Histopathological Study of Endometrial Sampling in Abnormal Uterine Bleeding

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Abstract

Introduction: Abnormal uterine bleeding (AUB) is a the most common complaint in the gynecology out-patient department that affects significantly the patient‘s personal life and it is also responsible for increasing morbidity in women. The histopathological diagnosis of abnormal uterine bleeding (AUB) shows spectrum of patterns and pathologist plays a vital role in the reporting of endometrium and differentiating non-neoplastic lesion from neoplastic lesions, early detection of precursor lesions and exclusion of malignancy. The aim of this study is to study the spectrum of endometrial patterns in women with AUB and to correlate with the different age groups. **Materials and methods**: The present study was undertaken in histopathology laboratory of Department of Pathology, GMERS medical college and hospital, sola, Ahmedabad for period of 12 months from June 2021 to May 2022. A histopathological study of total 100 cases of endometrial biopsies was done. Biopsies received in 10% formalin were processed and Haematoxylin and Eosin sections were studied. **Result:** We studied 100 endometrial samples. Age distribution varied from 20 years to 70 years, majority of patients were between 41 to 50years (35%).Menorrhagia was the most common presenting complain. Most common pattern of histopathology was proliferative endometrium (29%) followed by secretory endometrium (14%) and Disorderly proliferative endometrium (9%). Malignancy was detected in (2%) cases. **Conclusion:** AUB significantly affects the quality life of women and leads to anemia. Hence histopathological examination plays a critical role in early diagnosis of endometrial pathology and provide appropriate gynaecological management.
Keywords: Abnormal Uterine Bleeding (AUB), Endometrial biopsy, Histopathological Examination

Introduction

Abnormal uterine bleeding (AUB) is a menstrual disorder affecting all age groups of women, at times reflecting serious underlying pathology [1]. It is defined as changes in frequency of menstruation, duration of flow, amount of blood loss or intermenstrual bleeding [2]. Histological variations in endometrium depends on the age of the woman, the phase of her menstrual cycle and use of any exogenous hormones. Pregnancy-related changes are more common in younger patients, whereas atrophic endometrium is more common in older patients [3]. The FIGO Working Group on Menstrual Disorders has classified the various causes for AUB into structural/organic lesions and non-structural entities [4]. Endometrial sampling and subsequent histopathological study remain the gold standard for diagnosis of causes of AUB [5]. The aim of this study is to identify the pattern of histopathological diagnoses encountered in women of various age groups presenting with abnormal uterine bleeding and to provide appropriate gynecological management.

Material & Methods

A prospective study of 100 endometrial samples (Curettage materials and biopsies) were conducted from June 2021 to May 2022 at Pathology Department, GMERS Medical College and General Hospital, Sola, Ahmedabad in a tertiary care hospital. Detailed Requisition forms with clinical data of the study subjects were received along with samples of the endometrial tissue in 10% formalin bottles. The tissue samples

were fixed in 10% formalin solution for 12 hours and prepared for microscopic examination by a series of Histopathology processes.

Results & Discussion

We studied 100 endometrial samples. Normal cyclical endometrium was found to be the most common pattern in the histopathological examination of presenting cases with proliferative endometrium in 29% (Figure 1), and secretory endometrium in 14 %.(Figure 3), this is followed by disorderly proliferative endometrium (9%) (Figure 2), Chronic endometritis (8%), Drug induced changes in endometrium (7%) (Figure 4), weakly proliferative endometritis (7%), Atrophic endometritis (6%) (Figure 7), Shedding endometritis (5%), Endometrial hyperplasia (5%) (Figure 6), Endometrial polyp (2%) which is less common in younger age group in our study. This may be due to possibility of spontaneous regression, which is attributed to cycling endometrium in reproductive age group [7], Retained product of conception (2%) (Figure 8), Carcinoma (2%) (Figure 5), and Candidiasis (1%). Histopathological examination was extremely useful in differentiating the different types of endometrial patterns [Table 2]. The age group of patients in this study ranged from 20 to 70 years. Maximum numbers of cases were in the age group of 41–50 years of 35 cases. This was followed by 27 cases in 31–40 years group, 18 cases in 21–30 years age group, 14 cases in 51–60 years age group, and 4 cases in >60 years age group. Age-wise distribution of cases is clearly shown in Table 1.

Table 1: Distribution of patients according to age

Age in years	No. of patients
11-20	02
21-30	18
31-40	27
41-50	35
51-60	14
61-70	04
Total	100

Like all other studies in comparison, our study has found a maximum incidence of AUB in the perimenopausal age group. This is because of anovulatory cycles in menopause due to a decline in the number of ovarian follicles and altered estradiol level that leads to abnormal bleeding [6]. The commonest pattern observed in the study was proliferative endometrium which was similar to data mentioned by S.Prasannalakshmi, Prithika SI and Vijayaraghavan Sr A et al as shown in Table 3.

Table 2: Distribution of endometrial patterns in different age groups

Endometrial pattern	<30 year	31-40 years	41-50 years	>50 years	Total
Proliferative EM	04	12	11	02	29
Secretory EM	03	04	07	00	14
Disorderly proliferative EM	01	02	05	01	09
Shedding Endometrium	00	03	02	00	05
Drug Induced Changes	01	02	03	01	07
Weakly Proliferative EM	01	01	03	02	07
Adenomyomatous Polyp	00	00	01	00	01
Endometrial hyperplasia	00	00	05	00	05
Product of conception	01	01	00	00	02
Chronic Endometritis	00	03	04	01	08
Endometrial Polyp	00	00	01	01	02
Atrophic EM	00	01	02	03	06
Carcinoma	00	00	01	01	02
Candidiasis	01	00	00	00	01
No Opinion Can Be Given	00	00	02	00	02 Total=100

Table 3: Comparison with other similar studies

Study	Proliferative EM	Secretory EM	Endometrial hyperplasia	Chronic Endometritis	Atrophic EM	Carcinoma
Our Study	29 %	14%	5%	8%	6%	2%
S.Prasannalakshmi [8]	56%	34%	5%	14%	3%	11%
Jairajpuri ZS et al [9]	24.92%	28.99%	5.79%	6.11%	1.10%	0.47%
Prithika SI [10]	31.90%	11.43%	20%	5.24%	3.33%	0.48%
Vijayaraghavan Sr A et al [11]	53.85%	28.84%	16.07%	5.36%	0.97%	3.57%

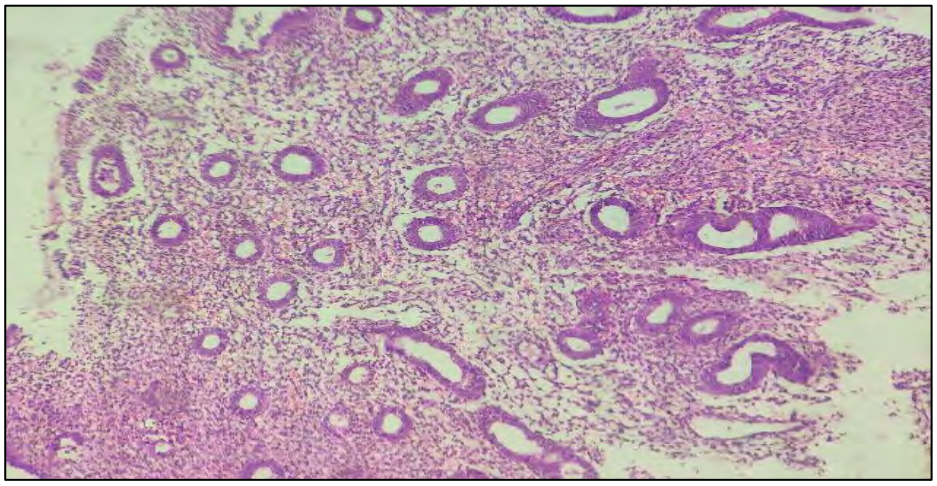

Figure 1: Proliferative endometrium (H&E, 10X) showing round to oval glands with basally situated nucleus.

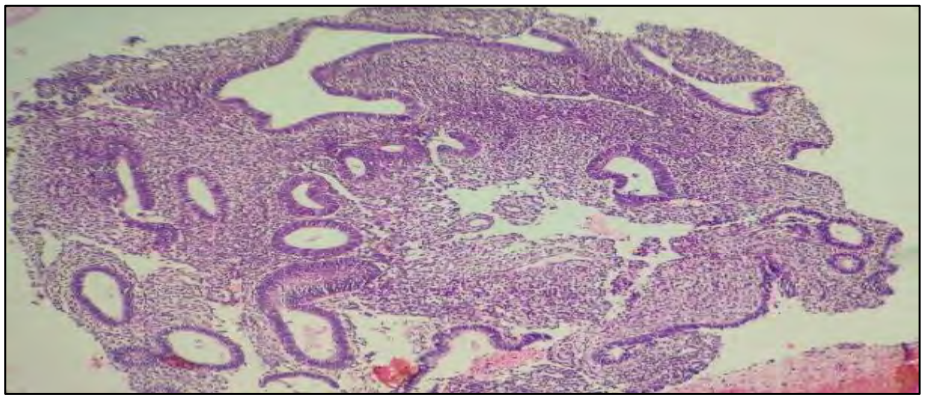

Figure 2: Disorderly Proliferative endometrium (H&E, 10X).

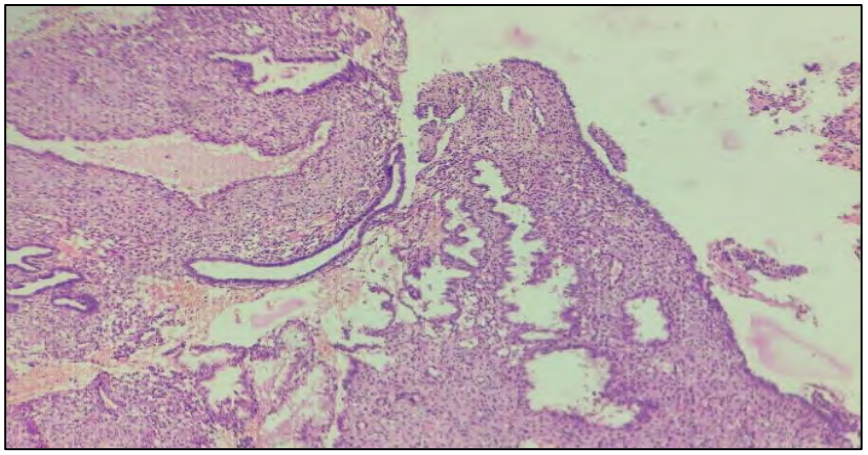

Figure 3: Secretory endometrium (H&E, 10X) showing tortuous glands with apically placed nucleus with subnuclear vacuolations and secretions present in cavity.

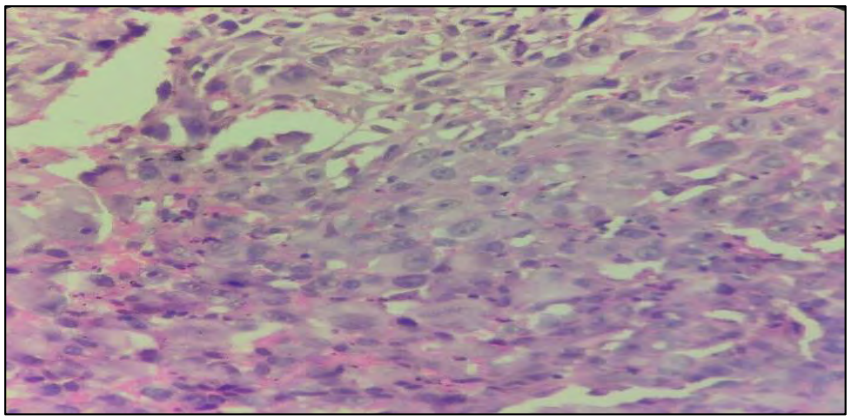

Figure 4: Pseudodecidual changes in endometrium due to progesterone therapy (H&E, 40X).

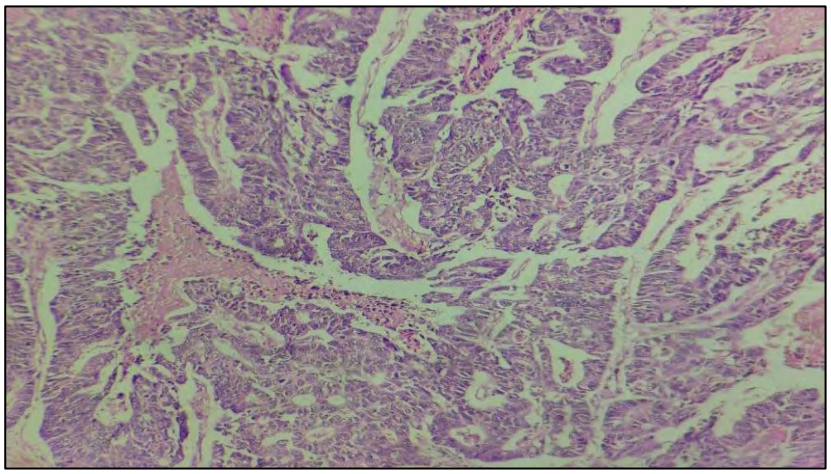

Figure 5: Endometrial Adeno Carcinoma (H&E, 10X).

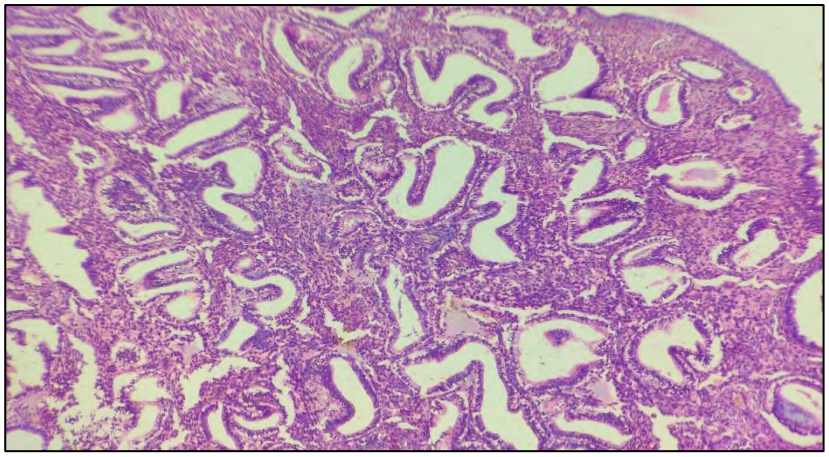

Figure 6: Endometrial Hyperplasia (H&E, 10X).

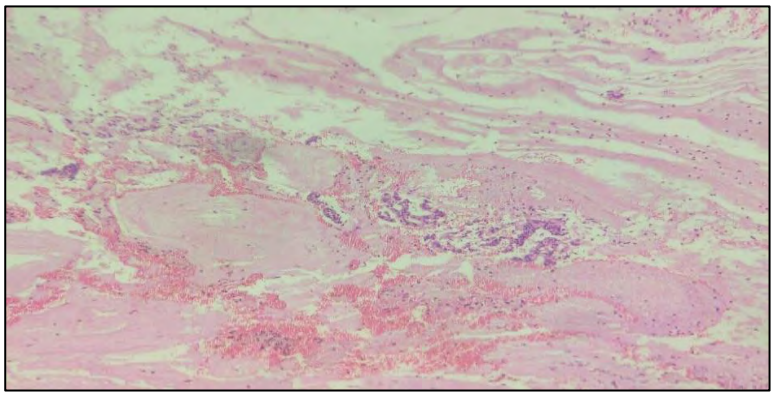

Figure 7: Atrophic Endometrium (H&E, 10X).

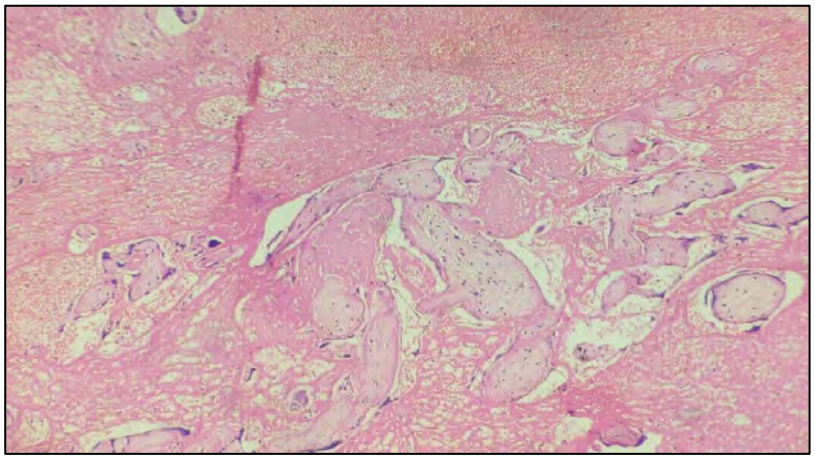

Figure 8: Retained Products of Conception

In menstrual cycle, after menstrual shedding there is endometrial proliferation phase under effect of estrogen hormone. In proliferative phase, the endometrial glands grow, become Tortuous, showing stratification and mitosis.[12,13] The proliferative phase is followed by secretory phase. Secretory phase is characterized by endothelial proliferation, thickening of the wall, and coiling forming the spiral arterioles.[14]

Disordered proliferative endometrium, abnormal proliferative endometrium with architectural changes due to persistent unopposed estrogen stimulation. The histologic patterns seen in

endometrial biopsies from women who receive hormonal pills shows decidual changes, secretory changes and inactive glands.

The histological criteria for chronic endometritis are variable in different literature. Chronic endometritis should be considered when there is presence of plasma cells and lymphocytes or lymphoid aggregates in endometrial stroma and there is also presence of neutrophils in surface endometrium.[15,16] In endometrial hyperplasia there is Closely packed glands such that gland to stroma ratio is > 3:1. Hyperplasia is called as atypical hyperplasia if glandular cells show cytological atypia. If left untreated, atypical hyperplasia will progress to carcinoma.[17]

The specimens showing large amount of hemorrhage with scanty glands or stroma were labelled unsatisfactory to report and the clinician was advised to repeat biopsy.

Conclusion

AUB is the most common complaint in the gynecology outpatient department. AUB significantly affects the quality life of women and can be associated with underlying fatal disease. Endometrial sampling should be considered in perimenopausal and postmenopausal age group and in reproductive age group not responding to medical treatment. Histopathological examination plays a critical role in early and accurate diagnosis is key to provide appropriate gynaecological management and optimal outcome.

References

1. Livingstone M, Fraser IS. Mechanisms of abnormal uterine bleeding. Human reproduction update. 2002 Jan 1;8(1):60-7.
2. Albers J, Hull SK, Wesley RM. Abnormal uterine bleeding. American family physician. 2004 Apr 15;69(8):1915-26.
3. 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.
4. Munro MG, Critchley HO, Broder MS, Fraser IS, FIGO Working Group on Menstrual Disorders. FIGO classification system (PALM-COEIN) for causes of abnormal uterine bleeding in nongravid women of reproductive age. International Journal of Gynecology& Obstetrics. 2011 Apr 1;113(1):3-13.
5. Baral R, Pudasaini S. Histopathological pattern of endometrial samples in abnormal uterine bleeding. Journal of Pathology of Nepal. 2011;1(1):13-6.
6. 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.
7. Pagalla AK, Kasapa SS. Study of Histopathological changes of Endometrium in Abnormal Uterine Bleeding. Journal of Chalmeda Anand Rao Institute of Medical Sciences Vol. 2016 Jul;12(2):74.
8. Prasannalakshmi S. Histopathological Correlation of Abnormal Uterine Bleeding. Clinical Research in Obstetrics and Gynecology. 2018;1(2):1-4.
9. 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.
10. Prithika SI, Biju BS, Prathipaa RP, Ponnusankar S, Vishwas HN. PREVALENCE OF SMARTPHONE ADDICTION AND ITS IMPACT ON SLEEP QUALITY AND ASSOCIATED NECK DISABILITIES AMONG UNIVERSITY STUDENTS OF OOTY, INDIA.
11. Vijayaraghavan Sr A, 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).
12. Schorge J, Schaffer J, Halvorson L, Hoffman B, Bradshaw K, Cunningham F. Williams Gynecology, 1st ed. The McGraw-Hill Companies; 2008.
13. Liane D. Hormonal Pathology of the Endometrium. Mod Pathol2000;13:285–94.
14. Ferenczy A. Anatomy and histology of the uterine corpus. In: Kurman RJ, editor. Blaustein's pathology of the female genital tract. 4th ed. New York: Springer Verlag; 1994. pp 332–352.
15. Kiviat NB, Wolner-Hanssen P, Eschenbach DA et al. Endometrial histopathology in patients with culture-proved upper genital tract infection and laparoscopically diagnosed acute salpingitis. Am J SurgPathol1990;14:167–75.
16. Eckert LO, Hawes SE, Wolner-Hanssen PK et al. Endometritis: the clinical-pathologic syndrome. Am J ObstetGynecol2002;186:690– 5.
17. Caela M, Michael A, Joseph P. The ability of endometrial biopsies with atypical complex hyperplasia to guide surgical management. Am J ObstetGynecol2008;199:60-9.