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Original Research Article

Histopathological evaluation of uterine lesions in women with AUB in Vindhya region of Madhya Pradesh

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ABSTRACT

Background: Females over 20 years of age come frequently to gynecological clinics, with the complaint of Abnormal Uterine Bleeding (AUB). It has a direct impact on the physical and mental health of females. This research aims to detect the frequency of different uterine causes of AUB and determine the relationship between histopathological lesions associated with AUB and their age groups of presentation.

Materials and Methods: Endometrial biopsies / hysterectomy specimens were collected from 235 patients who presented with AUB to Department of Obstetrics & Gynecology SSMC, Rewa, M. P. (India), and HPE was carried out on all biopsies/specimens. Frequency of all findings was recorded and divided into organic and functional causes. Statistical analysis was done between histopathological lesions associated with AUB and their age groups of presentation.

Results: Majority of cases (40%) belonged to 41-50 years of age. HPE revealed prolife rative pattern of endometrium, which was the most common presentation (24.68%) amongst functional causes, while the most common organic cause was uterine leiomyoma (12.76%). Cases of endometrial polyp and endometrial hyperplasia without atypia were found frequently in women of 41-50 years of age. The frequency of endometrial carcinoma was 1.27%, which commonly affected elderly females.

Conclusions: We conclude that AUB most commonly affects women in the perimenopausal age group. Histopathological study of uterine lesions aids the early diagnosis of premalignant and malignant lesions and thus saves the patient from having an unnecessary hysterectomy in premalignant lesions.

1. Introduction

Heavy menstrual bleeding (HMB) is a common gynecological complaint that poses a direct negative influence on health and daily activities. Clinically, it is an excessive menstrual blood loss that interferes with the physical, emotional, and social quality of life. It may occur alone or with other symptoms.[1] Now, it has been included under the umbrella terminology Abnormal Uterine Bleeding (AUB). AUB is a pattern of bleeding that varies in duration, amount, and frequency from normal menstrual bleeding. AUB may be observed either before menopause, perimenopause, or after menopause.[2] It may directly influence the health of females, creating medical problems such as iron deficiency, chronic illness, etc.[3]

AUB encompasses both dysfunctional uterine bleeding (DUB) and uterine bleeding from any organic cause. DUB is defined as AUB without any structural abnormality in the endometrium, while organic cause includes structural abnormalities like endometrial polyp, fibroid, and endometrial carcinoma.[4] HPE of endometrial biopsy is considered an excellent diagnostic tool for the assessment of AUB. As AUB cases have been considered a salient cause of hysterectomy, so specific diagnosis is required

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for the clinicians to implement resourceful and successful therapeutic management of AUB.[5]

The current research aims to detect the frequency of different uterine causes of AUB and determine the relationship between histopathological lesions associated with AUB and their age groups of presentation.

2. Material and Methods

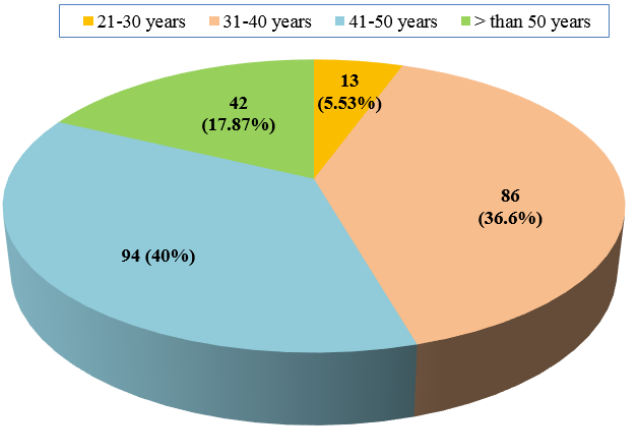
The current retrospective study was carried out from July 2018 to December 2019 in Department of Pathology, Shyam Shah Medical College, Rewa (MP). A total of 235 well preserved endometrial biopsies / hysterectomy specimens were procured from patients presenting with AUB after obtaining ethical clearance by Institutional Ethical Committee. Histopathological processing was done for all biopsies/specimens. Sections of 5μ thickness were taken, processed and stained with Haematoxylin & Eosin (H&E) stain. All stained slides were examined under a light microscope, and histopathological findings were recorded. The final histopathological diagnosis of AUB was categorized either into a functional cause or an organic cause. AUB due to normal proliferative and secretory phase of the endometrium, atrophic endometrium, and disordered proliferative endometrium (DPE) was categorized under the functional causes of AUB. AUB due to endometrial hyperplasia (EH) with or without atypia, endometrial polyp, endometrial carcinoma, uterine leiomyoma (UL), adenomyosis, and retained products of conception was categorized under organic causes in the current study. AUB due to cervical pathology and coagulopathy was excluded from this study. Descriptive data was expressed as frequency (percentage). A Chi-square test was done between histopathological lesions associated with AUB and their age groups of presentation. The difference between the two groups was considered significant if $p < 0.05$.

3. Results

In the current study, 94 (40%) AUB cases belonged to 41-50 years of age group, followed by 86 (36.6%) cases that belonged to 31-40 years of age group. 42 (17.87%) AUB cases were seen in patients of more than 50 years of age group, while only 13 (5.53%) cases belonged to 21-30 years of age group (Graph 1).

Among 235 cases, 147 (62.55%) cases had AUB due to functional abnormalities of the endometrium, while 88 (37.45%) cases had AUB due to significant pathological changes in the endometrium. HPE revealed that the most common functional cause of AUB was the proliferative pattern of the endometrium, while the most common organic cause of AUB was UL. Cases of AUB due to the proliferative phase of the endometrium were 58 (24.68%), while the cases due to secretory phase of endometrium were 21 (8.93%). Cases of AUB due to atrophic endometrium were 37 (15.47%), while AUB cases due to DPE were 31 (13.19%). 30 (12.76%) AUB cases were due to UL (Figure 1). AUB due to endometrial polyp was found in 17 (7.23%) cases, while AUB cases due to adenomyosis were 13 (5.53%) (Table 1). Among 24 cases of EH, only 1 case was found with atypia, while the rest 23 cases showed hyperplasia without atypia (Figure 2). AUB due to endometrial carcinoma (Figure 3) was found in 3 (1.27%) cases (Table 1).

The relationship between different histopathological uterine findings of AUB cases and different age groups of the presentation was found to be statistically significant ($p<0.01$). Out of 30 UL cases having AUB, 18 (60%) cases belonged to 31-40 years of age group, while amongst 17 cases of endometrial polyp having AUB, 10 (58.82%) cases belonged to 41-50 years of age group. The majority of cases of adenomyosis having AUB were between the ages of 31-50 years. AUB due to EH was seen in all age groups, but most of them (43.47% cases) belonged to 41-50 years of age group. AUB due to endometrial carcinoma was predominantly seen in more than 50 years of age group, while AUB due to proliferative and secretory patterns of endometrium was found frequently in women of 31-40 years age group. Out of 37 cases of atrophic endometrium having AUB, 23 (62.16%) belonged to women over 50 years of age, while out of 31 DPE cases having AUB, 16 (51.61%) belonged to 41-50 years of age (Table 2).



*AUB- Abnormal Uterine Bleeding

Graph 1: Age-wise distribution of AUB* cases (n=235)

4. Discussion

Cyclical changes in the endometrium are dependent upon the hormonal status of women. Variations in the histology of endometrium can be seen according to the age of women, menstrual cycle phases, and other specific pathology.[10] The present study revealed majority of the AUB cases were

Table 1: Distribution of AUB* cases according to histopathological diagnosis (n=235)

	Histopathological diagnosis	No. of cases	Percentage
Organic causes	Uterine leiomyoma (UL)	30	12.76%
	Endometrial polyp	17	7.23%
	Adenomyosis	13	5.53%
	Endometrial hyperplasia without atypia	23	9.78%
	Retained Products of conception	1	0.42%
	Endometrial hyperplasia with atypia	1	0.42%
	Endometrial Carcinoma	3	1.27%
	Total	88	37.45%
Functional causes	Normal proliferative endometrium	58	24.68%
	Normal secretory endometrium	21	8.93%
	Atrophic endometrium	37	15.74%
	Disordered proliferative endometrium	31	13.19%
	Total	147	62.55%

*AUB- Abnormal Uterine Bleeding

Table 2: Distribution of histopathological diagnosis of AUB* cases across different age groups (n=235)

Histopathological diagnosis	Age Group (in years)				
	21-30	**31-40**	**41-50**	**>50**	**Total**
Uterine leiomyoma	3 (10%)	18 (60%)	9 (30%)	0	30
Endometrial polyp	1 (5.88%)	3 (17.64%)	10(58.82%)	3(17.64%)	17
Adenomyosis	0	6 (46.15%)	7(53.85%)	0	13
Endometrial hyperplasia without atypia	1 (4.34%)	6 (26.08%)	10(43.47%)	6(26.08%)	23
Retained Products of conception	0	1 (100%)	0	0	1
Endometrial hyperplasia with atypia	0	0	1(100%)	0	1
Endometrial Carcinoma	0	0	1(33.33%)	2(66.67%)	3
Normal proliferative endometrium	8(13.79%)	32(55.17%)	18(31.03%)	0	58
Normal secretory endometrium	0	12(57.14%)	9(42.85%)	0	21
Atrophic endometrium	0	1(2.7%)	13(35.13%)	23(62.16%)	37
Disordered proliferative endometrium	0	7(22.58%)	16(51.61%)	8(25.8%)	31
Total	13	86	94	42	235

(X^2 = 126.014, df= 30, p <0.01)
*AUB- Abnormal Uterine Bleeding

Table 3: Comparison of various histopathological diagnosis of AUB* cases with previous studies

Histopathological diagnosis		Jairajpuri ZS et al[6]	Mune SB et al[7]	Abdullah LS et al[8]	Prathipaa R. et al[9]	Present study
Proliferative endometrium	Incidence	24.92%	27.8%	21.7%	50.39%	24.68%
	Commonest age group	41-50yrs	31-40yrs	19-39yrs	41-50yrs	31-40yrs
Atrophic endometrium	Incidence	1.10%	13.2%	3.1%	1.17%	15.74%
	Commonest age group	>50yrs	>50yrs	>50yrs	>50yrs	>50yrs
Disordered proliferative endometrium	Incidence	5.7%	13.7%	8.7%	3.13%	13.19%
	Commonest age group	41-50yrs	41-50yrs	40-51yrs	41-50yrs	41-50yrs
Endometrial polyp	Incidence	1.72%	8%	9.9%	2.34%	7.23%
	Commonest age group	41-50yrs	41-50yrs	>50yrs	41-50yrs	41-50yrs
Endometrial Carcinoma	Incidence	0.47%	2.3%	1.8%	0.39%	1.27%
	Commonest age group	>50yrs	>50yrs	>50yrs	>50yrs	>50yrs

*AUB- Abnormal Uterine Bleeding

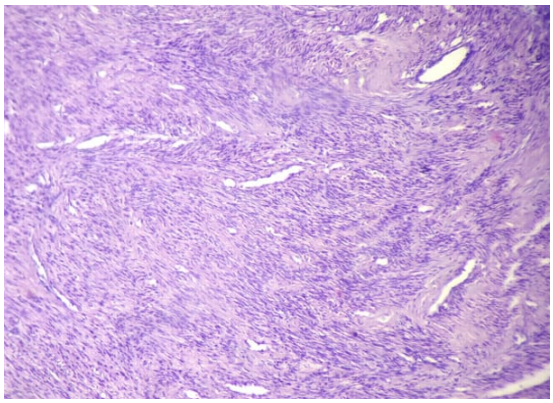


Fig. 1: Uterine leiomyoma showing spindle-shaped smooth muscle cells arranged in fascicles. (H & E stain, 10 X)

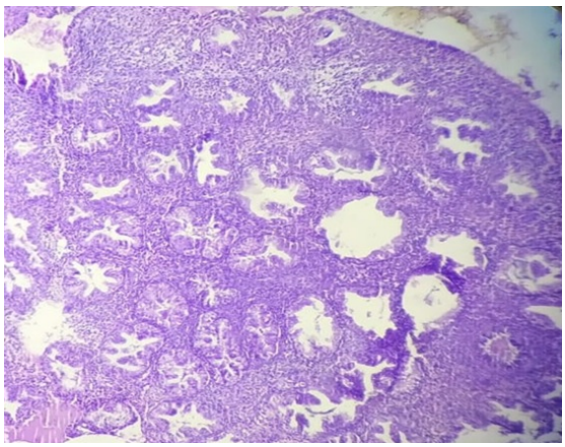


Fig. 2: Endometrial hyperplasia, non- atypical showing increased gland to stroma ratio (H & E stain, 10X)

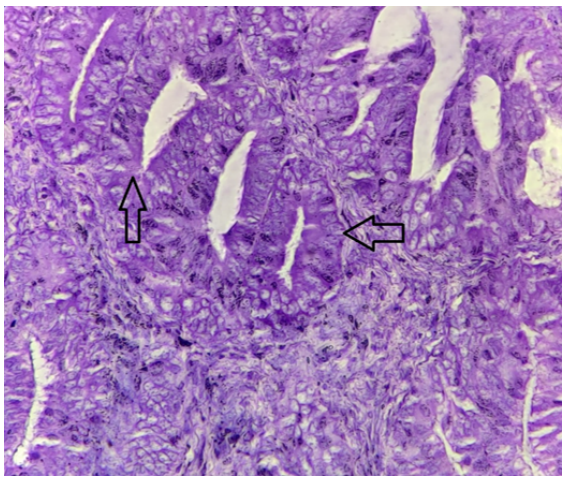


Fig. 3: Well-differentiated endometrial carcinoma, showing well-formed glands lined by malignant cells with nuclear atypia (H & E stain, 40X)

between the ages of 41-50 years (Graph 1). This observation is similar to studies done by previous researchers.[6,11,12] Approaching menopause results in decreased ovarian follicular reserve leading to low estrogen levels and failure to support normal endometrium, which possibly explains the enhanced frequency of AUB in women aged 41-50 years.[13]

The current study revealed that out of 235 AUB cases, 62.55% of cases belonged to functional causes, while 37.45% of cases belonged to organic causes (Table 1). These findings are in congruence with the study done by Muzaffar M et al[14] and Mune SB et al,[7] but it differs from the observation of Vaidya S et al[11] who reported incidence of organic causes of AUB only in 19% of cases.

Various physiological and pathological patterns in the endometrium can be seen in the HPE of endometrial biopsies of patients complaining of AUB. The current study revealed that among 235 AUB cases, 24.68% of cases belonged to the proliferative pattern of the endometrium (Table 1). Similar to this finding, Jairajpuri ZS et al[6] and Bhatta S et al[15] found 24.9% and 26.23% incidence of normal proliferative endometrium associated with AUB respectively. In contrast to the above findings, Shah RJ et al,[16] Riaz S et al,[17] and Prathipaa R et al[9] found higher incidence (i.e. 38.1%, 33%, and 50.39% respectively) of normal proliferative endometrium associated with AUB. The present study also showed that cases of normal proliferative endometrium associated with AUB were seen predominantly in women aged 31-40 years (Tables 2 and 3). This finding is consistent with those reported by earlier observers.[7,18]

DPE is an excessive proliferative phase with no remarkable increase in the overall glands to stroma ratio.[12] Previous researchers reported that the incidence of DPE associated with AUB varies from 5.7% to 20.54%.[6,8,12] In our study, 13.19% of cases presenting with AUB were diagnosed as DPE (Table 1). Similar to our finding, Mune SB et al[7] found 13.7% cases of DPE (Table-3). Gulia SP et al[19] reported that DPE cases associated with AUB are found frequently in peri and post-menopausal women on evaluation of endometrial biopsy samples. Similarly, most of the cases of DPE associated with AUB were observed in the females, whose age ranged in 41-50 years (Tables 2 and 3) in our study.

Postmenopausal bleeding is often related to an atrophic endometrium. The current study revealed that atrophic endometrium associated with AUB was observed in 15.74% of cases and most of them were found in the postmenopausal age group (Tables 1 and 2). These findings are in congruence with the findings reported by earlier researchers.[7,20] It is supposed that lack of estrogenic stimulation for a long duration causes thin atrophic endometrium which is more vulnerable to injuries and therefore liable for postmenopausal bleeding even without any remarkable

injury.[15]

The current study revealed that UL was the commonest organic cause of AUB (Table 1). This finding is comparable with the previous researchers.[21,22] Prolonged estrogen stimulation leads to endometrial polyp formation.[16] Cases of endometrial polyp associated with AUB were 7.23% in the present study (Table 1). In contrast to our findings Parmar J et al[5] and Doraswami S. et al[12] reported higher incidence (i.e. 10.78% and 11.2% respectively) of the endometrial polyp. The present study showed that endometrial polyp associated with AUB was found predominantly in women aged 41-50 years. This finding is in congruence with those reported by earlier researchers (Tables 2 and 3).[6,7,12]

EH is an immoderate expansion of endometrial glands relative to the stroma.[23] Most of the cases of atypical EH have coincided with endometrial carcinoma. Therefore EH receives special attention. Most of the EH cases associated with AUB undergo hysterectomy. Early diagnosis of EH can be managed first by hormonal therapy, thus avoiding unnecessary surgery.[24] In our study, 9.78% AUB cases were diagnosed as EH without atypia, while 0.42% of AUB cases were diagnosed as EH with atypia (Table 1). EH associated with AUB was found predominantly in women aged 41-50 years (Table 2). These findings are consistent with those reported by earlier observers.[7,11]

In our study, 1.27% of cases presenting with AUB were diagnosed as endometrial carcinoma (Table 1). Just like our finding, Riaz S et al[17] and Abdullah LS et al[8] reported 1.0% and 1.8% cases of endometrial carcinoma respectively. Previous researchers reported that endometrial carcinoma commonly occurs in women of the postmenopausal age group.[6–8] Similarly, cases of endometrial carcinoma associated with AUB were predominantly found in females over 50 years of age in our study (Table 3). So, it is must to carry out HPE of endometrial biopsies to rule out the malignant pathology in females complaining of AUB over 40 years of age.

5. Conclusion

We conclude that AUB most commonly affects women in the perimenopausal age group. HPE of uterine lesions revealed that most uterine lesions having AUB either arise from a functional cause or revealed benign lesions. HPE remains the investigation of choice for differentiating premalignant and malignant lesions. Therefore, a histopathological study of uterine lesions aids the early diagnosis of premalignant and malignant lesions and thus saves the patient from having an unnecessary hysterectomy in premalignant lesions.

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7. Source of Funding

None.

8. Conflicts of Interest

There is no conflict of interest.

References

1. Sriprasert I, Pakrashi T, Kimble T, Archer DF. Heavy menstrual bleeding diagnosis and medical management. *Contracept Reprod Med*. 2017;2:20. doi:10.1186/s40834-017-0047-4.
2. Ely JW, Kennedy CM, Clark EC, Bowdler NC. Abnormal uterine bleeding: a management algorithm. *J Am Board Fam Med*. 2006;19(6):590–602. doi:10.3122/jabfm.19.6.590.
3. Farrell E. Dysfunctional uterine bleeding. *Aust Fam Physician*. 2004;33(11):906–8.
4. Brandon JB, Amy EH, Nicholas CL, Harold EF, Edward EW. The John Hopkin's Manual of Gynecology and Obstetrics. 2nd ed. Philadelphia: Lippincott Williams & Williams; 2002. p. 405–11.
5. Parmar J, Desai D. Study of endometrial pathology in abnormal uterine bleeding. *Int J Reprod Contracept Obstet Gynecol*. 2013;2(2):182–3. doi:10.5455/2320-1770.ijrcog20130614.
6. Jairajpuri ZS, Rana S, Jetley S. Atypical uterine bleeding Histopathological audit of endometrium - A study of 638 cases. *Al Ameen J Med Sci*. 2013;6(1):21–8.
7. Mune SB, Karche AG. Histopathological patterns of endometrial lesions in patients with abnormal uterine Bleeding in rural area of Western Maharashtra. *Indian J Pathol Oncol*. 2016;3(4):665–72.
8. Abdullah LS, Bondagji NS. Histopathological pattern of endometrial sampling performed for abnormal uterine bleeding. *Bahrain Med Bull*. 2011;33(4):1–6.
9. Prathipaa R, Divya J. Histopathological study of endometrial samples in abnormal uterine bleeding. *Indian J Pathol Oncol*. 2020;7(4):567–70.
10. Shilpa MD, Subramanya. Study of Endometrial Pathology in Abnormal Uterine Bleeding. *Int J Sci Res*. 2014;3(8):490–2.
11. Vaidya S, Lakhey M, Vaidya S, Sharma PK, Hirachand S, Lama S, et al. Histopathological pattern of abnormal uterine bleeding in endometrial biopsies. *Nepal Med Coll J*. 2013;15(1):74–81.
12. Doraiswami S, Johnson T, Rao S, Rajkumar A, Vijayaraghavan J, Panicker VK, et al. Study of endometrial pathology in abnormal uterine bleeding. *J Obstet Gynecol India*. 2011;61(4):426–30.
13. Davey DA. Dysfunctional Uterine Bleeding. In: eld CW, editor. Dewhurst's Textbook of Obstetrics and Gynaecology for Postgraduates. Glasgow: Blackwell Science; 1997. p. 590–608.
14. Muzaffar M, Akhtar KAK, Yasmin S, M-Ur-Rehman, Iqbal W, Khan MA, et al. Menstrual irregularities with excessive blood loss: a clinico-pathological correlation. *J Pak Med Assoc*. 2005;55(11):486–9.
15. Bhatta S, Sinha AK. Histopathological study of endometrium in abnormal uterine bleeding. *J Pathol Nepal*. 2012;2(4):297–300. doi:10.3126/jpn.v2i4.6882.
16. Shah RJ, Dayal A, Kothari SL, Patel SM, Dalal B. Histopathological interpretation of endometrium in abnormal uterine bleeding. *Int J Med Sci Public Health*. 2014;3(4):452–6. doi:10.5455/ijmsph.2014.120220142.
17. Riaz S, Ibrar F, Dawood NS, Jabeen A. Endometrial pathology by endometrial curettage in menorrhagia in premenopausal age group. *J Ayub Med Coll Abbottabad*. 2010;22(3):161–4.
18. Khare A, Bansal R, Sharma S, Elhence P, Makkar N, Tyagi Y, et al. Morphological spectrum of endometrium in patients presenting with dysfunctional uterine bleeding. People's. *J Sci Res*. 2012;5(2):13–6.

19. Gulia SP, Lavanya M, Chaudhury M, Kumar SP. Study of endometrial pathology in cases of abnormal uterine bleeding-A Meta-analysis of 435 cases. *J Med Sci Tech*. 2013;2(3):124–9.
20. Acharya V, Mehta S, Rander A. Evaluation of dysfunctional uterine bleeding by TVS, hysteroscopy and histopathology. *J Obstet Gynecol India*. 2003;53(3):170–7.
21. Sajjad M, Iltaf S, Qayyum S. Pathological findings in hysterectomy specimens of patients presenting with menorrhagia in different age groups. *Ann Pak Inst Med Sci*. 2011;7(3):160–2.
22. Shah ST, Tariq H. Histopathologic findings in menorrhagia a study of 100 hysterectomy specimens. *Pak J Pathol*. 2005;16(4):83–5.
23. Boruban MC, Altundag K, Kilic GS, Blankstein J. From endometrial hyperplasia to endometrial cancer: insight into the biology and possible medical preventive measures. *Eur J Cancer Prev*. 2008;17(2):133–8.
24. Lacey JV, Chia VM. Endometrial hyperplasia and the risk of progression to carcinoma. *Maturitas*. 2009;63(1):39–44.

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