

## Investigation of Malignancy Frequency in Women with Endometrial Polyps: A 10-Year Single-Center Study in Tehran

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### Abstract:

**Background and Objective:** Endometrial polyps are common disorders within the female reproductive system that can significantly impact women's reproductive health and overall quality of life. The prevalence rates for these polyps vary from 7.8% to 34.9%, with reported figures in Iran ranging between 15% and 20%. Given their potential for malignancy as well as their association with abnormal bleeding and infertility, this study aims to investigate the frequency of malignant lesions among women diagnosed with endometrial polyps over a decade-long period in Tehran.

**Materials & Methods:** This cross-sectional study included women who underwent hysterectomy at a clinic in Tehran from 2013 to 2023 due to menstrual issues, infertility concerns, or episodes of abnormal bleeding. Data were collected on the prevalence of endometrial polyps along with pathological findings from biopsy samples taken from these lesions. Additionally, patient age and tumor size were recorded for subsequent analysis. The data were analyzed using SPSS software employing ANOVA tests as well as Pearson correlation coefficient analysis and regression analysis; a significance level ( $P$ ) less than 0.005 was considered significant.

**Results:** Among a total of 1,488 patients who underwent hysteroscopy during the specified period, endometrial polyps were identified in 68 individuals. The mean age of these patients was determined to be 41.3 years; notably, approximately 40% fell within the age bracket of 40-50 years old. Pathological examination revealed that malignancies constituted only about 1.6%, while benign lesions accounted for approximately 95.5%; pre-malignant lesions comprised around 2.9%. A statistically significant positive correlation was identified between patient age and tumor size ( $P < 0.005$ ;  $r = 0.6$ ), along with an increased likelihood of malignancy associated with larger tumor sizes ( $P < 0.001$ ).

**Conclusion:** This study underscores a high prevalence rate of benign endometrial polyps particularly among older women while also highlighting the importance of identifying risk factors related to malignancy and closely monitoring larger polyps for potential cancerous changes.

**Keywords:** Endometrial Polyp; Abnormal Bleeding; Malignancy; Pre-malignant Lesions

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## Background and Objective

Uterine polyps represent one of the most prevalent disorders affecting the female reproductive system, significantly impacting women's reproductive health and overall quality of life.<sup>1</sup> These abnormal growths, primarily composed of endometrial tissue, may present as single or multiple lesions within the uterine cavity and cervix.<sup>2</sup> The reported prevalence of uterine polyps varies considerably, ranging from 7.8% to 34.9% across different populations, particularly affecting women who are infertile or experiencing menstrual disorders.<sup>3</sup> Research indicates that approximately 10% to 25% of women in their reproductive years and between 30% to 50% of postmenopausal women are affected by this condition.<sup>4,5</sup>

In Iran specifically, studies suggest that the prevalence among Iranian women is approximately 15% to 20%.<sup>6,7</sup> Uterine polyps are more frequently observed in women with menstrual issues, infertility challenges, or abnormal uterine bleeding—especially among those aged between 40 and 50 years who are approaching perimenopause or menopause.<sup>8,9</sup>

Their clinical significance is underscored by their potential for malignancy as well as their association with symptoms such as abnormal uterine bleeding and infertility.<sup>10</sup> Understanding the causative factors, underlying mechanisms, and consequences associated with these lesions may enhance diagnostic accuracy and treatment strategies while enabling healthcare providers to adopt effective management approaches. Given this context, our study aims to investigate the frequency of malignancy risk among women diagnosed with endometrial polyps at a medical center over a ten-year period.

## Materials & Methods

### Study Design

This study was designed as a cross-sectional retrospective analysis; data were extracted from medical records of women visiting a clinic in Tehran over a ten-year period (2013-2023).

### Study Population

The study population comprised all women who underwent hysteroscopy due to menstrual issues, infertility concerns, abnormal uterine bleeding, or related complaints. Patient selection was non-randomized; individuals with histories of malignant tumors in other organs or known hormonal disorders that could potentially influence results were excluded from participation.

### Data Collection

Hysteroscopy served as the primary diagnostic method for identifying endometrial polyps. When polyps were detected during this procedure, tissue biopsies were obtained for further pathological examination aimed at determining whether malignancy was present or absent. Data collected included patients' age; presenting symptoms; hysteroscopic findings (presence or absence of polyp); along with pathological results categorized into benign versus malignant states based on biopsy samples.

### Adherence to Ethical Principles

The present study adhered strictly to ethical principles approved by the research ethics committee at Tehran Clinic. All collected data were analyzed anonymously ensuring patient privacy was maintained throughout the process.

### Data Analysis

Data reporting utilized frequencies and percentages alongside means with standard deviations where applicable. Statistical analysis was conducted using SPSS software (version 25). ANOVA tests were employed for comparisons regarding age and tumor size relative to likelihoods for malignancy; Pearson correlation coefficients coupled with regression analyses examined relationships between tumor size versus age along with probabilities for developing malignancies respectively. A significance level less than 0.05 was considered statistically significant.

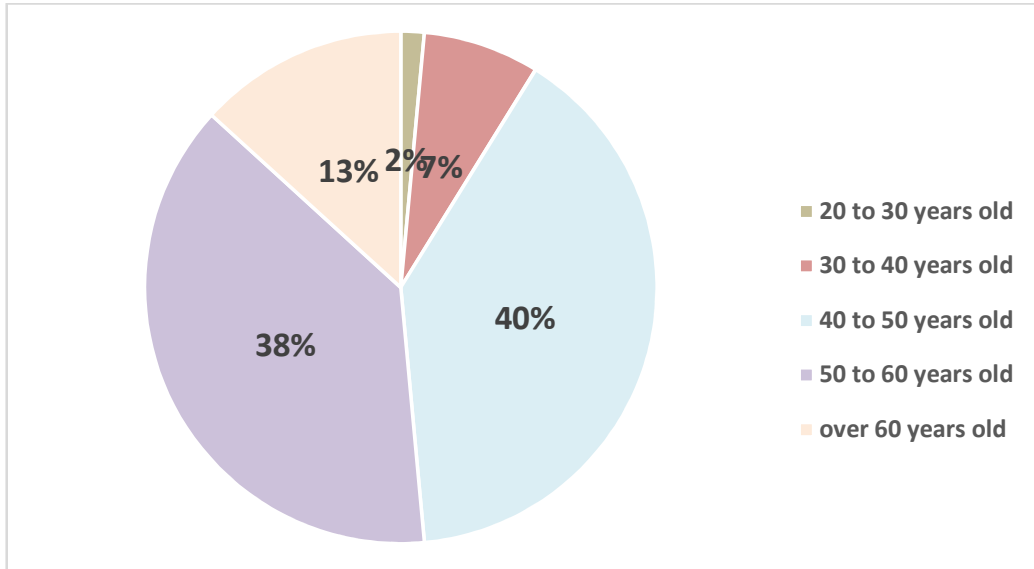


diagram 1 - Frequency of patients in different age groups

## Results

Out of a total of 1,488 patients who underwent hysteroscopy between 2014 and 2023, a cohort of 68 patients diagnosed with endometrial polyps was included in this study. The mean age of the participants was determined to be 41.3 years, while the standard deviation has yet to be ascertained. Notably, the majority of participants (27 individuals) were within the age range of 40 to 50 years (see Figure 1). The average size of the tumors was 2.4 centimeters; Pathological evaluations indicated that among the lesions examined, there were a total of 65 benign cases (95.5%), two pre-malignant cases (2.9%), and one case classified as malignant, resulting in an incidence rate of malignancy at merely 1.6%. Furthermore, Pearson correlation coefficients demonstrated a significant positive relationship between age and tumor size ( $r=0.6$ ;  $P<0.005$ ). Additionally, regression analysis suggested that as tumor size increased, so too did the likelihood of malignancy ( $>0.001$ ).

## Discussion

In this study, we analyzed data from a total cohort of 1,488 patients who underwent hysteroscopy from 2014 to early 2024; among these individuals, we identified

that only 68 had been diagnosed with endometrial polyps. The mean age for these patients was established at approximately 41.3 years. Pathological evaluations revealed that a substantial majority—specifically, over 95.5 percent—of lesions were classified as benign while only a small fraction—approximately 1.6 percent—were deemed malignant. Moreover, correlation analyses elucidated a significant positive relationship between patient age and tumor size;

This finding implies that larger tumors are associated with an increased propensity for malignancy. The results indicate a pronounced prevalence of benign polyps within our study population—particularly amongst older demographics—which is consistent with existing literature on this subject matter; for example, research conducted by Cohen et al.<sup>11</sup>, focusing on the epidemiology surrounding endometrial polyps suggests such lesions are significantly more frequent within menopausal populations and women over 40 years old. Similarly providing corroborative insights into this trend is Chernukha et al.'s<sup>12</sup> study which reported prevalence rates soaring up to 30 percent among women aged over 40 years. Our findings—which reflect an impressive 95.5 percent rate for benign

polyps in our cohort—notably emphasize the necessity for enhanced monitoring and screening protocols specifically tailored towards this demographic group.

Additionally noteworthy is our investigation's revelation regarding malignancy incidence rates among women possessing endometrial polyps being approximately 2 percent—a figure considerably lower than those documented by Costa-Paiva et al.<sup>13</sup>, who noted malignancy rates reaching 12 percent in instances involving polyps exceeding 2 centimeters in diameter. Mak et al.'s research similarly found malignant manifestations present in around 10 percent their subjects with endometrial polyps;<sup>14</sup> such discrepancies may likely arise due to variations inherent in patient selection criteria or differences pertaining to assessment methodologies utilized across differing studies.

Furthermore, additional findings concerning risk factors underscore the significant influence of hormonal status on the development of endometrial polyps. A study conducted by Jang et al.<sup>15</sup> demonstrated that individuals who are obese, as well as those diagnosed with Polycystic Ovary Syndrome (PCOS), face an elevated risk for both the development of endometrial polyps and associated malignancies. Although our current research did not specifically investigate the relationship between obesity and polyp formation, the existing literature<sup>15,16</sup> substantiates obesity as a notable risk factor that warrants further examination within this patient population.

Research conducted by Asalkar et al.<sup>17</sup> explored the causes of abnormal uterine bleeding in women aged 18 to 70 years. The findings indicated that only 5.2% of participants within the age range of 61 to 70 exhibited atrophy in conjunction with polyps, while less than one percent presented with malignant lesions.

Additionally, a study by Rouholamin et al.<sup>18</sup> highlighted the efficacy of advanced diagnostic techniques such as hysteroscopy and biopsy in identifying potential

malignancies, particularly among menopausal women. Their findings suggest that patients with a family history of cancer or those possessing polyps larger than ten millimeters should be subjected to rigorous monitoring and diligent follow-up care.<sup>18</sup> This underscores the necessity for considering both age and polyp size when evaluating cancer risk among patients.

Moreover, research conducted by Lee et al.<sup>19</sup> emphasized that while most cases involve benign pathology, certain instances necessitate thorough examination. Ongoing management directed at high-risk groups is essential; increased dimensions in polyp size may elevate concerns regarding malignancy potential necessitating robust evaluation frameworks during clinical assessments to effectively ascertain malignant potential.<sup>19</sup>

## Limitations and Suggestions

This study has several limitations, including a small sample size and an inadequately comprehensive assessment of the factors associated with polyp formation. To enhance the rigor of future research, it is recommended that studies be conducted with larger sample sizes across multiple centers. Furthermore, an investigation into risk factors such as family history, hormonal conditions, and prior treatment modalities could yield valuable insights into the mechanisms underlying malignancies in this patient population.

## Conclusion

In conclusion, this study indicates a high prevalence of benign polyps among women experiencing uterine bleeding, particularly within older age demographics. It emphasizes the importance of identifying risk factors and closely monitoring patients with larger polyps to evaluate their potential for malignancy. This underscores the necessity for appropriate preventive and therapeutic strategies. Given that certain polyps may progress to cancer, it is crucial to prioritize accurate and diligent follow-up for these lesions in women—particularly those belonging to high-risk groups—to ensure timely intervention and improved patient outcomes.

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