Microscopic types of skin cancers in Diyala Governorate

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Abstract

Aim: To identify the types and pattern of skin cancer in Diyala governorate, Iraq.

Patients and methods: This cross-sectional study included analysis of the reported cases of malignant skin cancer. The study was used the available surveillance database for the disease from the health records of both of the consultatory clinic and general health department which both of them are following Diyala health directorate. Data of current study were collected for the period (2020-2023).

Results: 40 cases were enrolled in this study; their mean age was 69.75 years. Half of them were males and the other half were females. BCC was the commonest cancer with 65% incidence, SCC was 22.5%, Kaposi sarcoma 7.5% and finally Baso-squamous was 5%.

Conclusion: Skin cancer and cancer percentage were in increase pattern especially non-melanoma skin cancer. Most of non-melanoma skin cancers were basal cell carcinoma

Introduction

Globally, the prevalence of skin cancer is rising due to factors such as extended exposure to sunlight, shifting climate patterns, and personal and societal circumstances. Skin cancers in general comprise squamous cell carcinoma (SCC) and basal cell carcinoma (BCC), which are the two most common types of non-melanoma skin cancer (NMSC) and cutaneous melanoma (CM). Merkel cell carcinoma (MCC) is a unique chapter in the history of skin cancers. Traditionally categorized as a neuroendocrine tumor, MCC behaves most like colorectal cancer (CM) due to its strong tendency to invade lymph nodes (1).

Originating from epidermal cells, NMSC exhibits a common epidemiology, such as a higher incidence in patients who identify as Caucasian. Conversely, MCC is believed to originate from Merkel cells and is more common in equatorial regions, especially in persons who identify as white. The most common risk factor for BCC, SCC, and MCC is skin exposure to physical carcinogens, however the pathophysiology of all three cancers is complex. In fact, ultraviolet radiation (UVR) has the capacity to cause progenitor cells to undergo a malignant transformation (2).

Concurrent illnesses and specific therapies (such as psoriasis), long-term exposure to the human papilloma virus, medication-induced immunosuppression in transplant recipients, and targeted drugs used to treat other cancer types (most notably, melanoma) are additional risk factors for the development of BCC and SCC. Additionally, a number of research have shown that NMSC development is positively influenced by low socioeconomic position (3).

The area of dermatology has seen a major technological revolution in recent years, with consequences for clinical diagnosis and therapy. New imaging technologies have emerged as a result of people's increased need for less invasive

operations. and even medications that frequently avoid the necessity for skin tumor surgery (4).

The most prevalent cancer among white people is nonmelanoma skin cancer, and its frequency is still rising. The gold standard for diagnosing skin cancer is histologic examination; however, it has drawbacks, including the requirement to remove small amounts of tissue for ex-vivo study, which is typically carried out later in the disease. Due to these constraints, new noninvasive diagnostic techniques have been developed that provide in vivo, in situ, and real-time data without causing scarring (5).

The fact that these novel techniques offer dynamic information useful for the long-term tracking of various skin disorders is one of their key benefits. These noninvasive methods include optical coherence tomography, magnetic resonance imaging, high-frequency ultrasound imaging, and, more recently, reflectance confocal microscopy (RCM) (6).

RCM has been the subject of the most clinical trial research among the many diagnostic imaging technologies that have surfaced in recent years. Additionally, it has led to actual therapeutic applications, especially in the area of skin cancer. Its noninvasiveness and ability to produce real-time in vivo pictures with microscopic resolution comparable to traditional histology—with lateral and axial resolutions of up to 1μm and 3μm, respectively—are among its advantages (7).

A light source (usually a low-power diode laser), a condenser lens, an objective lens, a pinhole, and a detector make up an optical system, just like a confocal microscope. Because the tissue plane under study is conjugate to both the light source plane and the pinhole in front of the detector, it is known as confocal imaging. En face (horizontal) real-time images created by light reflected from a focus plane

are produced using RCM. Put otherwise, the pinhole rejects all light that is reflected by structures that are outside of this plane. Variations in the refractive indices of the various tissue and cell structures result in changes in image contrast. The maximum refractivity is found in structures holding melanin (melanosomes, melanocytes, melanophages, and pigmented keratinocytes, among others), followed by structures containing keratin (stratum corneum, infundibulum, and hair follicle). Air, serum, and nuclei have the lowest reflectivity. (8).

Aim of study

To identify the microscopic types and pattern of skin cancer in Diyala governorate, Iraq.

Patients and methods

This cross-sectional study included analysis of the reported cases of malignant skin cancer. The study was used the available surveillance database for the disease from the health records of both of the consultatory clinic and general health department which both of them are following Diyala health directorate. Data of current study were collected for the period (2020-2023). The diagnosis of cases achieved by physicians' works in these health associations. The privacy of the patients was preserved by coding their data into number to prevent bias. We collected information about age, gender, type of the lesion and their sites.

The data analysis was done by Statistical Package for Social Sciences (SPSS) version 26. We expressed the qualitative data by frequencies and the quantitative data such as weight and length by arithmetic mean. We used Chi square to analyze the association between variables when $P < 0.05$ considered significant.

Results

40 cases were enrolled in this study, their mean age was 69.75 years. their gender is demonstrated in table 1.

Table 1. gender

Gender	Frequency	Percent
Male	20	50.0
Female	20	50.0
Total	40	100.0

Their time of diagnosis is demonstrated in table 2.

Table 2. time of diagnosis

Year	Frequency	Percent
2020	2	5.0
2021	11	27.5
2022	14	35.0
2023	13	32.5
Total	40	100.0

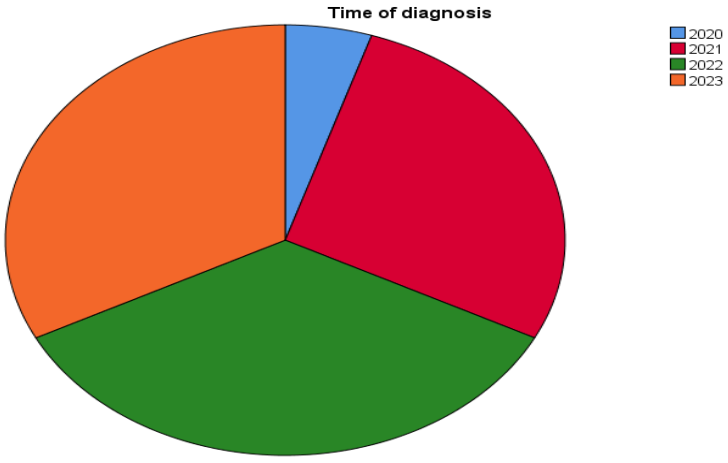

Figure 1. pie chart demonstrating the time of diagnosis

The types of skin cancer we found in our survey is demonstrated in table 3.

Table 3. types of skin cancers

Type of cancer	Frequency	Percent
Basal cell carcinoma	26	65.0
Squamous cell carcinoma	9	22.5
Baso-squamous carcinoma	2	5.0
Kaposi sarcoma	3	7.5
Total	40	100.0

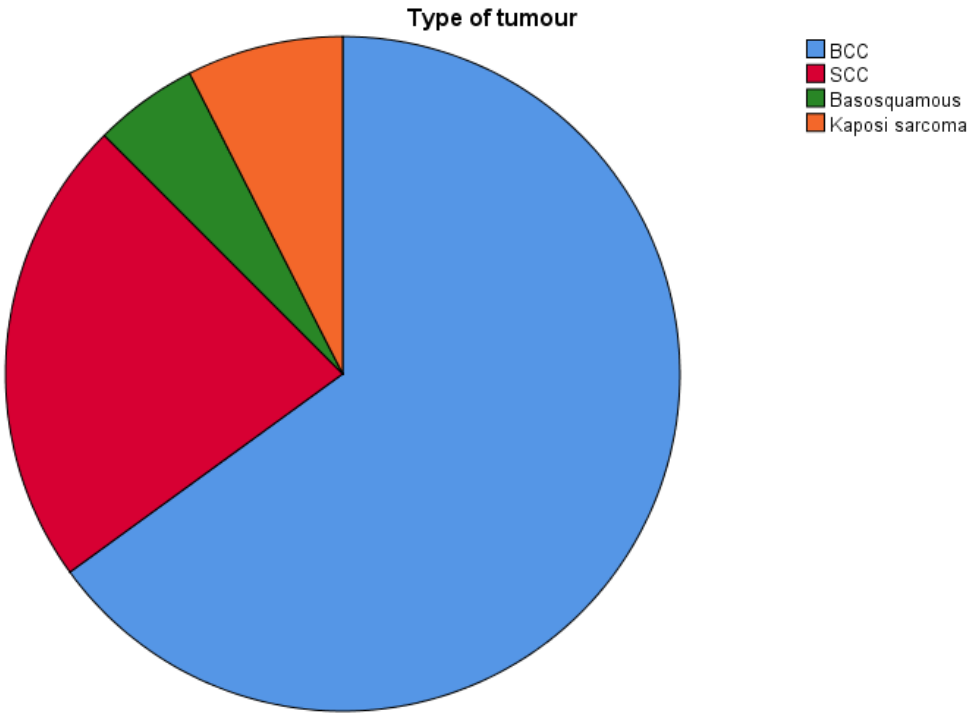

Figure 2. pie chart demonstrating the types of cancer in our survey.

The site of lesion is demonstrated in table 4.

Table 4. site of lesion

Site	Frequency	Percent
abdomen	2	5.0
back	9	22.5
chest	5	12.5
ear	2	5.0
face	5	12.5
scalp	5	12.5
trunk	3	7.5
upper extremity	9	22.5
Total	40	100.0

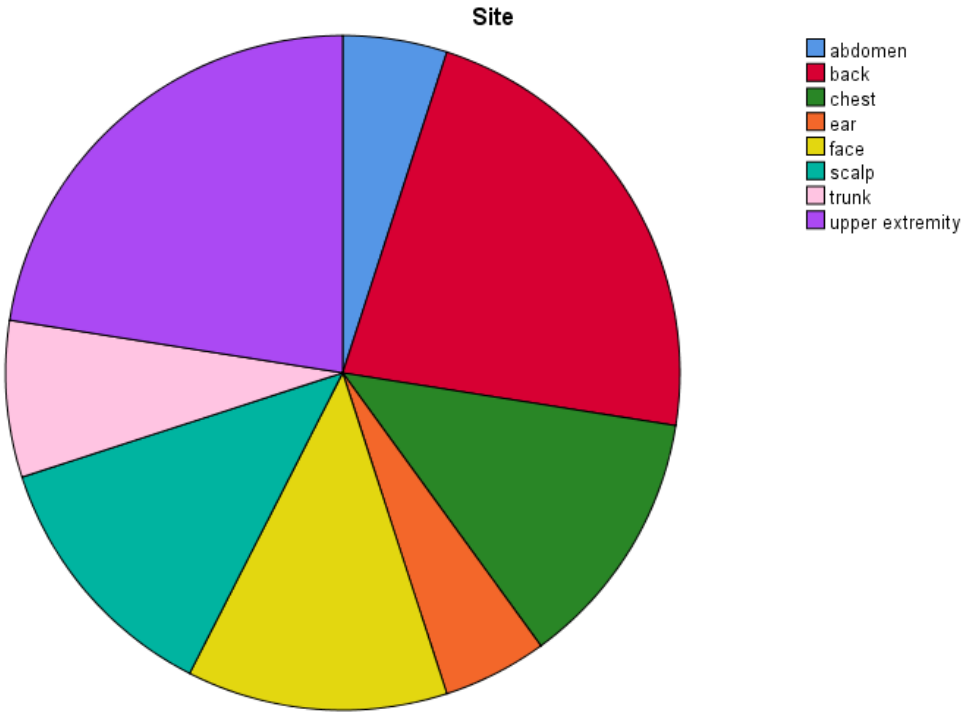

Figure 3. site of lesions

Discussion

This study shows that the majority of cancer cases occurred in the 65–70 year old age range and were similar in both males and females. Similar findings were reported in studies conducted in Australia (9) and Iran (10). This is the outcome of a population that is getting older due to prolonged lifetime solar exposure.

In this study, we did not demonstrate a significant relation for age and gender. Most of skin cancer cases in this study were Basal cell carcinoma (BCC), as found in the results of other studies like survey in UK (11).

Numerous factors, including skin types, genetics, geography, occupational factors (exposure to chemicals known to cause cancer, ozone depletion, and ionizing radiation), and medical factors (infections, organ transplants, and immunosuppressive therapy) are contributing to the rise in the incidence of skin tumors worldwide (12).

Non-melanoma skin cancers (NMSC) are linked to a higher risk in older populations, which is one of the causes contributing to the reported rise in skin cancer rates. Still, studies have shown that increasing exposure to UV light at work and during leisure has a significant role. Research indicates that indoor tanning is significantly connected with an elevated risk of BCC and SCC, with a larger risk with use in early life (<25 years). Women <40 years old, for instance, showed a consistent linear increase in BCC incidence rates of 6.3% between 1973 and 2009 (13).

The development of BCC is mostly caused by intense UV exposure during infancy and adolescence, whereas the development of SCC is associated with chronic, cumulative UV exposure over several decades. Even though death rates are modest, KSC is becoming a bigger issue for healthcare systems, leading to serious

morbidity. White populations are experiencing a sharp rise in cutaneous melanoma cases, with an estimated yearly increase of 3-7% during the previous few decades (14).

Conclusion

Skin cancer and cancer percentage were in increase pattern especially non-melanoma skin cancer. Most of non-melanoma skin cancers were basal cell carcinoma. We recommend conducting more studies on this topic to decrease the incidence and morbidity.