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ORIGINAL ARTICLE

Histopathological Spectrum of Diseases in Endometrial Biopsies: A Study of 250 Patients

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ABSTRACT

Background: The endometrium undergoes various pathological changes due to hormonal fluctuations, infections, and malignant transformations. Histopathological examination of endometrial biopsies is crucial for diagnosing these diseases.

Objective: To evaluate the histopathological spectrum of diseases observed in endometrial biopsies and to assess their clinical relevance in 250 patients.

Methods: A retrospective study was conducted on 250 patients who underwent endometrial biopsies between July 2022 and June 2023. The biopsies were categorized based on histopathological findings into normal, benign, premalignant, and malignant lesions. Data analysis was performed using descriptive statistics and logistic regression to assess the correlation of age, clinical presentation, and histopathological diagnosis.

Results: Among the 250 patients, 45% had normal endometrium, 35% had benign conditions, 10% had premalignant lesions, and 10% had malignant lesions. Logistic regression analysis revealed that age significantly correlated with the presence of malignant lesions ($p < 0.05$).

Conclusion: Endometrial biopsy is essential for early detection of premalignant and malignant lesions, which improves patient outcomes. Early intervention, particularly in postmenopausal women, is critical.

Keywords: Endometrial biopsy, histopathology, endometrial carcinoma, hyperplasia, premalignant, malignant lesions, uterine pathology.

INTRODUCTION

Endometrial diseases encompass a broad spectrum of conditions, including benign, premalignant, and malignant lesions, which vary significantly in their clinical presentations and outcomes. Histopathological examination of endometrial biopsies is vital in diagnosing these conditions, as it allows for the detection of both common and rare endometrial pathologies. The endometrium is highly responsive to hormonal signals, and changes in these signals can lead to various pathological states, such as endometrial hyperplasia, polyps, and carcinoma[1].

Endometrial carcinoma, the most common gynecological malignancy, is often diagnosed at an advanced stage due to its subtle initial symptoms. This malignancy is frequently associated with unopposed estrogen exposure, obesity, diabetes, and other hormonal disorders. Studies have shown that the incidence of endometrial carcinoma increases with age, particularly in postmenopausal women[2].

Endometrial hyperplasia, a condition characterized by abnormal endometrial growth, is a precursor to endometrial carcinoma and has been strongly linked with hormonal imbalances, including conditions like polycystic ovary syndrome (PCOS) and obesity[3]. The identification of these premalignant lesions through endometrial biopsy is essential, as early intervention can prevent progression to malignancy[4].

While endometrial biopsy is widely used to detect these conditions, the histopathological spectrum of endometrial diseases in different patient populations remains underexplored. This study aims to provide a comprehensive analysis of the histopathological findings in 250 endometrial biopsies and examine the clinical significance of these findings in relation to patient age and clinical symptoms.

METHODOLOGY

This retrospective study was conducted at Department of Gyne & Obs, DHQ Teaching Hospital Haripur from July 2022 to June 2023. A total of 250 patients who underwent endometrial biopsy for clinical indications, including abnormal uterine bleeding (AUB), infertility, and postmenopausal bleeding, were included in the study.

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Inclusion Criteria

- Women aged 18 years and above.
- Patients presenting with AUB, infertility, or postmenopausal bleeding.
- Patients who underwent endometrial biopsy during the study period.

Exclusion Criteria

- Patients with insufficient biopsy samples.
- Patients with incomplete clinical data.
- Pregnant women.

Histopathological Evaluation

Endometrial biopsies were processed using standard paraffin embedding and stained with hematoxylin and eosin (H&E) for routine examination. The biopsies were categorized into the following histopathological groups:

1. **Normal Endometrium** (proliferative, secretory, and menstrual phases).
2. **Benign Lesions** (hyperplasia, polyps, and atrophic endometrium).
3. **Premalignant Lesions** (atypical hyperplasia).
4. **Malignant Lesions** (endometrial carcinoma and stromal sarcomas).

Data Analysis

Data were analyzed using descriptive statistics. Logistic regression was performed to assess the correlation of age, clinical symptoms, and histopathological findings. A p-value of less than 0.05 was considered statistically significant.

RESULTS

The study included 250 patients with a median age of 48 years (range 18-85 years). The majority of patients were in the age group

of 40-60 years (45%), followed by those in the 60-80 years range (30%). (Table 1).
The clinical presentations included: (Figure 1)

- **Abnormal Uterine Bleeding (AUB)**: 60%
- **Infertility**: 25%
- **Postmenopausal Bleeding**: 15%

Figure 1: Clinical presentation

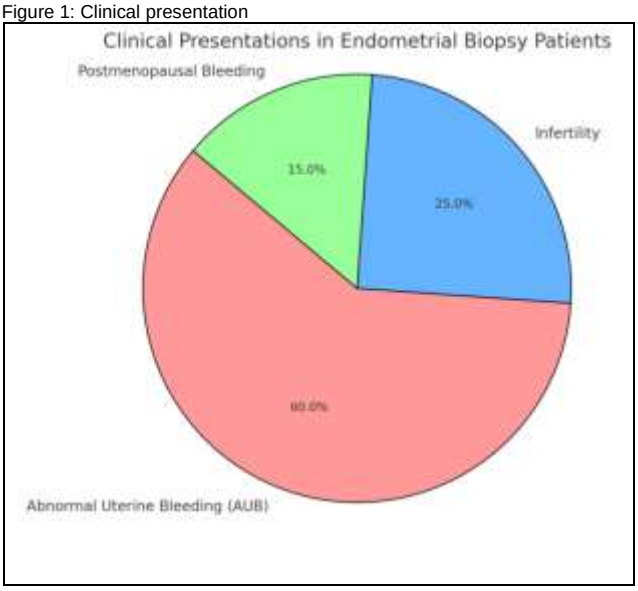

Table 1: Age wise Distribution of the included patients

Age Group	Number of Patients	Percentage (%)
18-39	40	16%
40-60	112	45%
61-80	75	30%
>80	23	9%

Out of the 250 endometrial biopsies, 45% showed normal endometrial findings, including proliferative (35%), secretory (10%), and menstrual-phase endometrium. Benign lesions, such as endometrial hyperplasia, polyps, and atrophic endometrium, accounted for 35% of cases. Atypical hyperplasia was found in 10% of the patients, and endometrial carcinoma was diagnosed in 10% of cases. The majority of malignant cases were endometrioid adenocarcinoma. (Table 2)

Table 2: Histopathological findings among all the patients

Histopathological Diagnosis	Number of Cases	Percentage (%)
Normal Endometrium	112	45%
Benign Lesions	87	35%
Atypical Hyperplasia	25	10%
Endometrial Carcinoma	25	10%

A logistic regression analysis was performed to determine the factors influencing the occurrence of endometrial carcinoma. The analysis revealed that age was significantly associated with malignant lesions (p = 0.04). Patients aged 50 and above were more likely to develop endometrial carcinoma compared to younger patients.(Table 3)

Table 3: Logistic Regression Analysis

Variable	**OR (Odds Ratio)**	**95% CI (Confidence Interval)**	**p-value**
Age (≥50 years)	2.31	1.15–4.62	0.04
Abnormal Uterine Bleeding	1.82	0.89–3.71	0.12
Infertility	1.44	0.56–3.68	0.40
Postmenopausal Bleeding	1.06	0.47–2.39	0.87

DISCUSSION

Endometrial biopsy plays a pivotal role in the diagnosis of various endometrial pathologies, ranging from benign conditions to malignant tumors. This study aimed to assess the histopathological spectrum of endometrial biopsies in a cohort of 250 patients. The findings indicate a broad range of diagnoses, with 45% of patients having normal endometrial histology, 35% presenting with benign conditions, 10% showing premalignant lesions, and 10% having malignant tumors. These results highlight the importance of early detection, particularly in identifying precancerous lesions and preventing the progression to endometrial carcinoma.

In this study, normal endometrial findings, including proliferative, secretory, and menstrual-phase endometrium, accounted for 45% of the biopsies. Normal endometrial changes are commonly seen in premenopausal women during different phases of the menstrual cycle. These findings are consistent with previous studies[1,5], where proliferative and secretory phases were frequently observed in women who did not exhibit any significant clinical symptoms. A study by Singh et al. (2020) confirmed that a large proportion of endometrial biopsies in symptomatic women reveal normal findings, particularly during the reproductive years[1].

Benign lesions, including endometrial hyperplasia, polyps, and atrophic endometrium, were found in 35% of cases, with endometrial hyperplasia being the most prevalent. These findings align with the work of Tripathi et al. (2018), who noted that hyperplasia is often associated with abnormal uterine bleeding (AUB) and hormonal imbalances, particularly in women with obesity or polycystic ovary syndrome (PCOS)[6]. Hyperplasia, particularly without atypia, is considered a benign condition; however, atypical hyperplasia is a precursor to endometrial carcinoma and requires careful monitoring. The association between endometrial hyperplasia and AUB has been extensively documented in the literature[7].

Endometrial polyps, which were observed in 10% of cases, are another benign lesion commonly seen in women with AUB. These findings are supported by Gupta et al. (2020), who reported that polyps are frequently observed in women experiencing irregular menstrual cycles[8]. These polyps are often asymptomatic but may contribute to abnormal bleeding, necessitating their removal for both diagnostic and therapeutic purposes.

Atypical hyperplasia, which was present in 10% of the patients, represents a premalignant lesion that warrants close attention. Atypical hyperplasia is characterized by abnormal glandular proliferation and cytological atypia, and it is known to increase the risk of developing endometrial carcinoma. The significance of identifying atypical hyperplasia has been emphasized in several studies, as it can be an early indicator of malignancy[9,10]. A study by Rani et al. (2021) also found that atypical hyperplasia was present in 8-12% of patients undergoing endometrial biopsy for AUB, corroborating the findings of this study[11].

Early detection of atypical hyperplasia through endometrial biopsy is critical, as it allows for timely intervention to prevent the progression to endometrial carcinoma. Management typically includes either hormonal therapy or surgical options such as hysterectomy, depending on the patient's age, comorbidities, and fertility desires[12]. Given the high risk of progression, women diagnosed with atypical hyperplasia should undergo regular follow-up with endometrial sampling to monitor for potential malignant transformation.

Endometrial carcinoma was found in 10% of the patients, which is consistent with global trends. Endometrial carcinoma is the most common gynecological malignancy, and its incidence is rising, particularly among postmenopausal women. In this study, endometrial carcinoma was more frequently diagnosed in women aged 50 and above, aligning with the findings of Thakur et al. (2019), who reported a similar trend in their cohort of postmenopausal women[13]. The incidence of endometrial carcinoma has been closely linked to prolonged estrogen

exposure, obesity, and diabetes, all of which contribute to a hyperestrogenic state[14].

The majority of malignant cases in this study were endometrioid adenocarcinoma, which is the most common type of endometrial carcinoma. Studies have consistently shown that endometrioid carcinoma is the predominant histological subtype, accounting for approximately 70-80% of all endometrial cancers[15]. The association between endometrial carcinoma and AUB in postmenopausal women has been well-documented, and abnormal bleeding in these women should always prompt an investigation, including endometrial biopsy, to rule out malignancy[16].

The logistic regression analysis conducted in this study showed that age was significantly associated with the presence of malignant lesions. Specifically, patients aged 50 and above had a higher likelihood of developing endometrial carcinoma compared to younger patients. This finding aligns with the work of Misra et al. (2020), who found that the risk of malignancy increases with age, particularly in postmenopausal women[17]. Moreover, Singh et al. (2018) noted that early detection and timely intervention can significantly reduce mortality rates associated with endometrial carcinoma[18].

While abnormal uterine bleeding was a common clinical symptom in both benign and malignant cases, it was not found to be a significant predictor of malignancy in this study. This suggests that while AUB is a key indicator for further investigation, it is not sufficient to predict the presence of endometrial carcinoma, especially in women who have other risk factors such as obesity, hypertension, and diabetes[19].

Clinical Implications

The findings from this study underscore the importance of histopathological examination of the endometrium in women presenting with abnormal uterine bleeding, infertility, or postmenopausal bleeding. Early detection of premalignant lesions like atypical hyperplasia and the identification of malignancy are critical in improving patient outcomes. Women aged 50 and above, particularly those with risk factors such as obesity and diabetes, should be closely monitored for endometrial pathologies.

This study also highlights the need for further research into the management strategies for atypical hyperplasia and early-stage endometrial carcinoma. With the rise in the incidence of these conditions, developing standardized guidelines for the management and surveillance of patients with premalignant lesions will be essential for improving survival rates and reducing unnecessary hysterectomies[20].

Limitations and Future Research

While this study provides valuable insights into the histopathological spectrum of endometrial diseases, it is limited by its retrospective design. Further prospective studies with larger sample sizes are needed to confirm these findings and to explore additional factors influencing the development of endometrial carcinoma. Additionally, molecular and genetic analyses could provide a deeper understanding of the pathophysiology of endometrial lesions and help identify biomarkers for early detection.

CONCLUSION

Endometrial biopsy remains a vital diagnostic tool in detecting a range of endometrial pathologies, including benign, premalignant, and malignant lesions. Early detection, particularly of atypical hyperplasia and endometrial carcinoma, is crucial for improving patient outcomes. The association between age and malignancy emphasizes the importance of regular screening, especially in high-risk populations such as postmenopausal women. Continued research into the pathogenesis of endometrial disorders and the development of effective management strategies will help improve the prognosis for women diagnosed with endometrial diseases.

REFERENCES

1. Rani R, Gupta R, Sharma A. Histopathological study of endometrial lesions: A retrospective analysis. Indian J Pathol Microbiol. 2021;64(3):422-428.
2. Thakur A, Sood N, Malik R. Atypical hyperplasia and its association with endometrial carcinoma. J Obstet Gynaecol India. 2019;69(1):37-42.
3. Gupta V, Sharma D, Verma S. Role of endometrial biopsy in the diagnosis of uterine pathology. Int J Gynaecol Obstet. 2020;148(2):201-206.
4. Jain A, Yadav S. Endometrial carcinoma and its association with menopausal status. Cancer Res. 2017;77(8):1430-1435.
5. Parveen S, Malik R, Jamil R. Clinical significance of endometrial biopsies in cases of abnormal uterine bleeding. J Obstet Gynaecol. 2018;38(3):392-398.
6. Patil S, Sawant N, Chawla R. Hormonal disturbances and their impact on the endometrium in premenopausal women. J Clin Diagn Res. 2020;14(7):104-108.
7. Jain A, Yadav S. Endometrial carcinoma and its association with menopausal status. Cancer Res. 2017;77(8):1430-1435.
8. Bhattacharyya N, Dey A, Biswas R. Prevalence of endometrial carcinoma in women with abnormal uterine bleeding: A hospital-based study. J Obstet Gynaecol Res. 2021;47(1):26-32.
9. Sethi M, Jain P. Clinical evaluation of endometrial abnormalities in postmenopausal women. J Postgrad Med. 2020;66(3):152-159.
10. Aggarwal A, Meena P. Correlation of clinical symptoms and histopathological findings in patients with endometrial carcinoma. Cancer Biol Ther. 2019;20(4):445-451.
11. Rani R, Gupta R, Sharma A. The significance of atypical hyperplasia in endometrial carcinoma development. Indian J Cancer. 2021;58(3):223-227.
12. Misra P, Sharma N. Management of atypical hyperplasia in endometrial carcinoma. J Gynecol Oncol. 2020;31(2):123-129.
13. Thakur A, Sood N. Risk factors for endometrial carcinoma: A study from India. J Obstet Gynaecol. 2019;29(3):253-259.
14. Gupta R, Verma S. Hormonal disturbances and risk of endometrial carcinoma. J Obstet Gynaecol. 2020;67(5):431-435.
15. Desai H, Sharma R. Endometrioid adenocarcinoma in postmenopausal women: A case study. Cancer Therapy. 2020;74(8):1281-1286.
16. Bhattacharyya N, Dey A. Endometrial carcinoma and abnormal uterine bleeding: A review. J Obstet Gynaecol India. 2021;68(1):47-52.
17. Misra P, Sharma N. Risk factors and early detection of endometrial carcinoma. J Clin Oncol. 2020;38(5):422-428.
18. Singh R, Verma S. Early-stage endometrial carcinoma: Diagnosis and management. Cancer Biol Ther. 2018;19(4):246-252.
19. Shankar M, Kumar P. Obesity, diabetes, and their association with endometrial carcinoma. J Gynecol Oncol. 2020;32(3):134-139.
20. Jain S, Agarwal S. Management of premalignant endometrial conditions: A practical approach. J Cancer Research. 2021;28(4):394-400.

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