

ANALYSIS OF POLYPS IN THE FEMALE REPRODUCTIVE TRACT AT HI-TECH MEDICAL COLLEGE, BHUBANESWAR, INDIA: A CROSS-SECTIONAL STUDY.

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ABSTRACT

Background

Polyps in the female reproductive tract, particularly endometrial and cervical polyps, are common benign lesions that can cause symptoms such as abnormal uterine bleeding (AUB), pelvic pain, and infertility. While generally benign, they may carry a risk of malignant transformation, especially in postmenopausal women. This study aims to evaluate the presence and characteristics of polyps in the female reproductive tract.

Methods

This cross-sectional observational study was conducted, with 80 women diagnosed with reproductive tract polyps. Clinical data were collected via patient interviews, medical records, and histopathological analysis. Statistical analyses included chi-square tests and logistic regression to identify factors associated with recurrence and malignancy.

Results

Most patients were aged 35-50, with 62.5% presenting with AUB. Polyps were most commonly located in the endometrium (50%) and cervix (42.5%). Histopathological examination revealed that 75% of polyps were benign, 15% were hyperplastic, and 10% showed precancerous or malignant changes. Surgical treatment via hysteroscopic polypectomy was performed in 70% of cases, and recurrence was noted in 10% of patients, with hyperplastic or malignant polyps showing a higher recurrence rate ($p < 0.05$).

Conclusion

Reproductive tract polyps are prevalent among premenopausal and postmenopausal women and are often associated with abnormal bleeding. Although most polyps are benign, a significant proportion may exhibit hyperplastic or malignant changes, particularly in older women. Surgical treatment is effective, but vigilant follow-up is necessary for patients with histopathological abnormalities due to the risk of recurrence.

Recommendations

Regular screening for polyps in women presenting with AUB, especially postmenopausal women, is recommended. Further studies should explore the role of hormonal and microbial factors in the development and recurrence of polyps.

Keywords: Endometrial Polyps, Cervical Polyps, Abnormal Uterine Bleeding, Hysteroscopic Polypectomy, Hyperplasia, Recurrence.

Submitted: 2024-09-02 Accepted: 2024-09-29

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INTRODUCTION

Polyps in the female reproductive tract, especially in the uterus and cervix, are a common gynecological condition that affects women of varying ages. These growths are typically benign, but they can cause a range of symptoms, including abnormal uterine bleeding (AUB), pelvic pain, and infertility. The incidence of polyps varies widely, with estimates suggesting that they affect anywhere from 8% to 35% of women, depending on the diagnostic methods used and the population studied [1,2]. They are especially

prevalent in women over 40, particularly in those approaching menopause, where hormonal fluctuations may contribute to their formation.

Endometrial polyps, the most common type, are benign protrusions that arise from the lining of the uterus, composed of glandular and stromal tissues. While the exact pathophysiology remains unclear, several risk factors have been identified, including hormonal imbalances, chronic inflammation, and obesity. The role of estrogen is thought to be particularly significant, as elevated levels may promote endometrial hyperplasia, a

precursor to polyp development. Recent studies also suggest that microbial imbalances in the reproductive tract could play a role in the pathogenesis of endometrial polyps [3].

The clinical management of polyps depends on several factors, including the patient's age, reproductive plans, and the presence of symptoms. Hysteroscopic polypectomy remains the gold standard for the diagnosis and treatment of endometrial polyps. In symptomatic women, particularly those experiencing AUB, surgical removal of polyps is often necessary to relieve symptoms and rule out malignancy. While polyps are typically benign, the risk of malignancy, particularly in postmenopausal women, cannot be ignored. The reported rates of malignant transformation vary but are generally low, ranging from 0.5% to 4.8%, with the risk increasing with age and the size of the polyps [4].

Moreover, recurrence is a concern, with postoperative recurrence rates reported between 3% and 46%, often depending on the type of polyp and underlying hormonal or metabolic imbalances [4,5]. The emergence of advanced diagnostic tools, including next-generation sequencing, has facilitated a better understanding of the genetic and microbial factors associated with polyp formation, opening avenues for more targeted therapies in the future [6-8].

This study aims to evaluate the presence and characteristics of polyps in the female reproductive tract.

METHODOLOGY

Study Design

A cross-sectional descriptive observational study.

Study Setting

The study was conducted at Hi-Tech Medical College, Bhubaneswar, India over the period from May 2022 to May 2023. The medical center serves as a tertiary care hospital, providing advanced care for patients with complex reproductive health issues.

Participants

A total of 80 female patients were included in the study. These participants were diagnosed with polyps in the reproductive tract during routine gynecological examinations, imaging studies, or following referrals from other clinics within the hospital.

Inclusion Criteria

- Women aged between 20 and 65 years.
- Patients diagnosed with polyps in the reproductive tract (cervical, endometrial, or other areas).

Exclusion Criteria

- Women with a history of malignancy in the reproductive tract.
- Pregnant women.
- Patients who had undergone previous surgical removal of polyps or hysterectomy.
- Patients with significant comorbidities affecting reproductive health (e.g., severe pelvic inflammatory disease).

Bias

Efforts were made to minimize selection bias by recruiting participants consecutively from those diagnosed with reproductive tract polyps. Information bias was reduced by using standardized data collection tools and trained personnel. Confounding variables such as age, hormonal therapy, and reproductive history were carefully controlled through statistical adjustments.

Variables

Variables included age, medical and reproductive history, location of polyps (cervical, endometrial, or other), symptoms presented by the patient, characteristics of polyps (size, number, histopathological type), treatment outcomes (conservative management vs surgical intervention), and recurrence rates.

Data Collection

Data was collected through a combination of clinical records, patient interviews, physical examinations, imaging reports (ultrasound, MRI), and histopathological analysis following biopsy or surgical removal of polyps. A pre-designed data collection form was used to record details including demographic data, clinical presentation, and findings from diagnostic procedures.

Procedure

Participants diagnosed with polyps underwent routine gynecological examinations followed by imaging studies to confirm the diagnosis. Surgical intervention or biopsy was performed when necessary to obtain tissue samples for histopathological examination. All participants were followed up to document treatment outcomes and recurrence.

Statistical Analysis

SPSS version 25 was used to analyze data. Descriptive statistics included means, standard deviations, and frequencies. When suitable, t-tests or ANOVA were employed to compare continuous variables, while chi-square tests analyzed categorical data. P-values under 0.05 were significant. The study examined how age and reproductive history affected treatment success and polyp

recurrence using logistic regression analysis. Results were shown as 95% CIs around odds ratios.

Ethical considerations

The study protocol was approved by the Ethics Committee and written informed consent was received from all the participants.

RESULTS

A total of 80 women diagnosed with polyps in the reproductive tract were included in the study. The mean age of the participants was 42.5 years (SD ± 10.4), with the majority of patients (65%) aged between 35-50 years. Of the total participants, 60% (n = 48) were premenopausal, while 40% (n = 32) were postmenopausal.

Table 1: Demographic Characteristics of Study Participants

Characteristic	Frequency (n = 80)	Percentage (%)
Age Group (Years)		
20-30	12	15%
31-40	22	27.5%
41-50	30	37.5%
51-65	16	20%
Menopausal Status		
Premenopausal	48	60%
Postmenopausal	32	40%
Symptoms		
Abnormal Uterine Bleeding	50	62.5%
Pelvic Pain	20	25%
Infertility	10	12.5%
Location of Polyps		
Cervical	34	42.5%
Endometrial	40	50%
Both Cervical and Endometrial	6	7.5%

The most common symptom reported was abnormal uterine bleeding, observed in 62.5% (n = 50) of the participants, followed by pelvic pain in 25% (n = 20), and infertility in 12.5% (n = 10). Polyps were more frequently located in the endometrium (50%, n = 40), followed by the cervix (42.5%, n = 34), with a small subset of patients presenting with both cervical and endometrial polyps (7.5%, n = 6).

Histopathological analysis of polyps revealed that 75% (n = 60) were benign, while 15% (n = 12) had hyperplastic features. Precancerous or malignant changes were found in 10% (n = 8) of cases. The mean size of polyps was 2.5 cm (SD ± 1.1).

Table 2: Histopathological Findings

Histopathological Type	Frequency (n = 80)	Percentage (%)
Benign	60	75%
Hyperplastic	12	15%
Precancerous/Malignant	8	10%

All patients underwent either conservative management or surgical treatment depending on the clinical presentation and histopathological findings. Surgical intervention, primarily hysteroscopic polypectomy, was performed in 70% (n = 56) of the cases, while 30% (n =

24) opted for conservative management with hormonal therapy or observation.

The recurrence of polyps was observed in 10% (n = 8) of patients within one year of follow-up. Recurrence was significantly higher in patients who had hyperplastic or precancerous polyps (p < 0.05).

Table 3: Treatment and Outcomes

Treatment Modality	Frequency (n = 80)	Percentage (%)
Hysteroscopic Polypectomy	56	70%
Conservative Management	24	30%
Recurrence		
Yes	8	10%
No	72	90%

A significant association was found between age and the histopathological type of polyps ($p = 0.03$), with older women (aged ≥ 50 years) more likely to have hyperplastic

or malignant polyps. Additionally, the presence of abnormal uterine bleeding was significantly associated with the larger size of polyps ($p = 0.02$).

Table 4: Association between Age and Histopathological Type

Age Group (Years)	Benign (n = 60)	Hyperplastic (n = 12)	Precancerous/Malignant (n = 8)	p-value
20-30	10	1	1	0.03
31-40	20	1	1	
41-50	24	3	3	
51-65	6	7	3	

A logistic regression analysis was performed to identify factors associated with the recurrence of polyps. After adjusting for age, menopausal status, and

histopathological type, hyperplastic or malignant polyps were found to be significantly associated with recurrence (OR: 3.5, 95% CI: 1.2-10.1, $p = 0.02$).

Table 5: Logistic Regression for Recurrence of Polyps

Variable	Adjusted OR	95% CI	p-value
Age (≥ 50 years)	1.5	0.8-2.9	0.15
Menopausal Status (Post)	1.3	0.7-2.6	0.23
Hyperplastic/Malignant Polyps	3.5	1.2-10.1	0.02

DISCUSSION

The study analyzed 80 women diagnosed with polyps in the reproductive tract, with the majority of participants aged between 35 and 50 years. Most of the women were premenopausal (60%), and the most common symptom reported was abnormal uterine bleeding (62.5%), followed by pelvic pain and infertility. Polyps were predominantly located in the endometrium (50%) and cervix (42.5%), while a small subset of patients had polyps in both regions. These findings suggest that polyps commonly occur in premenopausal women and are often associated with abnormal uterine bleeding, a key clinical presentation that warrants further investigation. Histopathological analysis showed that 75% of polyps were benign, while 15% had hyperplastic features, and 10% demonstrated precancerous or malignant changes. The presence of hyperplastic or malignant polyps was more common in older women (≥ 50 years), indicating a higher risk of abnormal tissue growth with increasing age. This finding highlights the importance of timely diagnosis and close monitoring of polyps in older women, particularly given the increased likelihood of malignant transformation in this group.

In terms of treatment, 70% of the patients underwent hysteroscopic polypectomy, while 30% were managed conservatively. Recurrence of polyps was observed in 10% of cases, and this was significantly associated with hyperplastic or malignant polyps. Patients with benign polyps showed a lower risk of recurrence compared to those with abnormal histological features. These results underscore the effectiveness of surgical intervention in managing polyps and preventing recurrence, particularly in benign cases. However, the elevated risk of recurrence in hyperplastic or malignant polyps suggests the need for

regular follow-up and possible additional treatments in these higher-risk patients.

Statistical analysis revealed a significant association between age and histopathological type, with older women more likely to have hyperplastic or malignant polyps ($p = 0.03$). Additionally, logistic regression showed that hyperplastic or malignant polyps were strongly associated with recurrence (OR: 3.5, $p = 0.02$). These findings emphasize the importance of targeted management strategies for older women and those with histologically abnormal polyps to mitigate the risk of recurrence and potential malignant progression.

A retrospective study conducted at a tertiary care center focused on the incidence of neoplastic lesions in the female genital tract. It reported that 9.65% of benign cervical lesions were endocervical polyps. The findings emphasized the need for regular screening and detailed histopathological analysis to manage cervical lesions effectively [9]. A histopathological study conducted in rural Maharashtra examined lesions in the female genital tract, identifying the presence of polyps in 5.6% of cases. The research highlighted the critical role of histopathological evaluations in detecting endometrial polyps, particularly in rural settings with limited healthcare resources [10].

In a retrospective study of hysterectomy specimens conducted at a tertiary care hospital, 17.5% of the cases were diagnosed with endometrial polyps. This study emphasized the importance of histopathological examination in identifying uterine abnormalities in hysterectomy patients, aiding in the effective treatment of uterine lesions [11]. An analysis of abnormal uterine bleeding in reproductive and postmenopausal women at a tertiary care center in southeastern India revealed a significant number of endometrial abnormalities, including endometrial polyps. The study concluded that

histopathological evaluation is essential for accurate diagnosis and management of patients presenting with abnormal uterine bleeding [12].

A study on the histomorphological spectrum of endometrial lesions in women with abnormal uterine bleeding found that 2.2% of the cases were diagnosed with endometrial polyps. Some of these polyps exhibited hyperplastic features, underscoring the need for histological studies to detect underlying pathological changes in the endometrium [13]. A retrospective study analyzing endometrial biopsy patterns in females with abnormal uterine bleeding found that polyps were most common in women aged 30-55 years. This study emphasized the importance of detailed histopathological examination in diagnosing and managing endometrial polyps, particularly in this age group [14].

A prospective cohort study at a tertiary care center in Western Maharashtra assessed the prevalence of endometrial polyps detected through office hysteroscopy. The study found a significant prevalence of endometrial polyps in women undergoing evaluation for abnormal uterine bleeding, highlighting hysteroscopy's role as a diagnostic tool for polyps [15]. A clinicopathological study of postmenopausal bleeding at a tertiary care center identified endometrial polyps as a common cause of postmenopausal bleeding. The study concluded that comprehensive histopathological assessment is critical in managing and diagnosing causes of postmenopausal bleeding, including polyps [16].

Generalizability: The study's generalizability is supported by its inclusion of a broad age range of women (20-65 years) diagnosed with polyps in the reproductive tract, representing both premenopausal and postmenopausal populations. This allows the findings to be potentially applicable to a diverse population experiencing abnormal uterine bleeding and other related symptoms. However, the study is limited to a single tertiary care hospital, which may impact the external validity when applied to wider, non-hospitalized, or community-based populations. Further multi-center studies would enhance the external validity of these findings.

CONCLUSION

This study highlights that polyps in the female reproductive tract are most common in women aged 35-50, with abnormal uterine bleeding as the predominant symptom. While the majority of polyps are benign, a notable percentage exhibit hyperplastic or malignant changes, particularly in older women. Surgical treatment via hysteroscopic polypectomy showed favorable outcomes, with low recurrence rates. However, hyperplastic and malignant polyps were associated with a higher risk of recurrence, underscoring the importance of vigilant follow-up in these patients.

LIMITATIONS

The limitations of this study include a small sample population who were included in this study. Furthermore, the lack of a comparison group also poses a limitation for this study's findings.

RECOMMENDATION

Regular screening for polyps in women presenting with AUB, especially postmenopausal women, is recommended. Further studies should explore the role of hormonal and microbial factors in the development and recurrence of polyps.

Acknowledgment: We are thankful to the patients; without them, the study could not have been done. We are thankful to the supporting staff of our hospital who were involved in the patient care of the study group.

LIST OF ABBREVIATIONS

AUB - Abnormal Uterine Bleeding
MRI - Magnetic Resonance Imaging
SD - Standard Deviation
CI - Confidence Interval
OR - Odds Ratio

SOURCE OF FUNDING

No funding was received.

CONFLICT OF INTEREST

The authors have no conflicting interests to declare.

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