



STUDY OF HISTOPATHOLOGICAL PATTERN OF ENDOMETRIUM AMONG PATIENTS WITH ABNORMAL UTERINE BLEEDING IN A TERTIARY CARE HOSPITAL OF NEPAL

Obstetrics & Gynaecology

Ram Prasad Sapkota*

Department of Obstetrics and Gynaecology, Bharatpur Hospital, Chitwan, Nepal.
*Corresponding Author

Sunilmani Pokhrel

Department of Obstetrics and Gynaecology, Bharatpur Hospital, Chitwan, Nepal.

Anita Bhandari

Departments of Pathology, Bharatpur Hospital, Chitwan, Nepal.

ABSTRACT

Introduction: Abnormal uterine bleeding which refers to uterine bleeding of abnormal quantity, is a common concern in gynaecological outpatient department. Histopathological pattern of endometrium can be studied both from endometrial sampling and hysterectomy specimen. The aim of this study is to find out histopathological patterns of endometrium in those cases. **Methods:** Prospective hospital based cross sectional study was conducted from 18-oct-2021 to 16-Nov-2022. Ethical clearance was taken from the Institutional Review Committee (IRC), (Reference number: 078/79-04A). Endometrial tissue obtained from endometrial biopsy and hysterectomy sample from cases with abnormal uterine bleeding were sent for histopathological examination. Demographic parameter age, clinical diagnosis and histopathological findings were entered and analyzed by using Microsoft excel 2016. **Results:** Among 241 cases included in our study majority (46.88%) were in perimenopausal age group (41-50 years) followed by 42.72% in reproductive age group (<40 years) and 10.36% in post menopausal group (> 50 years). Menorrhagia was the most common presentation seen in (43.15%) of the cases and the post coital bleeding was the least seen in (1.24%) of the cases. Normal endometrial pattern, proliferative and secretory was seen in 56.42% followed by hyperplasia (21.57%), disordered proliferative endometrium (8.29%), atrophic endometrium (5.39%), endometrial polyp (3.31%), chronic endometritis (2.90%), pill endometrium (1.65%) and endometrial carcinoma (0.41%). **Conclusions:** Normal cyclic pattern of endometrium is the commonest pattern among endometrial samples obtained from patients with AUB. However hyperplasia and malignancy are important pathological findings in perimenopausal and postmenopausal women with AUB.

KEYWORDS

Abnormal uterine bleeding, Endometrium, Histopathology

INTRODUCTION

Abnormal uterine bleeding (AUB) is any bleeding that deviates from normal menstruation. It may differ in terms of frequency, duration, and the pattern of bleeding during menstrual cycle or menopause.¹ One-third of outpatient visits to the gynaecology department are for AUB, and it accounts for more than 70% of all gynaecological consults in women who suffer from various forms of this disorder at different ages in their life.²⁻⁴

The underlying disease can be detected by histological patterns of endometrium taking into account the age of the woman, the phase of her menstrual cycle, and use of any exogenous hormones. Histopathological characteristics of endometrial tissue remains the diagnostic standard for the management of AUB. Significant morbidity or mortality can occur if endometrial hyperplasia is untreated with progression to malignancy.^{5,6}

The objective of this study is to find out the histopathological pattern of endometrium in AUB in the light of clinical details.

METHODS

Prospective hospital based cross sectional study was conducted in gynaecology outpatient department at Bharatpur Hospital from 18-oct-2021 to 16-Nov-2022. Ethical approval for the study was taken from the Institutional Review Committee of Bharatpur Hospital (Reference number: 078/79-04A).

Those cases who were diagnosed as a case of AUB with isolated endometrial pathology were included in the study. Patients with non-endometrial causes of AUB like pregnancy related complications, intra uterine contraceptive devices, leiomyoma, cervical and vaginal pathology, hemostatic disorder and thyroid disorder were excluded from the study. Specimens with no endometrial tissue or only minimal tissue or breakdown of tissue were also excluded from the study and total 241 cases were enrolled in the study.

Endometrial tissue obtained from endometrial biopsy and specimen from hysterectomy on routine schedule was fixed in 10% neutral buffered formalin were sent for histopathological examination. Tissue slide section of 3 μ to 5 μ thickness was stained with hematoxylin-eosin and slides were examined under light microscope. Recent World Health Organization (WHO) classification of tumor of female reproductive organs was used for reporting. Various patterns of histopathology of endometrial samples were noted and studied.

Demographic parameter age, clinical diagnosis and histopathological findings were entered and analyzed by using Microsoft excel 2016.

RESULTS

Among 241 cases enrolled in our study, majority of patients 46.88% were in perimenopausal age group (41-50 years) followed by 42.72% in reproductive age group (<40 years) and 10.36% in post-menopausal age group (> 50 years) (Table 1).

Table 1. Age group distribution of patients (n=241)

Age group in years	No. of cases n (%)
21-30	6 (2.48)
31-40	97 (40.24)
41-50	113 (46.88)
51-60	20 (8.29)
61-70	5 (2.07)

Table 2. Distribution according to clinical presentation (n=241)

Clinical presentation	No. of cases n (%)
Menorrhagia	104 (43.15)
Metrorrhagia	70 (29.04)
Post menopausal bleeding	38 (15.76)
Menometrorrhagia	19 (7.88)
Polymenorrhoea	7 (2.91)
Post coital bleeding	3 (1.24)

Table 3: Endometrial patterns in histopathology (n=241)

Histopathological diagnosis	No. Of cases n (%)
Proliferative endometrium	76 (31.53)
Secretory endometrium	60 (24.89)
Non atypical hyperplasia	37 (15.35)
Atypical hyperplasia	15 (6.22)
Disordered proliferative endometrium	20 (8.29)
Atrophic endometrium	13 (5.39)
Endometrial polyp	8 (3.31)
Chronic endometritis	7 (2.90)
Pill endometrium	4 (1.65)
Endometrial carcinoma	1 (0.41)

Table 4: Endometrial histopathological diagnosis in different age groups

Age group (years)	Endometrial histopathology										Total
	Pro life rati ve	Sec ret ory	Non atyp ical hyp erpl asia	Atyp ical hyp erpl asia	Disord eredpr olifera tive endometrium	Atro phic endometrium	Endo metri al poly p	Chron ic endo metri tis	Pill end ome triu m	Endo metri al carci nom a	
21-30	4	2	0	0	0	0	0	0	0	0	6
31-40	36	30	15	3	4	0	2	1	4	0	95
41-50	35	27	17	7	13	6	5	5	0	0	115
51-60	1	1	3	4	3	5	1	1	0	1	20
61-70	0	0	2	1	0	2	0	0	0	0	5
Total	76	60	37	15	20	13	8	7	4	1	241

Normal cyclical endometrium (proliferative and secretory phases) was the most common pattern, observed in 56.42% of cases followed by hyperplasia- 21.57%. However non atypical hyperplasia was seen in 15.35% of the cases. Disordered proliferative endometrium was third common pattern which was found in 8.29% of the cases. Atypical hyperplasia which was most common in postmenopausal age group was seen in 20% of the cases however it was seen in 6.08% in perimenopausal age group and 3.15% in reproductive age group. Atrophic endometrial pattern was seen in 28% of the postmenopausal age group and 5.21% of perimenopausal age group. However there was no case of atrophic endometrium in reproductive age group. Endometrial polyp was most common above 40 years of age and was seen in 4.28% of the cases. Chronic endometritis was also common in ages above 40 years, and it was seen in 4.28% of the cases. Pill endometrium was common in age group less than 40 years, and it was seen in 4% of the cases. Endometrial carcinoma was seen in 4% cases of postmenopausal women (Table 3).

DISCUSSION

Abnormal uterine bleeding is the term to describe any deviation from normal menstruation in terms of frequency, duration, and the pattern of bleeding during menstrual cycle or menopause. AUB is the most frequently diagnosed among gynaecology out patient and has been determined that approximately 6% of women in reproductive age group visit due to excessive menstrual loss every year. PALM-COEIN (P-Polyp, A- Adenomyosis, L- Leiomyoma, M-malignancy, Co-Coagulopathy, E-Endometrial, I-Iatrogenic, N-Not yet classified) is a useful acronym provided by International Federation of Obstetrics and Gynaecology to classify the aetiology of AUB.

Among all those aetiologies, endometrial pathology rank among the most common to affect women globally. Endometrial biopsy is simple, safe and effective office procedure has mainly diagnostic and sometime therapeutic role in AUB however hysterectomy has mainly therapeutic role in AUB. The sensitivity of endometrial biopsy for detection of endometrial pathology has been found to be 96%.

In our study menorrhagia was the most common problem affecting highest percentage of cases 43.15% which is similar to the study conducted by Rajagopal I et al affecting 48% of cases.⁸

In our study the highest number of patients 46.88% are in perimenopausal age group (41-50 years) and similar incidence was seen in a study of Yusuf NW et al, Muzaffar M et al, Doraiswami S et al.^{9,10,11} Increase in incidence of AUB in perimenopausal age group of 41-50 years may be due to the fact that these patients are in their climacteric period. As women approach menopause, cycles shorten, and often become intermittently anovulatory. In the study done by Van Voorhis BJ et al, about 20% of cycles even early in the perimenopausal age were anovulatory associated with shorter intervals at the beginning of transition to menopause and longer intervals later.¹²

Normal cyclical endometrium (proliferative and secretory phases) were the most common pattern which is similar to the study done by Singh N et al however incidence of normal cyclical endometrial pattern was 56.3% in our study but it was 36.7% in the study conducted by Singh N et al.¹³ The higher incidence of normal

endometrial pattern may be due to higher percentage of premenopausal age group in our study.

The incidence of endometrial hyperplasia was 21.57% in our study. Similar to our study the incidence of hyperplasia was 21% in study of Singh N et al, 15.3% in study of More S et al, 18% in study of Bhatta S et al and 18.3% in study of Baral R et al.^{13,14,15,16} In our study the incidence of non atypical hyperplasia was 15.35% and similar result 19.4% was seen in the study conducted by Nivedita Singh et al.¹³ It is well-established that progression to endometrial cancer is higher in women with atypical compared with non-atypical hyperplasia but the magnitude of this risk is uncertain.¹⁷

In my study 65% of the cases among perimenopausal group had disordered proliferative endometrium and it was the commonest endometrial pattern among perimenopausal age group. In the study of Singh N et al and Vaidya et al had similar had incidence 60% and 51.8% respectively which is comparable to our study.^{13,18} Disordered proliferative endometrium is more common in perimenopausal years because of anovulatory cycles.¹⁸

In our study the incidence of atrophic endometrium was 5.39%. The incidence of atrophic endometrium was 4.7% in the study conducted by Vaidya S et al and 7.4% in the study conducted by Bhatta et al which is comparable to my study.^{15,18} However the incidence was higher 13.3% in study conducted by Singh N et al.¹³ It may be due to higher 24.6% cases of postmenopausal women in the study of Singh N et al but it was only 10.36% in our study. Among postmenopausal bleeding cases, atrophy formed the bulk of AUB (50%) in study conducted by KN D et al.²⁰ Although the exact cause of bleeding in atrophic endometrium is not known, it is postulated due to anatomic vascular variations or local abnormal haemostatic mechanism. Thin walled veins superficial to the expanding cystic glands make the vessels vulnerable to injury.¹¹

The incidence of endometrial polyp was 3.31% in our study. Similar to our study the incidence of endometrial polyp was 1.5% in study of More S et al, 2.5% in study of Bhatta S et al, 1.3% in study of Baral R et al and 1.2% in study of Vaidya S et al.^{14,15,16,18} Singh N et al in their study found endometrial polyp in 8.1% of the cases which was higher than that of my study. Higher incidence of endometrial polyp in their study may be due to higher percentage of perimenopausal (49.2%) and postmenopausal (24.6%) cases. An endometrial polyp is an abnormal growth projecting from endometrium and it contains glands, stroma and blood vessels. Variable size of endometrial polyp can be found in all age groups however most common between 40 and 49 years.²¹

The incidence of chronic endometritis was similar 2.9% in our study and in other studies including, Singh N et al, More S et al, Baral R et al and Vaidya S et al in which the incidence was 2.4%, 2.97%, 2.7% and 3.2% respectively.^{13,14,16,18} However the incidence was higher 6.6% in study of Bhatta S et al.¹⁵ Endometritis is the term to describe inflamed endometrium can be acute or chronic. Chronic endometritis can be caused by different micro organism (pyogenic pathogens, other bacteria and viruses) and mechanical- chemical factors (pessaries and intra uterine devices). It can be asymptomatic or may present with symptoms like AUB, pelvic pain and leucorrhoea. Clinically, 94% of the patients of chronic endometritis present with complaint of vaginal bleeding.²² The incidence of pill endometrium was 1.6% in my study and similar incidence 2.9% was found in study done by Rajagopal I et al.⁸ Combined oral contraceptives pill produces the effects of both estrogen and progestin, with a dominant progestin-only effect "pill endometrium" depending on the length of use of the combined oral contraceptive (COC). Endometrial carcinoma was found in 0.41% of cases in our study which is less than the study of Singh N et al, More S et al, Bhatta S et al, Baral R et al and Vaidya S et al where the incidence was 2.4%, 1.98%, 5.7%, 1.0% and 2.5% respectively.^{13,14,15,16,18} This may be due to the percentage of postmenopausal women, who are more prone to develop endometrial cancer is less in our study. In our study endometrial carcinoma was seen in 4% cases of postmenopausal women who presented with postmenopausal bleeding. In the similar setting study done by Sharma DD et al the incidence of endometrial carcinoma was 6% which is comparable to our study.²³

CONCLUSIONS

Histopathological findings of endometrial samples obtained from patients with abnormal uterine bleeding was comparable with studies

done in similar settings. AUB is a common gynaecological problem with various clinical presentation among the patients visiting in gynaecology outpatients. Normal cyclic pattern of endometrium is the commonest pattern among endometrial samples obtained from patients with AUB. However hyperplasia and malignancy are important pathological findings in perimenopausal and postmenopausal women with AUB.

Conflict of Interest:

None

Acknowledgements

Authors would like to acknowledge Mr. Pracesh Bhusal (BCA, Oxford College Of Management & Engineering, Gaidakot), for his guidance, suggestions and valuable inputs in data analysis and manuscript writing.

REFERENCES

- Ding C, Wang J, Cao Y, Pan Y, Lu X, Wang W, Zhuo L, Tian Q, Zhan S. Heavy menstrual bleeding among women aged 18–50 years living in Beijing, China: prevalence, risk factors, and impact on daily life. *BMC Women's Health*. 2019 Dec;19(1):1-9. [PubMed] Full Text | DOI]
- Kazemijalish H, Tehrani FR, Behboudi-Gandevani S, Khalili D, Hosseini F, Azizi F. A Population-Based Study of the Prevalence of Abnormal Uterine Bleeding and its Related Factors among Iranian Reproductive-Age Women: An Updated Data. *Archives of Iranian Medicine (AIM)*. 2017 Sep 1;20(9). [PubMed] Full Text | DOI]
- Senthilvel S, Vasudevan S, Anju PS, Sukumaran A, Sureshbabu J. Assessment of symptoms and quality of life among postmenopausal women in a tertiary care hospital in Kochi, South India: A hospital-based descriptive study. *Journal of Mid-life Health*. 2018 Oct;9(4):185. [PubMed] DOI]
- Munro MG, Lukes AS, Underlying Hemostatic Disorders Consensus Group. Abnormal uterine bleeding and underlying hemostatic disorders: report of a consensus process. *Fertility and sterility*. 2005 Nov 1;84(5):1335-7. [PubMed] DOI]
- Clark TJ, Mann CH, Shah N, Khan KS, Song F, Gupta JK. Accuracy of outpatient endometrial biopsy in the diagnosis of endometrial cancer: a systematic quantitative review. *BJOG: an international journal of obstetrics and gynaecology*. 2002 Mar 1;109(3):313-21. [PubMed] Full Text | DOI]
- Tiwari A, Jain S, Rai R, Jain SK. Histopathological study of endometrial biopsy specimens for abnormal uterine bleeding. *Journal of Lumbini Medical College*. 2016 Dec 30;4(2):72-6. [PubMed] Full Text | DOI]
- Sharma A, Dogra Y. Trends of AUB in tertiary centre of Shimla hills. *Journal of mid-life health*. 2013 Jan;4(1):67. [PubMed] DOI]
- Rajagopal L, Thomas, B. M., & Rao, V. N. R. (2019). Endometrial pathology in abnormal uterine bleeding. *International Journal of Research in Medical Sciences*, 7(10), 3762–3766. [DOI]
- Yusuf NW. Dysfunctional uterine bleeding: a retrospective clinicomorphological study over two years. *Pakistan Journal of Obstetrics and Gynaecology*. 1996;9(1):27-30. [PubMed] DOI]
- Muzaffar M, Akhtar KA, Yasmin S, Rehman M, Iqbal W, Khan MA. Menstrual irregularities with excessive blood loss: a clinico-pathological correlation. *Journal-Pakistan Medical Association*. 2005 Nov 1;55(11):486. [PubMed] Full Text]
- Doraiswami S, Johnson T, Rao S, Rajkumar A, Vijayaraghavan J, Panicker VK. Study of endometrial pathology in abnormal uterine bleeding. *The journal of Obstetrics and Gynecology of India*. 2011 Aug;61:426-30. [PubMed] Full Text | DOI]
- Van Voorhis BJ, Santoro N, Harlow S, Crawford SL, Randolph J. The relationship of bleeding patterns to daily reproductive hormones in women approaching menopause. *Obstetrics and gynecology*. 2008 Jul;112(1):101. [PubMed] Full Text | DOI]
- Singh N, Sonawane S. Spectrum of endometrial pathology in abnormal uterine bleeding. *Int J Health Sci Res*. 2017; 7(9):28-34. [Full Text | DOI]
- More S et al, Khairkar PS, Sawake G, Sawake N, Pandey M, Pandey A. Histomorphological spectrum of lesions in patients with abnormal uterine bleeding. *J Cont Med A Dent May/August 2016. Volume 4 Issue 2:74-78* [Full Text | DOI]
- Bhatta S, Sinha AK. Histopathological study of endometrium in abnormal uterine bleeding. *Journal of pathology of Nepal*. 2012 Sep 25;2(4):297-300. [Full Text | DOI]
- Baral R, Pudasaini S. Histopathological pattern of endometrial samples in abnormal uterine bleeding. *Journal of Pathology of Nepal*. 2011;1(1):13-6. [Full Text | DOI]
- Koskas M, Uzan J, Luton D, Rouzier R, Daraï E. Prognostic factors of oncologic and reproductive outcomes in fertility-sparing management of endometrial atypical hyperplasia and adenocarcinoma: systematic review and meta-analysis. *Fertility and sterility*. 2014 Mar 1;101(3):785-94. [PubMed] Full Text | DOI]
- 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 1;15(1):74-7. [PubMed]
- Sajitha K, Padma SK, Shetty KJ, KishanPrasad HL, Permi HS, Hegde P. Study of histopathological patterns of endometrium in abnormal uterine bleeding. *CHRISMED journal of health and Research*. 2014 Apr 1;1(2):76. [Full Text | DOI]
- KN D, Jayashree K, Bharath G. The Diagnostic Value of Endometrial Biopsy in Postmenopausal Uterine Bleeding. *National Editorial Board*. 2016;6(1):43. [Full Text | DOI]
- Nijkang NP, Anderson L, Markham R, Manconi F. Endometrial polyps: Pathogenesis, sequelae and treatment. *SAGE open medicine*. 2019 Apr;7:2050312119848247. [PubMed] Full Text | DOI]
- Greenwood SM, Moran JJ. Chronic endometritis: morphologic and clinical observations. *Obstetrics and gynecology*. 1981 Aug 1;58(2):176-84. [PubMed | Full Text]
- Sharma DD, Chandnani KA. A study of aetiology and prevalence of malignancy inpatients with post menopausal bleeding. *Int J ReprodContracept ObstetGynecol* 2017;6:3973-8 [Full Text | DOI]