A Clinical and Histopathological Study of Skin Cancer in Patients At Al-Kindy Teaching Hospital

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ABSTRACT:

BACKGROUND:

Skin cancer is an uncontrolled skin cell growth. It most often forms on regions of the skin that are exposed to the rays of the sun. Skin cancer impacts people of all colors and races although there is a higher risk for those with fair skin who develop quick sun burns. Basal cell carcinoma, squamous cell carcinoma, and melanoma are three major types.

STUDY OBJECTIVE:

To study the outcomes of histopathological analysis of skin biopsies and their correlation with age, patient gender and frequency of the three types of skin cancer.

PATIENTS AND PROCEDURES:

A Retrospective cross sectional study was carried out in the Al-Kindy teaching hospital's clinical laboratory. In this study, surgical specimens of skin lesions that were collected from 2015 through 2018 by open biopsy of all patients were selected. Seventy cases of 39 female and 31 male patients have been reviewed.

RESULTS:

Out of 70 sample of skin biopsies, female percentage was 55.71% (no:39), while male percentage was 44.29% (no:31). The commonest type of skin cancer was basal cell carcinoma (68.6%) followed by squamous cell carcinoma (22.9%), followed by melanoma (8.6%). The peak incidence of BCC was at age 50-59 yrs. & 60-69 yrs. The peak incidence of SCC was at age 60-69 yrs. While melanoma occur in different groups of age mostly in 30-39 and 60-69 years age group. The peak incidence of BCC and SCC was at year 2016.

CONCLUSION:

Skin cancer is more in female than male and more at age 50-70 year. The commonest type of skin cancer was BCC followed by SCC followed by melanoma.

KEY WORDS: Skin cancer , Melanoma, Basal cell carcinoma.

INTRODUCTION:

Nonmelanoma skin cancer (NMSC) is the commonest cancer in Caucasians [1]. Basal cell carcinoma (BCC) accounts for 75% of cases, and is a slow-growing, locally invasive epidermal tumor with a metastatic rate of <0.1%. [2,3] . Cutaneous squamous cell carcinoma (SCC) accounts for the majority of the remainder of cases of NMSC and arises from dysplastic epidermal keratinocytes [4]. In contrast to BCC, SCC has a significant recognized rate of metastasis (0.3–3.7%), the majority of which occur from within a subgroup of high-risk SCC. [5].

Incidence of NMSC has significantly increased up to 10% per annum, and currently 2–3 million new cases of NMSC are diagnosed worldwide every year [6]. The development of NMSC is due to a combination of environmental, genetic and phenotypical factors [7]. One of the most important of these risk factors is the environmental exposure to ultraviolet (UV) light, evidenced by the increase in incidence in sunnier climates, the lower rates in darker skin types and the majority of tumors arising over sun-exposed skin. BCC has been more associated with intermittent and childhood sun exposure, with SCC more related to chronic UV exposure [8]. Phototherapy, utilized in the treatment of various skin diseases, is also associated with an increased risk of NMSC. This association is

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stronger with psoralen photo chemotherapy than with narrowband UVB [9] . UV light is thought to induce direct DNA mutation via covalent bonding between adjacent pyrimidine (UVB) and formation of reactive oxygen species (UVA). [10]. Use of tanning devices is associated with 2.5-fold increase in SCC risk and 1.5-fold increase in BCC risk [11]. BCC grows slowly and can damage the tissue around it but is unlikely to spread to distant areas or result in death, it appear painless raised area of the skin, may be shiny with small blood vessels running over it or may be present as a raised area with an ulcer tissue [12].

Squamous cell carcinoma (SCC) is a common skin cancer in humans. About 700,000 new cases of this skin cancer are diagnosed in the United States each year [13] . This skin cancer tends to develop on skin that has been exposed to the sun for years. It is most frequently seen on sun-exposed areas, such as the head, neck, and back of the hands. Women frequently get SCC on their lower legs. It is possible to get SCC on any part of the body, including the inside of the mouth, lips, and genitals [14]. People who use tanning beds have a much higher risk of getting SCC, they also tend to get SCC earlier in life. SCC can spread to other parts of the body. With early diagnosis and treatment, SCC is highly curable [15].

Melanoma is a malignant tumor of melanocytes that can spread to other organs of the body, resulting in severe and/or lethal malignancies. Melanoma is less common but much more deadly than basal or squamous cell carcinoma , the incidence of these lesions has increased dramatically over the past several decades, at least in part as a result of increasing sun exposure and/or higher detection rates resulting from vigorous surveillance[16]. Melanocytes are pigment-producing cells found in the deep layer of the epidermis and are originated from melanocytes stem cells through a cellular process called melanogenesis. Several genes and epigenetic and micro-environmental factors are involved in this process via the regulation and maintenance of the balance between melanocytes stem cells proliferation and their differentiation into melanocytes. Dysregulation of this balance through gain or loss of function of key genes implicated in the control and regulation of cell cycle progression and/or differentiation results in melanoma initiation and progression[17]. As with other cutaneous malignancies, sunlight plays an important role in the development of melanoma. The risk of melanoma is higher in fair-skinned people, especially those with blond or red hair who sunburn and freckle easily, than in people with darker complexions. Sunlight, however, is not the only predisposing factor; hereditary predisposition also plays a role, under familial dysplastic nevus syndrome [18].

PATIENTS AND METHODS:

A retrospective cross-sectional study was carried out in the Al-Kindy teaching hospital's clinical laboratory. In this study, surgical specimens of skin lesions that were collected from 2015 through 2018 by open biopsy of all patients were selected. Seventy cases of 39 female and 31 male patients have been reviewed.

The clinical data reported include the sex, age, and details of the specimen's histopathological exams.

Work procedure: Patient specimens are drawn from all age groups to be grouped into eight age groups (20-29,30-39,40-49,50-59,60-69,70-79,80-89, >90). Patient sex also for analysis is grouped into male and female. Histopathological test results were divided into 3 categories. Histologic diagnosis was made depending on light microscopy of the specimens stained with hematoxylin and eosin.

Statistical analysis: statistical data is analyzed using the Statistical Package for Social Science (SPSS) and the 2010 Excel Microsoft. Descriptive data are illustrated in tables, graphs in the form of numbers, percentages. Calculation of the number of skin cancer variants by age and gender to determine the relationship between them. Looking for the meaning, T-test would be added. When P-value is less than 0.05 this is regarded as statistically significant.

RESULTS:

1-Diagnosis distribution 48 of 70 cases (68.57%) were Basal cell carcinoma (figure1 1) . 16 cases (22.86%) were squamous cell carcinoma (figure 2) and 6 cases (8.57%) were melanoma (figure 3). These results are shown in figure (4).

Figure 1:Basal cell carcinoma.

Figure 2: Squamous cell carcinoma.

Figure 3: Malignant Melanoma.

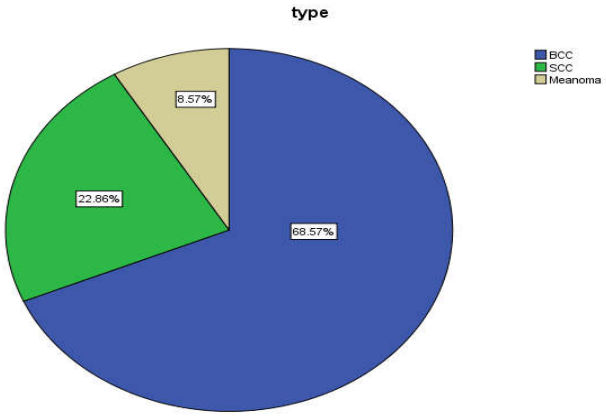

Figure 4: Diagnosis distribution

Type

		Frequency	Percent
Valid	BCC	48	68.6
	SCC	16	22.9
	Melanoma	6	8.6
	Total	70	100.0

2- Gender distribution

All cases of skin cancer were taken from Al Kindy Teaching Hospital during the period included 39 (55.71%) female cases and 31 (44.29%) male cases . With female to male ratio of 5.1 : 4 as shown in figure (5) .

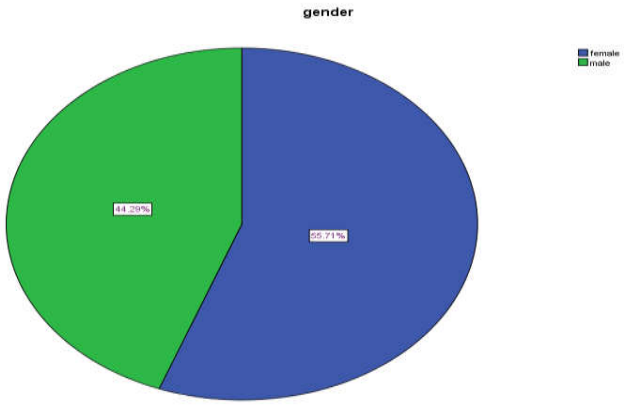

Figure 5:Gender distribution.

Gender

	Frequency	Percent
Valid female	39	55.7
Male	31	44.3
Total	70	100.0

3- Age distribution

Most BCC were seen in 50-59 and 60-69 years age group closely followed by 70-79 years age group . Least number of BCC were seen in less than 50 and more than 80 years .

SCC were seen mostly in 60-69 years age group. Least number of SCC were seen in the other ages . While melanoma occur in different groups of age mostly in 30-39 and 60-69 years age group , as shown in figure (6) .

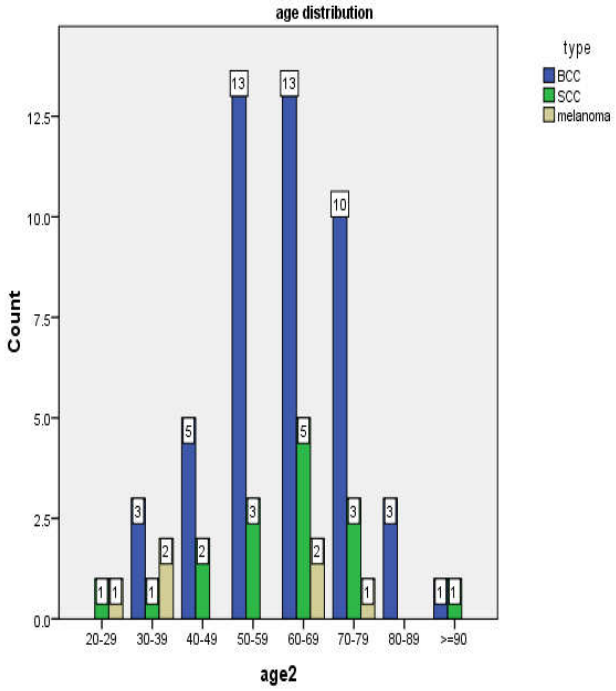

Figure 6:Age distribution.

age distribution

		Type			
		BCC	SCC	Melanoma	Total
age2	20-29	0	1	1	2
	30-39	3	1	2	6
	40-49	5	2	0	7
	50-59	13	3	0	16
	60-69	13	5	2	20
	70-79	10	3	1	14
	80-89	3	0	0	3
	>=90	1	1	0	2
Total		48	16	6	70

4- year distribution
The cases have been taken from 2015 to 2018 .
In 2015 there were 6 cases for all skin cancer (3 BCC , 1SCC, 2 Melanoma) .
In 2016 there were 28 cases (18 BCC , 9 SCC , 1 melanoma) .
In 2017 there were 19 cases (14 BCC , 3 SCC , 2 melanoma).
In 2018 there were 17 cases (13 BCC , 3 SCC , 1 melanoma). As shown in figure (7) .

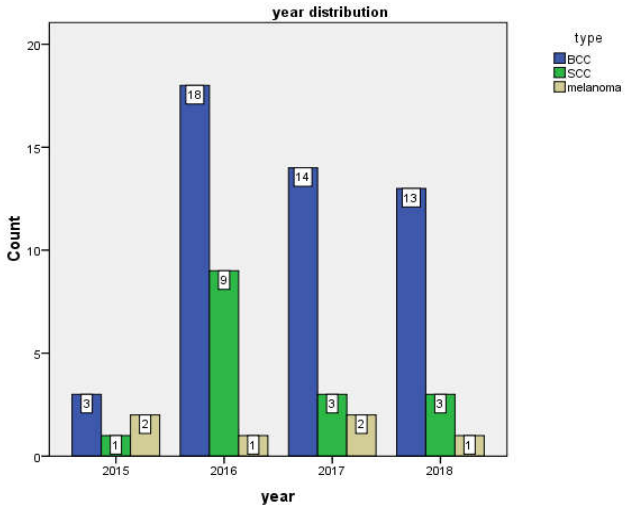

figure 7: Year distribution.

Year distribution

		Type			
		BCC	SCC	Melanoma	Total
Year	2015	3	1	2	6
	2016	18	9	1	28
	2017	14	3	2	19
	2018	13	3	1	17
Total		48	16	6	70

DISCUSSION:

Skin malignancy is the uncontrolled development of disease cells in the skin. Whenever left untreated with particular kinds of skin disease, these cells can spread to different organs and tissues , for example, lymph nodes and bones. The analysis of skin cancer epidemiology promotes an understanding of the potential factors leading to lesion etiology. It immensely expanded everywhere throughout the world [19]. Overall, the occurrence of skin cancers is rising due to many factors, such as skin types, genetic factors, geographical factors, environmental and occupational factors (exposure to carcinogenic chemicals, degradation of ozone layer, ionizing radiation), medical factors (organ grafts, infections, diseases and Immunosuppression treatment) [20]

In our study, we found that basal cell carcinoma (68.57%) was the most common skin cancer followed by squamous cell carcinoma (22.86%) and then melanoma (8.57%), in line with a study in Egypt showing that basal cell carcinoma (77%) followed by squamous cell carcinoma (15%) and then melanoma (8%) [21].

The research in AL-Saudi Arabia found that basal cell carcinoma (51 per cent) was the most common skin cancer followed by squamous cell carcinoma (26 per cent) and then melanoma (12.5 per cent). [22]. The greater number of cases with non-melanoma (basal cell carcinoma and squamous cell carcinoma) skin cancer came from that most of the cases were people with outdoor jobs due to the accumulative effect of Ultra Violet Radiation and those individuals were more likely to come into contact with several chemicals and biologics. Research in Nigeria (sub-Saharan Africa) reveals, by comparison, that the most common skin cancer is squamous cell carcinoma (40%), followed by melanoma (34.4%) and then basal cell carcinomas (25.6%). The increased incidence of Squamous cell carcinoma exists as the most prevalent cutaneous malignancy secondary to chronic ulcers[23]. In our research we found that skin cancer is more frequent in female patients (55.71 percent) than in male patients (44.29 percent) with a ratio (F: M 5.1:4). It contrasts with a study conducted in Iraq from December 2010-2012 in seven teaching hospitals in Kurkh and Resafa serving Baghdad City that found skin cancer to be more common in men than women (M: F 1.6:1).[24]. One research in AL-Saudi Arabia found skin cancer to be more common in males than females (M: F 2.25:1). [25]. These variations may be linked to those patients ' number of hours of sun exposure and the number of cases. In our research, we observed that the peak occurrence of basal cell carcinomas was at (50-59) years of age and (60-69) years of age, while squamous cell carcinoma occurs mostly at (60-69) years of age, while melanoma occurs mostly at (30-39) and (60-69) years groups. This is in line with a research carried out in Egypt, the mean age of basal cell carcinomas (66 ± 10) years and squamous cell carcinoma (60 ± 5) years but varies in melanomas (54±3) years. [21].

CONCLUSION:

Basal cell carcinomas were the most prevalent type of skin cancer followed by Squamous cell carcinoma then melanoma. Skin cancer is more common in women than in men and is more prevalent in patients between the ages of 50 and 70.

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