

Variation in Skin Cancer Pattern in the Southwestern Region of Pakistan

HINA MANZOOR¹, NAJEEB AHMAD², ZAFAR H TANVEER³, KHUSH NASEED AHMED⁴, MUNIR AHMED⁵, MUHAMMAD SADIQ⁶, FEROUZ KHAN⁷, JAMILA SHUJA⁸

¹Centre for Nuclear Medicine and Radiotherapy (CENAR), Quetta

^{2,3}Quetta Institute of Medical Sciences (QIMS), Quetta

⁴⁻⁸Centre for Nuclear Medicine and Radiotherapy (CENAR), Quetta

Correspondence to: Hina Manzoor, Email: hinaqta@yahoo.com, Cell: 0333 7894001

ABSTRACT

Background: Skin cancer is a broad term that refers to a variety of different types of cancer. It is usually recognized as non-melanoma and melanoma skin cancer. In many parts of the world, the prevalence is high, with significant ecological and ethical variation.

Objectives: Objective was to determine demographic and histological features of skin cancer in Southwest region of Pakistan.

Methodology: This retrospective study was carried out on skin cancer 1169 cases of Centre for Nuclear Medicine and Radiotherapy (CENAR) in Quetta. The data from January 2000 to December 2009 (10Years) was retrieved from record. The aim was to determine the importance of skin cancer in this area, its gender wise distribution and its pathological types.

Results: Record of total 9308 cancer patients was retrieved from patients presenting to CENAR Quetta. From 9308 case, 1169(12.5%) patients were of skin cancer which was second most prevalent category of cancer in this area. Prevalence was higher in males with 713(61%) cases as compared to females. Pathologically with 634(54%) cases, the most prevalent category was Squamous cell carcinoma (SCC).

Conclusion: Skin cancer is wide-spread type of cancer in patients of south-west region of Pakistan. The findings of this study are not aligned with published data. The difference is because of high altitude of the study area, dry climate and long skin exposure particularly in low socio-economic field workers.

Keywords: Skin cancer, gender, Melanoma skin cancer (MSC), Squamous cell carcinoma (SCC), Non-melanoma skin cancer (NMSC), Basal cell carcinoma (BCC),

INTRODUCTION

Skin cancer is most common type of cancer in world that affect both men and women of all skin colors. Cancer of all kind is surging. From total three newly diagnosed cases skin cancer is one. Populations with white or light colored skin bear burden of skin cancer. Most prevalent cancers are melanoma and non-melanoma¹ WHO estimate 2 and 3 million non-melanoma and approximately 132,000 melanomas cases each year worldwide² Rate of progress and general features of melanomas are much more severe than non-melanoma³. Basal cell (bc) and squamous cell (sc) skin cancers are treated easily and develop more slowly than melanomas. Whereas, melanoma is responsible for 75% of all deaths from skin cancer is a highly metastatic, drug-resistant, and aggressive, although it consist of 5–10% of the cases diagnosed only. Australasian, North American, and European countries as well as elderly and/or male primarily bear the burden of melanoma⁴. BCC and SCC are most common NMSC with 70% and 25% respectively⁵. If detected at early stages BCC and SCC both have a good prognosis³. BCC contribute minimally to the mortality rate of NMSC with MR of 0.02 per 10,000. In contrast, SCC demonstrates a variation in metastatic rate from 0.1 to 9.9% and accounts for approximately 75% of deaths due to NMSC^{3,5,6}. Worldwide incidence of malignant melanoma is rising quickly. Except lung cancer in women, this raise is taking place at rapid rate as compared to other cancer. Melanoma is more common in Whites than in Blacks and Asians. Generally, melanoma is the fifth most prevalent malignancy in males and the seventh most common malignancy in females with 5% and 4% of all new cancer cases, respectively^{7,8}. Sun exposure is the most important modifiable risk factor associated with the development of NMSC and melanoma.[9]. The incidence of NMSC in Asian population is steadily increasing. There is a worldwide concern about the increase in incidence of melanoma and non-melanoma skin cancers. This study was conducted to report the pattern of skin malignancies in southwest Pakistani population.

MATERIAL AND METHODS:

Study Setting: Centre for Nuclear Medicine and Radiotherapy (CENAR) Quetta

Study Design: Retrospective Cross Sectional Study

METHODOLOGY

The permission was taken from Ethical review committee of the institute. After that, 10 years data from 2000 to 2009 was retrieved from record of CENAR Quetta. All registered cases were studied and data was collected on specially designed pro-forma.

Statistical Analysis: SPSS version 25 was used to analyze data. Mean and SD were analyzed for numerical data like age and frequency percentages were calculated for categorical data. Test of significance (chi-square test) was applied to see association among study variables. A probability value (p-value) ≤ 0.05 was taken as significant statistically.

RESULTS

Table1: 1st 10 Malignancies of CENAR Quetta from 2000-2009.

Total number of patients	9308	100%
Gastrointestinal tract (GIT)	2246	24%
Skin	1169	12.5%
Head & Neck	1020	11%
Breast	896	10%
Malignant Lymphoma	869	9.3%
Genitourinary Tract(GUT)	790	8.4%
Hematological Malignancies(HM)	698	7.5%
Gynecological tumor	601	6.5%
Sarcomas	585	6.3%
Brain Tumor	434	4.5%

Table 2: 1st 10 Malignancies of males in CENAR Quetta from 2000-2009

Male		
Total number of male patients	5018	100%
Gastrointestinal tract	1331	27%
Skin	713	14%
Genitourinary Tract	672	13%
Head& Neck	622	12%
Malignant Lymphoma	585	12%
Hematological Malignancies	445	9%
Sarcomas	369	7%
Brain Tumor	281	6%

Out of a total of 9308 cancers recorded during this period (2000-2009), skin cancer were 1169 (12.5%) which showed that skin cancer was most common cancer after GIT in this area. Out of these 713(61%) were males and 456(39%) females (Balochistani

male 457; Balochistani female 329: Afghanistani male 383; Afghanistani female 256). Non melanoma skin cancer were 1028 (88%) of total skin cancers, malignant melanoma 94(8%) cases and 47(4%) are other tumors e.g Lymphoma, Metastatic Carcinoma etc. Out of these non-melanoma skin cancer SCC was diagnosed in 634 (57%) and BCC carcinoma in 394(35%) patient.

Table 3: 1st 10 Malignancies of females in CENAR Quetta from 2000-2009

Female		
Total number of female patients	4290	100%
Gastrointestinal tract	915	21%
Breast	896	20%
Gynecological tumor	601	14%
Skin	456	11%
Head& Neck	398	9%
Malignant Lymphoma	284	7%
Hematological Malignancies	253	6%
Sarcomas	216	5%
Brain Tumor	153	4%
Genitourinary Tract	118	3%

Table 4: Ca Skin in Baluchistan and Afghanistan patients

Gender	Baluchistan		Afghanistan	
Male	457	58%	256	67%
Female	329	42%	127	33%
Total	786	100%	383	100%

Table 5: Pathological types of Ca Skin

Total number of patients	1169	100%
Squamous cell carcinoma	634	54%
Basal cell carcinoma	394	34%
Melanoma	94	8%
Others	47	4%

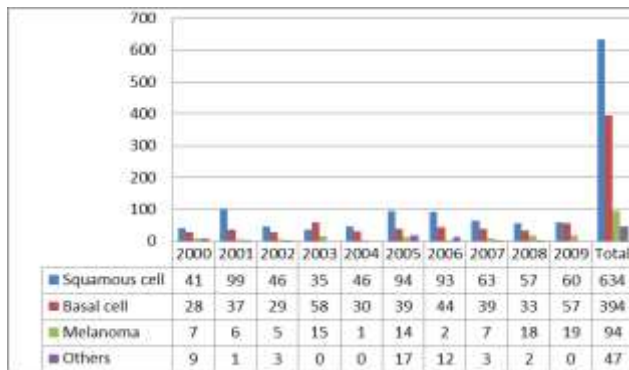


Figure 1: Pathological Analysis year wise distribution

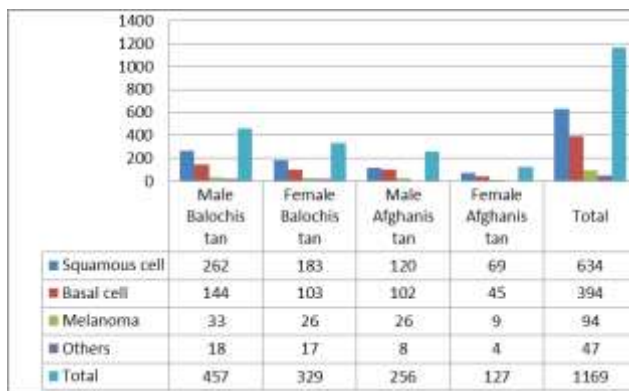


Figure2: Pathological analysis area wise distribution

DISCUSSION

Skin cancer is most predominant cancer in people with fair-skin worldwide. Rate of prevalence and mortality of skin cancer are

substantially rising. Skin cancer is wide spread in Caucasians as compared with Africans, Asians, Latin-Americans and American-Indians. But it is significantly correlated to morbidity and mortality because of unusual presentation¹⁰. Increased incidence of squamous and basal cell carcinoma may be due to the combination of increased exposure to sunlight or UV, aging, long-time outdoor activities, changes in clothing styles, ozone depletion, genetics and occasionally immunodeficiency.¹¹

Skin cancer is frequently dismissed as an unimportant topic. Yet the highest incidence of cancer involving any site occurs in the skin. CENAR Quetta is the only Radiotherapy facilitated centre in Balochistan. Though it has limited cancer management facilities but it drains cancer patients from Balochistan (67.01%) and adjacent Afghanistan (32.65%). Skin cancer is the second most cancer in this area but worldwide it is the most common one. In male, it is 2nd one but in female it is the 4th common tumor in this study. Male to female ratio is 1.5:1.0 in Balochistan patients and 2:1 in Afghanistan patients. This difference is due to social setup of the people in this area and may be related to genetic differences in susceptibility and degree of exposure to sunlight as reported by Bastiaens M.T et al¹².

Histopathologically; Skin cancer is 12.5% of all cancers diagnosed in this area but it is 2-4% of all cancer in Asians¹³. One study from Pakistan shows it is 6.89% of all malignancies¹⁴. Another study from Pakistan shows it is 1.04% of all malignancies¹⁵.

Squamous cell carcinoma is dominant in our study that is 54.23%, basal cell carcinoma is 31.14% and malignant melanoma is 8.04%. Results of this study are different from a study carried out at JPMC, Karachi, Pakistan where bcc was on top with 48% cases. It was followed by scc (40%) and malignant melanoma (6.66%)¹⁶. Other study from Pakistan showed bcc as most common malignancy followed by scc¹⁴. A multicenter study from Japan reported highest incidence of bcc accounting approximately 50% of all skin malignancies, followed by 31% of squamous cell carcinoma and 21% malignant melanoma¹⁷. In USA bcc is most prevalent skin cancer and cc is on second position^{17,18}.

Most finding in the present study did not concur with published data because high altitude, dry climate and prolonged skin exposure especially in low socioeconomic field workers with some environmental factors may play etiological role.

Cancer is one of the biggest health problems of the world. Cancer management of is a multidisciplinary stepwise approach that require team work. Its first step is to consider the statistical basis of different variables, such as prevalence, occurrence, distribution, mortality, epidemiological causes, disease behaviour, etc. These variables represent multiple angles of the illness and offer instructions on cancer treatment to the clinical staff. Skin cancer is having a high incidence in this area. Public education for preventive measures, cancer awareness for early diagnosis and good prognosis is necessary. Cancer management is global health challenge, including Pakistan. In developing countries like Pakistan, this is more severe and painful problem due to illiteracy poverty, particularly in back ward areas like this. Data related to cancer management is poorly established in our setting due to several reasons. As cancer management is a complex, multidimensional health issue, therefore its management is in primary stages in developing countries. This paper is a step ahead in this direction. More research studies along with improvement of health care delivery system and public education are needed to deal with this complicated health problem.

CONCLUSION

In conclusion, skin cancer is a common cancer in patients living in southwest region of Pakistan. Result shows that in Balochistan including adjacent Afghanistan second most common type of cancer was Skin cancer among all cancer type, most common gender was male and most common Pathological type was Squamous cell carcinoma. Most finding in the present study did not concur with published data because high altitude, dry climate and

prolonged skin exposure especially in low socioeconomic field workers with some environmental factors may play etiological role. Skin cancer is having a high incidence in this area.

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