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Original Research Article

Clinico-Pathological Spectrum of Endometrium in Abnormal Uterine Bleeding - A Cross Sectional Study

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Abstract

The term "menstruation" is derived from the Latin word "menstruus" meaning "monthly". Sir John Williams stated that menstruation is a cyclical process, which begins at cessation of menstrual flow, passes through the developmental changes of mucus membrane of the uterus and ends with the cessation of the next following menstruation" [1]. Objective-To evaluate histopathology of endometrium in abnormal uterine bleeding. The endometrial samples (endometrial curettage/ biopsy and hysterectomy specimens) sent to pathology laboratory were analysed. These specimens are fixed in 10% formalin and gross morphology was recorded. A detailed histological study was carried out and the findings were noted. Statistical analysis was done. In the present study maximum number of patients (46 cases) belongs to an age group of 31-40 years followed by 34 cases belongs to an age group of 41-50 years and 12 cases belongs to 21-30 year age group (Table-1). In the present study maximum number of patients (58 cases) presented with a symptom of heavy bleeding followed by Inter-menstrual Bleeding was seen in 24 patients and Heavy & prolonged bleeding was seen in 6 cases (Table-2). Proliferative phase was the most common histo-pathological finding accounting for 41% followed by secretory phase accounting for 24%, simple hyperplasia without atypia accounting for 17%, complex hyperplasia with atypia in 8%, endometrial polyp & Disordered Proliferative endometrium in 3%, endometrial adenocarcinoma 1% (Table-3). Histopathological evaluation of endometrial sample in women with AUB has a vital role in the diagnosis of different histological patterns. Therefore, histo-pathological examination is of paramount importance particularly in women of peri-menopausal and post-menopausal age groups who present with AUB.

Keywords: Abnormal Uterine Bleeding, Clear Cell Carcinoma, Endometrial Hyperplasia, Endometrial Malignancy, Proliferative Endometrium.

INTRODUCTION

The term "menstruation" is derived from the Latin word "menstruus" meaning "monthly". Sir John Williams stated that menstruation is a cyclical process, which begins at cessation of menstrual flow, passes through the developmental changes of mucus membrane of the uterus and ends with the cessation of the next following menstruation" [1].

The term menorrhagia was used for the first time by William Cullen, professor at the University of Edinburg. According to Cullen, menorrhagia was a disease involving deviations from normal which are too high in degree and causes a state of disability. The term menorrhagia rubra was used for non-puerperal women and menorrhagia abortus was used for pregnant women. The term menorrhagia was first found in treatise by a postgraduate student of Cullen which was attributed to him. Exact spelling used by Cullen was maetrorrhagia. Fleetwood Churchill, a specialist in gynaecology described the abnormalities associated with uterine bleeding as metrorrhagia in his medical books which later came to be known as menorrhagia [2, 3].

The word Menorrhagia, is derived from Greek word "mene" meaning moon and "regnumi" meaning to burst forth. Graves used the term dysfunctional uterine bleeding for the first time which according to him meant impairment of endocrine factors which is similar to regular or irregular menorrhagia or disturbances that were caused during ovulation state. The endometrium is divided into three distinct layers histologically and functionally. The deepest or the basal layer, the stratum basalis is adjacent to the myometrium, undergoes little changes during the menstrual cycle and is not shed during menstruation. It is made up of weakly proliferative glands and spindled stroma. The broad intermediate layer is characterized by stroma with a spongy appearance and is called the stratum spongiosum. The thinner superficial layer which has a compact stromal appearance is known as the stratum compactum. The compact and spongy layers exhibit

dramatic changes throughout the cycle and are shed during menstruation; hence they are together referred to as stratum functionalis. The stroma is mainly composed of endometrial stromal cells and vessels, of which the spiral arterioles are most distinctive. Other components include the stromal granulocytes (made up of either the T- lymphocytes or macrophages) and an inconstant stromal foamycells. Normal menstruation is defined as bleeding from secretory endometrium associated with ovulatory cycles, not exceeding a length of 5 days [4].

In women who menstruate, the endometrium thickens every month in preparation for pregnancy. If the woman does not become pregnant, the endometrial lining is shed during the menstrual period. After menopause, the lining normally stops growing and shedding. Under normal circumstances, a woman's uterus sheds a limited amount of blood during each menstrual period (less than 5 tablespoons or 80 mL). Bleeding that occurs between menstrual periods or excessive menstrual bleeding is considered to be abnormal uterine bleeding. Once a woman who is not taking hormone therapy enters menopause and the menstrual cycles have ended, any uterine bleeding is considered abnormal [5].

The normal human menstrual cycle can be divided into two segments:

- Ovarian cycle and
- Uterine cycle

The ovarian cycle may be further divided into

- Follicular
- Luteal phases

The uterine cycle is divided into

- Proliferative phase and
- Secretory phase

The new system classifies uterine bleeding abnormalities by bleeding pattern as well as by etiology.

- Other changes- heavy menstrual bleeding (HMB) (instead of menorrhagia) and inter menstrual bleeding (IMB) (instead of metrorrhagia / menometrorrhagia).
- "The term dysfunctional uterine bleeding—often used synonymously with AUB in the literature to indicate AUB for which there was no systemic or locally definable structural cause—is not part of the PALM–COEIN system, and discontinuation of its use is recommended."

Classification System [6-8]
PALM –COEIN

• Polyp
• Adenomyosis
• Leiomyoma
• Malignancy and hyperplasia
• Coagulopathy
• Ovulatory dysfunction
• Endometrial
• Iatrogenic, and
• Not yet classified

PALM: Structural Causes
•Polyp (AUB-P)
•Adenomyosis (AUB-A)
•Leiomyoma (AUB-L)
  - Submucosal myoma (AUB-LSM)
  - Other myoma (AUB-LO)

•Malignancy & hyperplasia (AUB-M)

Objective

To evaluate histopathology of endometrium in abnormal uterine bleeding.

METHODOLOGY

Source of Data

Patients who are attending department of OBG with abnormal uterine bleeding.

Study Period: JAN 2016 TO DEC 2016

Inclusion Criteria

- Reproductive women in all age groups attending department of OBG with abnormal uterine bleeding.

Exclusion Criteria

- Women with pregnancy complications, acute pelvic inflammatory disease, and abnormal cervical pap smear.

Methods of Collection

The endometrial samples (endometrial curettage/ biopsy and hysterectomy specimens) sent to pathology laboratory were analyzed. These specimens are fixed in 10% formalin and gross morphology was recorded. A detailed histological study was carried out and the findings were noted. Statistical analysis was done.

Statistical Analysis

Data analysis was performed by using IBM Statistical Package for the Social Sciences (SPSS) software version 21.0. Sensitivity, specificity, Positive Predictive Value (PPV), Negative Predictive Value (NPV) and diagnostic accuracy were calculated.

RESULTS

Table-1: Distribution of Cases Based On Age

Age group	Number of cases	Percentage
>20 yeras	02	2%
21-30 years	12	12%
31-40 yeras	46	46%
41-50 years	34	34%
> 50 years	06	6%
Total	100	100%

In the present study maximum number of patients (46 cases) belongs to an age group of 31-40 years followed by 34 cases belongs to an age group of 41-50 years and 12 cases belongs to 21-30 year age group.

Table-2: Distribution of Cases Based On Bleeding Pattern

Bleeding pattern	**Number of cases**	**Percentage**
Heavy bleeding	58	58%
Inter-menstrual Bleeding	24	24%
Heavy & prolonged bleeding	06	6 %
Frequent menstrual bleeding	05	5%
Oligo-menorrhea	05	5%
Post-menopausal Bleeding	02	2%
Total	100	100%

In the present study maximum number of patients (58 cases) presented with a symptom of heavy bleeding followed by Inter-menstrual Bleeding was seen in 24 patients and Heavy & prolonged bleeding was seen in 6 cases.

Table-3: Analysis of Histopathological Findings

Histo-pathological finding	Number of cases	%
Proliferative Phase	41	41%
Secretory Phase	24	24%
Simple hyperplasia without atypia	17	17%
Complex hyperplasia with atypia	08	8%
Endometrial Polyp	03	3%
Disordered Proliferative endometrium	03	3%
Mixed endometrium	02	2%
Atrophic endometrium	01	1%
Endometrial adenocarcinoma	01	1%
Endometrial stromal sarcoma	00	00
Total	100	100%

Proliferative phase was the most common histo-pathological finding accounting for 41% followed by secretory phase accounting for 24%, simple hyperplasia without atypia accounting for 17%, complex hyperplasia with atypia in 8%, endometrial polyp & Disordered Proliferative endometrium in 3%, endometrial adenocarcinoma 1%.

DISCUSSION

In the present study maximum number of patients (46 cases) belongs to an age group of 31-40 years followed by 34 cases belongs to an age group of 41-50 years and 12 cases belongs to 21-30 year age group (Table-1). In the present study maximum number of patients (58 cases) presented with a symptom of heavy bleeding followed by Inter-menstrual Bleeding was seen in 24 patients and Heavy & prolonged bleeding was seen in 6 cases (Table 2). Proliferative phase was the most common histo-pathological finding accounting for 41% followed by secretory phase accounting for 24%, simple hyperplasia without atypia accounting for 17%, complex hyperplasia with atypia in 8%, endometrial polyp & Disordered Proliferative endometrium in 3%, endometrial adenocarcinoma 1% (Table-3).

In a clinico-pathological study of endometrium by Sanyal MK *et al*., in different gynaecological abnormalities, it was observed that proliferative endometrium outnumbered all the other patterns in

abnormal uterine bleeding. Abnormal uterine bleeding comprised a large group (32%) of which functional uterine bleeding was 14% and bleeding due to structural causes was 18% [9].

Devi PK *et al*., did a clinical and histological study of 357 cases of functional uterine haemorrhage, patients admitted for functional bleeding constituted 15-20% of all gynecological admissions. The type of menstrual disorder according to various age groups was studied [10].

In a review of 150 cases done by Kanakadurgamba K *et al*., the maximum number of patients was seen among the age group of 21-30 years, in contrast to the popular teaching that, AUB occurs more frequently at either end of the child-bearing period [11].

Ghosh BK *et al*., did a correlative study of the endometrium and cyto-hormonal pattern in functional uterine bleeding, histology of the endometrium and vaginal cytology demonstrated hyperplasia and moderately high maturation index, respectively in the majority of cases. Organic lesions were detected in 66% of the cases, the main causes being fibroid and adenomyosis [12].

In a review of 150 cases by Mehrotra VG *et al*., an incidence of 8.32% of functional uterine bleeding amongst total gynaecological cases was obtained, which was lower when compared with other studies. 48% of cases fell in the age group of 21-30 years [13].

In a clinico-pathological correlation of abnormal uterine bleeding by Sagar S in patients at or above the age of 45 years, non-secretory endometrium was the commonest type in the premenopausal as well as the post-menopausal group.12.2% of the post-menopausal women had malignancy of the uterine body [14].

Histo-pathological finding of endometrial adenomatous hyperplasia or cancer in about 15% of the post-menopausal women with bleeding was obtained in a study done by Gredmark T *et al*., thereby justifying a thorough examination. Trans-vaginal ultrasound examination should be included in the evaluation of post-menopausal bleeding as endometrial biopsies of atrophic endometrium could be avoided and ovarian pathology detected [15].

Maheshwari V *et al.*, did a study of 104 cases of abnormal uterine bleeding & it was found that proliferative (30.8%) type of endometrium was the commonest, followed by secretory (25.8%), hyperplastic (20.2%), irregular shedding (7.7%), malignancy (5.8%) and tuberculosis (3.8%) [16].

In a study of 260 cases of AUB by Muhammad *et al*., heavy menstrual bleeding (51.9%) was the commonest symptom, common age was 41-50 years (48%), with endometrial hyperplasia (24.7%) being the commonest pattern. The study revealed that 40% of the curettings detected endometrial pathology rendering D&C as an important diagnostic procedure [17].

A study by Ayesha *et al*., on types and frequencies of pathology in endometrial curettings of 50 cases revealed clustering of cases around perimenopausal age with frequent menstrual bleeding as common symptom and estrogen dominance being the commonest pattern [18].

Shazia *et al*., did a study of 100 cases of heavy menstrual bleeding in premenopausal age group, proliferative endometrium (33%) was the commonest followed secretory phase (26%), simple cystic hyperplasia (25%) and one case of carcinoma endometrium. The fact that patients with heavy menstrual bleeding above 40 years should be screened for any endometrial pathology was emphasized [19].

Sadia *et al*., study showed that histo-pathological pattern of endometrium in patients with abnormal uterine bleeding is variable regardless of age, parity, and ethnicity. The most common pathological pattern identified was proliferative endometrium (46.4%). Secretary phase endometrium was second most common pathology followed by cystic, adenomatous and atypical hyperplasia [20].

CONCLUSION

Histopathological evaluation of endometrial sample in women with AUB has a vital role in the diagnosis of different histological patterns. Therefore, histo-pathological examination is of paramount importance particularly in women of peri-menopausal and post-menopausal age groups who present with AUB. Due to the pre-neoplastic nature, the hyperplasias, especially complex hyperplasia with atypia has to be detected early. Histopathology of endometrium gives us a chance to diagnose cases in which organic lesions like polyps, hyperplasia can be identified and assists in the early diagnosis of premalignant and malignant lesions of the endometrium as well which happen to have an excellent prognosis if diagnosed in early stages.

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