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Research Article

Endometrial Polyp and Its Clinico-Pathological Correlation

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I N F O

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A B S T R A C T

Background: Endometrial polyps are localized overgrowths of the endometrial tissue, commonly seen in women presenting with abnormal uterine bleeding (AUB). Though generally benign, they may coexist with or mimic precancerous or malignant lesions, necessitating a clinico-pathological evaluation.

Objective: To evaluate the clinical presentation and histopathological features of endometrial polyps, and to correlate these findings with non-polypoidal endometrial lesions to determine distinguishing features that can aid diagnosis and reduce unnecessary hospital admissions. Methods: A retrospective study was conducted on 38 cases over two years (2022–2024) in the Department of Pathology, Amrita Institute of Medical Sciences, Faridabad. Histopathological data and clinical profiles were collected for each case. Statistical analysis was conducted using parametric tests and ANOVA. All endometrial biopsies and hysterectomy specimens were included; malignancies and non-endometrial polyps were excluded.

Results: Out of 38 cases, 4 (10.53%) were endometrial polyps and 34 (89.47%) were non-polypoidal lesions. The mean age of patients with polyps was 43.25 years, while for non-polyp cases it was 45.24 years, with no significant age-related difference. Polypoidal lesions presented primarily with AUB (75%) and proliferative endometrium (100%), with one showing simple hyperplasia without atypia. Non-polypoidal lesions exhibited a broader range of endometrial phases, including proliferative (73.53%) and secretory (26.47%) types, without any hyperplasia or malignancy.

Conclusion: Endometrial polyps are most commonly seen in perimenopausal women with AUB and display distinct histological patterns, particularly proliferative changes. However, clinically and demographically, they are indistinguishable from non-polypoidal lesions. Accurate pathological diagnosis remains essential for guiding patient management, avoiding overtreatment, and reducing the financial burden on patients.

Keywords: Endometrial Polyp, Abnormal Uterine Bleeding (Aub, Histopathology, Proliferative Endometrium, Endometrial Hyperplasia, Polypoidal Lesions, Non-Polypoidal Lesions, Perimenopausal Women, Unopposed Estrogen, Uterine Pathology

Introduction

Endometrial polyps are localised overgrowths of the endometrial tissue, projecting into the uterine cavity, and are one of the most common causes of abnormal uterine bleeding in women.[1] Though generally considered benign, these lesions present a range of histopathological features and can, in rare cases, harbour precancerous or malignant changes. Polyps are frequently diagnosed in peri- and postmenopausal women, with prevalence increasing with age and hormonal imbalance, particularly with unopposed oestrogen stimulation.[1]

Despite their common occurrence, the aetiology, progression, and malignant potential of endometrial polyps remain areas of active investigation.[1] A key question in clinical practice revolves around distinguishing polyps with benign behaviour from those at risk of malignant transformation, especially given the overlap of endometrial polyps with other endometrial pathologies such as hyperplasia and carcinoma. In some cases, polyps coexist with or mimic more serious conditions, making their accurate pathological characterisation essential for guiding management.[1]

Thus the study aims to provide a comprehensive pathological analysis of endometrial polyps, examining their histological features, prevalence across different age groups, associated risk factors, and their relationship to non-polypoidal endometrial lesions. By doing so, it seeks to enhance our understanding of their biological behaviour and improve clinical outcomes in the diagnosis and treatment of endometrial polyps.

Materials and Method

A total of 38 cases were analysed over a period of 2 years, i.e. 2022 to 2024. Clinical details and histological diagnoses were taken from the records of the Department of Pathology. The cases were reviewed and details were noted and analysed statistically using Parametric Test and Anova.

Inclusion Criteria

All endometrial biopsies and hysterectomies were included in the study.

Exclusion Criteria

All non-endometrial polyps and malignancies were excluded from the study.

Results

The study registered 38 cases, of which 4 were endometrial polyps and the remaining 34 were non-polypoidal lesions. Among the non-polypoidal cases, the majority exhibited either proliferative (73.53%) or secretory (26.47%) endometrial patterns. No cases of hyperplasia or malignancy were found in this group.

In the study population, polypoidal lesions (polyps) comprised 10.53% (4 out of 38 total cases), with patients' ages ranging from 25 to 50 years, and a mean age of 43.25 years. In contrast, non-polypoidal lesions (non-polyps) constituted a predominant 89.47% (34 cases), with a slightly broader age range of 27 to 61 years and a mean age of 45.24 years. This indicates that while both groups share a relatively similar age profile, non-polypoidal lesions are more common across a wider age span (Table 1). However, the differences were statistically not significant.

In terms of clinical presentation, patients with polypoidal lesions reported higher rates of abnormal uterine bleeding (AUB) (75.00%) as compared to those with non-polypoidal lesions (44.12%). However, unique to non-polypoidal cases were other symptoms such as menorrhagia (20.59%), pain (2.94%), bleeding (2.94%), spotting (2.94%), and intermenstrual bleeding (2.94%). Polypoidal lesions were only associated with AUB and bleeding (25.00%) without any cases of menorrhagia, pain, spotting, or intermenstrual bleeding. This suggests that polypoidal lesions primarily contribute to abnormal bleeding patterns, whereas non-polypoidal lesions show a broader range of symptoms, potentially due to differences in lesion morphology or underlying pathophysiology (Table 2).

Table 1.Classification and Age-Wise Distribution of Cases in Polypoidal and Non-Polypoidal Lesions

Groups	Total Cases		Age (Years)	
	Number	% (Out of Total)	Range	Mean
Polyp	4	10.53	25–50	43.25
Non-polyp	34	89.47	27–61	45.24

The differences were statistically not significant.

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Table 2.Distribution of Cases as per Their Clinical Symptoms

Groups	AUB (other than spotting, menorrhagia and bleeding) (%)	Menorrhagia (%)	Pain (%)	Bleeding (%)	Spotting (%)	Intermenstrual Bleeding (%)
Polyp	75.00	0.00	0.00	25.00	0.00	0.00
Non-polyp	44.12	20.59	2.94	2.94	2.94	2.94

Table 3.Distribution of Cases as per Morphological Changes

Groups	Bulky Uterus	Proliferative	Secretory	Hyperplasia
Polyp	25.00	100.00	0.00	25.00
Non-polyp	2.94	73.53	26.47	0.00

Morphological examination revealed distinct variations between polypoidal and non-polypoidal lesions. Polypoidal lesions presented with a bulky uterus in 25.00% of cases, and all cases (100%) exhibited proliferative endometrial changes, with 25.00% also showing hyperplasia. No polypoidal lesions showed secretory changes or carcinoma. Conversely, non-polypoidal lesions exhibited proliferative endometrium in 73.53% of cases, with 26.47% showing secretory patterns. Only 2.94% of non-polypoidal cases presented with a bulky uterus, and none displayed hyperplasia or carcinoma. These differences highlight that polypoidal lesions are primarily proliferative with a tendency towards hyperplasia, whereas non-polypoidal lesions more commonly show a range of endometrial phases but without evidence of hyperplasia or malignancy (Table 3).

Clinically, endometrial polyps primarily presented with abnormal uterine bleeding (AUB) in 75% of cases and prolonged bleeding in 25% of cases. None of the patients with polyps reported pain, spotting, intermenstrual bleeding, or menorrhagia. In contrast, non-polypoidal cases showed more varied bleeding patterns: 44.12% had AUB, and 2.94% reported prolonged bleeding, spotting, intermenstrual bleeding, or menorrhagia. However, similar to the polyp group, no patients in the non-polyp group experienced pelvic pain. (Table 2).

Morphologically, all the polyps were in the proliferation stage (Table 3), with one case showing simple hyperplasticity without any atypia. None of the cases showed any secretory endometrium; compared to this non-polypoidal lesion showed both proliferative (73.53%) and secretory endometrium (26.47%), however, no hyperplasia was seen (Table 3).

Discussion

The 4 polyps were benign; three endometrium and one hyperplastic. The mean age of the polyp was 43.25 years and that of the non-polyp was 45.24 years, which were similar.

The age ranges of polypoidal and non-polypoidal were 25–50 and 27–61 years, respectively which came out to be similar. Hence, age with separation of cases is not possible clinically. This was also reported in a study by Mittal and Schwartz.[2] This review did not find any age-related distinction between the occurrence of endometrial polyps and endometrial hyperplasia, reinforcing the idea that both conditions share a similar age demographic.

Multiple studies focus on the clinical and pathological characteristics of endometrial polyps, as well as their potential for malignant transformation. The authors in a similar study reviewed a large sample of endometrial polyps and found that their incidence peaks in women around 50 years of age, which aligns closely with the onset of menopause.[2] The study also discusses that hyperplastic or atypical changes can be seen within polyps, indicating that polypoidal and non-polypoidal lesions often occur in the same age group and might be interrelated through hormonal factors.[2]

Principally the study highlights that endometrial polyps are most common in women over 40, and their occurrence peaks in peri-menopausal and postmenopausal women. This mirrors the age range seen in non-polypoidal conditions like hyperplasia, suggesting no significant difference in age ranges between polypoidal and non-polypoidal lesions.

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In another study by Lieng et al., the authors investigated the prevalence of endometrial polyps and found that they are most common in women aged 40–60 years, overlapping significantly with the age range for non-polypoidal lesions like hyperplasia.[3]

Endometrial polyps are more commonly found in women during peri-menopause and postmenopause, with the highest prevalence typically seen in women over the age of 40 to 50. They are often associated with hormonal imbalances, particularly unopposed oestrogen stimulation.[3] This systematic review evaluated the prevalence and treatment of endometrial polyps, confirming that polyps are most frequently diagnosed in women aged 40–60. The review points out that endometrial polyps are often discovered during evaluations for abnormal uterine bleeding, a common complaint in peri-menopausal and postmenopausal women. It notes that endometrial hyperplasia, a non-polypoidal condition, often coexists with polyps in the same age group. This overlap suggests that both types of endometrial lesions develop in response to similar hormonal changes, mainly increased oestrogen exposure. Fundamentally the review supports the idea that endometrial polyps and hyperplasia both share a similar age distribution,[3] particularly in women over 40, with the highest prevalence in postmenopausal women. The age range for both conditions is virtually identical, reinforcing the lack of a significant difference between polypoidal and non-polypoidal cases in terms of age.

The standard reference works in pathology provide a comprehensive overview of endometrial lesions, including polyps and hyperplasias. It describes endometrial polyps as benign, localised overgrowths of the endometrium, often found in women of peri-menopausal and postmenopausal age, typically around 40–60 years. Goldblum et al.[4] did not explicitly differentiate between the age ranges for polypoidal and non-polypoidal lesions because both conditions commonly arise due to similar hormonal imbalances, particularly excess oestrogen without sufficient progesterone. The age range for both is frequently cited as overlapping due to shared underlying pathophysiology. Hence, the emphasis is on hormonal factors influencing both types of lesions in a similar age group, rather than any major distinction in age ranges between the two.

Additional references in standard pathology texts, such as Sternberg's Diagnostic Surgical Pathology (6th Edition), also highlight the role of unopposed oestrogen in the development of both endometrial polyps and hyperplasia.[5] Both conditions are linked to hormonal imbalances, particularly in women during and after menopause, which is why the age ranges overlap. Endometrial hyperplasia, particularly without atypia, occurs in a similar demographic, with women aged 40–60 most commonly affected. However, no such hormonal imbalance was noted in our study.

The detailed analysis of these references reveals that endometrial polyps and non-polypoidal lesions like hyperplasia occur in similar age ranges, with the majority of cases seen in peri-menopausal and postmenopausal women (typically 40–60 years old). The lack of significant differentiation between the age groups for these lesions can be attributed to their shared hormonal aetiology—chiefly the influence of unopposed oestrogen during and after menopause.

In malignant lesions of the endometrium, it has been reported that the age group is much higher than these benign lesions.[5] On going through the literature, it was found that a comprehensive exploration of the differential diagnosis between benign and malignant endometrial lesions, focusing on both histological features and clinical behaviour, is important for the management of such cases.

Endometrial carcinoma is typically characterised by distinct histopathological markers, such as cellular atypia, disorganised architecture, and the presence of invasive growth patterns.[6] These malignancies often display nuclear abnormalities, increased mitotic activity, and a loss of normal glandular architecture, all of which signal the potential for aggressive behaviour and metastasis. In contrast, benign lesions like endometrial hyperplasia and polyps show relatively orderly glandular and stromal organisation with minimal cellular atypia. Hyperplasia, while displaying glandular crowding and some degree of proliferation, lacks the invasive properties seen in carcinoma. Polyps are usually well-demarcated and confined structures, often presenting as localised overgrowths with little risk of progression to malignancy.

Malignant endometrial lesions, particularly endometrial carcinoma, often manifest with postmenopausal bleeding and, in advanced cases, systemic symptoms.[6] These clinical signs are essential in prompting further investigation through imaging and biopsy. Benign lesions like hyperplasia and polyps may also present with abnormal uterine bleeding but usually lack the aggressive potential of carcinoma. The authors stress that although hyperplasia has a variable risk of progression to carcinoma, particularly in cases of atypical hyperplasia, it remains largely non-invasive and is typically managed with hormonal therapies or close surveillance rather than aggressive intervention.[6]

A previously published study reviewed the epidemiological trends and risk factors associated with endometrial cancer, emphasizing the rising incidence of malignancies in recent years. It highlighted that endometrial carcinomas are now being diagnosed more frequently, particularly in older, postmenopausal women—typically above 55 years of

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age. In contrast, benign endometrial lesions, such as polyps and hyperplasia, are more often encountered in younger or perimenopausal women. This age-related shift in disease presentation underscores the importance of clinical vigilance and timely diagnostic interventions to differentiate between benign and malignant conditions.

The paper emphasises that ageing remains one of the most significant risk factors for endometrial cancer, with the highest incidence rates reported in postmenopausal women, typically those aged 55 years and older. This pattern contrasts with benign endometrial lesions, which are more common in women of reproductive age or in younger peri-menopausal women, reflecting differences in hormonal profiles and reproductive health.

Various other risk factors also contribute to the rise in endometrial malignancies,[7] such as obesity, diabetes, and prolonged exposure to oestrogen without opposing progesterone. These factors cumulatively influence the older demographic, leading to an age-dependent increase in malignancies versus benign conditions. They suggest that heightened awareness and targeted screening in clinical practice can help detect malignant endometrial lesions earlier in these higher-risk age groups, potentially improving outcomes and aligning preventive measures accordingly.

Conclusion

This study underscores that although endometrial polyps and non-polypoidal endometrial lesions may present with similar clinical features and affect a similar age group, their histological profiles differ significantly. Endometrial polyps predominantly show proliferative changes and may occasionally exhibit hyperplastic features, whereas non-polypoidal lesions present with more variable phases of the endometrium. Despite these differences, the overlapping demographic and clinical presentations make accurate histopathological diagnosis essential for effective management. Differentiating polyps from other causes of AUB is critical for optimizing treatment strategies and minimizing unnecessary interventions and hospital admissions. This has implications for both patient outcomes and healthcare costs.

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