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Original Research Article

Histopathological study of endometrial samples in abnormal uterine bleeding

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ABSTRACT

Background: 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: 256 samples of endometrial samples in women with AUB are received from the gynaecology department, processed and stained with hematoxylin & eosin and subjected to histopathological examination.

Results: The peak incidence is observed in the age group of 51-60 years. The most common histomorphological pattern is proliferative pattern. 60 cases (23.43%) show endometrial hyperplasia out of which 6 cases show atypia. Only 1 case(0.39%) of endometrial carcinoma reported overall and reported in postmenopausal age. Pill endometrium and chronic endometritis are not reported in postmenopausal age group and all 3 cases of atrophic endometrium are reported in postmenopausal age group.

Conclusion: AUB significantly affects the quality life of women and leads to anemia. Hence histopathological examination should be considered which plays a critical role in early diagnosis of endometrial pathology and to provide appropriate gynaecological management.

1. Introduction

The interpretation of endometrial sampling is of great challenge to pathologists because it is hormonally responsive, showing dynamically variable spectrum of histomorphological patterns with great interobserver variability.[1]

The endometrium is sampled by various methods like traditional dilatation and curettage (D&C), endometrial biopsy and hysteroscopy guided endometrial biopsy. The D & C is the gold standard in diagnosing AUB, however over years replaced by pipelle endometrial biopsy as it is a safe and simple outpatient diagnostic procedure without compromising accuracy.[2]

An endometrial biopsy is done in women over 35 years of age with AUB and in women between the age of 18 and 35 years with AUB who have risk factors for endometrial cancer or if AUB fails to resolve with medical management.[3] The first and foremost indication for endometrial sampling is to determine the cause of AUB which is the most common gynaecological problem comprising one-third of gynecology OPD patients with the prevalence rate of 17.9% in India.[4,5] Other indications include to determine response of endometrium to hormonal therapy, cancer screening, endometrial dating, follow-up previously diagnosed endometrial hyperplasia, detection of precancerous lesion, evaluation of infertility.[6] The aim of this study is to evaluate spectrum of endometrial patterns in women with AUB and to correlate with different age groups i.e. reproductive, perimenopausal and postmenopausal age groups.

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2. Materials and Methods

The study is conducted in the Department of Pathology in a tertiary care centre. A total number of 256 cases of endometrial samples from the obstetrics and gynaecology department are subjected to histopathological evaluation. The endometrial samples are fixed in 10% formalin. The fixed tissue is subjected to processing, paraffin blocks made and sectioned under microtomy (4 to 5 microns thickness), stained with Hematoxylin and Eosin stain and evaluated under light microscope. Histopathological examination of endometrial samplings are done and clinical correlation made. The endometrial samples are categorised in to reproductive (18-40 years), perimenopausal (41-50 years), and postmenopausal (>50 years) based on patient age groups and correlated with histomorphological pattern.

3. Results

The study comprises 256 endometrial samples from AUB. The peak incidence is seen in age group of 51-60 years(42.19%) (Table 1). The predominant histomorphological pattern observed is proliferative pattern (50.39%) followed by endometrial hyperplasia (23.43%) and the least common pattern is malignancy (0.39%) (Table 2). The endometrial sample are grouped in to reproductive, perimenopausal and postmenopausal group based on the age of the patient and correlated with endometrial patterns (Table 3).

Table 1: Age wise distribution of endometrial samplings in AUB

Age	No of Cases	Percentage
<=20	1	0.39%
21-30	24	9.38%
31-40	90	35.16%
41-50	108	42.19%
51-60	27	10.55%
>60	6	2.34%
Total	256	100%

4. Discussion

AUB is the most frequently presenting complaint among gynaecology out patients and endometrial samplings from these cases have been routinely received in histopathology. The histopathological reporting of endometrium is highly subjective and of great challenge due to its dynamic cyclical changes and spectrum of histomorphological pattern in response to hormones. The pathologist plays a significant role in early detection of endometrial precursor lesions and exclusion of malignancy. The term abnormal uterine bleeding refers to an excessive and irregular uterine bleeding that does not fulfill the criteria for normal menstrual bleeding and it results from reproductive, iatrogenic and systemic causes.[7] AUB without any underlying organic cause is by exclusion termed as dysfunctional uterine bleeding (DUB). It is of great importance as it leads to anemia and significantly affects the quality of life.[8]

In our study of 256 cases, the peak incidence is seen among the age group of 51-60 years (108 cases, 42.19%) It is comparable to other studies by Sharma K et al. (37.26%), Singh S et al. (34%), Puvitha R.D et al. (48.70%), Samal R et al., Bindroo S et al. (43.2%).[9–13] Histopathological examination of the endometrium shows spectrum of patterns in which normal cyclical pattern (162/256, 63.28%) is the most recurrent and predominantly observed in reproductive (74/115, 64.35%) and perimenopausal (71/108, 65.74%) age groups. It is comparable to study by Sharma K et al. which shows 62.19% cases of normal cyclical pattern. Proliferative pattern is the dominant histomorphological pattern in our study and it is comparable to the study by Singh S et al., but the incidence has been reported high (50.39%) in our study.

Disordered proliferative pattern(DPE) is characterised by the absence of uniform glandular development and resembles simple hyperplasia but it is focal in the process rather than diffuse.[14] In our study, 8 cases (3.13%) show DPE and it is comparable to the study by Prabha G et al., which shows 5 cases (4%) and the incidence is high among postmenopausal age group. However in our study the incidence is high among perimenopausal age group.[15] It is important to diagnose DPE at an early stage to prevent the disease progression.

It is of critical importance for pathologists to diagnose endometrial hyperplasia, the precursors of endometrial carcinoma. The overall risk of progression of endometrial hyperplasia to malignancy is 5-10%.[16] Simple hyperplasia without atypia, complex hyperplasia without atypia, simple hyperplasia with atypia and complex hyperplasia with atypia have variable progression risks of 1%, 3%, 8%, and 29%, respectively, to malignancy.[17] In our study Endometrial hyperplasia is the second dominant pattern(60/256 cases, 23.43%) and it is observed predominantly in reproductive age group (28 /60 cases) and perimenopausal age group(22/60 cases). 90% of endometrial hyperplasia shows no atypia and 10% shows atypia as observed in study by Sharma K et al.

The incidence of endometrial malignancy is low (0.39%) in our study which is comparable to study by Dwivedi S. S et al. (1.85%) and seen in postmenopausal age group with no cases have been reported in reproductive and perimeniopausal age group.

Endometrial polyp is the benign outgrowth from the uterine cavity composed of glands, stroma and blood vessels.[18] In our study 2.34% shows endometrial polyp which is comparable to the study by Sharma K et al., (10 cases, 2.73%) and predominantly seen in the perimenopausal age group.

Table 2: Distribution of histomorphological pattern of endometrium

Histomorphological Pattern	No of Cases	Percentage
Proliferative Endometrium	129	50.39%
Secretory Endometrium	33	12.89%
Disordered Proliferative Endometrium	8	3.13%
Pill Endometrium	3	1.17%
Atrophic Endometrium	3	1.17%
Polyp	6	2.34%
Endometrial Hyperplasia without Atypia	54	21.09%
Endometrial Hyperplasia with Atypia	6	2.34%
Endometrial Carcinoma	1	0.39%
Chronic Endometritis	13	5.08%
Total	256	100%

Table 3: Age wise distribution of histomorphological patterns of endometrium

Histomorphological Pattern	Reproductive (18-40 Years)	Perimenopausal (41-50 Years)	Postmenopausal (>50 Years)
Proliferative Endometrium	56 (48.7%)	59 (54.63%)	14 (42.42%)
Secretory Endometrium	18 (15.65%)	12 (11.11%)	3 (9.09%)
Disordered Proliferative Endometrium	2 (1.74%)	5 (4.63%)	1 (3.03%)
Pill Endometrium	2 (1.74%)	1 (0.93%)	-
Atrophic Endometrium	-	-	3 (9.09%)
Endometrial Polyp	2 (1.74%)	3 (2.78%)	1 (3.03%)
Simple Hyperplasia	18 (15.65%)	18 (16.67%)	6 (18.18%)
Complex Hyperplasia	7 (6.09%)	3 (2.78%)	2 (6.06%)
Simple Hyperplasia with Atypia	-	1 (0.93%)	1 (3.03%)
Complex Hyperplasia with Atypia	3 (2.61)	-	1 (3.03%)
Endometrial Carcinoma	-	-	1 (3.03%)
Chronic Endometritis	7 (6.09%)	6 (5.56%)	-
Total (256)	115 (44.92%)	108 (42.19%)	33 (12.90%)

Chronic endometritis is the third dominant pattern in our study (5.08%) is the inflammatory endometrium infiltrated by plasma cells.[19] The incidence in our study is high among the reproductive age group as observed in the study by Samal R et al.

Atrophic Endometrium is due to estrogen deprival in the menopausal period and the rupture of dilated venules beneath thin endometrium leads to abnormal uterine bleeding.[20] In our study 3 cases of atrophic endometrium seen and all are seen in postmenopausal age group. No cases of atrophic pattern have been reported in the reproductive and perimenopausal age group and the same is observed in study by Prabha G et al.

Pill endometrium is characterised by atrophic glands, pseudodecidualization along with inflammatory infiltrate due to exogenous hormonal treatment containing progesterone.1.17% of cases reported in our study. In the study by Sharma K et al., 12 cases (3.28%) of pill endometrium have been reported and highest is observed in reproductive age group and cases are not reported in postmenopausal age group which is comparable to our study.

5. Conclusion

AUB significantly affects the quality life of women and results in anemia. Endometrial sampling should be considered in perimenopausal and postmenopausal age group and in reproductive age group not responding to medical treatment. Hence histopathological examination plays a critical role in early diagnosis of endometrial pathology and to provide appropriate gynaecological management.

6. Source of Funding

None.

7. Conflict of Interest

None.

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