

EVALUATING THE ASSOCIATION BETWEEN AGE AND FREQUENCY OF COMMON FINDINGS OF ENDOMETRIAL BIOPSIES

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Abstract: *The current analyses aimed to assess the association between age and frequency with the common findings of endometrial biopsies. The retrospective study was conducted in the Department of Pathology, Basic Medical Sciences Institute, Karachi, from January 2014 to January 2020 to evaluate the association of age with normal endometrial phases, hyperplasia, and endometrial carcinoma in the local population. The study was conducted on a total of 103 diagnosed cases. All participants underwent immunohistochemistry testing. The Endometrial malignancies were most common in women aged 61 to 70, with an average age of 54. Hyperplasia without atypia was most common in the age group of 31 to 40 years, with an average age of 33 years, while hyperplasia with atypia was common in women aged between 41 to 50 years. The secretory and proliferative phases were most common in the 4th and third decades of life, with an average age of 42 and 39, respectively. They concluded that endometrioid adenocarcinoma is the most prevalent endometrial malignancy with the highest risk during the 6th decade, while endometrial hyperplasia without atypia is the most prevalent type of hyperplasia with the highest risk during 4th decade of life.*

Keywords: Endometrioid adenocarcinoma, Hyperplasia, Pre menopause, Post menopause.

Introduction

There has been an increase in the frequency of endometrial cancer, and it is among the leading cause of death due to cancer. It is the sixth most common gynecological cancer in women (Zhang et al., 2019). Estimates reveal that its frequency will increase twice by 2040 (Korn et al., 2022). Endometrial carcinoma occurs during the menopausal and reproductive years. Multiple risk factors include late menopause, unopposed estrogen, nulliparity, and obesity. Young patients with endometrial cancer are mostly obese and have anovulatory menstrual cycles (Korn et al., 2022). Its symptoms include abnormal premenopausal and post-menopausal bleeding. Uterine bleeding in post-menopausal women may indicate endometrial carcinoma, especially with age progression (Hamilton et al., 2021). Women above 70 years have a 50% increased risk of cancer in case of vaginal bleeding (Shi et al., 2021). Intermenstrual spotting and prolonged menstrual periods may indicate endometrial cancer in young women. The most

common type of endometrial cancer is adenocarcinoma which may be preceded by atypical endometrial hyperplasia. Atypical endometrial hyperplasia is associated with a 30%- 50% increased risk of increased invasive carcinoma (Shi et al., 2021). The surgical pathologic staging system is used for staging endometrial carcinoma (Poon et al., 2019). Tumor stage and histologic grade are major prognostic factors for the disease. Decreased tumor differentiation is associated with decreased survival. Clear cell carcinomas and papillary serous carcinomas are poor prognostic types. There has been an increase in the incidence of adenocarcinoma, but it is uncommon in premenopausal women (Rosen et al., 2019). A study showed that endometrial carcinoma has high differentiation and a good prognosis in young women. Mostly, endometrial carcinoma is unsuspected in women aged < 45 years (Kim et al., 2020). The American Cancer Society (2020) also

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reported that endometrial carcinoma is common in women > 60 years (Deligdisch-Schor and Miceli, 2020). This study evaluates the association of age with endometrial carcinoma and hyperplasia in the local population. We analyzed the phases of endometrium in the study population.

Methodology

The retrospective study was conducted in the Department of Pathology, Basic Medical Sciences Institute, Karachi, from January 2014 to January 2020. Women aged 20 to 70 years having normal endometrial Phases, hyperplasia, and carcinoma were included in the study. The study was conducted on a total of 103 subjects. Informed consent of the participants was taken. The ethical board of the hospital approved the study. Patient data including age, parity, medical and family history. The section was taken stained with H&E. All the slides were studied under the light microscope using the scanner (4X), low power (10X), and high power (40X) lances. The sample size was calculated using open EPI software. Fisher exact or chi-square test was used for data analysis. P value < 0.05 was considered

statistically significant.

The study included all properly formalin-fixed, paraffin embedded specimens and diagnosed endometrium biopsies. At the same time, poorly fixed tissue or inadequate Biopsy were excluded from the analysis.

Results

Of 103 participants, 46(44.66%) had secretory phase endometrium, 20(19.41%) had endometrial hyperplasia without atypia, 18(17.47%) had endometrioid adenocarcinoma, 11(10.67%) proliferative phase endometrium and 8 (7.76%) had endometrial hyperplasia with atypia (Table I). Age-wise distribution of different endometrial lesions is summarized in Table II. Endometrial malignancies were most common in women aged 61 to 70 years, with an average age of 54. Hyperplasia without atypia was most common in the age group of 31 to 40 years, with an average age of 33 years, while hyperplasia with atypia was common in women aged between 41 to 50 years. The secretory and proliferative phases were most common in the 4th and 3rd decade of life, with an average age of 42 and 39, respectively.

Table I Incidence of different endometrial lesions

Lesion	Frequency (%)
Secretory phase endometrium	46 (44.7%)
Endometrial hyperplasia without atypia	20 (19.4%)
Endometrioid adenocarcinoma	18 (17.5%)
Proliferative phase endometrium	11 (10.7%)
Endometrial hyperplasia with atypia	8 (7.8%)

Table II Age wise occurrence of endometrial lesions

Lesion	Age group [n(%)]					Mean ±SD years
	20-30	31-40	41-50	51-60	61-70	
Endometrioid adenocarcinoma	0	7 (15.2%)	12 (26.1%)	13 (28.3%)	14 (30.4%)	54.07 ± 11.27
Proliferative phase endometrium	8 (40%)	7 (35%)	5 (25%)	0	0	39.09 ± 5.26
Secretory phase endometrium	10 (55.6%)	3 (16.7%)	5 (28%)	0	0	42.38 ± 8.79
Hyperplasia without atypia	1 (9.1%)	6 (54.5%)	4 (36.45)	0	0	33.06 ± 8.61
Hyperplasia with atypia	2 (25%)	0	5 (62.5%)	1 (12.4%)	0	35.45 ± 7.48

Discussion

Endometrial carcinoma is common among women worldwide. In this study, we have estimated the incidence of endometrial carcinoma in women of different ages. It was found that of all endometrial conditions the secretory phase was most common, followed by atypical hyperplasia and proliferative phase. Our study's results align with the previous study reported that 41% of the study cases had secretory and proliferative endometrium (Matsuo et al., 2022). In the current study, the mean age of secretory and proliferative phase was 42.4 years and

39 years, with the incidence peaking between 20 and 40 years. This was in line with the results of the previous study (Tauseef et al., 2018). In the current study, hyperplasia without atypia was most common in the age group of 31 to 40 years, with a peak age of 33 years, while hyperplasia with atypia was common in women aged between 41 to 50 years; this with similar to the findings of a previous studies (Karavasiloglou et al., 2022; Korn et al., 2022; Shams-White et al., 2019). In the current study, 17.47% had endometrioid adenocarcinoma. A study reported the prevalence of endometrioid carcinoma in different Asian countries.

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It was most prevalent in Armenia (26.5%), followed by Tajikistan (12.1%), Singapore (7.1%), China (5.8%), Indonesia (4.1%), and India (2.1%) (Kenkhuis et al., 2022). However, another previous study has reported a 32% prevalence of endometrial neoplasm, which is higher than reported by our study (Gokula Priya et al., 2021). In the current study, endometroid carcinoma was most common in women aged between 61 to 70 years, with an average age of 54. A previous study reported that the mean age was 53.8 years, close to ours (Wise et al., 2016). The limitation of this study is the smaller sample size. A larger study is recommended for detailed analysis.

Conclusion

This study concludes that the secretory phase of the endometrium is the most commonly encountered finding. Endometrial hyperplasia without atypia is the most prevalent reported lesion among women in our population, with the highest risks during 4th decade of life. Endometrial adenocarcinoma is the most prevalent endometrial malignancy with the highest risk seen during the 5th decade of life.

Conflict of interest

The authors declared an absence of conflict of interest.

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