

A Review of Uterine Cancers

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ABSTRACT

Objective: Review of uterine neoplasms to evaluate the frequencies of different morphological types of uterine cancers and to compare the results with different age groups and the findings of other workers.

Study Design: Observational and comparative study.

Place and Duration of Study: This study was conducted at the Department of Pathology, Basic Medical Science Institute, JPMC, Karachi from January 2002 to December 2011.

Materials and Methods: A total of 927 cases of neoplastic lesions of the uterine corpus, received over a period of 10 years at the department of Pathology, Basic Medical Science Institute, JPMC, Karachi were reviewed.

Results: A total of 98 (9.45%) were uterine cancers including 82 (83.67%) carcinomas and 16 (16.32%) sarcomas. Adenocarcinoma was the commonest finding (66/98), followed by squamous cell carcinoma (10/98) and endometrial stromal sarcomas (7/98). The mean age of uterine carcinomas was 51.48 years and of sarcomas was 41.87 years. Grade III Adenocarcinoma presented at relatively late ages (mean age 60.71 years) than grade II (mean age 56.37 years) and grade I (mean age 47.02 years). Sarcomas were found to be of relatively high frequency in our study (16.32%). Leiomyosarcoma (LMS) and endometrial stromal sarcoma (ESS) tend to occur at younger age than carcinosarcomas.

Conclusion: Mean age of uterine carcinoma was found to be 51.48 years and of sarcomas 41.87 years. Grade I adenocarcinoma is more common in younger age groups than grade II and III adenocarcinoma. Finally the LMS and ESS are more frequent than malignant mixed mesodermal tumors (MMMT).

Key Words: LMS (leiomyosarcoma), ESS (endometrial stromal sarcoma), MMMT (malignant mixed mesodermal tumors).

INTRODUCTION

Invasive neoplasms of the female pelvic organs are comprised of almost 15% of all cancers in women. Endometrial cancer alone is the seventh most common cause of death from cancer in Western Europe, it is responsible for 1%–2% of all deaths^(1,2). Each year there are about 11,300 estimated cases in Germany, representing the fourth most common cancer in women and the number one in cancers of the female genital tract⁽³⁾.

According to Cohen about 10% of women with postmenopausal bleeding have a primary or secondary malignancy. Out of which endometrial cancer is (80%) and rest (20%) are cervical cancer and ovarian tumour⁽⁴⁾.

An estimated 40,100 cases are diagnosed annually with endometrial cancer as a leading gynecologic cancer in the U.S., with the most common subtype of endometrioid adenocarcinoma, which usually occurs a few decades after menopause, the incidence of endometrial cancer is lower among black women (33%) as compared to white women^(5,6).

It was reported in a recently conducted study that in post-menopausal women with vaginal bleeding the probability of endometrial carcinoma is 10%⁽⁷⁾, but the malignancy of the endometrium under 50 years of age is very low. In a study of 11 cases of endometrial carcinoma 10 cases were between 60 and 80 years of

age and only 1 case was 54 years old⁽⁵⁾. All endometrial carcinomas arise from the glands of the lining of the uterus.

Adenocarcinomas are estimated as 75 percent of all endometrial carcinoma. Endometrial adenocarcinomas that contain benign squamous cells are known as adenocanthomas whereas endometrial adenocarcinomas that contain malignant squamous cells are known as adenosquamous carcinomas and they collectively form 30 percent of all endometrial cancers.⁽⁸⁾

Leiomyosarcomas are rare, fewer than 5% of all gynecologic malignancies and 30% of all uterine sarcomas and tend to occur in women aged 30-50 years as compared to carcinosarcomas and endometrial stromal sarcoma which have much higher incidence in women older than 50 years. Other types include sarcoma not otherwise specified (NOS), adenosarcoma, and rhabdomyo-sarcoma; and some include sarcomatoid carcinoma.^(9,10) Uterine LMS represents the second commonest uterine sarcoma⁽¹¹⁾

MATERIALS AND METHODS

A total of 927 cases of neoplastic lesions of the uterine corpus, received over a period of ten years from January 2001 to December 2010 at the department of Pathology JPMC, Karachi were reviewed. H&E stained slides were studied by light microscope using 4x, 10x and 40x dry objectives. Special stains such as PAS,

Trichrome and reticulin are also employed in some cases for a definitive diagnosis.

RESULTS

Out of a total of 927 neoplastic lesions of uterine corpus, 98(9.45%) were uterine cancers including 82 (83.16%) carcinomas and 16 (16.32%) sarcomas.

- In uterine carcinomas the ages ranged between 21 – 80 years with a mean age of 51.48 years
- In sarcomas the age ranged between 21 – 70 years with a mean age of 41.87 years
- The maximum number of cases (26) of carcinoma were in the age group ranging from 51-60 years while maximum number of sarcomas (5) were in the age group ranging from 41-50 (Table 1).
- Out of total of 82 cases of endometrial carcinomas the frequency of the subtypes were: adenocarcinomas 66 (84.48%), squamous cell carcinoma 10 (12.19%), adeno squamous carcinoma 04 (4.87%), adenoacanthoma 01 (1.21%) and undifferentiated carcinomas 01 (1.21%) (Table 2).
- Out of 66 cases of Adenocarcinoma maximum cases were of Grade I (66.66%). The next common was Grade III (21.21%) and the least common was Grade II (12.12%).

Table No.1: Distribution of cases according to age groups

Age group	Carcinomas	Sarcomas
21 – 30	06	03
31 – 40	15	04
41 – 50	18	05
51 – 60	26	03
61 and above	17	01
Total	82	16

Table No.2: Distribution of cases showing frequencies of different types of endometrial carcinomas

Type	No. of Cases	%age
Adenocarcinoma	66	80.49%
Squamous Cell carcinoma	10	12.20%
Adenosquamous	4	4.88%
Adenoacanthoma	1	1.22%
Undifferentiated Carcinoma	1	1.22%
Total	82	100%

Grade I adenocarcinomas presented in the ages between 21– 70 years with a mean age of 47.02 years. For Grade II adenocarcinomas age ranges between 31 – 70 years with a mean age of 56.37 years. For Grade III adenocarcinomas ages ranges between 41 – 80 years with a mean age of 60.5 years.

Out of a total of 16 cases of Sarcoma of the uterus the frequency of the subtypes was: ESS-07(43.75%), LMS-

06 (37.50%), MMMT-01(6.25%), Rhabdomyosarcoma -01(6.25%) and neoplasm with uncertain malignant potential 1(6.25%)

Majority of the sarcomas (12 out of 16) presented at the age between 31– 50 years. All cases of ESS presented at a relatively earlier age i.e. before 50 years and LMS at a relatively older age i.e upto 60 years. (Table 3).

Table No.3: Distribution of cases of sarcomas according to age group

Age group	LMS	ESS	MMMT	Rhabdomyo-sarcoma
21 – 30	--	03	--	01
31 – 40	02	02	--	--
41 – 50	02	02	--	--
51 – 60	02	--	01	--
61 and above	--	--	--	--

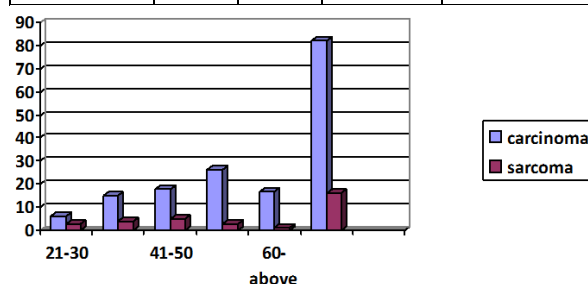


Figure No.1: Distribution of cases showing frequencies of different types of Sarcomas

DISCUSSION

This study was conducted to evaluate frequencies of different morphological types of uterine cancer. Out of 927 cases of uterine neoplasms our study revealed malignancies in 98 cases. These included 82 endometrial carcinomas, which were 83.67% of total uterine cancers. This frequency was relatively lower than the frequency of endometrial carcinoma of 95% reported by William E. Winter⁽¹²⁾ in USA but higher to the study of Yasmin Bhurgri⁽¹³⁾ which was 78.8% in Pakistan.

Our results showed the frequency of 80.48% of endometrial adenocarcinoma was which was same as Nirmala's⁽¹⁴⁾ and Kathryn M's⁽¹⁵⁾ study in which endometrioid adenocarcinoma was found to be the most common carcinoma (75-80%) but higher in comparison with William E. Winter, who found 60% of this cancer. In our study 44 of the cases (66.66%) were grade I, which was similar to the study by Kurt Christopher⁽¹⁶⁾ in which 68% of cases had grade I adenocarcinoma. It was slightly lower than reported by Kurman RJ, Norris HJ, and Pringer-Verlog⁽¹⁷⁾ 1987, who found 70-75% grade I adenocarcinomas in their studies but relatively higher than William E. Winter who found 45, 35 and 20% of grade I, II and III respectively while in the PORTEC study of a multicenter trial, 754 patients from the Netherlands were reported with findings which

showed that 21% of patients had grade 1 tumors, 69% had grade 2 tumors and 10% had grade 3 tumors⁽¹⁸⁾.

The mean age of endometrial carcinoma in our study was 51.48 years this was similar to Wang⁽¹⁹⁾ study where the mean age was 54 years it was also similar to the study of Nasira Sabiha Dawood, Kiran Peter⁽²⁰⁾ where the peak age incidence of endometrial carcinoma was between 50–54 years. In our study 25.6% women were younger than 40 years at the time of diagnosis which was different from William E. Winter and Sarawati P. Reddy⁽²¹⁾ who found the average age of about 60 years and only 4 – 5% of total cases were younger than 40 years of age whereas Baral R's⁽²²⁾ results showed 21% of endometrial carcinoma and all were in patients above the age of 55.

There was a significant difference in the mean ages of adenocarcinoma (51.48 years ranging from 25 – 80 years) and squamous cell carcinoma (60.60 years ranging from 35 – 80 years). These findings were in accordance with H Fox and CH Buckley⁽²³⁾ who described the presentation of squamous cell carcinoma and adenosquamous carcinoma at relatively late ages.

Our study has revealed that grade III adenocarcinomas presented at relatively late age (mean age 60.71 years) than grade II (mean age 56.37 years) and grade I (mean age 47.02 years).

Sarcoma of uterine corpus was found to be of relatively high frequency in our study. We found 16 cases of sarcoma (16.32%) as compared to William E. Winter⁽¹²⁾ who found sarcomas to be 4% of all uterine malignancies and Sarawati P Reddy et al (3 – 10%)⁽²¹⁾. The median age at which uterine sarcoma is diagnosed is 56 years (range: 19-85 years).

In our study ESS was 7(43.75%) out of a total of 16 cases, LMS was 6(37.50%), MMMT was 1 (6.25%), Rhabdomyosarcoma was 1 (6.25%) and other of uncertain malignant potential was 1 (6.25%) . These results were not in accordance with those of William E. Winter, who found carcinosarcomas, the commonest (48 – 50%), followed by LMS (38 – 40%) and ESS (8 – 10%).

We found that sarcomas presented at an earlier age then carcinoma (ranging between 21 – 70 years with a mean age of 44.92 years). This was a relatively younger mean age as compared to SP HO THHO, Singapore⁽²⁴⁾, who found the mean age of sarcomas as 56.5 years.

We found that LMS and ESS tend to occur at a younger age then carcinosarcomas. All ESS and two – third of LMS were presented before 50 while MMMT at the age of 55. These findings were quite similar to William E. Winter. We also compared our study with the study of Adnan Yoney⁽²⁵⁾ who found similar results.

CONCLUSION

Our study revealed the mean age of uterine carcinoma to be 51.48 years and mean age of sarcoma to be 41.87 years.

Grade I adenocarcinoma is more common in younger age group than Grade II and III adenocarcinoma. Finally the LMS and ESS are more frequent than MMMT and other heterologous tumors

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