

Original Research

A histopathological study of endometrial biopsy samples in abnormal uterine bleeding

¹Dr. Arohi Gupta, ²Dr. Akash Agrawal

^{1,2}Assistant Professor, Department of Pathology, Varun Arjun Medical College, Banthara, Shahjahanpur, UP, India

Corresponding Author

Dr. AkashAgrawal

Assistant Professor, Department of Pathology, Varun Arjun Medical College, Banthara, Shahjahanpur, UP, India

Received: 20November, 2023

Accepted:22 December, 2023

ABSTRACT

Background:To examine the histopathological patterns of the endometrium in women experiencing abnormal uterine bleeding (AUB).**Materials & Methods:**A total of 100 subjects were enrolled. The endometrial samples were taken. The study excluded cases where endometrial curettage was performed for uterine bleeding caused by gestational factors such as incomplete abortion, missed abortion, and retained products of conception. The results were analysed using SPSS software. The chi-square test was done. **Results:**Menorrhagia emerged as the predominant bleeding pattern, encompassing 72% of the observed cases. Conversely, hypomenorrhea represented the least prevalent pattern, accounting for only 2% of cases. Metrorrhagia and postmenopausal bleeding (PMB) patterns were noted in 16% and 10% of the study population, respectively.**Conclusion:**Women in the perimenopausal age group were the most frequently encountered population presenting with abnormal uterine bleeding (AUB).

Keywords:Endometrial carcinoma, Abnormal uterine bleeding, Atypical endometrial hyperplasia.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

INTRODUCTION

Abnormal uterine bleeding (AUB) is a term that involves changes in frequency, volume, and duration of the menstrual flow. ¹ In postmenopausal women, it is defined as any bleeding after 1 year of menstrual cessation. ² The prevalence of this symptom is difficult to determine, as women may not seek treatment and physicians may depend on the patient's subjective perception of symptoms which fails to meet objective criteria. The true impact of AUB is seen in subscales that measure the physical and emotional role functioning, hence impeding work productivity and other daily activities. ³ Abnormal uterine bleeding (AUB) refers to variations in the duration, frequency, and volume of blood loss during menstruation.⁴ It affects approximately 10-20% of women aged 15-50 and about 50% of perimenopausal women.⁵ AUB encompasses a diverse range of disorders, including reproductive tract diseases, systemic diseases, and iatrogenic causes. Clinically, it can present in numerous forms, such as menorrhagia, metrorrhagia, menometrorrhagia, polymenorrhea, polymenorrhagia, and oligomenorrhea. ⁶Abnormal uterine bleeding (AUB) is one of the most frequent, as well as complicated, gynecological complaints in clinical

practice. AUB refers to any bleeding that differs from the normal menstrual pattern. This includes menorrhagia, oligomenorrhea, polymenorrhea, menometrorrhagia, mid-cycle spotting, acute abnormal bleeding.⁷It affects up to 14% of women of reproductive age, and is responsible for approximately one quarter of gynecological surgeries. ⁸ The spectrum of common pathologies that can be detected on histological examination of endometrial specimens from dilatation and curettage in AUB cases include atrophic endometrium, chronic endometritis, endometrial polyp, hyperplasia (H), and carcinoma (Ca). Women presenting with AUB after the age of 35 years require further evaluation, mainly to exclude endometrial Ca or its precursor hyperplasia. While an ultrasound might help in narrowing the possible etiologies of AUB, histologic diagnosis remains the gold standard for the diagnosis of mainly endometrial pathologies. ⁹Endometrial biopsies are obtained for a number of reasons that include abnormal uterine bleeding in certain age groups, incomplete abortions, or suspected neoplasia and the endometrium may be sampled prior to certain procedures to treat infertility to determine the phase of the cycle to guide further tests or treatments.¹⁰ Hence, this study was conducted to examine the

histopathological patterns of the endometrium in women experiencing abnormal uterine bleeding (AUB) and identify the prevailing histopathologic pattern within distinct age groups of women with AUB.

MATERIALS & METHODS

A total of 100 subjects were enrolled in a study carried out from March 2019 to July 2023. The endometrial samples were taken. The study excluded cases where endometrial curettage was performed for uterine bleeding caused by gestational factors such as incomplete abortion, missed abortion, and retained products of conception. It focused on including endometrial biopsies from patients experiencing AUB unrelated to gestational factors. The study gathered pertinent clinical information, including age, presenting complaints, and menstrual details such as the last menstrual period, periodicity, and regularity. The results were analysed using SPSS software. The chi-square test was done. A p value less than 0.05 was considered statistically significant.

RESULTS

Menorrhagia emerged as the predominant bleeding pattern, encompassing 72% of the observed cases.

Conversely, hypomenorrhea represented the least prevalent pattern, accounting for only 2% of cases. Metrorrhagia and postmenopausal bleeding (PMB) patterns were noted in 16% and 10% of the study population, respectively. Upon age-specific analysis, it became evident that menorrhagia was the predominant complaint in both the perimenopausal and reproductive age groups, exhibiting a significant association (p=0.00). Metrorrhagia emerged as the second most common complaint in both these age groups. Notably, 10 cases reported complaints of post-menopausal bleeding. The predominant histopathological pattern observed in patients experiencing menorrhagia, metrorrhagia, and post-menopausal bleeding was the proliferative phase endometrium. Atypical endometrial hyperplasia and endometrial polyps manifested as causes of menorrhagia and post-menopausal bleeding in the reproductive and post-menopausal age groups, respectively. In the reproductive age group, endometrial hyperplasia without atypia predominantly presented with menorrhagia. Granulomatous endometritis and Arias-Stella reaction were associated with metrorrhagia. Chronic endometritis manifested as either metrorrhagia or menorrhagia.

Table 1: Age-wise distribution of the bleeding pattern

Bleeding pattern	Age 20-40	41-50	>50	Total (%)
Menorrhagia	15	55	2	72 (72%)
Metrorrhagia	10	5	1	16 (16%)
Hypomenorrhea	2	0	0	2 (2%)
Post menopausal bleeding	0	3	7	10(10%)
Total	26	63	11	100

Table 2: Correlation between bleeding pattern and histopathological diagnosis

Bleeding pattern	Histopathological diagnosis	Cases	%
Menorrhagia	Proliferative phase	25	34.7
	Secretory phase	16	22.2
	Menstrual endometrium	3	4.2
	Disordered proliferative endometrium	6	8.3
	Chronic endometritis	1	1.4
	Benign endometrial polyp	3	4.2
	Endometrial hyperplasia without atypia	14	19.4
	Atypical endometrial hyperplasia	3	4.2
	Endometrial carcinoma	1	1.4
Total	72	100	
Metrorrhagia	Proliferative phase	5	31.2
	Secretory phase	2	12.5
	Disordered proliferative endometrium	3	18.7
	Granulomatous endometrium	1	6.2
	Chronic endometritis	1	6.3
	Arias-Stella reaction	1	6.3
	Endometrial hyperplasia without atypia	2	12.5
	Atypical endometrial hyperplasia	1	6.3
Total	16	100	

Hypomenorrhea	Proliferative phase	1	50
	Secretory phase	1	50
	Total	2	100
Post-menopausal bleeding	Proliferative phase	4	40
	Atrophic endometrium	1	10
	Benign endometrial polyp	1	10
	Endometrial hyperplasia without atypia	3	30
	Atypical endometrial hyperplasia	1	10
	Total	10	100
Total		100	100

DISCUSSION

The term abnormal uterine bleeding has been used to describe any bleeding not fulfilling the criteria of normal menstrual bleeding. The causes of abnormal uterine bleeding include a wide spectrum of diseases of the reproductive system and non-gynecologic causes as well. These may be endometrial polyp, leiomyoma, malignancy, hyperplasia, coagulopathy, ovulatory dysfunction, endometrial disorders and iatrogenic.

In about 25% of the patients, the abnormal uterine bleeding is the result of a well defined organic abnormality.¹¹Hence, this study was conducted to examine the histopathological patterns of the endometrium in women experiencing abnormal uterine bleeding (AUB) and identify the prevailing histopathologic pattern within distinct age groups of women with AUB. In the present study, menorrhagia emerged as the predominant bleeding pattern, encompassing 72% of the observed cases. Conversely, hypomenorrhea represented the least prevalent pattern, accounting for only 2% of cases. Metrorrhagia and postmenopausal bleeding (PMB) patterns were noted in 16% and 10% of the study population, respectively. Upon age-specific analysis, it became evident that menorrhagia was the predominant complaint in both the perimenopausal and reproductive age groups, exhibiting a significant association ($p=0.00$). Metrorrhagia emerged as the second most common complaint in both these age groups. Notably, 10 cases reported complaints of post-menopausal bleeding. A study by VijayaraghavanASr et al, analyzed the histopathological patterns of endometrium in women with AUB and to find the predominant histopathologic pattern in the different age groups of women with AUB. The study was conducted at the Indira Gandhi Medical College and Research Institute, Puducherry, from January 2019 to December 2020. Endometrial biopsies of patients with AUB, in whom gestational causes were ruled out, were included in the study. Out of the 160 cases analyzed, the maximum number of biopsies were from the age group of 41-50 years; the majority of patients presented with complaints of menorrhagia. The most common histological pattern was the normal cyclical pattern showing proliferative (56) and secretory phase

(30) in 86 cases. Of 42 cases of endometrial hyperplasia, 9 cases had atypical hyperplasia. The endometrial polyp was the other common organic lesion observed. Only two cases of endometrial carcinoma were reported during the present study period.¹²In the present study, the predominant histopathological pattern observed in patients experiencing menorrhagia, metrorrhagia, and post-menopausal bleeding was the proliferative phase endometrium. Atypical endometrial hyperplasia and endometrial polyps manifested as causes of menorrhagia and post-menopausal bleeding in the reproductive and post-menopausal age groups, respectively. In the reproductive age group, endometrial hyperplasia without atypia predominantly presented with menorrhagia. Granulomatous endometritis and Arias-Stella reaction were associated with metrorrhagia. Chronic endometritis manifested as either metrorrhagia or menorrhagia. Another study by Alshdaifat EH et al, determined the histopathological pattern of endometrial biopsies in patients with AUB across different age and parity groups who have undergone dilation and curettage (D&C), along with the discrepancy between D&C and histopathological findings after hysterectomy. Malignant lesions were observed in 42 patients with a majority being older than 50 years. In 13.3% (42/316) of patients, D&C failed to detect intrauterine disorder that was found on hysterectomy. The overall accuracy of D&C in determining the existence of normal versus pathological findings was 75.60%, the sensitivity was 72.90%, the specificity was 77.90%, the positive predictive value was 73.86% and the NPV was 77.05%. Normal cyclic changes account for the highest proportion of histopathological findings. However, hyperplasia and malignancies are important causes of perimenopausal and postmenopausal bleeding. While the use of D&C as a sampling tool for AUB cases remains questionable, the use of D&C in diagnosing premalignant and malignant cases is highly effective.¹³Doraiswami S et al, evaluated histopathology of endometrium for identifying the endometrial causes of AUB. They also tried to observe the incidence of various pathologies in different age groups presenting with abnormal uterine bleeding. The commonest pathology irrespective of the age group was disordered

proliferative pattern (20.5%). Other causes identified were complications of pregnancy (22.7%), benign endometrial polyp (11.2%), endometrial hyperplasias (6.1%), carcinomas (4.4%) and chronic endometritis (4.2%). There is an age specific association of endometrial lesions. In perimenopausal women AUB is most commonly dysfunctional in origin and in reproductive age group, one should first rule out complications of pregnancy. The incidence of disordered proliferative pattern was significantly high in this study, suggesting an early presentation of these patients.¹⁴Vaidya S et al, determined the histopathological pattern of the endometrium in women of various age groups presenting with abnormal uterine bleeding. Histopathological examination of endometrial biopsies and curettings in patients presenting with abnormal uterine bleeding showed a wide spectrum of changes ranging from normal endometrium to malignancy. Endometrial evaluation is specially recommended in women of perimenopausal and postmenopausal age groups presenting with AUB, to rule out a possibility of any preneoplastic condition or malignancy.¹⁵Asuzu IM et al, analysed four hundred and eighty-six samples of endometrial biopsies and curettings from women presenting with abnormal uterine bleeding. The most common biopsies were those of product of conception which accounted for 304 cases (62.6%). Most of the cases of endometrial hyperplasia were typical. Endometritis and chorioamnionitis were the inflammatory conditions seen.¹⁶

CONCLUSION

Women in the perimenopausal age group were the most frequently encountered population presenting with abnormal uterine bleeding (AUB). The presenting complaints exhibited a range of variability. The predominant histopathological feature was the presence of a normal cyclical endometrium, encompassing both proliferative and secretory phase endometrium.

REFERENCES

1. Fraser IS, Critchley HO, Munro MG, Broder M. Can we achieve international agreement on terminologies and definitions used to describe abnormalities of menstrual bleeding? *Hum Reprod.* 2007;22(3):635–43.
2. Munro MG, Southern California Permanente Medical Group's Abnormal Uterine Bleeding Working G. Investigation of women with postmenopausal uterine bleeding: clinical practice recommendations. *Perm J.* 2014;18(1):55–70.
3. Liu Z, Doan QV, Blumenthal P, Dubois RW. A systematic review evaluating health-related quality of

- life, work impairment, and health-care costs and utilization in abnormal uterine bleeding. *Value Health.* 2007;10(3):183–94.
4. Committee opinion no. 557: management of acute abnormal uterine bleeding in nonpregnant reproductive-aged women. *ACOG ACOG. Obstet Gynecol.* 2013;121:891–896.
5. Thyroid dysfunction in patients with abnormal uterine bleeding in a tertiary care hospital: a descriptive cross-sectional study. Thakur M, Maharjan M, Tuladhar H, Dwa Y, Bhandari S, Maskey S, Bajracharya M. *JNMA J Nepal Med Assoc.* 2020;58:333–337.
6. Thyroid dysfunction and abnormal uterine bleeding. Al-Bajalan TH, Khalid SI. *J Gynecol Women's Health.* 2019;15:555919.
7. Soleymani E, Ziari K, Rahmani O, Dadpay M, Taheri-Dolatabadi M, Alizadeh K, et al. Histopathological findings of endometrial specimens in abnormal uterine bleeding. *Arch Gynecol Obstet.* 2013;289:845–849.
8. Sweet MG, Schmidt-Dalton TA, Weiss PM, Madsen KP. Evaluation and management of abnormal uterine bleeding in premenopausal women. *Am Fam Physician.* 2012;85:35–43.
9. Dueholm M, Hjorth IM. Structured imaging technique in the gynecologic office for the diagnosis of abnormal uterine bleeding. *Best Pract Res Clin Obstet Gynaecol.* 2017;40:23–43.
10. Rena Deka R, TanmaSaikia, Amitabh Handique, BasantaSonowal. Histopathologic spectrum of Endometrial changes in Women presenting with abnormal uterine bleeding with reference to endometrial malignancies: A two Years Hospital Based Study. *Annals of Applied Bio-Sciences.* 2016;3(2):152–156.
11. Brenner PF. Differential diagnosis of AUB. *Am J Obstet Gynecol.* 1996;175:766–769.
12. Vijayaraghavan A Sr, Jadhav C, Pradeep B, Bindu H, Kumaran S. A Histopathological Study of Endometrial Biopsy Samples in Abnormal Uterine Bleeding. *Cureus.* 2022 Nov 8;14(11):e31264.
13. Alshdaifat EH, El-Deen Al-Horani SS, Al-Sous MM, Al-Horani S, Sahawneh FE, Sindiani AM. Histopathological pattern of endometrial biopsies in patients with abnormal uterine bleeding in a tertiary referral hospital in Jordan. *Ann Saudi Med.* 2022 May-Jun;42(3):204–213.
14. Doraiswami S, Johnson T, Rao S, Rajkumar A, Vijayaraghavan J, Panicker VK. Study of endometrial pathology in abnormal uterine bleeding. *J Obstet Gynaecol India.* 2011 Aug;61(4):426–30.
15. Vaidya S, Lakhey M, Vaidya S, Sharma PK, Hirachand S, Lama S, KC S. Histopathological pattern of abnormal uterine bleeding in endometrial biopsies. *Nepal Med Coll J.* 2013 Mar;15(1):74–7.
16. Asuzu IM, Olaofe OO. Histological Pattern of Endometrial Biopsies in Women with Abnormal Uterine Bleeding in a Hospital in North Central Nigeria. *Int J Reprod Med.* 2018 Nov 1; 2018:2765927.