

Study of Histopathological Patterns of Endometrium in Abnormal Uterine Bleeding

Prashant N. Deore¹, Nilesh R Sonawane², Dhananjay V Newadkar³

¹Professor, Department of Pathology, ACPM Medical College, Dhule, Maharashtra

²Assistant Professor, Department of Pathology, ACPM Medical College, Dhule, Maharashtra

³Professor, Department of Pathology, ACPM Medical College, Dhule, Maharashtra

Received: 20-06-2022 / Revised: 30-07-2022 / Accepted: 30-08-2022

Corresponding author: Dr. Prashant N. Deore

Conflict of interest: Nil

Abstract

Background: Abnormal uterine bleeding (AUB) is a common gynecological complaint which has significant morbidity as well as plays an important role in affecting patients' personal and social life. The aim of this study was to analyze histo-morphological patterns of endometrium in patients with complain of AUB and also in determining the incidence of AUB in various age groups.

Material and Methods: This is a prospective study conducted with 156 endometrial specimens with clinical diagnosis of AUB in the department of pathology, ACPM Medical College, Dhule, Maharashtra. Analysis was done in the form of percentages and proportions and represented on tables wherever necessary.

Result: Majority of patients were from 46-55 years age group. Most common complaint was menorrhagia which accounted for 47%. Moreover commonest pathology observed in the study was endometrial hyperplasia.

Conclusion: On evaluation from the samples collected, incidence of AUB was seen in different age groups. In patients with no organic pathology, normal physiological patterns with proliferative, secretory, and menstrual changes were observed. Histopathological evaluation of endometrial samples was done to rule out malignancy and pre-neoplasia.

Keywords: Abnormal uterine bleeding, dysfunctional uterine bleeding, Dilation and curettage (D&C), endometrium.

This is an Open Access article that uses a fund-ing model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Abnormal Uterine Bleeding (AUB) is defined as any type of bleeding that does not fall within the normal ranges for frequency, amount, duration, or cyclicity. [1] AUB is presented as menorrhagia, inter-menstrual bleeding, polymenorrhoea and metrorrhagia. Dilatation and Curettage (D & C) is the mainstay of endometrial

sampling. D and C also allows for a fractional curettage with separate sampling of both the endocervical and endometrial tissues. Hysteroscopy has replaced blind curettage as the uterine cavity can be observed and the area in question can be curetted. Trans-vaginal/trans-abdominal ultrasonography is another useful adjunctive technique for the examination

of the endometrium in the evaluation of AUB. [1-3] The underlying diseases can be detected well by histological variations of endometrium taking into account the age of the woman, phase of her menstrual cycle, and the use of any exogenous hormones. Hyperplasia is found in almost 16% and endometrial carcinoma in around 10% of postmenopausal patients undergoing biopsy. [2] Patients with history of obesity, anovulation, diabetes, hypertension and exogenous estrogen use are at a higher risk for hyperplasia and adeno-carcinoma. [2] Early evaluation in peri-menopausal and post-menopausal women are essential to confirm the exact nature of the lesion and to rule out malignancy if any.

Materials and Methods

Patients who presented in this hospital with a history of AUB from April 2021 to April 2022 and had undergone D&C or hysterectomy were included in this study. Patients with gestational cause, hemostatic disorders, vaginal pathology and

leiomyoma were excluded. Relevant clinical history regarding age, pattern and duration of abnormal bleeding, obstetric history, menstrual history, use of exogenous hormones, physical as well as gynecological examination findings, lab investigation results and hysteroscopic findings were obtained from casefiles from Medical Records Department. All the specimens (3-4 μ thick sections) were fixed in 10% formalin, processed and embedded in paraffin. Sections were stained with hematoxylin and eosin stain. A total of 156 cases were analyzed. Data were entered in Microsoft Excel and managed in SPSS version [16]. Analysis was done in the form of percentages and proportions and represented as tables.

Results

A total of 156 endometrial specimens submitted with a clinical diagnosis of AUB. Patients age ranged between 23 to 78 years and majority were seen in the age group of 46-55 years, followed by 36-45 years as described in [Table 1].

Table 1: Distribution of patients with abnormal uterine bleeding in various age groups.

Age (in years)	No. of patients	Percentage
<35	13	8.33
35-45	62	39.75
46-55	67	42.95
>55	14	8.97
Total	156	100.0

The commonest complaint was menorrhagia in 73 patients (47%). Seventy five (48.4%) of them were in the low parity group (para 1-2) followed by para 3-4 (32.4%). The commonest pathology observed in the study was endometrial hyperplasia in 39 (25%) patients. Secretory

endometrium was the next commonly observed pattern seen in 26 (16.7%) patients, followed by proliferative and disordered proliferative endometrium in 19 (12.2%) patients each. Endometrial carcinoma was seen in 7 (4.5%) cases as described in [Table 2].

Table 2 : Distribution of endometrial patterns in abdominal uterine bleeding patients.

Endometrial pattern	No of patients	Percentage
Proliferative phase endometrium	19	12.2
Secretory phase endometrium	26	16.7
Mixed pattern		3.84
Pill endometrium	12	7.7

Disordered proliferative endometrium	19	12.2
Luteal phase defect	4	2.6
Menstrual endometrium	2	1.28
Atrophic endometrium	8	5.12
Endometritis	1	0.64
Endometrial polyps	8	5.12
Endometrial hyperplasia	39	25
Endometrial carcinoma	7	4.5
Endometrial Stromal Sarcoma	1	0.64
Other carcinomas	2	1.28
Inadequate	2	1.28
Total	156	100.0

Table 3 : Correlation of ultrasonography, hysteroscopy and hypersensitivity pneumonitis in diagnosis of endometrial hyperplasia.

	Hysteroscopy hyperplasia	Hyperplasia	ET (mm)
Hysteroscopy hyperplasia	1.000	Poor correlation (0.025)	Fair correlation (0.350)
Hyperplasia	0.025	1.000	Fair correlation (0.350)
ET (mm)	0.350	0.205	1.000

Discussion

AUB accounts for around 25% of gynecological operations and 20% of outpatient visits. [3] In the present study, we have studied the histopathology of endometrium to identify endometrial causes and also observe the incidence of various pathologies in different age groups and also their relation to parity.

In this study, the maximum incidence of AUB was seen in 46-55 years age group (67 patients), followed by 36-45 years age group (62 patients). Our study and other studies have found a maximum incidence of AUB in the perimenopausal age group.[4-10] As women approach menopause, cycles shortens and often become intermittently anovulatory due to decline in the number of ovarian follicles and fluctuations in the estradiol level leading to various patterns of abnormal bleeding. [2] Our study and other studies have found menorrhagia as the commonest complaint. [4,5,7,8] Endometrial hyperplasia was the most common histological pattern observed in our study and was seen in 39 cases (25%). Few studies have reported a similar incidence

with 24.7% and 26%, respectively. [5,13] However, many other studies have observed a lower incidence for about 12.6%, 15%, and 4.33%. [8,14,15] In the present study, the maximum incidence of hyperplasia was noted in the age group of 46-55 and was seen in 22 of 39 patients (56.4%). This was consistent with the findings in other studies. [5,13,14,16,17] In this study, there was a fair correlation between findings of increased endometrial thickness by ultrasonography and histopathological diagnosis of endometrial hyperplasia, but there was a poor correlation between hysteroscopic and histopathological diagnosis of endometrial hyperplasia [Table 3] which was calculated by Spearman Correlation. In this study, predominant number of patients in the age group of 36-45 years showed normal physiological changes like proliferative and secretory phase patterns. Secretory endometrium was the second most common pattern observed in this study and was seen in 26 patients (16.7%). Similar incidence of secretory pattern (16.6%) was noted in another study.⁷The bleeding in secretory phase is due to

ovulatory dysfunctional uterine bleeding and characterized by regular episodes of heavy menstrual blood loss. The main defect is in the control of processes regulating the volume of blood lost during the menstrual breakdown of endometrium. [20] This pattern was commonly observed in the late reproductive and perimenopausal women in our study and other studies and may be due to the hormonal imbalance in this group leading to intermittent anovulatory cycles. Atrophic endometrium is the commonest cause of bleeding in post-menopausal stage. [12] Thin walled veins, superficial to the expanding cystic glands, makes the vessels vulnerable to injury and often lead to massive uterine bleeding. 16 Atrophic endometrium was seen in 5.13% of the patients in this study and they presented as post-menopausal bleeding. A similar incidence was reported in other studies with incidences of 4.34% and 7%, respectively. [12,25] In this study, pill endometrium was seen in 12 cases (7.69%). Other studies shows a lower incidence. [5,13,24] In this pattern, the endometrium shows a combination of inactive glands, abortive secretions, thin blood vessels, decidual reaction. [26] This pattern was seen in the peri-menopausal age group. This was probably due to increased number of patients in this age group resorting to early medical consultation for bleeding. Other benign patterns includes endometrial polyps (5.12%), irregular shedding (3.84%), luteal phase defects (2.56%), menstrual pattern (1.28%) and endometritis (0.64%). The most common presentation in patients of serous carcinoma and clear cell carcinoma was post-menopausal bleeding and incidence of endometrial carcinoma 21.73% in the postmenopausal group. This was similar to that reported by Baral R with an incidence of 21%. [16] Primary cancer of cervix extending to the endometrium was observed in two cases (1.28%) and they presented with post-menopausal bleeding. This was consistent with the findings of

Ara S who reported an incidence of 1.24%. [25] Patient with low-grade Endometrial Stromal Sarcomas (ESS) was a 50-years old and presented with menorrhagia and mass in the pelvis. [27] In a previously reported study of 14 cases of low grade ESS, the most common presentation was vaginal bleed (86%), followed by pelvic mass (7%) and pelvic pain (7%). [28,29]

Conclusion

Endometrial lesions vary according to the age of the patient. Endometrial sampling by dilatation and curettage (D&C) is an effective and reliable diagnostic test. Clinical information regarding age, parity, menstrual history and imaging studies are important pre-requisites in the interpretation of endometrial samples. Dilatation and curettage (D&C) reveals endometrial patterns in various forms of AUB and also helps to exclude the presence of any organic pathology. Thus, histo-pathological evaluation of endometrium is especially indicated in women above the age of 35 years to rule out pre-neoplastic lesions and malignancies if any.

References

1. Munro MG, Critchley HO, Fraser IS, FIGO Menstrual Disorders Working Group. The FIGO classification of causes of abnormal uterine bleeding in the reproductive years. *Fertility and sterility*. 2011 Jun 1;95(7):2204-8.
2. Mazur M, Kurman RJ. *Diagnosis of endometrial biopsies and curettings: a practical approach*. Springer Science & Business Media; 2005 Dec 27.
3. Goldstein SR. Menorrhagia and abnormal bleeding before the menopause. *Best Practice & Research Clinical Obstetrics & Gynaecology*. 2004 Feb 1;18(1):59-69.
4. Jyotsana MK, Sharma S. Role of hysteroscopy and laparoscopy in evaluation of abnormal uterine bleeding. *JK Sci*. 2004 Jan;6(1):23-7.

5. 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.
6. 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(4):426-30.
7. Rizvi G, Pandey H, Pant H, Chufal SS, Pant P. Histopathological correlation of adenomyosis and leiomyoma in hysterectomy specimens as the cause of abnormal uterine bleeding in women in different age groups in the Kumaon region: A retrospective study. *Journal of mid-life health*. 2013 Jan;4(1):27.
8. Khan S, Hameed S, Umber A. Histopathological pattern of endometrium on diagnostic D & C in patients with abnormal uterine bleeding. *Annals of King Edward Medical University*. 2011;17(2):166-.
9. Sinha P, Rekha PR, Konapur PG, Thamilsevi R, Subramaniam PM. Pearls and pitfalls of endometrial curettage with that of hysterectomy in DUB. *J Clin Diagn Res*. 2011; 5(6) :1199-202.
10. Azim P, Khan MM, Sharif N, Khattak EG. Evaluation of abnormal uterine bleeding on endometrial biopsies. *Isra Med J*. 2011 Sep; 3:84.
11. Patil SG, Bhute SB, Inamdar SA, Acharya NS, Shrivastava DS. Role of diagnostic hysteroscopy in abnormal uterine bleeding and its histopathologic correlation. *Journal of gynecological endoscopy and surgery*. 2009 Jul; 1 (2) :98..
12. Cornitescu FI, Tanase F, Simionescu C, Iliescu D. Clinical, histopathological and therapeutic considerations in non-neoplastic abnormal uterine bleeding in menopause transition. *Rom J Morphol Embryol*. 2011 Jan 1;52(3):759-65.
13. Riaz S, Ibrar F, Dawood NS, Jabeen A. Endometrial pathology by endometrial curettage in menorrhagia in premenopausal age group. *Journal of Ayub Medical College Abbottabad*. 2010 Sep 1;22(3):161-4.
14. Takreem A, Danish N, Razaq S. Incidence of endometrial hyperplasia in 100 cases presenting with polymenorrhagia/menorrhagia in perimenopausal women. *Journal of Ayub Medical College Abbottabad*. 2009 Jun 1;21(2):60-3.
15. Farquhar CM, Lethaby A, Sowter M, Verry J, Baranyai J. An evaluation of risk factors for endometrial hyperplasia in premenopausal women with abnormal menstrual bleeding. *American Journal of Obstetrics and Gynecology*. 1999 Sep 1;181(3):525-9.
16. Baral R, Pudasaini S. Histopathological pattern of endometrial samples in abnormal uterine bleeding. *Journal of Pathology of Nepal*. 2011;1(1):13-6.
17. Jesadapatrakul S, Tangjitgamol S, Manusirivitaya S. Histopathologic consistency between endometrial hyperplasia diagnosis from endometrial curettage and pathologic diagnoses from hysterectomy specimens. *Journal-Medical Association of Thailand*. 2005 Oct 1;88: S16.
18. Baak JP, Mutter GL. Ein and who94. *Journal of Clinical Pathology*. 2005 Jan 1;58(1):1-6.
19. Kurman RJ, Ellenson LH, Ronnett BM, editors. *Blaustein's pathology of the female genital tract*. New York: Springer; 2011 Jan 10.
20. Livingstone M, Fraser IS. Mechanisms of abnormal uterine bleeding. *Human reproduction update*. 2002 Jan 1;8(1) :60-7.
21. Dangal G. A study of endometrium of patients with abnormal uterine bleeding at Chitwan Valley.

- Kathmandu University medical journal (KUMJ). 2003 Apr 1;1(2):110-2.
22. Perveen S, Perveen S. Endometrium Histology In Abnormal Uterine Bleeding. Medical Channel. 2011 Oct 1;17(4).
 23. Mutter GL. Diagnosis of premalignant endometrial disease. Journal of clinical pathology. 2002 May 1;55(5):326-31.
 24. Saadia A, Mubarik A, Zubair A, Jamal S, Zafar A. Diagnostic accuracy of endometrial curettage in endometrial pathology. Journal of Ayub Medical College Abbottabad. 2011 Mar 1;23(1):129-31.
 25. Ara S, Roohi M. Abnormal uterine bleeding: Histopathological diagnosis by conventional dilatation and curettage. The Professional Medical Journal. 2011 Dec 10;18(04):587-91.
 26. Deligdisch L. Hormonal pathology of the endometrium. Modern Pathology. 2000 Mar;13(3):285-94.
 27. Yousaf S, Shaheen M, Rana T. Frequency of endometrial carcinoma in patients with postmenopausal bleeding. Annals of King Edward Medical University. 2010;16(4):290-.
 28. Ashraf-Ganjoei T, Behtash N, Shariat M, Mosavi A. Low grade endometrial stromal sarcoma of uterine corpus, a clinico-pathological and survey study in 14 cases. World journal of surgical oncology. 2006 Dec;4(1):1-5.
 29. IJ O., BU O., & SO N. Prevalence of Post-Operative Anaemia and its Complications among Obstetric and Gynaecological Patients in Enugu. Journal of Medical Research and Health Sciences, 2022; 5(9): 2250–2255.