

HISTOPATHOLOGY OF ENDOMETRIUM IN CASES OF ABNORMAL UTERINE BLEEDING

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Abstract

Background: Abnormal Uterine Bleeding (AUB) is defined as any bleeding that does not correspond with the frequency, duration or amount of blood flow of a normal menstrual cycle. It is the most common complaint in the gynecology out-patient department and interferes with the quality of life of otherwise healthy women with different presentations and varied causes. Endometrial sampling is needed to investigate the cause of AUB. **Aim:** The objective of the study was to analyze different histopathological patterns of endometrium in different age groups presenting with abnormal uterine bleeding. **Materials and Methods:** The current study was done at F.H. Medical College Etmadpur, Agra, India. Endometrial biopsy specimens with abnormal uterine bleeding received from Jan 2018 to Nov 2020 were studied retrospectively in the Department of Histopathology. Specimens received as endometrial curettings and hysterectomy specimens were studied histopathologically followed by clinical correlation. **Results:** We studied 280 cases from which, normal cycling endometrium was seen in 121 cases (43%). The commonest pathology irrespective of the age group was disordered proliferative pattern in 67 cases (24%). Other causes identified were atrophic endometrium in 33 (12%), complications of pregnancy and hormonal changes in 6 (2%) benign endometrial polyp in 6 (2%), adenomyosis in 3(1%) endometrial hyperplasia in 34 (12%), carcinomas in 7 (3%) and chronic endometritis in 3 cases (1%). Most of the patients with AUB were between 40-49 years of age (46%). **Conclusion:** Endometrial sampling plays a very important role in management of AUB, especially in the peri and post-menopausal age groups in which atrophy and carcinoma endometrium are predominant. Hence a thorough histopathological workup and clinical correlation are mandatory in cases of abnormal uterine bleeding.

INTRODUCTION

Abnormal uterine bleeding (AUB) is one of the commonest presenting symptoms in gynecology clinics. It is one of the commonest complaints in women and when it occurs without organic lesions like tumor, inflammation, it is called as dysfunctional uterine bleeding. Endometrial sampling could be effectively used as the first diagnostic step in AUB, although at times, its interpretation could be quite challenging to the practicing pathologists. This study was done to evaluate histopathology of endometrium for identifying the endometrial causes of AUB. We also tried to observe the incidence of various pathology in different age groups presenting with abnormal uterine bleeding.

Abnormal uterine bleeding (AUB) is a common gynecological complaint associated with considerable morbidity and significantly affects the

patient's family, personal and social life. Prevalence of AUB in women between menarche and menopause is around 9-14%. The reported prevalence of AUB in India is around 17.9%.^[1] Abnormal uterine bleeding can present as menorrhagia, metrorrhagia, polymenorrhea, metromenorrhagia, perimenopausal and postmenopausal bleeding.^[2]

MATERIALS AND METHODS

Study design Retrospective Observational study

Study area Department of Pathology in collaboration with the Department of Obstetrics & Gynaecology FH Medical College, Etmadpur, Agra Study period January 2018 to November 2020 Study population Hysterectomy specimens and endometrial sample specimens sent in Department of Pathology.

Inclusion Criteria

- Patients with ASA Grading I and II
- Patients between 18-80 years of age.

Exclusion Criteria

- Patients with ASA Grading III, IV and V.
- Patients below 18 years and above 80 years of age
- Pregnant patients.
- Patient with a cardiovascular abnormality.
- Patient refusal to give written consent for the study.

Methodology

Patients were selected based on clinical details. The study material included a total number of 280 specimens consisting of 200 endometrial samples (endometrial curettage and biopsy) and 80 hysterectomy specimens. All specimens were fixed in 10% formalin and sent for histopathological examination to look for various histopathological patterns of endometrium.

Diagnostic Criteria

Patients with isolated endometrial causes of abnormal uterine bleeding were included for the study and those with leiomyoma, cervical, vaginal pathology and hemostatic disorders were excluded. Detailed clinical history including age, pattern and duration of abnormal bleeding, menstrual history, obstetric history, use of exogenous hormones, physical examination findings including pelvic examination and investigations were recorded.

RESULTS

Histopathologic examination of the 280 cases showed different morphologies in AUB. Normal cyclical endometrium (Figure1) was found to be the most common pattern in the histopathological examination of presenting cases with proliferative and secretory endometrium in 121 (43%), atrophic endometrium 33 (12%), endometrial carcinoma 7 (3%), endometrial hyperplasia 34 (12%), complications of pregnancy and hormonal changes in 6 cases (2%) benign endometrial polyp 6 (2%), and disorderly proliferative endometrium 67 (24%), adenomyosis 3(1%), chronic endometritis 3 (1%).Histopathological examination was extremely useful in differentiating the different types of endometrial patterns [Table 1].

The age group of patients in this study ranged from 20 to 65 years. Maximum numbers of cases were in the age group of 41–50 years, 134 cases (48%). This was followed by 67 cases (24%) in 31–40 years group, 42 cases (15%) in 51–60 years age group, 26 cases (9.4%) in 21–30 years age group, and 7 cases (2.4%) in >60 years age group. [Table 2] Most of the patients were multipara 80% (224), followed by primipara 10% (28), nullipara 3.5% (10), and grand multipara 6.5% (18).

Table 1: Table 1: Histopathological Findings in AUB

Findings	No of cases
Normal cyclical endometrium	121(43%)
Atrophic endometrium	33(12%)
Disordered proliferative	67(24%)
Complications of pregnancy and hormonal changes	6(2%)
Chronic endometritis	3(1%)
Endometrial polyp	6(2%)
Adenomyosis	3(1%)
Endometrial hyperplasia	34(12%)
Endometrial carcinoma	7(3%)

Table 2: Age Wise Distribution of AUB

Age group in years	No of cases
20-30	26(9.4%)
31-40	67(24%)
41-50	134 (48%)
51-60	42(15%)
>60	7(2.4%)

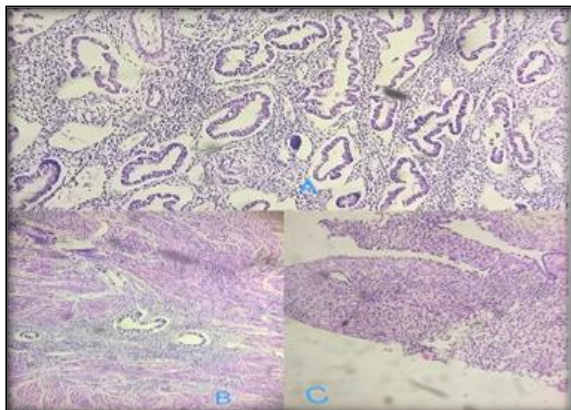


Figure 1. A. Secretory endometrium B. Adenomyosis C. Hormonal change H&E 40X

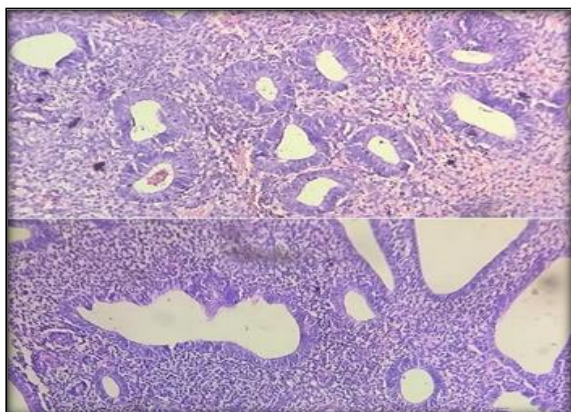


Figure 2. Disordered proliferative endometrium H&E 40X

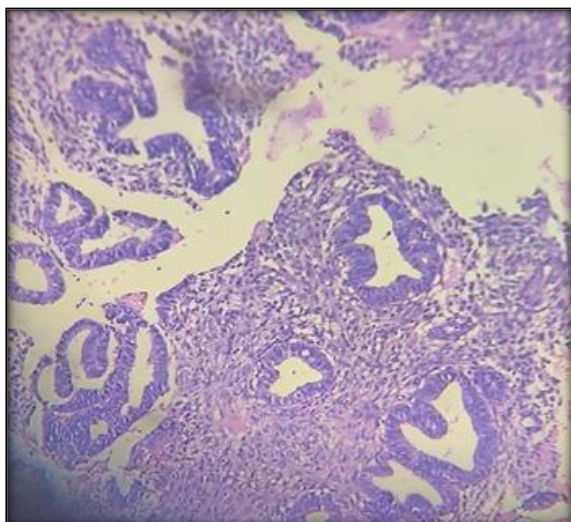


Figure 3. Endometrial hyperplasia H&E 40X

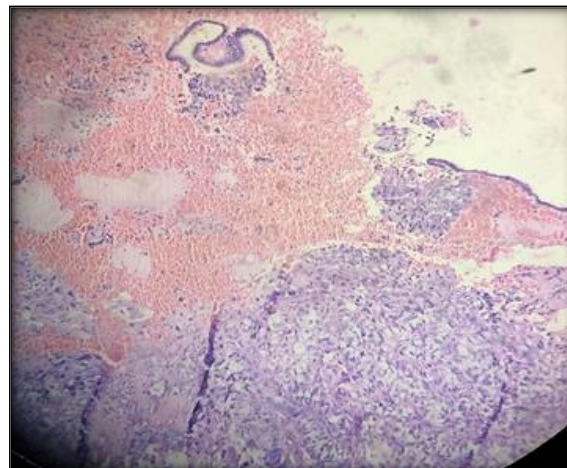


Figure 4: Carcinoma endometrium H& E 40X

DISCUSSION

Abnormal uterine bleeding is a term that describes irregularities in the menstrual cycle involving frequency, regularity, duration and volume of flow outside of pregnancy. A normal menstrual cycle has a frequency of 21-35 days, last 5-7 days with less than 80 ml of blood loss. Variations in any of these parameters constitute AUB.^[3] The causes of abnormal uterine bleeding include a wide spectrum of diseases of the reproductive system and non-gynecologic causes as well. Organic cause of abnormal uterine bleeding maybe subdivided into reproductive tract disease, iatrogenic causes and systemic disease. When an organic cause of AUB cannot be found, then by exclusion, a diagnosis of dysfunctional uterine bleeding (DUB) is assumed. In about 25% of the patients, the abnormal uterine bleeding is the result of a well-defined organic abnormality.^[4]

Investigations for AUB included complete blood count, platelet count, liver function test, prothrombin time, activated partial thromboplastin time, to rule out bleeding and coagulation disorder. In women of reproductive age group, serum and urine human chorionic gonadotropin (HCG) levels are evaluated to rule out pregnancy. To rule out an endocrine etiology, thyroid function test, follicle stimulating hormone (FSH), lutenizing hormone (LH), prolactin levels are assessed.^[5] After ruling out all these conditions endometrial sampling was done as a diagnostic procedure.

Histopathological examination of the endometrium showed different morphological patterns ranging from normal to benign to premalignant to malignant. The commonest histopathological pattern in the study was of normal cyclical endometrium seen mostly in the late reproductive and perimenopausal women. Doraiswamy et al and Sushila Devi et al have also documented normal cyclical endometrium as the commonest observation in their studies.^[6] The bleeding in the proliferative phase may be due to anovulatory cycles and in the secretory phase due to

ovulatory dysfunctional uterine bleeding. Endometrial study thus helps to differentiate ovulatory from anovulatory DUB. Anovulatory DUB is caused by a disturbed function of the hypothalamic-pituitary-ovarian axis most commonly in polycystic ovary syndrome and at the perimenarchal and perimenopausal years.

Disordered proliferative endometrium (Figure 2) resembles normal proliferative tissue consisting of glands lined by cytologically bland, pseudostratified, proliferative, mitotically active epithelium and having a normal ratio of glands to stroma, but the glands may be cystically dilated or show shallow budding or tubular within abundant stroma. Metaplastic ciliated epithelium and evidence of endometrial breakdown may be seen. It differs from hyperplasia without cytologic atypia by virtue of its relatively normal gland: stroma ratio of 1:1.^[7] Disordered proliferative pattern lies at one end of the spectrum of proliferative lesions of the endometrium that includes carcinoma at the other end with intervening stages of hyperplasia. Disordered proliferative endometrium was observed in 24% of cases in this study, which was slightly higher when compared with other studies. Presentation at earlier stage could explain high incidence of disordered proliferative endometrium in our study.^[8]

Doraiswami S et al did a study of endometrial pathology in abnormal uterine bleeding. The most common age group presenting with AUB was 41–50 years (33.5%). The commonest pattern in these patients was normal cycling endometrium (28.4%). 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%). Endometrial causes of AUB and age pattern was statistically significant with P value <0.05. 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.^[8]

Similar study was done by Sajitha K et al of histopathological patterns of endometrium. The aim of the study was to analyze the histomorphological patterns of endometrium in patients presenting with AUB and also to determine the incidence of AUB in various age groups. This is a prospective study, conducted in the Department of Pathology, in a tertiary care teaching hospital, Mangalore. All cases of AUB with a probable endometrial cause were included in the study. Endometrial hyperplasia was the most common histopathological finding and was seen in 25% patients, followed by secretory endometrium in 16.7% patients.^[2]

Khan R et al studied clinico-pathological patterns in women with dysfunctional uterine bleeding. The most common pathological pattern identified was proliferative phase endometrium (46.4%). Secretary phase endometrium was second most common pathology (37.6%). Cystic (5.2%), adenomatous (3.8%), and atypical (3.6%) hyperplasia constituted 12.6% of bulk. The authors concluded that histopathological pattern of endometrium in patients with abnormal uterine bleeding is quite variable regardless of age, parity and ethnicity.^[10]

Khan S et al, Vaidya S, Bolde SA et al did various studies on histopathological study of endometrium in cases of abnormal uterine bleeding. The patients were mainly from the age group of 30-49 years (74.24%). The most common menstrual disorder was menorrhagia (46.86%). In dysfunctional uterine bleeding the most common histological pattern of endometrium includes proliferative endometrium. It is important to know the histological pattern of the endometrium like proliferative endometrium, endometrial hyperplasia, atrophic endometrium, secretory endometrium, irregular ripening and shredding and organic lesions in patients diagnosed as AUB in different age groups since recognition of these conditions will help and will avoid further complications.^[11-13]

Mahapatra M et al studied clinicopathological evaluation of abnormal uterine bleeding. In this study, 140 cases of 15-55 years of age group were randomly selected after the exclusion criteria who were willing to get admitted as well as prepared for follow-up. It is seen that incidence of AUB is more common in 5 the decade of life and in multiparous women. Menorrhagia is the most common bleeding pattern followed by metrorrhagia. Histopathological examination of the endometrium revealed that whatever may be the pathology, proliferative endometrium is the most common pattern.^[14]

Endometrial hyperplasia (Figure3) incidence in this study (12%) same as compared to other studies. Endometrial hyperplasia is a precursor of endometrial carcinoma with overall risk of progression to cancer being 5-10%. It is more commonly seen during the perimenopausal period. Diagnosis of endometrial hyperplasia is important in AUB in peri and postmenopausal patients.^[9] In this study endometrial cancer (Figure 4) is seen in 3% of patients who presented with a postmenopausal bleeding. In the present study incidence of carcinoma endometrium was more common in the 51–60 years age group. The result of this study was almost like data mentioned by Yusuf et al. and Escoffery et al. in their study.^[15,16]

Atrophic endometrium is the most common cause of bleeding in postmenopausal stage. Thin-walled veins, superficial to the expanding cystic glands, make the vessels vulnerable to injury and lead to excessive uterine bleeding. Atrophic endometrium was seen in 11.5% of the patients in this study, similar to study conducted by Simridhi et al. In our study, complications of pregnancy and hormonal

changes (pill endometrium) was seen in 2% cases which is same as compared to other studies. Other morphological patterns included endometrial polyps 2%, endometritis 1% which is similar to other studies.^[17,18]

CONCLUSION

The study of the endometrium in AUB revealed many structural and functional causes manifest in the form of different endometrial histopathological patterns. As the endometrial physiology varies with age & reproductive function, the mechanism & presentation of AUB and the resultant endometrial pathology also varies in different age groups. Histopathological examination of endometrial biopsy is a major diagnostic tool in evaluation of abnormal uterine bleeding and a specific diagnosis could help in the management of abnormal uterine bleeding.

Declarations

Funding: None Conflicts of interest/Competing interests: None Availability of data and material: Department of Pathology, FH Medical College, Etmadpur, Agra Code availability: Not applicable Consent to participate: Consent taken Ethical Consideration: There are no ethical conflicts related to this study. Consent for publication: Consent taken

What This Study Add to Existing Knowledge

Although a regular cyclical pattern is observed commonly, endometrial sampling should be considered in perimenopausal and postmenopausal groups where incidence of endometrial hyperplasia and endometrial carcinoma is more common.

Limitation of Study

Limitations of the study is a small sample size and the menstrual phase during which the endometrial sample was not taken is not mentioned in the study.

Contribution by Different Authors

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Third author Dr. Sunit Pathak Professor, Department of Pediatrics, FH Medical College, Etmadpur, Agra Discussion and References.

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