our study, endometrial carcinoma was observed in 1.38% of cases in postmenopausal and perimenopausal women age groups. Three cases were of endometroid carcinoma NOS type (Figures 5 and 6). Two cases were of endometriod carcinoma with squamous differentiation presented with Postmenopausal bleeding. Similar findings were observed by Vijayaraghavan et al,[3] Jagadalekunda et al,[5] Sajitha et al,[6] Khan et al.[8]

5. Conclusion

Endometrium is vulnerable for most of the pathological lesions as it is hormonally sensitive and constantly undergoes changes throughout the reproductive life. Abnormal uterine bleeding (AUB) is an age related pathology that needs thorough evaluation as it could be the only clinical manifestation that affects the quality of life in women. Endometrial study in Perimenoupausal and Postmenopausal age group plays a crucial role in early diagnosis of endometrial pathology and in the management of AUB cases. Obesity, Hypertension, Diabetes, Hypothyroidism were frequent comorbidties associated with AUB. Timely evaluation of precursor lesions especially Disordered proloiferative endometrium and malignancy cases in correlation with clinical data remains gold standard for diagnosis of AUB.

6. Source of Funding

None.

7. Conflict of Interest

None.

References

1. Vaidya R, Vinayachandran S, Devi S, Prejisha B, Lekshminath G, Sreedharan S, et al. Prevalence of Abnormal Uterine Bleeding and its Associated Risk Factors in Women of Perimenopausal Age Group-A Retrospective Study. *J Clin Diagn Res*. 2022;16(12):9–13.
2. Munro MG, Critchley HOD, Fraser IS. The two FIGO systems for normal and abnormal uterine bleeding symptoms and classification of causes of abnormal uterine bleeding in the reproductive years: 2018 revisions. *Int J Gynaecol Obstet*. 2018;143(3):393–8.
3. Vijayaraghavan A, Jadhav C, Pradeep B, Bindu H, Kumaran S. A Histopathological Study of Endometrial Biopsy Samples in Abnormal Uterine Bleeding. *Cureus*. 2022;14(11):e31264.
4. Sahu HD, Varma AV, Karmarkar S, Malukani K, Khanuja A, Kesharwani P. Endometrial Histopathology in Abnormal Uterine Bleeding and Its Relation With Thyroid Profile and Endometrial Thickness. *Cureus*. 2023;15(4):e37931. doi:10.7759/cureus.37931.
5. Kunda J, Anupam S. Histopathological Study of Endometrium in Abnormal Uterine Bleeding in Reference to Different Age Groups, Parity and Clinical Symptomatology. *Int J Clin and Biomed Res*. 2015;1(2):90–5.
6. Sajitha K, Shetty P, Jayaprakash S, Permi K, Panna H. Study of histopathological patterns of endometrium in abnormal uterine bleeding. *CHRISMED J Health Res*. 2014;1:76–81.
7. Sharma R, Mishra P, Kumar N, Srivastava P. Histomorphological spectrum of endometrial lesion in women presenting with abnormal uterine bleeding: a 3-year study at a tertiary care center. *Trop J Pathol Microbiol*. 2018;4(7):525–31.
8. Khan AS, Alam K, Akhtar K, Khan T, Alam F. Diagnostic implication of phosphatase and tensin homolog expression in endometrial lesions. *Int J Cur Res Rev*. 2021;13(6):124–8.
9. Dwivedi SS, Bajpai M, Bhushan I, Satkirti A. Spectrum of endometrial lesions observed on histopathological examination of endometrial samples in women with abnormal uterine bleeding. *Int J Res Med Sci*. 2019;11(11):4124–8.
10. Prathipaa R, Divya J. Histopathological study of endometrial samples in abnormal uterine bleeding. *Indian J Pathol Oncol*. 2020;7(4):567–70.
11. Shinde PT, Sarate DS, Patil SB, Patil BV, Kangate SV. Study of histopathological pattern of endometrium in abnormal uterine bleeding in a tertiary care center. *Int J Res Med Sci*. 2023;11(4):1170–4.
12. Bindhuja J. Histopathologic study of endometrium in cases of abnormal uterine bleeding. *J Pathol Nep*. 2023;13(1):1983–6.
13. Choudharya A, Kohlis, Mishras, Singhp. Endometrial histopathology patterns in women with abnormal uterine bleeding. *Int J Reprod Contracept Obstet Gynecol*. 2022;11:477–81.
14. Golecha N, Porwal V. Abnormal uterine bleeding: A study of its clinical spectrum and incidence of histopathological patterns of endometrium as a function of age with parity. *Indian J Obstet Gynecol Res*. 2018;5(3):339–43.
15. Khanam N, Khanam N, Goel JK, Verma K, Kulshresthra K. Correlation of Menstrual Abnormalities with Endometrial Histopathology: A Review. *Indian J Public Health Res Devel*. 2023;14(2):407–10.

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