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Descriptive Epidemiology and Management of Gynecological Malignancies at a Tertiary Care Hospital

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Author`s Contribution

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ABSTRACT

Objective: To document the frequency and management of various gynecological malignancies presenting at Pakistan Institute of Medical Sciences (PIMS), Islamabad over a period of five years.

Methodology: This descriptive case series study was carried out at the Department of Obstetrics and Gynecology, Pakistan Institute of Medical Sciences (PIMS), Islamabad over a period of five years from September 2019 to August 2024. Non-probability consecutive sampling technique was employed. All patients who presented to the hospital with any gynecological malignancy were included in the study. Non-consenting patients, those with gestational trophoblastic tumors and benign tumors were excluded. Minimum follow up of three years was ensured. The patients received treatment according to established standard protocols.

Results: During the study period, a total of 234 women presented with various gynecological malignancies. The highest frequency was of ovarian carcinoma 162(69.23%), followed by carcinoma cervix 42(17.94%), endometrial carcinoma 24(10.25%), and Carcinoma of the vulva 6(2.56%). Among the ovarian cancers, the share of epithelial tumors was 150(92.6%), germ cell tumors were 9(5.56%), whereas stromal tumors were 3(1.85%).

Conclusion: Cancers of ovary and cervix were the commonest malignancies observed. Delayed presentation with advanced disease was common. Education and awareness about gynecological malignancies on part of the public would help to ensure early presentation and better treatment outcomes. Given the magnitude of the problem, development of a national Cancer registry for gynecological cancers is the need of the hour.

Key words: Gynecological malignancies, Ovarian carcinoma, Endometrial carcinoma.

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Introduction

Globally, gynecological malignancies contribute significantly to the morbidity and mortality among women. These malignancies are more prevalent in advanced stage in the poor countries as compared to the developed countries. The reasons for this disparity include better preventive strategies, early presentation and robust management in the developed countries. There are considerable variations in the reported incidences as well as relative frequencies of the various malignancies across different countries of the world. This may be due to a variety of factors. For instance, the standards of health care systems, cultural, environmental, dietary, genetic and social factors. [1-4] The frequent anatomic locales from which these malignancies arise include the cervix, ovaries, uterus, vagina, and vulva. The risk of developing a gynecological cancer is 1 in every 20 women in their life time and one 1 out of 33 of these unfortunate women encounters death from these cancers.[5-7]

In the developed countries robust systems of tumor registry exist, however, there is relative deficiency of such systems in the developing countries. Data regarding gynecological cancers are regularly collected and published from the developed countries. We also need such robust tumor registry for gynecological cancers in our country.

The rationale of this study was to generate local evidence base regarding gynecological malignancies. This will in turn help to provide guidance for early detection of these cancers, and hence the evolution of better treatment and preventive strategies for our future patients presenting with these malignancies.

Methodology

This descriptive case series study was carried out at the Department of Obstetrics and Gynecology, Pakistan Institute of Medical Sciences (PIMS), Islamabad from September 2019 to August 2024. The study was carried out in accordance with the ethical protocols of Helsinki's Declaration as revised in 2013. The anonymity of participants was guaranteed. Informed consent was taken from the patients.

Non-probability consecutive sampling technique was employed. All patients who presented to the hospital with any gynecological malignancy were included in the study. Non-consenting patients; those with gestational trophoblastic tumors (including choriocarcinoma); and benign gynecological tumors were excluded from the study. Minimum follow up of three years was ensured.

All patients underwent thorough clinical evaluation with history, physical examination and ancillary investigations. Where possible, an initial histopathologic examination was performed. Incision biopsies were performed for cervical and vulval cancers whereas pipelle biopsies were performed in cases of suspected endometrial cancers. The local extent of the cancers was determined using a variety of imaging investigations such as Ultrasound, Computed tomography (CT) with contrast or Magnetic resonance imaging (MRI) scans. Work up for Metastasis was carried out with hematological investigations, and various imaging modalities. Bone scan was employed where bone metastasis was suspected. Tumor markers such cancer antigen 125 (CA 125), carcinoembryonic antigen (CEA), Alpha-fetoprotein (AFP) and lactate dehydrogenase (LDH) were performed where indicated.

The patients received treatment according to established standard protocols. The extent of surgery was dictated by the type and stage of the disease. Other modalities of treatment such as neo-adjuvant chemotherapy, adjuvant chemotherapy and radiotherapy were employed according to the individual requirements of the cancer patients.

Numerical data of women who presented with various gynecological malignancies were collected. These data included age of the patients, educational status, social status, married versus non-married status, parity, stage of the cancer, histological types of the cancers, type of surgical procedures employed and survival over three years.

The data were analyzed through SPSS version 21 and various descriptive statistics were employed to calculate frequencies, percentages, means and standard deviation. The numerical data such as age of the patients was expressed as Mean ± Standard deviation. The categorical data such as the group-wise distribution of the patients, type of cancers, stage of the disease, and histologic subtypes of cancers was expressed as frequency and percentages.

The outcome measures of interest were the frequency of various gynecological malignancies and the types of various surgical procedures instituted among them.

Results

During the study period, a total of 234 women presented with various gynecological malignancies. The highest frequency was of ovarian carcinoma 162(69.23%), followed by carcinoma cervix 42(17.94%), endometrial carcinoma 24(10.25%), and carcinoma of the vulva 6(2.56%). Among the ovarian cancers, the share of epithelial tumors was (n=150: 92.6%), germ cell tumors were 9(5.56%), whereas stromal tumors were 3(1.85%).

The patients ranged in age between 27-73 years. Mean age for all cancers was 52±11.9 years. The demographic features of the included patients are shown in Table I. The Table II shows the clinical presentations observed among the patients. Figure 1 depicts the age distribution of the included patients.

Table III shows stage distribution of the various malignancies observed among the patients whereas Table 4 shows the common primary surgical procedures performed among the patients.

Discussion

In our study, carcinoma ovary constituted the commonest gynecological malignancy. Our finding conforms to the findings of several local published studies from Pakistan. They all have reported the highest frequency of ovarian cancer amongst the gynecological malignancies.[8-10] Momtahen et al[11] from Iran also reported similar higher incidence of ovarian cancer among their patients.

Table I: Demographic features of the included patients. (n=234)

Parameters	Malignancies observed. Ovarian carcinoma (n=162)	Cervical carcinoma (n=42)	Endometrial carcinoma (n=24)	Carcinoma vulva (n=6)
Mean Age (Years)	50.12±13.55	40.10±7.11	62.12±15.33	57.15±11.65
Education:				
Primary	119(73.45%)	33(78.57%)	14(58.33%)	3(50%)
Middle	27(16.66%)	5(11.90%)	7(29.16%)	2(33.3%)
Higher	16(9.87%)	4(9.52%)	3(12.50%)	1(16.66%)
Social status:				
Poor	137(84.56%)	41(97.61%)	19(79.16%)	5(83.33%)
Middle class	23(14.19%)	1(2.3%)	5(20.83%)	1(16.66%)
Rich	2(1.23%)	0(0%)	0(0%)	0(0%)
Marital status:				
Married	56(34.56%)	36(85.71%)	19(79.16%)	5(83.33%)
Unmarried	106(65.43%)	6(14.28%)	5(20.83%)	1(16.66%)
Age at marriage:				
≤20 years	19(33.92%)	7(1.94%)	7(36.84%)	3(60%)
21-30 years	17(30.35%)	13(36.11%)	10(52.63%)	1(20%)
31-40 years	19(33.92%)	16(44.4%)	2(10.52%)	1(20%)
≥40 years	1(1.78%)	0(0%)	0(0%)	0(0%)
Parity:				
Nulliparous	57(35.18%)	13(30.95%)	4(16.66%)	2(33.33%)
Parity of up to 5	83(51.23%)	22(52.38%)	11(45.83%)	3(50%)
≥ 5 parity	22(13.58%)	7(16.66%)	9(37.5%)	1(16.66%)
Age at menarche (Years)	13.1±1.55	12.6±1.85	13.6±1.67	13.8±1.59
Menopausal status:				
Premenopausal	143(88.27%)	35(83.33%)	24(100%)	5(83.33%)
Postmenopausal	19(11.72%)	7(16.66%)	0(%)	1(16.66%)
History of oral contraceptive (OCPs) intake:				
Present	20(12.34%)	6(14.28%)	1(4.16%)	0(%)
Absent	142(87.65%)	36(85.71%)	23(95.83%)	6(100%)
Family history of gynecological cancers:				
Present	9(5.55%)	1(2.38%)	1(4.16%)	0(%)
Absent	153(94.45%)	41(97.61%)	23(95.83%)	6(100%)
Obesity:				
Present	59(36.41%)	13(30.95%)	7(29.16%)	1(16.66%)
Absent	103(63.58%)	29(69.04%)	17(70.83%)	5(83.33%)
History of smoking:				
Present	3(1.85%)	1(2.38%)	0(%)	0(%)
Absent	159(98.14%)	41(97.61%)	24(100%)	6(100%)

Contrary to the aforementioned finding of the highest frequency of carcinoma ovary, several studies from other countries have reported the ovarian cancer to be the second most common among gynecological malignancies in their populations. They have reported cervical cancer to be their commonest cancer.[12-14]

In our study, cervical cancer was the second commonest gynecological malignancy, found among 17.94% of the patients. Contrary to our finding, studies from the other countries have reported cervical cancer to be the third leading cancer among women, following cancer of the breast and colorectal carcinomas. Thus, it represents the most frequent gynecological malignancy among women

in those countries. In the majority of cases, persistent infection with human papilloma virus (HPV) underlies the cervical cancer. The HPV-16 and HPV-18 genotypes are the commonest carcinogens identified among the cervical cancer sufferers. The HPV infection is sexually transmitted and may have been acquired 10-15 years before the onset of florid cancer of the cervix. The cancer is more prevalent in societies with promiscuity. HPV vaccination and regular screening programs are major preventive steps towards circumventing the increasing frequency of HPV infection.[15-17]

In this study the frequency of endometrial cancer was 10.25%. Wasim et al reported this frequency to be 22.1% among their patients with gynecological malignancies.[8] Studies from developed countries have reported even higher share of endometrial cancer among the gynecological malignancies.[12]

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Table II: Clinical presentations of gynecological malignancies observed among the included patients. (n=234)

Clinical features	Malignancies observed.			
	Ovarian carcinoma (n=162)	Cervical carcinoma (n=42)	Endometrial carcinoma (n=24)	Carcinoma vulva (n=6)
Vague abdominopelvic pain:				
Present	113(69.75%)	3(7.14%)	2(8.33%)	0(%)
Absent	49(30.24%)	39(92.85%)	22(91.66%)	6(100%)
Pelvic mass:				
Present	27(16.66%)	0(%)	0(0%)	0(%)
Absent	135(83.33%)	42(100%)	24(100%)	6(100%)
Abdominal distension:				
Present	53(32.71%)	0(%)	0(0%)	0(%)
Absent	109(67.28%)	42(100%)	24(100%)	6(100%)
Heavy menstrual bleeding:				
Present	2(1.23%)	32(76.19%)	20(83.33%)	6(100%)
Absent	160(98.70%)	10(23.80%)	4(16.66%)	0(%)
Post-menopausal bleeding:				
Present	5(3.08%)	7(16.67%)	1(4.16%)	1(16.66%)
Absent	157(96.91%)	135(83.33%)	23(95.83%)	5(83.33%)
Weight loss:				
Present	69(42.59%)	1(2.4%)	2(8.39%)	0(0%)
Absent	93(57.40%)	41(97.56%)	22(91.66%)	6(100%)
Vulval skin lesion:				
Present	0(0%)	0(0%)	0(0%)	6(100%)
Absent	0(0%)	0(0%)	0(0%)	0(0%)
Absence of any symptoms:				
Present	17(10.49%)	3(7.14%)	1(4.16%)	0(0%)
Absent	145(89.50%)	39(92.85%)	23(95.83%)	6(100%)

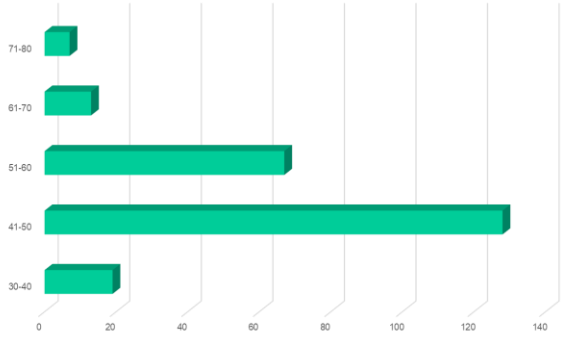

Figure 1. Age Distribution of the included patients. (n=234)

In our study, vulvar cancer (2.56%) was the fourth in frequency among the gynecological malignancies. Wasim et al[8] from Lahore reported this frequency to be 4.9% among their patients. The reported frequency of vulvar cancer from the developed countries is slightly higher.[12]

In this study the overall mean age of women for all gynecological malignancies was 50 years. The median age of patients with cervical cancer was 40 years whereas that for patients with endometrial cancer was 62 years. The published literature has reported variably regarding the age of their included patients. Wasim et al[8] reported mean ages for carcinoma ovary patients as 51±12.71 years, 43±8.98 years for cervical cancer, 58± 12.32 years for endometrial cancer, and 55±9.309 years for vulval cancer.

Table IV: Common surgical procedures performed among the patients. (n=234)

Procedures	N(%)
Staging laparotomy	103(44%)
Total abdominal hysterectomy (TAH) with bilateral salpingo-oopharectomy (BSO)	42(17.94%)
Wertheim-Meigs operation	9(3.85%)
Modified Radical vulvectomy	6(2.6%)

Momenimovahed Z reported the range of median age for carcinoma ovary to be 50-79 years across the globe. The increasing frequency of carcinoma ovary with increasing age is attributable to the increasing numbers of ovulatory cycles. Early menarche and late menopause are thus the main contributing factors. Some authorities also consider carcinoma ovary as a postmenopausal disease. [18]

Overall, the majority of our patients presented in stage III

Table III: Stage distribution of the various malignancies observed among the patients. (n=234)

Stage of Disease	Carcinoma Ovary	Carcinoma Cervix	Carcinoma Endometrium	Carcinoma Vulva	No./ Percentage
Stage 1	0	7	1	0	8(3.41%)
Stage 2	31	19	16	4	70(29.91%)
Stage 3	102	13	4	2	121(51.70)
Stage 4	29	3	3	0	35(14.95%)

or stage IV disease. This was particularly true for cases of carcinoma ovary where 63% women presented in stage III whereas 18% women presented in stage IV disease. There are several plausible explanations for the delayed presentation among our patients. Lack of awareness regarding the lethal outcome of such diseases on part of the sufferers on one hand and the vague initial presentation of carcinoma ovary on the other hand are important in this regard. The carcinoma ovary is notorious for initially presenting with nonspecific symptoms which may be initially attributed to gastrointestinal, urologic, or other systems. Typically, initially the patient experiences abdominal or pelvic pain, abdominal distension, dyspepsia, early satiety and urinary symptoms of frequency and urgency. The pelvic clinical examination may raise the suspicion of an adnexal mass.[19,20]

Strengths and limitations of the study: The present study has certain strengths as well as presents certain limitations. Among the strengths, firstly include the fact that the study was the first of its kind to document the clinical and epidemiological presentation of gynecological malignancies in our hospital. Secondly, it objectively evaluated the outcome of gynecological malignancies. The study has certain limitations as well. The main limitation is that it was an observational study. Secondly, patients were followed up for three years only. It is an ongoing study. The data presented here entails the preliminary follow up findings. The results of the study may be interpreted keeping in mind the aforementioned limitations. Future well-designed multicenter studies are recommended to overcome this limitation.

Conclusion

Cancers of the ovary and cervix were the commonest malignancies observed. Delayed presentation with advanced disease was common. Education and awareness about gynecological malignancies on part of the public would help to ensure early presentation and better treatment outcomes. Given the magnitude of the problem, development of a national Cancer registry for gynecological cancers is the need of the hour.

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