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ENDOMETRIAL HISTOLOGY PATTERNS IN DYSFUNCTIONAL UTERINE HEMORRHAGE: A COMPREHENSIVE STUDY

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ABSTRACT:

Background: Abnormal uterine bleeding (AUB) stands as one of the most prevalent concerns among women presenting at gynecology outpatient departments worldwide. The histology of the endometrium in patients presenting with DUB is essential for accurate diagnosis, effective management, and timely intervention to mitigate associated risks. **Methods.** A prospective study was conducted at our tertiary care hospital, focusing on analyzing the histopathological characteristics of the perimenopausal age group and associated histological findings. Our study included 150 cases of abnormal bleeding, ranging from 21 to 78 years of age. **Results:** The most prevalent age group was proliferative, accounting for 33.3% of the cases, followed by secretory and simple cystic hyperplasia at 13.3% and 16.7%, respectively. The prevalence of abnormal uterines was varying across different age cohorts. **Conclusions.** Our findings provide valuable insights into the age distribution and histomorphological patterns of endogenous lesions among women who present with AUB. These findings underscore the importance of age-related considerations in the evaluation and management of AUB, ultimately improving patient outcomes and quality of life.

Keywords: Abnormal Uterine Bleeding, Endometrial Histology, Perimenopausal Women, Proliferative Endometrium, Secretory Endometrium

INTRODUCTION

The endometrium undergoes constant hormonal changes during a woman's reproductive years, making it a sensitive tissue. Among various gynecological conditions, dysfunctional uterine hemorrhage significantly impacts individuals' social, familial, and personal spheres. Abnormal uterine bleeding (AUB) stands as one of the most prevalent concerns among women presenting at gynecology outpatient departments worldwide**(1).** Among the myriad of conditions that cause AUB, dysfunctional uterine hemorrhage (DUB) emerges as a significant contributor, characterized by irregular and often heavy menstrual bleeding without identifiable organic pathology**(2).** Understanding the histo-pathological patterns of the endometrium in cases of DUB is paramount for accurate diagnosis, effective management, and timely intervention to mitigate associated risks. **(3)**

The basis of our study lies in the realization that a nuanced comprehension of endometrial histology is indispensable for the holistic management of women grappling with abnormal uterine bleeding. Histopathological analysis serves as a cornerstone in delineating the spectrum of endometrial lesions, encompassing benign proliferative conditions to sinister entities such as endometrial carcinoma. By elucidating the histological intricacies, clinicians can navigate through diagnostic uncertainties, tailor therapeutic interventions, and prognosticate outcomes with enhanced precision**.(4)**

Estimated to affect 9 to 30 percent of reproductive-age women, its prevalence peaks before menopause, particularly among adolescents and menopausal individuals, where anovulatory menstrual cycles predominate.**(5,6)**

In this comprehensive study, we aim to elucidate the histological patterns of the endometrium in patients presenting with dysfunctional uterine hemorrhage. By analyzing endometrial histopathology data from a diverse patient population, we seek to identify the most prevalent age groups and common histopathological findings associated with abnormal uterine bleeding. Our findings have the potential to enhance the diagnostic accuracy and management strategies for individuals with dysfunctional uterine hemorrhage, ultimately improving patient outcomes and quality of life.

MATERIALS AND METHODS

Our prospective study was conducted at our tertiary care hospital, focusing on analyzing the histology of the endometrium in patients presenting with abnormal uterine bleeding. The study spanned a comprehensive duration, running from March 2013 to February 2013.

Endometrial tissue samples were procured from patients exhibiting abnormal uterine bleeding, who were either attended to in the outpatient department (OPD) or admitted to the Obstetrics and Gynecology department of our hospital. These samples served as the primary material for our investigation, undergoing histopathological analysis in the department of Pathology.

We included endometrial tissue samples from patients of all age groups clinically diagnosed with abnormal uterine bleeding (AUB), excluding cases with identified organic pathology. This encompassed various subtypes of AUB, such as Normal Ovulatory AUB, Anovulatory AUB characterized by insufficient follicular development, and Ovulatory AUB observed in cases like Persistent Corpus Lutum.

Excluded from our study were patients with AUB who had undergone hysterectomy, those with organic lesions of the genital tract (such as leiomyomas and adenomyosis), genital tract infections, systemic causes, and other unrelated lesions.

Following collection, the endometrial tissue samples were meticulously fixed in 10% formalin before undergoing standardized processing. Subsequently, sections with a thickness of 0.5 microns were prepared and subjected to Haematoxylin and Eosin (H & E) staining for microscopic examination.

To complement our histological analysis, we gathered relevant clinical data from hospital and laboratory records. Pathologists conducted microscopic inspections of the stained sections,

and to mitigate observer bias, a second opinion was sought when necessary.

Our methodology aimed to provide a comprehensive understanding of the histopathological characteristics of endometrial tissue in patients presenting with abnormal uterine bleeding, thus contributing to improved diagnostic accuracy and patient care.

RESULTS

In accordance with Table 1, our study encompassed a total of 150 cases of endometrial lesions. Endometrial samples were collected through the dilatation and curettage (D&C) procedure. The age distribution of the patients ranged from 21 to 78 years, with a mean age of 49.5 years. Table 1 depicts the age distribution of cases in the study population, categorized into different age groups. For instance, the age group of 20-29 years comprises 10 cases, accounting for 6.7% of the total study population. Similarly, the age group of 30-39 years includes 55 cases, representing 36.7% of the total cases. The table continues to enumerate the number of cases and their respective percentages across various age brackets, up to the age group of 70-79 years, which contains 3 cases, amounting to 2% of the total.

Table 1: Age distribution of cases

Age group (in years)	No. of cases	Percentage
20-29	10	6.7%
30-39	55	36.7%
40-49	45	30%
50-59	25	16.7%
60-69	12	8%
70-79	3	2%
Total	150	100%

Table 2: Histopathological Lesions of Endometrium

Endometrium Pattern	No. of cases	Percentage
Proliferative Endometrium	50	33.3%
Secretory Endometrium	20	13.3%
Pill Endometrium	10	6.7%
Atrophic Endometrium	8	5.3%
Endometritis	5	3.3%
Endometrial Polyp	15	10%
Simple Cystic Hyperplasia	25	16.7%
Adenomatous Hyperplasia	4	2.7%
Complex Hyperplasia without Atypia	10	6.7%
Complex Hyperplasia with Atypia	6	4%
Endometrial Carcinoma	7	4.7%
Total	150	100%

According to the findings presented in Table 2, the histopathological analysis of endometrial lesions revealed several notable patterns. Proliferative endometrium emerged as the most prevalent, accounting for 33.3% of the cases, followed by secretory endometrium at 13.3%, and simple cystic hyperplasia at 16.7%. Additionally, endometrial polyps were identified in 10% of the cases, while complex hyperplasia without atypia and endometrial carcinoma each constituted 6.7% and 4.7% of the cases, respectively.

Notably, there were variations observed across different histopathological patterns concerning their prevalence among different age groups. For instance, proliferative endometrium was predominantly identified in patients under the

age of 40, constituting 29.3% of cases in this age group. In contrast, secretory endometrium was more prevalent in older age groups, accounting for 14% of cases. Furthermore, endometrial polyps, pill endometrium, and endometritis were notably prominent in patients within the fourth decade of life.

Overall, these findings underscore the diverse spectrum of histopathological lesions encountered in endometrial tissue, with varying prevalence across different age cohorts. The incidence of endometrial hyperplasia and endometrial cancer showed an increasing trend with advancing age, peaking after the fourth decade. Notably, the majority of cases with atrophic endometrium were observed in elderly patients. Additionally, endometrial cancer and postmenopausal hemorrhage were identified as the most frequent findings in our study."

DISCUSSION

Abnormal uterine bleeding (AUB), characterized by any bleeding from the uterus outside of regular menstruation, encompasses a spectrum of conditions, including those secondary to organic pathology or dysfunctional uterine hemorrhage **(7).** While abnormal uterine bleeding can occur in women of reproductive age, it is more commonly experienced by adolescents and perimenopausal women **(8).**

The perimenopausal years often witness the highest frequency of anovulatory cycles, leading to alterations in the endometrium and subsequent irregular bleeding patterns**(9).** Chronic anovulation manifests as unpredictable and erratic bleeding patterns, ranging from scanty bleeding to prolonged, heavy periods. Discontinuation of progesterone and estradiol typically results in normal bleeding episodes. In the absence of ovulation, unopposed estrogen leads to prolonged proliferative or hyperplastic endometrium, with bleeding often being asymptomatic and irregular upon estrogen discontinuation **(10).**

Our study included 150 endometrial samples obtained from women aged 21 to 78 who were evaluated at Nalanda Medical College and Hospital, Patna, Bihar. Comprehensive clinical information was collected from case sheets and request forms. Remarkably, the age group of 40 to 49 years exhibited the highest incidence of AUB in our study cohort. Furthermore, AUB was less prevalent in individuals above the age of 49 compared to those between the ages of 40 and 49.

In our study, we found that the perimenopausal age group exhibits the highest incidence of abnormal uterine bleeding (AUB), a trend consistent with both our findings and previous investigations **(11,12,13,14,15,**). This period is marked by a decline in ovarian follicles and fluctuations in estradiol levels as women approach menopause, leading to shortened and intermittently anovulatory menstrual cycles **(16).** Notably, menorrhagia emerged as the most typical complaint among our study participants, aligning with findings from previous studies **(11).**

Our study population predominantly consisted of multiparous women, and we observed a correlation between parity and the incidence of AUB, consistent with findings reported in prior research **(11).** Among non-organic causes, proliferative endometrium emerged as the most prevalent endometrial pattern in perimenopausal

women. The increased blood loss associated with anovulatory cycles may contribute to the proliferation observed during this phase. These findings are in agreement with studies by Sadia Hameed et al **(7),** and Vijay Kumar et al **(18).**

The second most frequent pattern observed in our study was secretory phase endometrium, identified in 14% of cases. This finding corresponds to the results reported by Bhosle et al. and Sajitha et al. (16.6% and 26%, respectively) **(11,13).** Bleeding during the secretory phase is attributed to adulatory dysfunctional uterine bleeding **(19).**

Endometrial hyperplasia emerged as the most common pathology among organic causes, accounting for 27.4% of cases in our study. This finding underscores the significance of endometrial hyperplasia, as it is considered a precursor to endometrial cancer **(20).** While our findings align with the prevalence reported by K. Sajitha et al. (56.4%), it is important to note variations may arise due to differences in age groups and sample sizes within studies **(11).**

In our study, we observed various types of endometrial hyperplasia, each with distinct risks of progressing to carcinoma. Simple hyperplasia (SH) and complex hyperplasia (CH), along with their atypical counterparts, simple atypical hyperplasia (SAH) and complex atypical hyperplasia (CAH), exhibit progression risks of 1%, 3%, 8%, and 29% respectively to carcinoma (21). Specifically, we identified 19 cases (12.7%) of simple hyperplasia, 3 cases (2%) of adenomatous hyperplasia, 12 cases (8%) of complex hyperplasia, and 7 cases (4.7%) of complex atypical hyperplasia in our study cohort.

Our study also revealed a 9.3% incidence of endometrial polyps, which aligns with similar findings reported by Khans et al. (9.8%), and Acharya et al. (10%) **(22,23).** Endometritis was present in 4.7% of cases.

Pill endometrium, observed in 5.3% of our patients, displayed characteristics such as dormant glands, ectopic secretions, decidual response, and thin blood vessels. This pattern was most prevalent among perimenopausal women, possibly due to increased medical attention seeking for bleeding symptoms in this age group.

Atrophic endometrium emerged as the leading cause of bleeding in the postmenopausal stage, constituting 4% of our cases, which aligns with findings from studies by Cornitescu et al. and Sajitha et al., reporting incidences of 4.3% and 5.1% respectively **(25, 11).**

Among cases of endometrial carcinoma, the endometrioid type was the most common, accounting for 6 out of 9 cases. Variants included villoglandular variety, two cases of endometrioid cancer with squamous differentiation, and three cases of endometrioid adenocarcinoma. Postmenopausal bleeding was the predominant presenting symptom, consistent with findings from the study by Baral R et al.**(26)**

Our study has certain limitations that need to be acknowledged. Firstly, the study was conducted at a single medical center, which may limit the generalizability of our findings to broader populations. Additionally, the retrospective nature of the study design may introduce biases related to data collection and interpretation. Moreover, the sample size, although sufficient

for our analyses, could be expanded in future studies to enhance statistical power and reliability of results. Furthermore, the study did not explore certain potential confounding variables, such as lifestyle factors, which could influence the observed associations.

CONCLUSION:

In conclusion, our study provides valuable insights into the age distribution and histopathological patterns of endometrial lesions among women presenting with abnormal uterine bleeding. The perimenopausal age group exhibited the highest incidence of abnormal bleeding, with proliferative endometrium being the most prevalent histopathological pattern. These findings underscore the importance of age-related considerations in the evaluation and management of abnormal uterine bleeding. Future research endeavors should aim to address the identified limitations and further elucidate the underlying mechanisms driving endometrial pathology in diverse populations.

REFERENCE

1. Sedhai LB, Shrestha A. Abnormal uterine bleeding; its prevalence, causes and management in Chitwan. Journal of Chitwan medical college. 2012 Jun 10;2(1).
2. Doraiswami S, Johnson T, Rao S, Rajkumar A, Vijayaraghavan J, Panicker VK. Study of endometrial pathology in abnormal uterine bleeding. The journal of Obstetrics and Gynecology of India. 2011 Aug;61:426-30.
3. Doraiswami S, Johnson T, Rao S, Rajkumar A, Vijayaraghavan J, Panicker VK. Study of endometrial pathology in abnormal uterine bleeding. The journal of Obstetrics and Gynecology of India. 2011 Aug;61:426-30.
4. Ghani NA, Abdulrazak AA, Abdullah EM. Abnormal uterine bleeding: A histopathological study. Diyala journal of medicine. 2013;4(1):55-60.
5. Rahn DD, Abed H, Sung VW, Matteson KA, Rogers RG, Morrill MY, et al.; Society of Gynecologic Surgeons-Systematic Review Group. Systematic review highlights difficulty interpreting diverse clinical outcomes in abnormal uterine bleeding trials. J Clin Epidemiol. 2011 Mar;64(3):293-300.
6. Khan S, Hameed S, Umber A. Histopathological pattern of endometrium on diagnostic D & C in patients with abnormal uterine bleeding. Annals of King Edward Medical University. 2011;17(2):166-.
7. Hameed S. K., & Umber A. Histopathological Pattern of Endometrium on Diagnostic D & C in patient with Abnormal Uterine Bleeding. ANNALS, 2011;17: 166-70,
8. Dangal G. A study of endometrium of patients with abnormal uterine bleeding at Chitwan valley. Kathmandu University Med J, 2000; 1: 110-12.
9. Todorovic N., Djordjevic V., Antonijevic S. Results of histopathologic findings of endometrial changes in metrorrhagia. Srp Arh Celok Lek, 2002; 130: 386-8.
10. Lumsden M., & Norman F. Mentruation and menstrual abnormality. In: Shaw RW, Soutter WP, Stanton SL. Gynaecology 2nd ed Churchil Livingstone Newyork, 1997; 421-37.
11. Sajith K. Study of histopathological pattern of endometrium in abnormal uterine bleeding CHRISMED. Journal of Health and Research, 2014; 1(2): 76-81.

12. Muzaffar M., Akhtar K. A., Yasmin S., Magmood-Ur-Rehman, Iqbak W., & Khan M. A. Menstrual Irregularities with excessive blood logs: A clinicopathological correlation. J Pak Med Assoc, 2005; 55: 486-9.
13. Bhosle A. & Fonseca M. Evaluation and Histopathological correlation of abnormal Uterine bleeding in Perimenopausal women. Bombay hosp. J, 2010; 52: 69-72.
14. Sinha P., Rekha P. R., Konapur P. G. Thamil Sevir Subramaniam PM, Pearls and Pitfalls of endometrial curettage with that of hysterectomy in DUB. J Clia Dign Res, 2010; 5: 1199-202.
15. Azim P. K., Sharif N., & Khattak E. G. Evaluation of abnormal Uterine bleeding on endometrial biopsies. Isra Med J, 2011; 3: 84-8.
16. Dadhania B., Dhruva G., Agarvat A., Pujara K. Histopathological study of Endometium in Dysfuctional Uterine Bleeding. Int j Res Med, 2013; 2(1): 20- 24.
17. Patil S. G., Bhute S. B., Inamdar S. A., Acharya N. S., & Shrivastava D. S. Role of Diagnostic Hysteroscopy in abnormal uterine bleeding and its Histopathological correlation. J. Gynecol Endoscopic Surg, 2009; 98-104.
18. Kumar V., Kaur N., Das T., & Bal M. S. Correlation of various clinical findings and chief complaints with Histopathological pattern of Endometrial Biopsies; A Study of 300 cases. Research and reviews. Journal of Medical and Health Sciences, 2014; 3(3).
19. Goldenstein S. R. Modern Evaluation of endometrium. Obstet Gynceol, 2010; 116: 168-76.
20. Doraiswami S., Johnson T., Rao S., Rajkumar A., Vijayraghavan J., & Panicker V. K. Study of Endometrial Pathology in abnormal uterine bleeding. J Obstet Gynaecol India, 2011; 61: 426- 30.
21. Baak J. P., & Mutter G. L. WHO94. J Clin Pathol, 2005; 58: 1-6.
22. Devi, J., Aziz, N. (2014). Study of "Histopathological Pattern of Endometrium in Abnormal Uterine bleeding in the age group 40-60 Years" - A study of 500 cases. IJMSCI, 2014; 579-585.
23. Acharya V., Mehta S., Rander A. Evaluation of dysfunctional uterine bleeding by TVS, Hysteroscopy and Histopathology. J Obstet Gynecol India, 2003; 53: 170-7.
24. Deligdish L. Hormonal Pathology of the endometrium. Mod Pathol, 2000; 13: 285-94.
25. Cornitescu F. I., Tanase F., Simionescu C., & Iliescu D. Clinical, Histopathological and therapeutic considerations in non- neoplastic abnormal uterine bleeding in menupause transition. Rom J Morphol Embryol, 2011; 52: 759-65.
26. Baral R., & Pudasini S. Histopathological pattern of endometrial samples in abnormal uterine bleeding. J Path Nepal, 2011; 1: 13-6.

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