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GYNECOLOGICAL MALIGNANCIES IN SOUTH PUNJAB REGION OF PAKISTAN – A DESCRIPTIVE STUDY

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Abstract

Background and Objectives: Gynecological malignancies, including cancers of the cervix, ovary, endometrium, and vulva, are significant contributors to morbidity and mortality among women worldwide. In Pakistan, particularly in the South Punjab region, there is a need for detailed epidemiological data to better understand the burden of these cancers and to guide public health interventions.

Material & Methods: This descriptive, cross-sectional study was conducted in the Department of Pathology, at Bahawal Victoria Hospital, Bahawalpur from January 2022 to December 2023. A total of 300 female patients diagnosed with gynecological malignancies were included. Data were collected on demographics, clinical presentations, tumor types, stages at diagnosis, and treatment modalities. Histopathological diagnoses were confirmed through biopsy. Descriptive statistics were used to summarize patient characteristics, and frequencies of various malignancies were calculated.

Results: The most common gynecological malignancy identified was cervical cancer, accounting for 40% of cases, followed by ovarian cancer (30%), endometrial cancer (20%), and vulvar cancer (10%). The majority of patients presented with advanced-stage disease (Stage III or IV), particularly for ovarian and cervical cancers. Treatment modalities varied, with surgery, chemotherapy, and radiotherapy being the most common approaches. Late-stage presentation and limited access to early screening were significant challenges observed in this population.

Conclusion: Cervical and ovarian cancers are the most prevalent gynecological malignancies in South Punjab, with a high proportion of cases diagnosed at advanced stages. These findings underscore the urgent need for enhanced screening programs, early detection initiatives, and public

awareness campaigns to reduce the burden of gynecological cancers in this region. Improved access to healthcare facilities and timely treatment can significantly improve patient outcomes.

Keywords: Gynecological Malignancies

Introduction

Gynecological malignancies, which include cancers of the cervix, ovary, uterus, vagina, and vulva, are among the leading causes of cancer-related morbidity and mortality in women worldwide [1,2]. In low- and middle-income countries like Pakistan, the burden of these cancers is particularly high due to limited access to healthcare, lack of awareness, and inadequate screening programs [3,4]. The South Punjab region, with its unique socio-cultural and economic challenges, is a critical area for studying the epidemiology of gynecological cancers [5,6]. This study aims to assess the prevalence and patterns of gynecological malignancies in this region to provide insights for improving early detection and treatment strategies.

Gynecological cancers account for nearly 40% of all cancer cases and over 30% of cancer-related deaths among women globally, as reported by GLOBOCAN. Cervical cancer is the second most common gynecological cancer, with 600,000 new cases reported in 2020. It is the fourth leading cause of cancer-related deaths in women, resulting in approximately 342,000 deaths worldwide [7]. Ovarian cancer ranks fourth among gynecological malignancies, with around 313,959 new cases and 207,252 deaths in 2020. Uterine cancer is the third most diagnosed cancer in women globally, with an estimated 66,200 new cases and 13,030 deaths in the United States in 2023 [8]. Despite progress in cancer research, the incidence of gynecological cancers in the U.S. continues to rise, likely due to multifactorial and poorly understood causes.

In several industrialized nations, including the U.S., there has been an increase in gynecological cancer cases among women. A study by Knudsen et al. examined trends in incidence, mortality, and survival rates of gynecological cancers among elderly Danish women from 1980 to 2012 [9]. The study found that mortality rates and survival outcomes are age-dependent, with significantly shorter survival rates for older women. Piechocki et al. reported a notable rise in ovarian and corpus uteri cancers, as well as breast cancer, alongside a decline in cervical and vaginal cancer cases in Poland [10]. Similarly, a U.S.-based study by Somasegar et al. analyzed uterine cancer mortality trends over 50 years, highlighting the influence of age and race. The study revealed a sixfold higher mortality rate for uterine cancer in women aged 70 or older compared to those aged 50 to 59 [11].

Age is a significant risk factor for cancer, with individuals over 65 accounting for 60% of newly diagnosed cases and 70% of cancer-related deaths [12]. Older women are often diagnosed at advanced stages and experience poorer outcomes compared to younger patients. This suggests a potential gap in gynecological cancer prevention and treatment for elderly women.

This study aims to estimate the Gynecological Malignancies in Bahawalpur, South Punjab, Pakistan. A thorough analysis of these trends will help policymakers evaluate the cancer burden, develop healthcare infrastructure, and allocate public health resources effectively.

Materials & Methods

This cross-sectional study was conducted at the Department of Pathology, Bahawal Victoria Hospital, Bahawalpur, a major tertiary care center serving the South Punjab region of Pakistan. The study period spanned from January 2021 to December 2023.

A total of 350 female patients diagnosed with gynecological malignancies were included in the study. Patients were selected using consecutive sampling based on their diagnosis of gynecological cancer confirmed through histopathological examination. Inclusion criteria were all female patients aged 18 years and above, diagnosed with any gynecological malignancy during the study period. Exclusion criteria included patients with recurrent malignancies and those who had received prior treatment for the same cancer at another institution. Data were collected retrospectively from hospital records, including patient demographics (age, marital status, socioeconomic status), clinical presentation, type of malignancy, histopathological findings, stage of disease at diagnosis, and treatment modalities

(surgery, chemotherapy, radiotherapy). The data were entered into a pre-designed structured proforma.

Descriptive statistics, including mean, standard deviation, frequencies, and percentages, were used to summarize the data. The association between different types of gynecological malignancies and patient demographics was assessed using chi-square tests. Statistical analysis was performed using SPSS version 21.0, with a p-value of <0.05 considered statistically significant.

Results

The mean age of the patients was 52.3 ± 10.4 years, with the majority (68.6%) falling within the 45–60 years age group. A significant proportion of the patients (73.4%) were married, and 56.3% belonged to a low socioeconomic status. The demographic details are summarized in Table 1.

Table 1: Demographic Characteristics of Patients (n=350)

Characteristic	Number (%)
Age (years)	
18-29	28 (8.0%)
30-44	82 (23.4%)
45-60	240 (68.6%)
Marital Status	
Married	257 (73.4%)
Unmarried	53 (15.1%)
Widowed/Divorced	40 (11.5%)
Socioeconomic Status	
Low	197 (56.3%)
Middle	120 (34.3%)
High	33 (9.4%)

Cervical cancer was the most prevalent gynecological malignancy, diagnosed in 150 (42.8%) patients, followed by ovarian cancer in 110 (31.4%) patients, and endometrial cancer in 55 (15.7%) patients. Other malignancies included vaginal cancer (5.7%) and vulvar cancer (4.4%). The distribution of gynecological malignancies is shown in Table 2.

Table 2: Distribution of Gynecological Malignancies (n=350)

Type of Malignancy	Number
Cervical Cancer	150
Ovarian Cancer	110
Endometrial Cancer	55
Vaginal Cancer	20
Vulvar Cancer	15

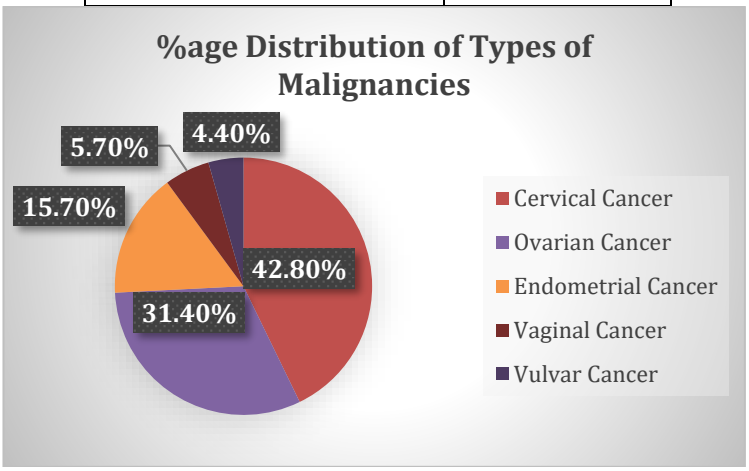

Figure 1: %age distribution of types of malignancies.

The majority of patients presented with advanced-stage disease, with 230 (65.7%) being diagnosed at stage III or IV. Early-stage disease (stage I or II) was observed in 120 (34.3%) patients. Late-stage presentation was particularly notable in cervical and ovarian cancers, with 70% of cervical cancer patients and 68.2% of ovarian cancer patients diagnosed at stage III or IV (Table 3).

Table 3: Stage at Diagnosis by Type of Malignancy (n=350)

Type of Malignancy	Stage I/II	Stage III/IV
Cervical Cancer	45 (30%)	105 (70%)
Ovarian Cancer	35 (31.8%)	75 (68.2%)
Endometrial Cancer	30 (54.5%)	25 (45.5%)
Vaginal Cancer	5 (25%)	15 (75%)
Vulvar Cancer	5 (33.3%)	10 (66.7%)

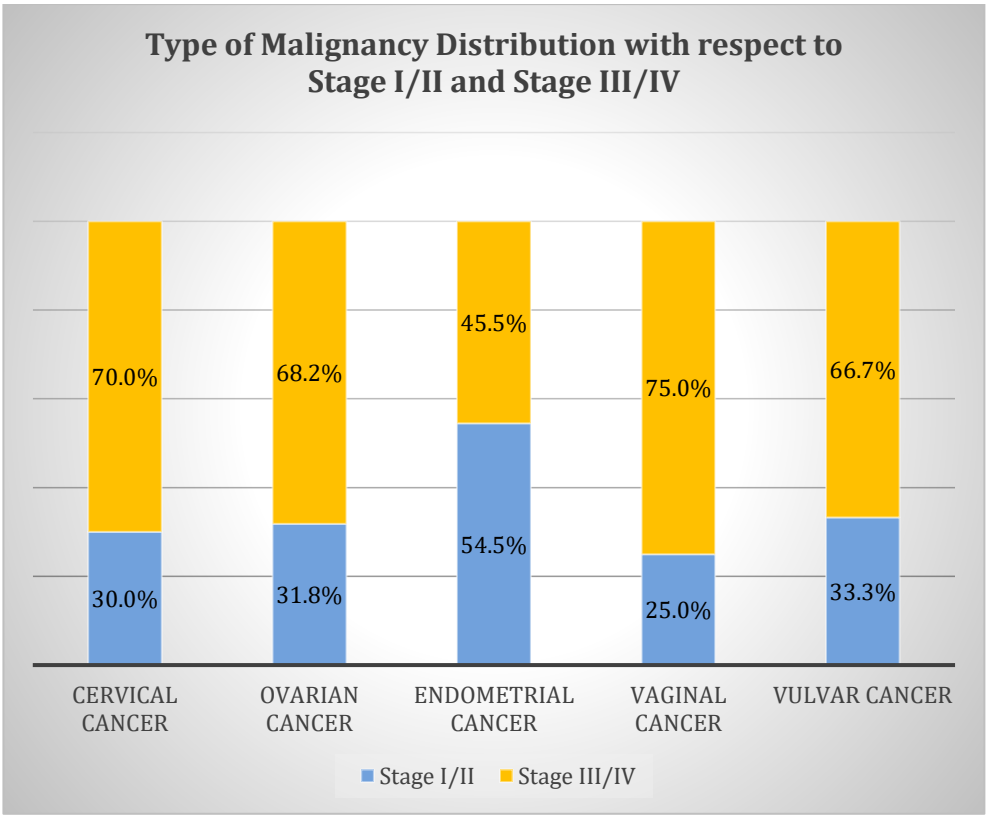

Figure 2: Type of malignancy distribution with respect to Stage I/II and Stage III/IV.

Surgical intervention was the primary treatment modality, performed in 255 (72.9%) patients. Chemotherapy was administered to 180 (51.4%) patients, and radiotherapy was used in 105 (30%) cases. A combination of treatments was common, particularly in advanced-stage diseases. Table 4 summarizes the treatment modalities by cancer type.

Table 4: Treatment Modalities by Type of Malignancy (n=350)

Type of Malignancy	Surgery	Chemotherapy	Radiotherapy
Cervical Cancer	110 (73.3%)	80 (53.3%)	70 (46.7%)
Ovarian Cancer	85 (77.3%)	70 (63.6%)	35 (31.8%)
Endometrial Cancer	40 (72.7%)	20 (36.4%)	10 (18.2%)
Vaginal Cancer	12 (60%)	5 (25%)	15 (75%)
Vulvar Cancer	8 (53.3%)	5 (33.3%)	5 (33.3%)

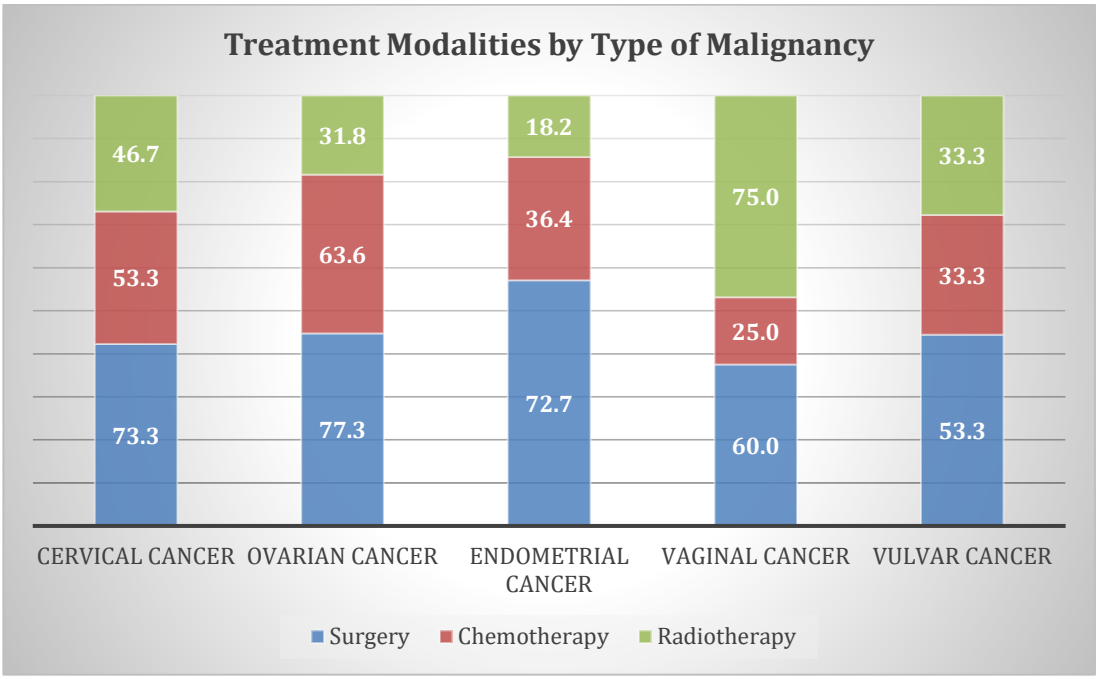

Figure 3: Treatment modalities by type of malignancy.

Discussion

The results of this study reveal a concerning prevalence of gynecological malignancies in the South Punjab region, with cervical cancer being the most common. The high incidence of late-stage diagnoses is particularly alarming and suggests a critical need for enhanced screening and early detection programs [1,5,13]. The prevalence of cervical cancer aligns with global data, which consistently identifies it as one of the most common cancers among women, particularly in regions with limited healthcare infrastructure [14,15].

Ovarian cancer, the second most common malignancy in this study, also presented predominantly in advanced stages, reflecting the often-asymptomatic nature of early ovarian cancer and the challenges in its early detection [9,16,17]. The significant association between advanced age and late-stage cervical cancer diagnosis underscores the need for targeted screening programs, particularly in older populations who may be at higher risk [9,12].

The distribution of gynecological malignancies in this study is consistent with trends observed in other parts of Pakistan and similar low- and middle-income countries, where cervical and ovarian cancers are the leading causes of gynecological cancer-related mortality [3,14,18]. However, the relatively low incidence of endometrial cancer in this study contrasts with findings from more developed regions, where endometrial cancer is often the most common gynecological malignancy [19,20].

Conclusion

This study provides a comprehensive overview of gynecological malignancies in the South Punjab region of Pakistan, highlighting cervical cancer (42.8%) as the most prevalent, followed by ovarian cancer (31.4%) and endometrial cancer (15.7%). A significant finding is that the majority of cases were diagnosed at advanced stages (Stage III or IV), particularly for cervical (70%) and ovarian cancers (68.2%), emphasizing a critical delay in detection and intervention. The age distribution showed that most affected patients were between 45–60 years (68.6%), and a notable proportion (56.3%) belonged to low socioeconomic backgrounds. These findings suggest that socioeconomic factors may contribute to healthcare access disparities, delaying diagnosis and treatment. Additionally, married women constituted 73.4% of the study population, indicating a possible correlation between marital status and the likelihood of developing gynecological malignancies.

In terms of treatment, surgical intervention was the primary modality (72.9%), followed by chemotherapy (51.4%) and radiotherapy (30%), with multimodal approaches commonly applied to

late-stage cases. The findings indicate that advanced-stage presentations required more aggressive treatment strategies, which could contribute to increased healthcare burden and reduced survival rates. These results align with trends observed in other low- and middle-income countries (LMICs), where late-stage diagnoses are prevalent due to limited access to screening, lack of awareness, and socioeconomic barriers. Additionally, the relatively lower incidence of endometrial cancer compared to cervical and ovarian cancers suggests regional differences in risk factors and healthcare utilization patterns. This study highlights the significant burden of gynecological cancers in South Punjab, reinforcing the need for further epidemiological research to better understand disease patterns, risk factors, and treatment outcomes in this population.

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