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Endometrial biopsies and curettage in abnormal uterine bleeding: Histopathological evaluation

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Abstract: Background and Aim: The most typical menstrual issue is abnormal uterine bleeding (AUB), which affects women of all ages and is also indicative of a significant underlying illness. The gold standard for determining the causes of AUB is still endometrial biopsy and subsequent histological analysis. In order to assess and determine the most prevalent patterns of endometrial histological findings and their prevalence in women of various age groups presenting with AUB in MRMCW, this study was conducted.
Material and Methods: This observational study was conducted in conjunction with the Department of Obstetrics & Gynaecology at the Tertiary Care Institute of India for Women over a period of one and a half years on cases of abnormal uterine bleeding that underwent endometrial sampling (endometrial curettage and biopsy). A total of 200 premenstrual endometrial samples were included in the study material. Endometrial biopsy or sedation-assisted dilatation and curettage were both used to collect endometrial samples. Based on the architecture and cytologic features, hyperplasia was divided into benign (non-atypical) endometrial hyperplasia and atypical endometrial hyperplasia/endometrioid intraepithelial neoplasia (EIN).
Results: The most frequent observation was normal cyclical patterns with proliferative and secretory phase in 114 cases (57%) overall. 41 patients (20.5%) were found to have hyperplasia, of whom 3 had atypical endometrial hyperplasia. Pregnancy complications were observed in 10 (5%) cases, with abortion being the most common cause. Ectopic gestation, partial moles, and complete moles were all contributing factors.
Conclusion: The current study demonstrates that the most typical histological pattern of endometrium for AUB in perimenopausal women in our region is endometrial hyperplasia. The etiology and appearance of AUB, as well as the ensuing endometrial pathology, vary depending on the age group, just as endometrial physiology does with age and reproductive activity.

Keywords: Abnormal uterine bleeding; Ectopic gestation; Endometrial biopsy; Endometrial hyperplasia.

1. Introduction

The most typical menstrual issue is abnormal uterine bleeding (AUB), which affects women of all ages and is also indicative of a significant underlying illness. AUB is a complaint made by about 30% of all gynecological patient attendants [1,2]. The most typical endometrial cancer presentation occurs in 8–50% of patients and is AUB.AUB is defined as a pattern of bleeding that does not match the length, volume, or frequency of a typical menstrual cycle [3,4]. Age, the endometrial response to hormones, its changes, and other anatomical lesions all affect the pathogenesis of AUB [5,6].

The impact of AUB on women's quality of life is significant [6]. AUB is brought on by a variety of conditions that disturb homeostasis, including hormone imbalances, infections, structural lesions, and cancer.

The various causes of AUB have been divided by the FIGO Working Group on Menstrual Disorders into structural/organic lesions and non-structural entities. The gold standard for determining the causes of AUB is still endometrial biopsy and subsequent histological analysis [7,8] varied causes of AUB exhibit varied histological characteristics in the endometrial histology.

In AUB, endometrial biopsy is utilized as a diagnostic tool. In women over 45 who present with AUB, it is used as a first-line test. Patients may also undergo endometrial biopsies. Endometrium curettage is a simple and safe method for taking endometrial samples, and its histopathological analysis is regarded as the gold standard for determining the cause of AUB. It also has a short turnaround time and high diagnostic precision [9].

In order to assess and determine the most prevalent patterns of endometrial histological findings and their prevalence in women of various age groups presenting with AUB in MRMCW, this study was conducted.

2. Material and methods

This observational study was conducted in conjunction with the Department of Obstetrics & Gynaecology at the Tertiary Care Institute of India for Women over a period of one and a half years on cases of abnormal uterine bleeding that underwent endometrial sampling (endometrial curettage and biopsy).

Patients with isolated endometrial causes of abnormal uterine bleeding must meet the inclusion criteria. Exclusion Standards: 1. People who have hemostatic disorders, cervical and vaginal pathology, and systemic conditions including hypothyroidism. Unacceptable samples: There are no endometrial glands or stroma; only blood clots and fibrin.

Age, parity, menstruation history, and drug history were pertinent information that was gathered. Clinical details were used to choose the patients. A total of 200 premenstrual endometrial samples were included in the study material. Endometrial biopsy or sedation-assisted dilatation and curettage were both used to collect endometrial samples. The samples were transferred to the histopathology lab after being fixed in 10% formalin. With the complete submission of endometrial samples, the gross morphology was noted. In an automated tissue processor, the tissue fragments were treated, and paraffin blocks were created. Hematoxylin and eosin stain (H&E) was used to stain tissue slices [4–6]. The pathologists performed a microscopic investigation. Based on the architecture and cytologic features, hyperplasia was divided into benign (non-atypical) endometrial hyperplasia and atypical endometrial hyperplasia/endometrioid intraepithelial neoplasia (EIN).

2.1. Statistical analysis

The collected data was organised, inputted, and exported to the data editor page of SPSS version 15 (SPSS Inc., Chicago, Illinois, USA) after being combined and entered into a spreadsheet programme (Microsoft Excel 2007). The level of significance and confidence level for each test were set at 5% and 95%, respectively.

3. Results

The 200 cases' histopathological analysis revealed a variety of AUB patterns. The most frequent observation was normal cyclical patterns with proliferative and secretory phase in 114 cases (57%) overall. 41 patients (20.5%) were found to have hyperplasia, of whom 3 had atypical endometrial hyperplasia. Four patients were found to have chronic endometritis, one of them had tuberculous endometritis. Pregnancy complications were observed in 10 (5%) cases, with abortion being the most common cause. Ectopic gestation, partial moles, and complete moles were all contributing factors. A total of 11 out of 200 cases (5.5%) had a disorganised proliferative pattern, which was most frequently observed in people between the ages of 41 and 50. In 11 cases, older individuals with an average age of 40 had atrophic endometrium. In 2 cases (1%), endometrial cancer was discovered. Table 1 lists the range of histological diagnosis we encountered during endometrial biopsy. The patients' ages ranged from 18 to 80. 39-49 years old were the age group with the most patients, followed by 29-38 years old.

Table 1. Histopathological diagnoses of endometrial biopsy

Diagnosis	Number	Percentage (%)
Proliferative endometrium	62	31
Secretory endometrium	52	26
Simple hyperplasia with atypia	3	1.5
Simple hyperplasia without atypia	38	19
Disordered proliferative endometrium	11	5.5
Atrophic	11	5.5
Endometrial Polyp	4	2
Pregnancy related complications	10	5
Chronic endometritis	4	2
Pill Endometrium	3	1.5
Carcinoma	2	1
Total	200	100

4. Discussion

AUB refers to vaginal bleeding that does not meet the standards for typical menstrual bleeding. Different factors, such as pharmacological, chemical, or functional agents, may be to blame. Additionally, the aetiology differs depending on the age group. Despite its drawbacks as a blind operation, endometrial sample is a safe treatment that aids in evaluating the endometrium and determining the diagnosis. An adequate history, physical examination, laboratory investigations, including imaging and endometrial sampling, are required for the evaluation of AUB [10].

AUB can have a variety of symptoms and causes in women of all ages, and the majority of these can be identified by looking at the endometrium. Endometrial sampling is a secure office procedure that evaluates the endometrium with great sensitivity. Since the treatment has restricted access to the uterine tubal cornua, it may overlook specific lesions such as polyps and fibroid growths. In order to detect endometrial abnormalities, a combination of guided endometrial biopsy and saline infusion hysterography/hysteroscopy is advised [2]. In our study, the endometrial histopathologic pattern was determined by taking into account the duration of the menstrual cycle, patient age, the start date of the most recent period, and the use of iatrogenic hormones [6,10]. Normal cycling endometrium was the most prevalent endometrial histopathologic pattern seen. In 57% of all cases, there was normal cyclical endometrium, which included the proliferative phase (31%) and secretory phase (26%), and this was comparable to studies by Vaidya et al (40.94%) and Sajitha et al. (38.99%). According to Prasannalakshmi et al. simple endometrial hyperplasia without atypia and proliferative endometrium were the most frequent findings, while in Rujuta et al. and Riju et al. product of conception and proliferative endometrium were the most prevalent findings [5,11–13].

The ovulatory cycle may be the cause of the bleeding in the proliferative phase and ovulatory dysfunctional uterine bleeding in the secretory phase [8]. A dysfunction of the hypothalamic-pituitary-ovarian axis, which most frequently occurs in polycystic ovary syndrome and during the perimenarchal and perimenopausal years, results in an ovulatory DUB. The cycles may be irregularly ovulatory and anovulatory during these periods of life, which causes significant irregularity in menstruation and variation in blood loss [1,6]. Unopposed oestrogen is known to enhance blood loss through a variety of methods [1]. The mucous membrane becomes brittle and sloughs irregularly in the absence of enough progesterone to maintain and differentiate the endometrium. The primary flaw in ovulatory dysfunctional uterine bleeding appears to be in the management of mechanisms governing the amount of monthly blood loss, particularly reduced endometrial vasoconstriction and production of vascular hemostatic plugs. Although endocrinopathies account for the majority of ovulatory dysfunction causes, gonadal steroids or medications that affect dopamine metabolism may also be to blame [3].

5.5% of our cases involved disordered proliferative endometrium, with the 40-49 age group having the highest prevalence. Because of anovulatory cycles, disordered proliferative endometrium is frequent during the perimenopausal years [5,6]. The glands in morphologically disordered proliferative endometrium may be cystically dilated, exhibit shallow budding or tubular within abudant stroma, and they are lined by proliferative, mitotically active epithelium that is cytologically bland, pseudostratified, and proliferative. There may be indications of endometrial disintegration and metaplastic ciliated epithelium.

19% of occurrences of endometrial hyperplasia occur in women between the ages of 30 and 49. In other studies, the prevalence of hyperplasia was 10%, 25%, and 6%, with the age range of 41-55 years being the most prevalent [6,14,15]. Endometrial hyperplasia thus is most common in the perimenopausal age group.16 The women in this age range were in their climacteric, a time when oestradiol levels and ovarian follicle counts decrease and anovulatory cycles follow. Doraiswami et al. and Sharma et al.'s research indicated that the same age group was most affected [9,16]. Due to the lower concentration of sex hormone-binding globulins and higher availability of peripheral oestrogens brought on by the aromatization of androgens to oestrogens in adipose tissue, there is a risk of endometrial hyperplasia developing into cancer, especially in obese women. This is why endometrial studies are crucial for detecting endometrial hyperplasia with atypia, which is thought to be the precursor of endometrial malignancy.

Before making the diagnosis, there are several benign conditions that can mimic endometrial hyperplasia. Cystic atrophy, secretary endometrium, or the Arias-Stella reaction, endometritis, endometrial polyps, and benign papillary proliferations are a few examples of these benign structures. In endometrial hyperplasia without atypia, the ratio of glands to stroma increases in comparison to proliferating endometrium, and there is an excessive proliferation of glands of uneven size and shape. Hyperplasia in atypical hyperplasia/EIN is linked to cytological abnormalities, most specifically nuclear atypia. Disordered proliferative endometrium and hyperplasia without atypia, two benign disorders linked to protracted estrogenic stimulation, are on a continuum. Continuous unopposed estrogenic stimulation causes atypical hyperplasia/EIN to proceed from hyperplasia without atypia. Postmenopausal women with high concentrations of estrogen are at a higher risk for developing endometrioid carcinoma [17].

5.5% of cases had an atrophic endometrial pattern, with more than half occurring after the age of 50. Atrophic endometrium has been reported to occur in between 1.1 and 5.13% of women across all age categories, according to several studies.[5,6,10]According to Rupal Shah et al. endometrial polyp and chronic endometritis constituted up 2% of the total. Endometrial polyps are polypoid entities with an atrophic to weakly proliferative endometrium lining massive, thick-walled, coiled arteries with cystically dilated and occasionally packed glands. Numerous people spontaneously regress. Due to the fibrous appearance of the stroma and the sparse number of glands, endometrial tissue from the lower uterine segment may be mistaken for an endometrial polyp. For a diagnosis of chronic endometritis, it is unavoidably necessary to find more than only uncommon plasma cells. It frequently coexists with histiocytes, neutrophils, lymphocytes, and lymphoid follicles. The stroma is frequently fibroblastic or spindled, with glandular destruction and stromal disintegration. In the context of pelvic inflammatory illness, in conjunction with the use of an intrauterine device, or in relation to retained foetuses, chronic endometritis is most frequently observed.

Endometrial sampling is a straightforward outpatient operation to rule out malignancy, but the histological diagnosis might be challenging when there is little endometrial tissue or when haemorrhage obscures the image. Given that hormones have different effects on the endometrium and can produce abnormal uterine bleeding, the pathologist should be informed about the specifics of any hormonal therapy by the clinician. Numerous endometrial histology images displaying a weak secretory to completely atrophic pattern are the result of the unexpected bleeding and spotting brought on by the continual exposure of endometrium to relatively constant amounts of progestogen while concurrently experiencing low levels of oestrogen [1].

5. Conclusion

Endometrial biopsy and curettage histopathological patterns in women with AUB are varied. These lesions range from straightforward physiological to incredibly complex pathological ones. Endometrial sample with the D and C method is a reliable and efficient diagnostic procedure. Normal physiological patterns with proliferative, secretory, and menstrual alterations were seen in the individuals who had no intrinsic pathology. The current study demonstrates that the most typical histological pattern of endometrium for AUB in perimenopausal women in our region is endometrial hyperplasia. The aetiology and appearance of AUB, as well as the ensuing endometrial pathology, vary depending on the age group, just as endometrial physiology does with age and reproductive activity. As a result, the majority of AUB-causing factors are age-specific. When interpreted in light of age and other clinical data, endometrial studies provide crucial etiological information in AUB, directing the proper therapy.

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