Orginal Article

Frequency and Pattern of Malignant Lesions of Skin

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Abstract

Malignant skin lesions can be widely categorized as melanoma and non-melanoma skin cancer. Skin cancer represents approximately two to four percent of all cancers in Asians. One in every three cancers diagnosed is a skin cancer and one in every five Americans will develop skin cancer in their lifetime.

Objective: *To determine the frequency and pattern of different malignant skin lesions in our situation.*

Methods: *It was a prospective cross sectional study that was conducted in Surgery, Dermatology, Oncology & Plastic Surgery department of KYAMCH, Sirajgonj from January 2015 to June 2015. Total 60 patients were selected by purposive sampling as a diagnosed case of malignant skin lesion. The data were collected by the active participation of the patients' interviewed by the preformed proforma of data collection sheet and then data were gathered, decorated, tabulated after data cleaning and edition. Then the results were found and they were tested by chi-square test (qualitative data) to see their level of significance i,e p-value which was set as the cut off level at <0.05. So if p-value is >0.05 the results are not significant.*

Results: *The data analysis of 60 patients yielded the following results. Malignant skin lesions were commonly found in the elderly age group (>60yrs) 38.33%. Majority of them had non-melanocytic cancer (56.67%). Mean age of the male respondent was 58.79±6.54 and female respondent was 55.20 6.29 years. Maximum patients were male 66.67%. The male to female ratio was 2:1. According to anatomical site head-neck (52.94%) is the commonest site for non-melanocytic carcinoma whereas lower limb is the commonest site for malignant melanoma (69.23%).*

Conclusion: *Malignant skin lesions were commonly present as melanoma and non-melanocytic carcinoma where man were more affected due to sunlight exposure and non-melanocytic lesions were more than malignant melanoma. Elderly age group are commonly affected. Head-neck is the commonest site for non-melanocytic lesions and lower limb is the commonest site for malignant melanoma. All cases seek initial medical attention commonly in advanced stage.*

Introduction

Malignant skin lesions can be widely categorized as melanoma and non-melanoma skin cancer. The incidence of both non-melanoma and melanoma skin cancers has been increasing over the past decades. Currently, between 2 and 3 million non-melanoma skin cancers and 132,000 melanoma skin cancers occur globally each year. One in every three cancers diagnosed is a skin cancer and one in every five Americans will develop skin cancer in their lifetime[1]. Skin cancer represents approximately two to four percent of all cancers in Asians[2]. Melanoma is the fifth most common cancer for males and seventh most common for females[3].

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From ages 15-39, men account for just 40 percent of melanoma cases. But more than 60 percent of melanoma dies. From ages 15-39, men are 55 percent more likely to die of melanoma than women in the same age group[4]. As ozone levels are depleted, the atmosphere loses more and more of its protective filter function and more solar UV radiation reaches the Earth's surface. It is estimated that a 10 per cent decrease in ozone levels will result in an additional 300,000 non-melanoma and 4,500 melanoma skin cancer cases. The global incidence of melanoma continues to increase however, the main factors that predispose to the development of melanoma seem to be connected with recreational exposure to the sun and a history of sunburn. These factors lie within each individual's own responsibility. Some individual risk factors of skin malignant lesions are fair skin, blue, green or hazel eyes, light-colored hair, tendency to burn rather than suntan, history of severe sunburns, many moles, freckles, a family history of skin cancer[5].

Non-melanoma skin cancers comprise basal cell carcinomas and squamous cell carcinomas. These are rarely lethal but surgical treatment is painful and often disfiguring. The temporal trends of the incidence of non-melanoma skin cancers are difficult to determine, because reliable registration of these cancers has not been achieved. However, specific studies carried out in Australia, Canada and the United States, indicate that between the 1960s and the 1980s the prevalence of non-melanoma skin cancers increased by a factor of more than two.

The risk of non-melanoma skin cancers has been examined with respect to personal exposure. The WHO experts comment regarding this type of skin cancer that theyare the most frequent on parts of the body that are commonly exposed to the sun such as ears, face, neck and forearms. This implies that long-term, repeated UV radiation exposure is a major causal factor. Moreover, within some countries there is a clear relationship between increasing incidences of non-melanoma skin cancers with decreasing latitude, i.e. higher UV radiation levels[5].

Melanoma, the most aggressive type of skin cancer, develops from the pigment melanin producing melanocytes, derived from the neural crest in origin, which are located inthe stratum basale of the skin's epidermis. Melanocytes are also present in eyes, ears, the heart and the central nervous system, but in these organs melanocytes rarely develop into malignant melanomas. Under the influence of ultraviolet radiation melanocytes secrete melanin pigment to numerous keratinocytes by dendritic processes and in this way provide some degree of solar-induced protection of genetic damage to the keratinocytes.

Malignant melanoma, although far less prevalent than non-melanoma skin cancers, is the major cause of death from skin cancer and is more likely to be reported and accurately diagnosed than non-melanoma skin cancers. Since the early 1970s, malignant melanoma incidence has increased significantly, for example an average 4 per cent every year in the United States. A large number of studies indicate that the risk of malignant melanoma correlates with genetic and personal characteristics, and a person's UV exposure behavior.

The main human risk factors for malignant melanoma are a large number of atypical nevi (moles), people with a pale complexion, blue eyes, and red or fair hair, high and intermittent exposure to solar UV appears to be a significant risk factor for the development of malignant melanoma[5]. The incidence of malignant melanoma in white populations generally increases with decreasing latitude, with the highest recorded incidence occurring in Australia, where the annual rates are 10 and over 20 times the rates in Europe for women and men respectively. Several epidemiological studies support a positive association with history of sunburn, particularly sunburn at an early age. The role of cumulative sun exposure in the development of malignant melanoma is equivocal. However, malignant melanoma risk is higher in people with a history of non-melanoma skin cancers and of solar keratosis, both of which are indicators of cumulative UV exposure.

Keratinocyte carcinoma (KC)[6],the another label of NMSC, comprising of SCC and BCC, develops from the epithelial keratinocytes and usually occurs on sun-exposed skin. These cancers are often referred to as non-melanoma skin cancer (NMSC), although technically the non-melanoma skin cancers also encompass cutaneous lymphomas, sarcomas, Merkel cell carcinomas and other rare types of skin cancer[7]. BCC, by far the most commonly occurring skin cancer, hardly ever metastasizes(a literature search yielded in total 172 metastatic BCC cases based on criteria of Lattesand Kessler[8], reported between 1981 and 2011, of which 100 metastatic BCC casesincluded information on follow-up time[9] and is therefore the most 'benign' type of skincancer. The majority of BCCs occur on facial skin where their surgical treatment mighthave a large impact on functional and cosmetic outcome.

Cutaneous SCC is known to metastasize if left untreated (proportion of stage III and IV SCC in The Netherlands: 1.5%;1989-2008[10]. SCC might arise from precursors such as actinic keratosis (AK) and in sit variants (Bowen's disease).

Prognosis definitely depends on early diagnosis and opposite intervention. In addition to advanced stage at presentation, malignant skin lesions in skin of color often present in an atypical fashion- though anatomic distribution may or may not be different from that seen in Caucasians, depending on the specific type of skin cancer[11]. This study aims to present the findings of detailed analyses of the frequency of the malignant skin lesions at teaching hospitals in Sirajgonj and we also aim to report the various pattern of presentation of those lesions at the same time.

Materials and methods

This study was prospective observational and cross-sectional study which was done in Khawja Yunus Ali Medical College & Hospital, Enayetpur, Sirajgonj from January, 2015 to December, 2015. The sample size was 60. The respondents were selected by purposive sampling where the only inclusion criteria was clinically diagnosed malignant skin lesions. According to eligibility criteria we have enrolled 68 patients among which 3 patients refused to be included in the study and rest 5 patients were dropped out. A preformed data collection sheet was used as an important equipment of research. After proper explanation regarding study to the patients; informed written consent was taken from every respondent. Then direct interview approach was followed for data collection. For the allocated study period we investigated all cases and demographic, clinical (including a digital photograph) and histopathological details of each of the cases were collected.

Procedures of collecting data

We wish to classify all reports as per the recommendations of the European Network of Cancer Registries (2000) on the classification of skin lesions based on the ICD-O third edition according to the histology variable. Within the study period, the skin lesions were counted for Non-melanoma or Melanoma skin cancer after it is confirmed by histopathological diagnosis. Patients with a report both of BCC and SCC during the registration period would be counted separately as cases within the BCC and SCC analysis. For the study of the anatomical distribution, we calculated site-specific frequency based on the fourth digit of the ICD-O code. Various pattern of malignant skin lesions were sorted as per histological variation, clinical presentations & staging and we also would calculate age and sex specific frequency of these malignant skin lesions along with other variables of interest. We wish to perform all analyses with SPSS.

Statisticical analysis

Statistical analysis were carried out by using the Statistical Package for Social Sciences version 16.0 for Windows (SPSS Inc., Chicago, Illinois, USA). The mean values were calculated for continuous variables. The quantitative observations were indicated by frequencies and percentages. Chi-Square test was used to analyze the categorical variables, shown with cross tabulation. Student t-test were used for continuous variables. P values <0.05 were considered as statistically significant.

Results

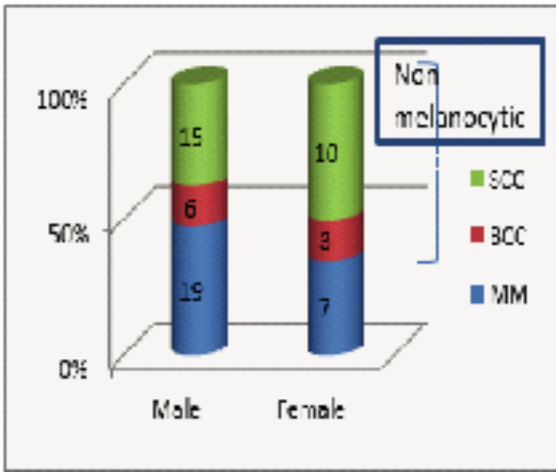
The present study was conducted among the patients of Dermatology, Surgery, Plastic surgery and Oncology wards of KYAMCH for one year period. The main aim of this study was to determine the frequency and pattern of different malignant skin lesions in our situation. In this study, 68 respondents were enrolled among which 3 patients denied to continue and rest 5 patients dropped out. Then the according to age, sex, area of residence, economic status as well as distribution of lesion according to anatomical site, stage data were gathered, tabulated, analysed, tested the level of significance with chi-square test and then the whole collected data were finalized and presented in this research paper. The individual categorizations are being given from the next page as the observations and results of this study. Out of 60 patients maximum patients belong to age group >60 years (38.83%) followed by age group 41-50 years (33.33%). The minimum number of patients were from 21-30 years age group (15%). (Table I)

Table-I : Distribution of age (n=60)

Age group (yr)	Number of patients		
	Male (n=40)	Female (n=20)	Total (%)
21 -30	06(15%)	03(15%)	9(15%)
31 -40	03(7.5%)	01(5%)	4(6.67%)
41 -50	12(30%)	08(40%)	20(33.33 %)
51 -60	01(2.5%)	03(15%)	4(6.67%)
>60	17(42.5%)	06(30%)	23(38.33 %)
Total	40(66.67 %)	20(33.33 %)	60(100%)
Mean age SD □□	58.79 □□ 6.54	55.20 □□ 6.29	

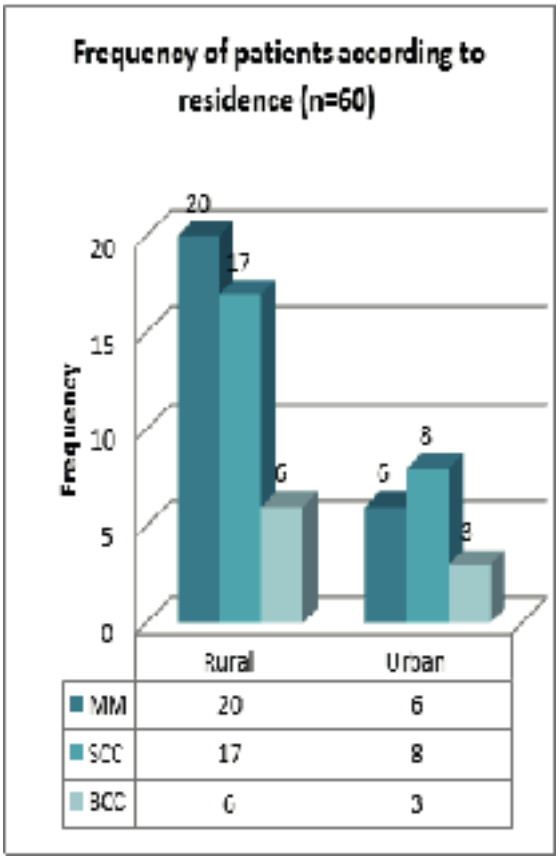
Out of 60 affected patients 40 (66.67%) were male and rest 20 (33.33%) were female. (Figure I).

Figure-II :Sex distribution of patients (n=60)-



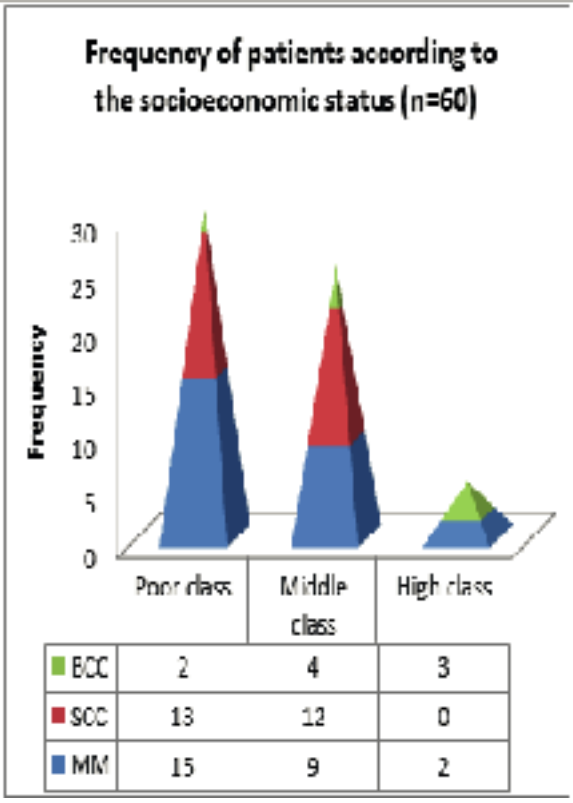
Most of the patients in this study were the inhabitants of rural area (71.67%) followed by urban area (28.33%). (Figure II)

Figure-III : Residence of patients (n = 60)



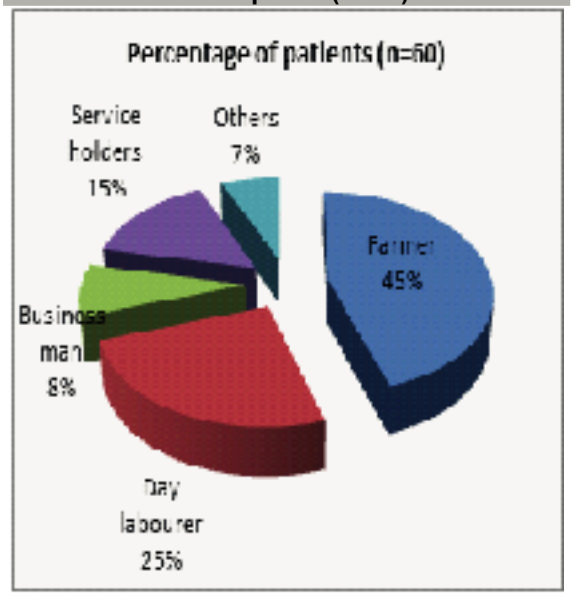
Out of 60 patients 30 (50%) were from lower class followed by middle class (41.67%%) and the least number of patients from upper class (8.33%). (Figure IV).

Figure-IV :Distribution of socioeconomic status of the study population (n = 60)



The highest number of patients were service farmers (45%) followed by day labourer (25%). The minimum number of patients were others (7%) as like as housewives, unemployed, students etc (Figure V)

Figure-V: Distribution of patients according to occupation(n=60)



The non-melanocytic cancer(56.67%) frequency is more than malignant melanoma (43.33%) (Table II)

Table-II: Distribution of frequency of different malignant lesions of skin (n=60)

Sl.	Pattern of malignant skin lesion	Total %	
1)	Malignant Melanoma	26	43.33%
2)	Squamous cell carcinoma	25	41.67%
3)	Basal cell carcinoma	9	15%
4)	Total	60	100%

The non-melanocytic cancers were very much common in head-neck region whereas the MM was commonly found in lower limb (Table III).

Table-III: Distribution of malignant skin lesion according to the anatomical site(n=60)

Sl.	Pattern of Malignant skin lesion	Head -Neck	Arm	Lower limb	Trunk	Total	p value
1)	Malignant melanoma	4(15.38%)	2(7.69%)	18(69.23%)	2(7.69%)	26(43.33%)	0.000186S
2)	Squamous cell carcinoma	11 (44%)	6(24%)	6(22%)	2(8%)	25(100%)	
3)	Basal cell carcinoma	7(77.78%)	2 (22.22%)	0(0%)	0 (0%)	9(100%)	
4)	Total	22(36.67%)	10(16.67%)	24(40%)	4(6.67%)	60(100%)	

Statistics was calculated by chi square test.
S: Significant.

Most of the non-melanocytic cancers (SCC) were presented as Grade 2 (48%) whereas the minimum was early presentation as Grade I (8%) (Table IV).

Table-IV : Distribution of patients with cutaneous squamous cell carcinoma (n=25)

Sl.	Grading	Male	Female	Total	p value
1.	Grade I (well differentiated)	2(13.33%)	0(0%)	2(8%)	0.152^{NS}
2.	Grade 2 (Moderately differentiated	5(33.33%)	7(70%)	12(48%)	
3.	Grade 3 (poorly differentiated)	8(53.33%)	3(30%)	11(44%)	
4.	Total	15(60%)	10(40%)	25(100%)	

Statistics was calculated by chi-square test.
NS: Not significant.

Out of 26 patients with diagnosis of malignant melanoma maximum patients presented at stage II (69.23%) (Table V).

Table-V: Distribution of patients with cutaneous Malignant melanoma (n=26)

Sl.	Grading	Male	Female	Total	p value
1.	Stage I	1(5.26%)	0(0%)	1(3.85%)	0.825^{NS}
2.	Stage II	13(68.42%)	5(71.42%)	18(69.23%)	
3.	Stage III	5(26.31%)	2(28.57%)	7(26.92%)	
4.	Total	19(73.08%)	7(26.92%)	26(100%)	

Statistics was calculated by chi-square test.
NS: Not significant.

Discussion

The incidence of melanoma is much lower than that of NMSCs; but it is the most rapidly increasing cancer in the white population[12]. Meanwhile, the incidence of skin cancers in Asians was thought to be relatively low compared to Caucasians. However, a number of epidemiologic studies from Korea and Japan show a gradual increase in incidence of skin cancers in South-East Asia[13].

The incidence of non-melanocytic skin cancer in Australia is thehighest reported in the world. The United States yearly adjustedincidence of non-melanocytic skin cancer among whites was 233/100 000 population. The incidence of non-melanocytic skin cancer was significantly higher in men than women. This agrees with other surveys[14]. Morison et al proposed that the increased risk among men was due to their greater likelihood of being employed out of doors and thus receiving more exposure to sunlight[15].These workers also noted that men have a lower minimal erythemal dose and therefore may be more susceptible to the carcinogenic effect of ultraviolet radiation, the cause of skin erythema. This has been reported only once and requires further investigation, as such a finding would be important for theories on the development of non-melanocytic skin cancer. In our study we have got that non-melanocytic skin malignancy were inclined to male gender may be, due to same explanation. Here out of 37 (61.66%) non-melanocytic cancer patients 24 (64.86%) were male and 13 (35.13%) were female which may consistent with the previous study.

The increasing diagnostic rate in our study reflects this worldwide tendency[16]. Our high average diagnostic rate compared to other reports in Korea[17] can be attributed to a few reasons. First, our hospital is the tertiary medical center where diagnosis of primary skin cancer and its treatment such as surgical excision are feasible. Second, because a large proportion of populationin our community is engaged in farming, they have more chance to have an excessive exposure to UV radiation. Third, the proportion of old ages to young is higher than other districts that are more urbanized.

The incidence of cutaneous malignant masses increases with age due to the patients' increased susceptibility and the cumulative dose of UVR. In this study, the most frequent age group was the sixth decade, and patients over 40 years of age accounted for 95.8% of our population. The average age of the patients was 58 years. The incidence of cutaneous malignant masses has been shown to be higher in males than in females due to their more extensive exposure to sunlight. However, in recent studies, Lee et al.[18] reported a ratio of 1.19:1, and Seo et al.[19] reported a ratio of 1.1:1, showing no significant differences by gender. Shin et al.[20], Yoon et al.[21], and Jeong et al.[22] have reported ratios of 0.94:1, 0.94:1, and 0.98:1, respectively, thus indicating a higher incidence in females. In this study, males were more frequently affected, with a male to female ratio of 2:1.

Many studies have demonstrated that the predilection site of cutaneous malignant masses is in the face. Bart et al.[23] noted a higher rate of occurrence and recurrence in masses located on the ear and lips. Buettner and Raasch [24] estimated the body site-specific inci-dence rate for cutaneous malignant masses and reported that it was most commonly found in the lip, orbit and naso-labial areas.Kim et al.[25] reported that BCC had occurred on the cheek, followed by the periorbital area and nose; Jung and Kim[26] reported that, BCC was found most frequently on the nose (38.4%). Kim et al.[27] also reported the nose as being the most common region for BCC (47.3%). In the case of squamous cell carcinoma, Jung and Kim[26] reported that it occurred most commonly on the lower lip (41%), followed by the cheek (23.2%), where as Kim et al.[27] reported that it occurred on the lower lip (26.2%) and cheek (21.4%). However, the predilection site of each study was ambiguous because the descriptions of the cutaneous malignant mass sites differed due to the use of general terminology, rather than anatomical terminology. In our study, in case of non-melanocytic skin cancers we have got the commonest anatomical site was head-neck area where we have got 18 (30%) cases that is consistent with the previous studies.

Maximum cases of malignant melanoma were seen in leg (30%). that is also consistent with the previous study. From the point of view of staging, the maximum melanoma belongs to stage 2 whereas the maximum non-melanocytic cancer belong to grade 2. As most of our patients came from low socioeconomic status and rural area; most of them neglected the initiation of the disease. This may be the vital cause of delayed presentation of the respondents.

Conclusion

Malignant skin lesions usually show the insidious onset. Sometimes these are very slow growing and sometimes these are very much aggressive. Though these lesions are very much aggressive in the white people but our experience says that the diseases are not very much uncommon in Bangladesh. The common pattern of presentation of malignant skin lesions are melanocytic cancers and non-melanocytic cancers. Malignant melanoma is the melanocytic cancer whereas the squamous cell carcinoma and basal cell carcinoma are the commonest pattern of non-melanocytic cancer. As ultraviolet ray is the risk factors for most of the skin malignancy farmers and day labourers are mostly affected by the diseases in their sun exposed part. Most of the patients in our country present in advanced stage as many of them from the poor socioeconomic status. Negligency is one of the vital cause of delayed presentation which has very intimate relation with socioeconomic status.

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