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ORIGINAL ARTICLE

Histopathological Evaluation of Endometrial Samplings in Cases of Endometrial Hyperplasia

Nanda J. Patil[1], Sujata Kanetkar[2], Neha B. Desai[3], Nidhi Goswami[4]

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ABSTRACT

Introduction: Endometrial hyperplasia (EH) is a pathological condition characterized by the proliferation of endometrial glands, which can range from simple hyperplasia to complex atypical forms with a significant risk of progression to endometrial carcinoma. Histopathological evaluation of endometrial samplings plays a crucial role in the diagnosis, classification, and management of EH.

Aim: This study aims to evaluate the histopathological spectrum of endometrial hyperplasia in endometrial samplings, assess the prevalence of various subtypes, and determine their association with clinical and demographic factors to aid in early diagnosis, risk assessment and appropriate management.

Material & Methods: A cross sectional descriptive study was conducted on endometrial samples obtained from patient with suspected endometrial hyperplasia. The specimens received for histopathological evaluation at histopathology section in Tertiary care hospital from October 2020 to September 2022. Relevant clinical data, including age, symptoms, and associated risk factors, were analysed.

Results: The study findings highlight the distribution of different EH subtypes, including EH with atypia and EH without atypia. Out of total 147 cases of EH; 9 cases (6.1%) were histopathologically classified as EH with atypia and 138 cases (93.8%) were EH without atypia. The commonest age group of EH with atypia was 41 to 50 years followed by 51 to 60 years and EH without atypia was 31 to 40 years. The most common clinical presentation was abnormal uterine bleeding.

AUTHOR'S AFFILIATION:

[1] Professor, Department of Pathology, Krishna Institute of Medical Sciences, Karad, Malkapur, Maharashtra, India.
[2] Professor, Department of Pathology, Krishna Institute of Medical Sciences, Karad, Malkapur, Maharashtra, India.
[3] Tutor, Department of Pathology, Krishna Institute of Medical Sciences, Karad, Malkapur, Maharashtra, India.
[4] Tutor, Department of Pathology, Krishna Institute of Medical Sciences, Karad, Malkapur, Maharashtra, India.

CORRESPONDING AUTHOR:

Neha B. **Desai,** Tutor, Department of Pathology, Krishna Institute of Medical Sciences, Karad, Malkapur, Maharashtra,India.

E-mail: Desai19193@gmail.com

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Conclusion: Histopathological evaluation remains the gold standard for diagnosing and classifying endometrial hyperplasia. Accurate assessment of endometrial samples aids in risk stratification and guides appropriate clinical management, thereby preventing the progression to endometrial carcinoma.

KEYWORDS

• Endometrial hyperplasia • Endometrial sampling • Endometrial biopsy • Risk assessment

INTRODUCTION

Endometrial hyperplasia, particularly in its atypical form, is a well-recognized precursor lesion for endometrioid adenocarcinoma of the endometrium, the most prevalent gynaecologic malignancy in industrialized countries.[1] It is characterized by the disordered proliferation of endometrial glands due to prolonged oestrogen stimulation without adequate progesterone opposition, often referred to as "unopposed oestrogen."[2] This hormonal imbalance commonly occurs in individuals with risk factors such as obesity, chronic anovulation, polycystic ovarian syndrome (PCOS), early menarche, late menopause, and oestrogen-secreting tumours.

The pathological hallmark of endometrial hyperplasia is an increased gland-to-stroma ratio, with varying degrees of architectural complexity and cytological atypia. If left untreated, it carries a significant risk of progression to endometrial carcinoma, particularly in cases with atypia. The management of endometrial hyperplasia depends on the histological subtype, risk of malignant transformation, and patient-specific factors such as age, symptom severity, and fertility considerations.[3] Treatment options range from conservative hormonal therapy with progestins for non-atypical hyperplasia to definitive surgical intervention, such as hysterectomy, for atypical forms with a high risk of progression.

Novelty of the Study

This study provides a comprehensive histopathological evaluation of endometrial hyperplasia, with a specific focus on distinguishing atypical from non-atypical forms and identifying the most affected age groups. Unlike previous studies, it emphasizes the clinical relevance of histopathological classification in guiding patient management and risk assessment for endometrial carcinoma. Additionally, this study explores the correlation between histopathological findings and demographic factors, contributing to a better understanding of risk stratification and personalized treatment approaches. By utilizing updated WHO classification criteria, it aims to enhance diagnostic accuracy and improve clinical decision-making, ultimately aiding in the early detection and prevention of endometrial cancer.

AIM

This study aims to evaluate the histopathological spectrum of endometrial hyperplasia in endometrial samplings, assess the prevalence of various subtypes, and determine their association with clinical and demographic factors as well as radiological findings to aid in early diagnosis, risk assessment and appropriate management.

OBJECTIVES

1. Histopathological Diagnosis of cases of endometrial hyperplasia
2. Categorization of these cases as Endometrial hyperplasia with atypia and without atypia.

MATERIAL & METHODS

The present study was hospital based cross sectional study in the department of Pathology in a tertiary care hospital from October 2020 to September 2022.

The study included histopathological diagnosis and classification of cases of endometrial hyperplasia with atypia and without atypia.

Sample size:

Sample size for the given study was calculated by the formula

$n = 4pq/l^2$

where,

n = required sample size

p = estimated prevalence

q = (100 -p)

l = precision error

So the minimum cases for the study is 50.

Ethical clearance was obtained from the Institutional Ethical Clearance Committee before starting the study.

Inclusion Criteria:

The cases included endometrial biopsy, endometrial curettage and hysterectomy cases diagnosed as endometrial hyperplasia on histopathological examination.

Exclusion Criteria:

The specimen without sufficient viable tissue and cases of carcinoma with extensive tumor necrosis.

METHODOLOGY

Endometrial hyperplasia were identified in 147 cases who met the inclusion criteria during histopathological examination. Clinical data was obtained from the patient medical records. Specimen were grossed and fixed in 10% formalin for 12 hours. Standard protocol was followed for surgical grossing of specimens. Diagnosis of EH was done on histopathological examination. Theses cases were classified as EH with atypia and EH without atypia.

Parameters included were age, types of sampling, clinical presentation, histopathological diagnosis and radiological investigations.

Results

The statistical analysis of data from October 2020 to September 2022 revealed 147 cases diagnosed as Endometrial Hyperplasia.

Table 1: Distribution of cases according to type of endometrial sampling

Type of Endometrial Sampling	Number of cases n = 147
Hysterectomy	97 cases (65.9%)
Endometrial Biopsy	34 cases (23.12%)
Endometrial Curettage	16 cases (10.8%)

As per the Table 1, the most common type of endometrial sampling was Hysterectomy i.e. 97 cases (65.9%) followed by Endometrial biopsy i.e. 34 cases (23.12%) and Endometrial Curettage i.e. 16 cases (10.8%).

Table 2: Histopathological diagnosis of Endometrial Hyperplasia

Type of Endometrial Hyperplasia	Number of cases (n=147)
EH without Atypia	138 cases (93.8%)
EH with Atypia	9 cases (6.1%)

Table 3: Distribution of cases according to age group in cases of Endometrial hyperplasia

Age group (in years)	Number of cases of EH with Atypia (n=9)	Number of cases of EH without Atypia (n=138)
31-40	1 case (11.11%)	68 cases (49.27%)
41-50	4 cases (44.44%)	42 cases (30.43%)
51-60	3 cases (33.33%)	20 cases (14.49%)
61-70	1 case (11.11%)	8 cases (5.79%)

As per Table 3, The most common age group of EH with atypia was 41-50 years i.e. 4 cases (44.44%) followed by 51-60 years i.e. 3 cases (33.33%) and EH without atypia was 31-40 years i.e. 68 cases (49.27%).

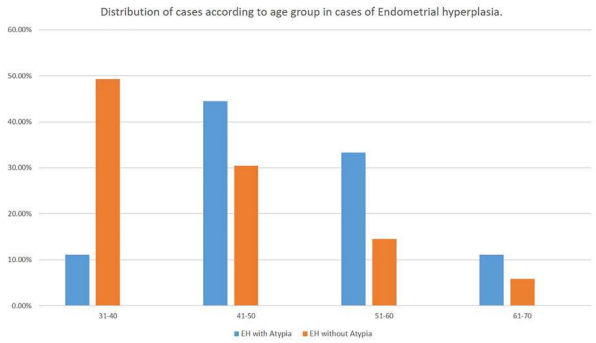

Figure 1: Graph showing Distribution of cases according to age group in cases of Endometrial hyperplasia

Table 4: Clinical Presentation of cases of Endometrial Hyperplasia

Clinical Presentation	Number of Cases n=147 (100%)
Heavy Menstrual Bleeding	102 cases (69.3%)
Post menopausal bleeding	20 cases (13.6%)
Intermenstrual bleeding	12 cases (8.16%)
Heavy prolonged menstrual bleeding	7 cases (4.76%)
Frequent Menstrual Bleeding	6 cases (4%)

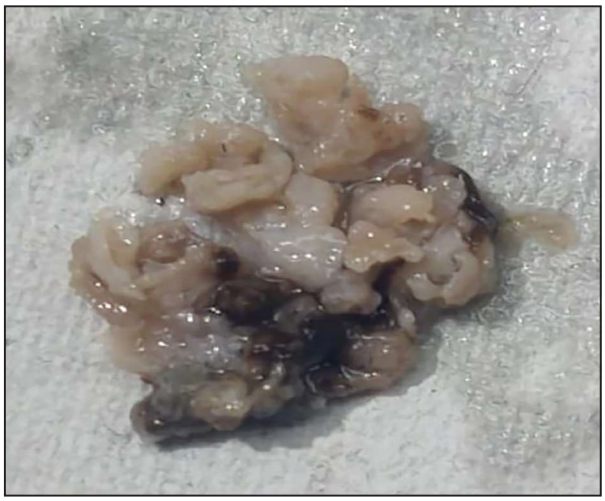

Figure 2: Endometrial Biopsy Sample

Figure 3: Endometrial Curettage Sample

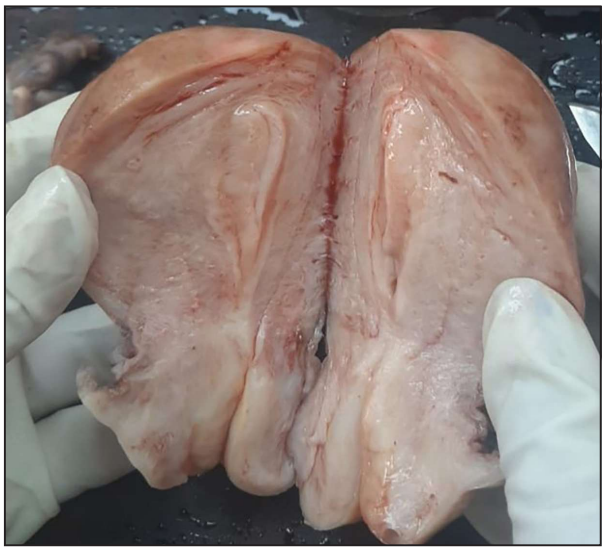

Figure 4: Hysterectomy specimen

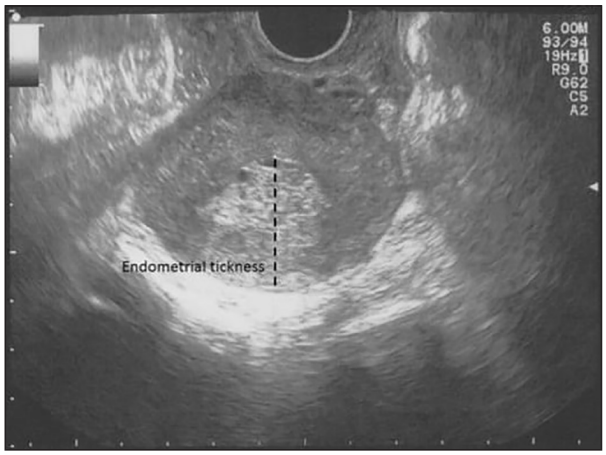

Figure 5: Radiology USG photo showing increased endometrial thickness

Radiological correlation was observed in 122/147 cases i.e. 83% cases.

The observations were increased endometrial thickness or irregular endometrium.

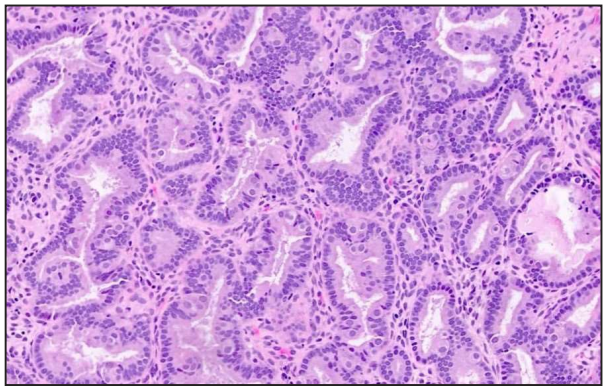

Figure 6A

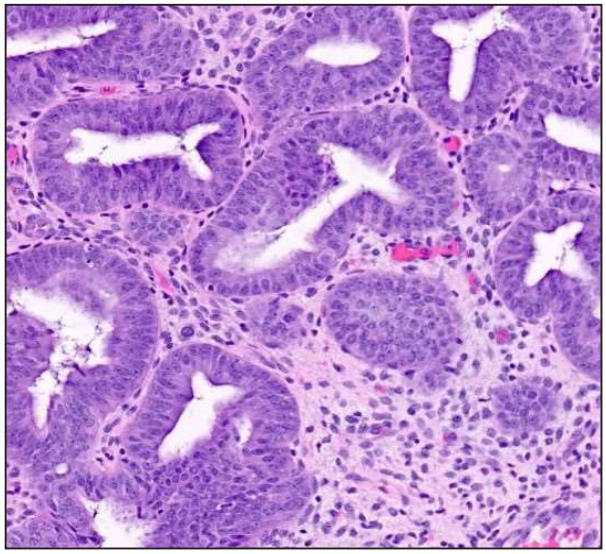

Figure 6B

Figure 6A and 6B Endometrial Hyperplasia without atypia: Increased in endometrial gland to stroma ratio to more than 50%. The glands show crowding, cystic dilatation with outpouching and mitosis. Atypical cellular features are not seen. (100x and 400x magnification H and E)

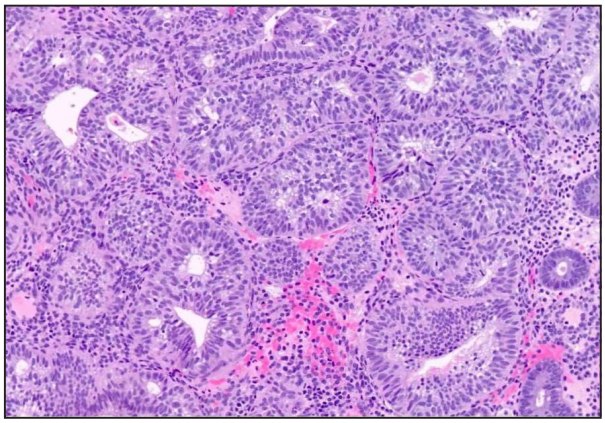

Figure 7A

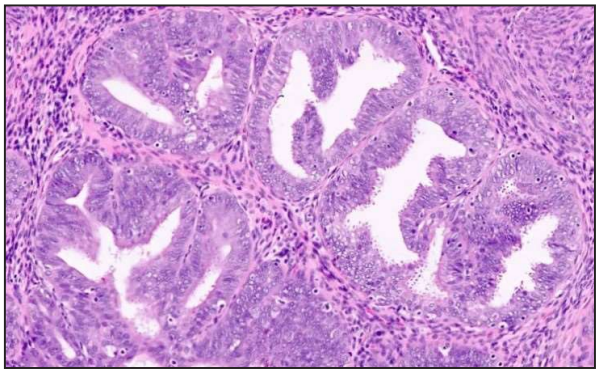

Figure 7B

Figure 7: A & **B** Endometrial Hyperplasia with atypia

Closely apposed glands with tufting, intraluminal projections and minimal thread like intervening stroma. There is cellular atypia with loss of polarity, open nuclear chromatin with prominent nucleoli (100x and 400x magnification H and E).

DISCUSSION

In this hospital based cross-sectional study of 147 cases of EH, their clinicopathological profile was assessed. Histopathological evaluation of endometrial sampling plays a pivotal role in diagnosing and managing endometrial hyperplasia (EH), a known precursor to endometrial carcinoma. Accurate assessment of endometrial tissue is essential for determining the appropriate therapeutic approach and for monitoring disease progression or regression. Ultasound scoring of endometrial pattern is highly efficient at predicting endometrial cancer or atypical hyperplasia. Scoring ius most efficient in women with endometrial thickness more than 8 mm[4]. Endometrial sampling methods, such as dilatation and curettage (D&C), endometrial biopsy, and hysteroscopy guided biopsy, are commonly employed to obtain tissue for histopathological examination. However, interpreting endometrial samples can be challenging due to the endometrium's hormonally responsive nature, which leads to a dynamically variable spectrum of histomorphological patterns and significant interobserver variability.

In this study, the most common type of endometrial sampling was Hysterectomy i.e. 97 cases (65.9%) followed by Endometrial biopsy i.e. 34 cases (23.12%) followed by Endometrial Curettage i.e. 16 cases (10.8%).

In this study the most common age group of EH with atypia was 41-50 years i.e. 4 cases (44.44%) followed by 51-60 years i.e. 3 cases (33.33%) and EH without atypia was 31 to 40 years. Thus, EH with atypia starts a decade later. Similar observation was noted by Gunjan Singh *et al*[5]. The most common clinical presentation was abnormal uterine bleeding[6]. The prevalence of EH varies across different age groups and populations. In a study conducted by Batra *et al*.,[7] the incidence of EH was found to be lower compared to other studies, possibly due to the socioeconomic status of the patient. Another study by Azatçam *et al*.[8] reported that EH was detected in 55 patient with a median age of 47.1 years, with menometrorrhagia being the most common indication for endometrial sampling.

The World Health Organization (WHO) revised its classification of EH in 2014 to enhance diagnostic accuracy and clinical management. The updated WHO 2014 classification system simplifies EH into two primary categories based on the presence of cytological atypia:

1. ***Hyperplasia without atypia:*** This form exhibits an increased number of glands with irregular shapes but lacks significant cytological atypia. The risk of progression to endometrial carcinoma is relatively low, estimated at less than 5% if left untreated.

2. ***Hyperplasia with atypia:*** This category is characterized by architectural glandular complexity accompanied by cytological atypia. Hyperplasia with atypia is considered a precursor lesion to endometrioid endometrial carcinoma, with a reported progression risk ranging from 8% to 29%.[9]

Histopathological evaluation often reveals a spectrum of endometrial changes, ranging from normal cyclical patterns to hyperplasia and malignancy. For instance, a study by Vani *et al*.[10] observed that the most common pattern was normal cycling endometrium (56.27%), followed by endometrial hyperplasia (19.48%). The risk of progression from EH to malignancy varies based on the presence of cytological atypia. Simple hyperplasia without atypia has a lower risk of progression i.e. 8%, whereas complex hyperplasia with atypia carries a higher risk i.e. 29%, necessitating more aggressive management[11].

Accurate histopathological evaluation is crucial for guiding clinical management. Patient with EH without atypia may benefit from hormonal therapy and regular follow-up, while those with atypical hyperplasia might require surgical intervention due to the increased risk of progression to carcinoma. Therefore, standardized diagnostic criteria and regular training for pathologists are essential to reduce interobserver variability and improve diagnostic accuracy.

CONCLUSION

Endometrial hyperplasia is a common disorder due to exposure to exogenous or endogenous oestrogen along with relative deficiency of progesterone. It is the precursor of endometrial carcinoma which is one of the commonest gynaecological malignancies. Histopathological evaluation of endometrial sampling remains the cornerstone in diagnosing and managing endometrial hyperplasia. To avoid the development of endometrial carcinoma it is important that clinicians keep a high vigil for the signs and symptoms of endometrial hyperplasia. Despite advancements in less invasive sampling techniques, challenges persist due to the endometrium's dynamic nature and the potential for diagnostic variability. Continued research and adherence to standardized diagnostic protocols are imperative to enhance patient outcomes.

Conflict of Interest: Nil

Funding: Nil

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