
Occurrence of Different Types of Endometrial Carcinoma in Hysterectomy Specimens from Different Hospitals in Karachi, Pakistan

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Abstract: *Introduction:* Endometrial carcinoma can occur due to different causes. It is associated with other diseases like endometrial hyperplasia, obesity, diabetes, early menarche and late menopause. Histological and histochemical procedures, help in diagnosis of different types of endometrial carcinoma. *Objectives:* To identify predominant histological and histochemical type of endometrial carcinoma from hysterectomy specimens collected from different tertiary care hospitals of Karachi, Pakistan. *Methodology:* Slides / paraffin blocks of endometrial biopsies of hysterectomy specimens were taken, from 1st January 2008 to 31st December 2012. *Results:* In present study, total 226 hysterectomy cases were received in which 70 (30.97%) cases of different type of endometrial carcinoma were studied. The maximum 46 (65.71%) cases were of endometrioid secretory adenocarcinoma. 16 (22.90%) cases, of Endometrioid papillary carcinoma. 3 (4.30%) cases of ciliated adenocarcinoma and 1 (1.42%) case villoglandular endometrial cancer. *Conclusion:* Increased tendency of endometrioid secretory adenocarcinoma of endometrium as 46 (65.71%) cases out of 70 cases.

Keywords: Endometrial, Clear Cell, Endometrioid, Mixed Type Carcinoma, Mucinous Adenocarcinoma, Serous Adenocarcinoma, Signet Ring Cell Carcinoma

1. Introduction

Endometrial carcinoma is common in developed, industrialized countries, and appears as a seventh most common tumor in the world.[1,2] About 6% of new female cases and 3% of female cancer deaths are occurred per year.[3] Chronic or long standing hyperplastic endometrium may transform in endometrial carcinoma.[4] In a study 22% patient with atypical hyperplasia, developed cancer.[5] Breast cancer, ovarian cancer, anovulatory cycles, age over 35, lack of exercise [6] and heavy daily alcohol intake are also the risk factors of endometrial carcinoma.[7] The causes of endometrial carcinoma are endometrial hyperplasia, unopposed estrogen therapy, obesity, diabetes, early menarche, late menopause, postmenopausal bleeding and progesterone therapy.[8] The carcinoma is three times more common in diabetic women than non diabetic.[9] High intake

of animal (saturated) fat may increase the risk of endometrial cancer, while vegetables and fruits may do the opposite. Increased endogenous estrogen exposures are associated with the increase risk of endometrial cancer e.g. early menarche, late menopause (2.4-fold), nulliparity (2-fold), the polycystic ovarian syndrome, diabetes mellitus (2.8-fold), high blood pressure (1.5-fold), obesity (up to 10-fold) and tumors with estrogen production, atypical endometrial hyperplasia (10-fold). Exogenous risk factors of endometrial carcinoma are previous irradiation of the pelvis, estrogen replacement therapy (unopposed HRT) and tamoxifen therapy cause 6.4-fold increase. Prolonged intake of synthetic estrogens is associated with 15 fold higher incidence of endometrial carcinoma, while 35% patients with endometrial carcinoma have no signs of obesity or hyperestrogenism.[10]

There are several different histological subtypes of endometrial carcinoma, which are classified into two major

groups. The type I or estrogen-dependent cancers are the low-grade endometroid tumors, with good prognosis. While the less common type II or non-estrogen-dependent cancers are high-grade malignant tumors like serous papillary, clear cell and adenosquamous carcinomas having poor prognosis and occur in older or perimenopausal women.[11] Well-differentiated Endometroid adenocarcinoma can originate from endometrial hyperplasia. It is differentiated from atypical hyperplasia by the finding of clear stromal invasion, or "back-to-back" glandular proliferation. Myometrial infiltration can occur.[12] Estrogen related adenocarcinomas occurring in younger and perimenopausal women, are well differentiated carcinomas, originating from atypical endometrial hyperplasia. These are low grade tumors, with long history, less myometrial invasion, rare lymphatic spread and included in 1st category.[13,14] Serous adenocarcinoma and clear cell carcinomas are commonly associated with an atrophic endometrium. Endometrial intraepithelial carcinoma may transform in serous carcinoma and possibly of some clear cell carcinomas.[14]. These tumors are, higher grade malignant tumors, with shorter history, deeper myometrial invasion, more lymphatic metastasis and poor prognosis, included in 2nd category.[13].

After extensive international and national literature search it was found that most predominant carcinoma in age groups that are premenopausal or post-menopausal was papillary/ciliated carcinoma. The aim of the study is to identify the predominant carcinoma in above mentioned age groups in patients of Karachi, Pakistan.

2. Material and Methods

Total 226 Slides / paraffin blocks of endometrial biopsies

Table 1. Total numbers of different types of uterine diseases in hysterectomy specimens.

Serial No.	Uterine diseases	No. of Cases	%	Age group/ years
1	Endometrial carcinoma	70	31.00	36-67
2	Different types of endometrial hyperplasia	60	26.00	34-55
3	Utero vaginal prolapse	48	21.00	45-68
4	Adenomyosis	40	18.00	34-55
5	Uterine polyps	08	4.00	38-50
6	Total	226	100	-----

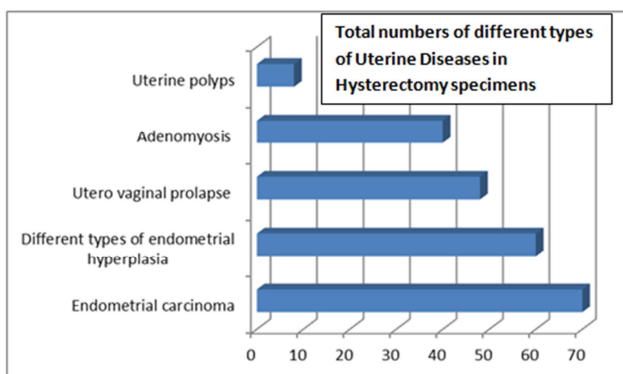
from patients 34 to 67 years of age were studied from 1st January 2008 to 31st December 2011, retrospectively and from 1st January 2012 to 31st December 2012, prospectively. The biopsies were received from tertiary care hospitals of Karachi.

A clinical protocol including the particulars about the patients name, age, and diagnosis were obtained from the surgical pathology registers, request cards and copies of the reports. Haemotoxylin and eosin (H&E) stained slides of all cases were used with special staining help in reaching a specific diagnosis.

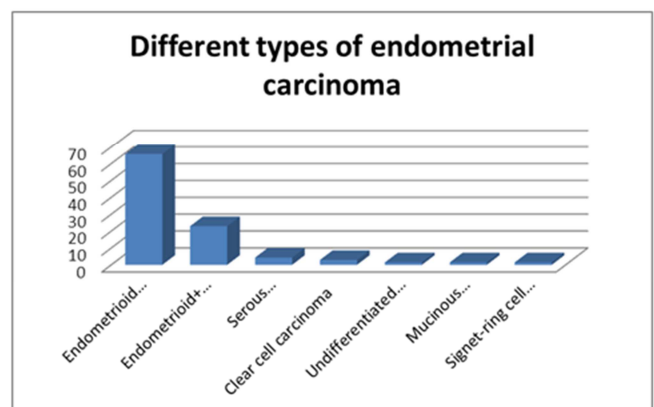
3. Results

In the present study, total 226 hysterectomy cases of different type of diseases were studied including 70 (31%) cases of endometrial carcinoma from 38 to 67 years of age with long life span, 60 (26%)cases of different types of endometrial hyperplasia from 34 to 55 years of age, 48 (21%) cases of uterovaginal prolapse from 45 to 68 years of age, 40 (18%) cases of adenomyosis from 34 to 55 years of age and 8 (4%) cases of 38 to 50 years of age.

Out of 226 hysterectomy cases, 70 (30.97%) cases of different type of endometrial carcinoma were studied. The maximum 46 (65.71%) cases were encountered in Endometroid secretory carcinoma, from 36-67 years of age (long life span), 16 (22.90%) cases, of Endometroid adenosquamous carcinoma (adenoacanthoma and adenosquamous carcinoma) from 45-55 years of age, 3 (4.30%) cases of Serous adenocarcinoma, 54-65 years of age, 2 (2.90%) cases of Clear cell carcinoma, 56-65 years of age and 1 (1.42%) case each of other different types of endometrial cancer from 46-66 years of age were studied.



Graph 1. Total numbers of different types of uterine diseases in hysterectomy specimens.



Graph 2. Different types of endometrial carcinoma.

Table 2. Different types of endometrial carcinoma.

S. No	Endometrial Cancer/Types	No. of cases	%
1	Endometrioid adenocarcinoma	46	65.71
2	Endometrioid adenocarcinoma with squamous cell differentiation	16	22.90
3	Serous adenocarcinoma	3	4.30
4	Clear cell carcinoma	2	2.90
5	Undifferentiated carcinoma	1	1.42
6	Mucinous adenocarcinoma with endometrioid carcinoma	1	1.42
7	Signet-ring cell carcinomas	1	1.42
8	Total	70	100%

Table 3. Age groups of the patients having different types of endometrial carcinoma.

S. No	Endometrial carcinoma/Types	Age group / Years
1	Endometrioid adenocarcinoma	36-67
2	Endometrioid adenocarcinoma with squamous cell differentiation	45-55
3	Serous adenocarcinoma	54-65
4	Clear cell carcinoma	56-65
5	Undifferentiated carcinoma	66
6	Mucinous adenocarcinoma with endometrioid carcinoma	47
7	Signet-ring cell carcinomas	46

4. Discussion

The occurrence of endometrial cancer is 4-8% of all carcinoma, in many parts of the world.[17] It is the most common gynecological cancer [10] and the fourth leading cancer in the women in United States.[18] It is less common or lowest in rates in India and Southeast Asia.¹⁰ A study showed less than 1% endometrial carcinoma occurred, under 35 years and 6% occurred in 45 years or less than 45 years of age.[19] Worldwide estimation of uterine cancer was done in 2002 of 199,000 cases showed 45,000 deaths per year with occurrence of 50% cases in developed countries.[2] The raised incidence of endometrial carcinoma in developing countries is found due to organized and improved socioeconomic conditions.[1] This can be occur by easy lifestyle, obesity and increase aging of population.[9] It is the tenth most common tumor occurring among women in China.[20] It is more common than other type of genital tract cancer in women. In United States 43,470 cases of endometrial carcinoma were detected in 2010.[21] It is also common in many other Western countries, mostly occurs between 55 to 65 years of age, and uncommon below 40 years of age.[16] It is difficult to describe the prevalence of endometrial cancer in South Asian/Indian subcontinent, where the breast and cervical cancers are common as compare to endometrial cancer. It is also difficult to describe the prevalence of endometrial cancer in sub-Saharan Africa, where histopathology services are very limited in more than 20 African countries.[22] In Pakistan there is increase tendency of endometrial cancers. A study showed earlier occurrence of endometrial carcinoma in Karachi, Pakistan, as the 15% of cancers occur in women younger than 40 years of age with a mean age of 53.7 years. It is nearly 10 years younger than that occurring in developed countries.[19]

In present study, total 226 hysterectomy cases of different type of diseases were studied with 70 cases of endometrial carcinoma. In the different types of endometrial carcinoma the maximum 46 (65.71%) cases were encountered in Endometrioid carcinoma, from 36-67 years of age with long life span, 16 (22.90%) cases, of Endometrioid adenosquamous carcinoma (adenoacanthoma and adenosquamous carcinoma) from 45-55 years of age, 3 (4.30%) cases of Serous adenocarcinoma, 54-65 years of age, 2 (2.90%) cases of Clear cell carcinoma, 56-65 years of age and in the remaining 3 cases or 1 (1.42%) case each of other different types of endometrial cancer from 46-66 years of age were studied.

Endometrioid carcinoma is appeared commonest in endometrial cancer from 38 to 55 years, as compare to other type of endometrial cancer. It is more common in postmenopausal women as reported in a study, the 75% occurrence of endometrial cancer in postmenopausal women and, only 3-10% occurrence in less than 40 years of age.[10] Most common endometrial carcinoma is adenocarcinoma 61-71%, adenosquamous carcinoma and adenoacanthoma is 14-24% and rest are papillary serous tumor & clear cell carcinoma.[23] Uterine Clear cell carcinoma, is rare and about 1-6% in occurrence. Histologically it appears with clear cytoplasm in tumor cells.[24]

5. Conclusion

In the present study there are 70 (31%) cases of endometrial carcinoma. The maximum 46 (65.71%) cases were encountered in Endometrioid secretory carcinoma, 36-67 years of age and 16 (22.90%) cases, of Endometrioid adenosquamous carcinoma (adenoacanthoma and adenosquamous carcinoma), 45-55 years of age. In the types of endometrial carcinoma, there was increased tendency of Endometrioid adenocarcinoma with long life span (36-67 years), as compare to other developed countries where it is also commonly occurring tumor. Comparing with all research on this histologic type of endometrial carcinoma, our data is limited by small sample size. However, these results may help to guide future prospective research from which we draw more concrete conclusions regarding early diagnosis treatment and follow up of the patients.

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