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ORIGINAL ARTICLE

Frequency and Histopathological Characteristics of Malignant Tumors Reported at Tertiary Care Hospital

SAIMA GULZAR[1], HUMA KHALIQ[2], NOOR US SABAH AHMED[3], SOBIA ANWAR[4], IRAM KEHKASHAN KHURSHID[5], NAVID QURESHI[6], MUHAMMAD ZEESHAN[7]

[1]Assistant Professor of Histopathology, [6]Professor of Pathology, [7]Demonstrator Pathology, Pak Red Crescent Medical & Dental College, Dina Nath
[2]Consultant Radiologist, Family Health Hospital Islamabad
[3]Postgraduate Resident, Department of Histopathology, Pakistan Institute of Medical Sciences, Islamabad
[4]Assistant Professor of Histopathology, Abu Umara Medical & Dental College Lahore
[5]Assistant Professor of Pathology, CMH Kharian Medical College, Kharian Cantt
Correspondence to: Saima Gulzar, E-mail: saimadilawar@outlook.com, Cell: 0331-7679271

ABSTRACT

Background: Cancer is a very important cause of worldwide mortality, and therefore, a continuous updated research is always needed regarding types of cancers in a particular area, histopathological grades and prevalence of cancer .Only a limited research work is available in our country in the field of cancer and histopathology.

Objective: To express the prevalence of cancers and types of carcinoma with age, gender, site, and histopathological type, histopathological grades.

Study Design: Descriptive study

Place and Duration of Study: Department of Pathology, Pak Red Crescent Medical & Dental College, Dina Nath from 1st July 2018 to 30th June 2023.

Methodology: One hundred and ninety four male and female patients were enrolled. Patients >12 years and with malignancy were included.

Results: The average age of patients was 51 years and most of the patients were females. Predominant cancers were of breast and cervix. Around 88% of patients had carcinoma, of which mostly were females. Sarcoma was also more common in females whereas lymphoma was seen mainly in male patients .($P<0.05$) also shows the maximum percentage of female had cancer as compared to male patients. The highest percentage of patient of carcinoma and sarcoma were of grade-2 and Lymphoma seen was of high grade.

Conclusion: Most of the findings in prevalence and cancer subtypes were similar to other studies in Pakistan with a few differences, which are due to difference in facilities provided. Most patients had advanced grades of cancer, when prognosis is no longer favourable.

Keywords: Cancer, Prevalence, Breast cancer, Stage, Grade, Histopathology

INTRODUCTION

Cancer is a very important cause of worldwide disease burden and deaths.[1] Cancer burden has increased in both developed and developing countries because of increased life expectancy and population increase, socioeconomic development, and more exposure to associated risk factors.[2] Cancer has become a major reason of death partly because of decrease in mortality rates due to stroke and coronary heart disease, relative to cancer, in many countries.[3] Almost 19.3 million more cancer cases and 10 million cancer deaths are expected globally till 2025 as there is an increase in risk factors associated with cancer.[4] Pakistan is the sixth most populous city worldwide.[5] There is deficient population-based cancer registry, prevalence and mortality records all over Pakistan.[6]

Many cancers are increasing in incidence in Pakistan.[4] Being a developing country, the number of cancer cases are increasing in Pakistan whereas only limited regional cancer registries are working.[7] In such situations, hospital based cancer data provides important information. National cancer registry of Pakistan collected data from different hospital and analysed it for the first time.[8] However, at present, mortality data in the region is not being registered centrally at national level.[9] In addition, cancer survival rates although significant in epidemiology of any malignant tumor have not been studied well worldwide.[10]

Being an institution based study, there are limitations, but it provides the most required report on frequency of malignant tumors, histopathological subtypes and grading in Punjab, second largest province of Pakistan. Hence it can form a basis for future cancer care and prevention programmes.

MATERIALS AND METHODS

This descriptive study was carried out at Department of Pathology, Park Red Crescent Medical & Dental College, Dina Nath from 1st July 2018 to 30th June 2023. A total of 194 cancer patients were enrolled. The sample size was calculated by considering 5% level of significance (95% level of confidence), prevalence value 44.7% and margin of error 7%. Records of all the patients with age more than 12 years and who were diagnosed with the diagnosis of malignancy were included. Patients with age less than 12 years and those with diagnosis of benign tumors were excluded. The variables recorded were registration number, age, sex, diagnosis, site of biopsy, date of biopsy, stage at presentation, histopathological subtype of malignant tumor and grade of tumor. The data was entered and analyzed through SPSS-24. Chi-square test was applied to find the impact of indicator histopathological features of malignant tumor reported at tertiary care hospital. P-value less than 0.05 was considered as significant.

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RESULTS

The average age of patients was approximately 51.43±17.36 years (Table 1). Most of the patients with malignant tumors were females. Highest percentage of carcinoma and sarcoma was seen in female patients whereas lymphoma was seen mainly in male patients. The significant p-value also shows the maximum percentage of female had carcinoma as compared to male patients (Table 2). The highest equal percentage of patient had breast and cervical (FGT) carcinoma, Lymphoma was the commonest malignancy of lymph nodes whereas Sarcoma was commonest malignant tumor in soft tissues. The maximum number of patients of various carcinoma's from different organs were shown significant ($P<0.05$) [Table 3]. Around 88% patients had carcinoma (Fig. 1). 28% (maximum) patients were in age range 41-50 years but the second leading percentage (20%) of patients were in the age range 51-60 and the third common percentage (16%) of patients were in age range 31-40. The insignificant p-value shows that the age insignificantly (meaninglessly) have the impact on malignant tumor/diagnosis(Table 4). 43% of patients had grade-2

tumors whereas high grade tumor was seen in (19%) of the patients (Table 5).

Table 1: Descriptive statistics of age (n=194)

Age (years)	Mean±SD
	51.43±17.36

Table 2: Comparison of malignant tumors according to gender (n=194)

Gender	Invasive Carcinoma	Lymphoma	Sarcoma	P value
Male	45 (23.2%)	10 (5.2%)	1 (0.5%)	0.001
Female	125 (64.4%)	4 (2.1%)	9 (4.6%)	

Table 3: Organ-wise histopathological subtypes of malignant tumors

Organ	Invasive Carcinoma	Lymphoma	Sarcoma	P-Value
Breast	45 (23.2%)	1 (0.5%)	3 (1.5%)	0.000
Cervix (FGT)	45 (23.2%)	2 (1%)	-	
Genitourinary tract (kidney)	4 (2.1%)	-	-	
Genitourinary tract (testes)	5 (2.6%)	1 (0.5%)	-	
Genitourinary tract (urinary bladder)	14 (7.2%)	-	-	
Head & Neck	15 (7.7%)	1 (0.5%)	-	
Lower GIT	4 (2.1%)	-	-	
Lymph node	7 (3.6%)	7 (3.6%)	-	
Skin	2 (1%)	-	-	
Soft tissue	5 (2.6%)	-	5 (2.6%)	
Thyroid gland	17 (8.8%)	1 (0.5%)	2 (1%	
Upper GIT	7 (3.6%)	1 (0.5%)	-	

Table 4: Age-wise distribution (decade wise) of malignant tumors

Age (years)	Invasive Carcinoma	Lymphoma	Sarcoma	P-Value
12-20	5 (2.6%)	3 (1.5%)	-	0.064
21-30	12 (6.2%)	-	1 (0.5%)	
31-40	28 (14.4%)	3 (1.5%)	1 (0.5%)	
41-50	42 (21.6%)	6 (3.1%)	2 (1%)	
51-60	36 (18.6%)	1 (0.5%)	1 (0.5%)	
61-70	22 (11.3%)	-	2 (1%)	
71-80	18 (9.3%)	-	3 (1.5%)	
81-90	4 (2.15)	1 (0.5%)	-	
91-100	3 (1.5%)	-	-	

Table 5: Most common grades of malignant tumors

Grade	Invasive Carcinoma	Lymphoma	Sarcoma	P-Value
Grade 1	25 (12.9%)	-	3 (1.5%)	0.000
Grade 2	83 (42.8%)	-	4 (2.1%)	
Grade 3	22 (11.3%)	-	2 (1%)	
High Grade	36 (18.6%)	14 (7.2%)	1 (0.5%)	
Low Grade	4 (2.1%)	-	-	

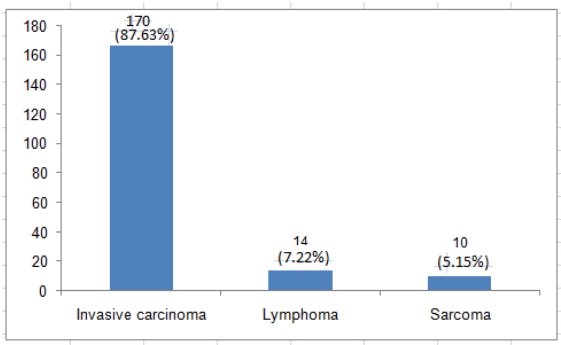

Figure 1: Most common categories of malignant tumors

DISCUSSION

Cancer is a global health disease and almost 1.8 million cases of cancer and more than 600 000 deaths from cancer seen in the US in 2020.[11] Malignant tumors are one of the important reason of mortality in 45 to 64 years age group people, and a significant health care budget is spent on cancer.[12] Cancer and heart disease are top two causes of deaths.[13] Cancer research is being done in developed countries, whereas it is significantly deficient in underdeveloped countries.[14]

There were 64.4% female patients while 23.2% were male patients in this study, whereas Qureshi et al[15] reported 60.1% male and 39.9% female patients in the study conducted in Karachi. In this study, the average age of patients was 51 years. Ali et al[16] reported that patients of 41-50 years age had most of cancers whereas in age range from 91-100 years, cancer was least prevalent (3, case only).[16] In this study most common malignancies in females were carcinoma and sarcoma, whereas lymphoma was seen mostly in male patients. Ali et al[17] also showed lymphoma predominantly in male patients whereas carcinoma was common in both female and male patients. Likewise soft tissue sarcoma was predominantly seen in female patients in a study by Suru et al.[18]

Carcinoma was the predominant malignant tumor in this study. The most common cancers were seen in breast (23.2%) and cervix (23.2%). High prevalence of breast and cervical cancer has also been shown in other national and international studies.[19,20].All over the world, more than 2.3 million cases of breast cancer were seen in 2020 and until 2040, the expected breast cancer cases are more than 40%, accounting for 3 million cases per year.[21]

Breast cancer is most common malignancy in both genders adults in Pakistan[22]. Invasive ductal carcinoma was the predominant histologic variant in this study. Similar prevalence of invasive ductal carcinoma is shown by Beg et al[23].Thyroid cancer is predominant endocrine malignant tumor and it is 3.4% of all diagnosed malignancies annually.[24] In the present study, Thyroid carcinoma was 8.8% of the total malignant tumors and most common histological subtype was Papillary thyroid carcinoma constituting 90% of cases and the least common subtype was Anaplastic carcinoma (<1%). This is in accordance with the literature, Papillary thyroid carcinoma is most common subtype, constituting 90%, other types are 4.4% follicular thyroid carcinoma, medullary thyroid carcinoma (1.5%) and anaplastic thyroid carcinoma (<1%).[25,26] Other malignant tumors included in this study were Lymphoma and upper gastrointestinal tract malignancies which constituted 3.6%, head and neck (7.7%) and urinary tract (7.2%) of all malignancies. Whereas, Ali et al[17] reported frequencies of cancers in both genders as, head and neck (37.38%), upper GIT including liver 3.87%, urinary tract malignancies (3.11%), lymphoma (3.16%), colorectal carcinoma (4.27%).[17] The discrepancies reported in percentages of few tumors like head and neck are due to differences in facilities provided in hospital. Most of the carcinomas (42.8%) and sarcomas (2.1%) were of grade 2, whereas non-Hodgkin's lymphoma was of high grade (7.2 %). This is in accordance with the study by Shamsi et al[27] and by King et al.[28]

CONCLUSION

Breast cancer and cervical cancer were the most common tumors followed by Thyroid carcinomas. Most of the tumors were moderately differentiated and of high grade when prognosis becomes less favourable. These features show lack of awareness and deficient healthcare facilities ultimately leading to delayed diagnosis. In countries with deficient population based cancer registries, and inappropriate prevalence and mortality data, institution based cancer data provides required information that can form basis for future cancer care and prevention programmes.

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