



Original Article

Prevalence of skin cancer based on skin biopsies in Bir hospital, Nepal

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ABSTRACT

Background: Cancer, one of the most dreaded non-communicable diseases has become an important contributor to the global burden of diseases. The incidence of skin cancer is rising. Clinical history, physical examination, laboratory investigations including biopsy are different modalities for the diagnosis of the disease. This study aimed to find the prevalence of skin cancer among patients visiting Bir hospital.

Materials and Methods: This was a retrospective study carried out in the National Academy of Medical Science, Bir Hospital from Baishakh 1st 2071 to 30th Poush 2075. It included all the skin malignancies and pre-invasive lesions received and diagnosed in the department of pathology.

Results: A total number of 1555 skin biopsies were obtained in the past five years where we diagnosed a total of 165 (10 %) cases as malignant which included the premalignant cases too. The most affected age group was 66 to 75 years (29 %) with 55% male and 45% females. Our data showed head and neck was the most common site occupying 67% of the total case followed by lower limbs 15%. Our study also revealed that 40% of malignant cases were basal cell carcinoma which was followed by squamous cell carcinoma comprised 36% and malignant melanoma (15%).

Conclusions: In this study, basal cell carcinoma was the most common malignancy followed by squamous cell carcinoma and malignant melanoma. Head and neck was the most common site.

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INTRODUCTION

The incidence and mortality of cancer are increasing worldwide, which are probably due to aging, growth of the population and there is marked geographic diversity in the prevalence and distribution of cancer.¹ In recent years skin malignancies is also increasing. Skin cancer is divided into malignant melanoma and non-melanoma skin cancer. According to Globocan 2020 AD, non-melanoma skin cancer is the 5th most commonly occurring cancer in men and women, with over 1 million diagnoses worldwide. Meanwhile, melanoma of the skin was the 17th most commonly occurring cancer in both genders.²

Squamous cell carcinoma (SCC) and basal cell

carcinoma(BCC) are the two most common skin malignancies worldwide.³ However most of the data are based on white populations of European, American, and Australian origin.⁴ Few studies in Asian populations suggest they have skin types that lower the risk to them from non-melanotic skin cancer.⁵ However, Asians as a whole are not a homogenous population, different regions have a wide range of skin types.⁶ Studies show that there is as many as 50-fold to 100-fold differences in incidence rates for BCC and SCC, even within populations of Asians with the same Fitzpatrick skin type.⁷

According to the World Health Organization, long-term repeated sun exposure and decreased latitude in some places are considered contributing factors for non-melanotic skin cancer while intermittent cumulative sun exposure is considered as a risk for melanotic skin cancer.⁸ For skin cancer, histological diagnosis is a criterion standard for final diagnosis and proper staging. Underuse of biopsy may result in misdiagnosis.⁹

The main objective of the study was to know the prevalence of skin cancer in the Nepalese population at our center histomorphological distribution of skin cancer in our population.

MATERIALS AND METHODS

This was a retrospective observational study carried out in the Department of Pathology of the National Academy of Medical Science, Bir Hospital. After the departmental and ethical clearance from institutional review board of NAMS, the skin biopsies that were received in the department of pathology were proceeded according to the laboratory protocol. The slides after staining were reviewed by a pathology resident and then a consultant pathologist. The WHO classification of skin tumors, 4th edition was used for histological classification of skin cancer. The data were

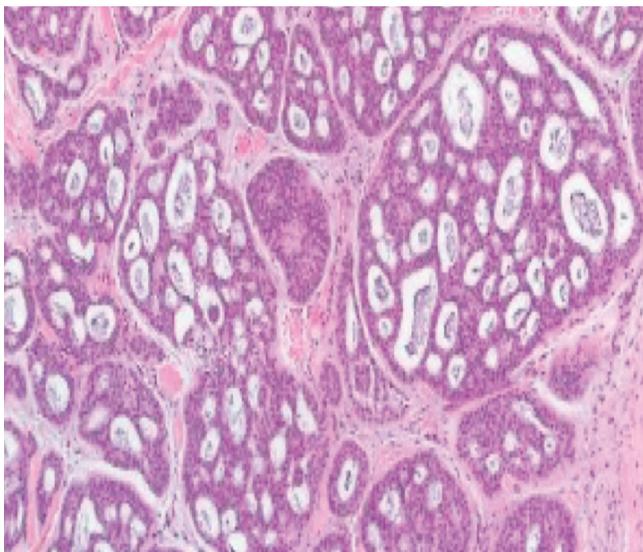


Figure 1: Photomicrograph showing proliferation of basaloid cells with peripheral palisading and numerous microcystic areas (HE stain; X40).

Table 1: Agewise distribution of patients with premalignant and malignant lesions

| Age range | No of cases |
|-----------|-------------|
| < 15 | 2 |
| 16-25 | 7 |
| 26-35 | 5 |
| 36-45 | 22 |
| 46-55 | 21 |
| 56-65 | 29 |
| 66-75 | 48 |
| >75 | 31 |

Table 2: Site of distribution of malignant lesions (n=165)

| Sites of distribution | No of cases (%) |
|-----------------------|-----------------|
| Head and neck | 108 (65.45) |
| Back | 5 (3.03) |
| Chest and abdomen | 7 (4.24) |
| Genitals | 4 (2.42) |
| Upper extremities | 15 (6.09) |
| Lower extremities | 26 (15.75) |

collected using a structured proforma covering all the relevant details. The data were then entered into Microsoft Excel and analyzed. The results were then presented in graphs, tables, and charts.

RESULTS

A total number of 1555 skin biopsies were evaluated in a five-year duration. Out of which 165 (10.6%) cases were diagnosed as malignant which included the premalignant Bowen's disease as well. In our study, the most commonly affected age group was from 66 to 75 years followed by > 75 years (n=48 and 31 respectively), with a male to female ratio of 1:1.03. (Table 1)

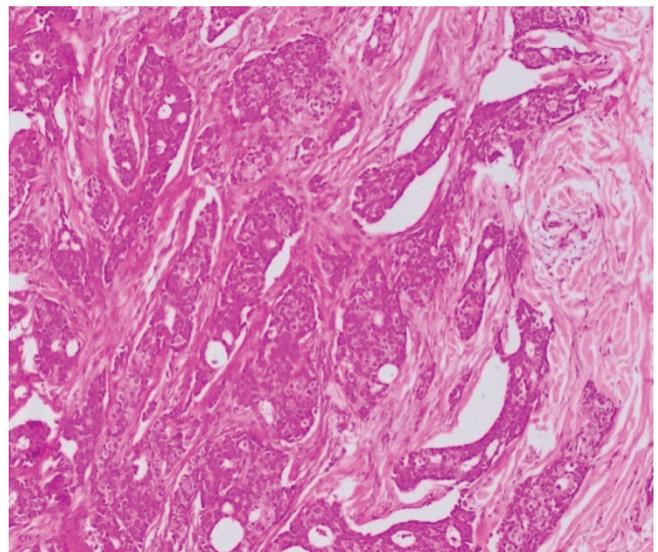


Figure 2: Photomicrograph showing nests of atypical squamoid cells infiltrating the stroma (HE stain; X40).

Most of the skin biopsies were benign (1385/1555; 89.06%). We obtained 157 cases (10%) of malignant lesions, 8 premalignant lesions, and 5 precursor lesions. We included premalignant cases and malignant lesions to analyze other parameters.

The most common sites of malignant lesions were head and neck followed by upper extremities (Table 2). In the head and neck region, the most common site for skin carcinoma was the nose (n= 27; 25%) followed by the cheek (n=20; 19%), forehead (n=19; 18%), eyelid(n=15; 13.88%), and scalp (n=13; 12.03%).

Basal cell carcinoma (40%) was the most common malignancy (fig. 1), followed by squamous cell carcinoma (36%) and malignant melanoma (15%). (fig. 2 and 3).

DISCUSSION

The incidence of skin cancer is increasing worldwide which is also supported by our study that showed 10% of total skin cases as malignant. Numerous research and studies have proven ultraviolet sun rays as the most significant contributing factor to cause skin cancers.⁸ The sun-exposed areas like the head and neck were found to be the most common sites for non-melanotic skin cancer and lower limb for melanomas in our data. Similarly, in the head and neck region nose, nose followed by cheek and forehead were the most prevalent sites. In accordance with my findings, Lal ST et al. also got the majority of cases (79.76%) in the head and neck area.¹⁰ Likewise Carl G et al. found in their study that basal cell carcinoma was most common in the head and scalp region with the nose being the most affected area.¹¹ Melanoma was common in lower extremities in the study carried out by Thapa S et al. which was in concordance with our study.¹²

The majority of the affected age group was 66-75 years which is most probably due to prolonged exposure to sun rays. These findings were consistent with the study of Kyuncuer A et al.¹³ and Adhikari RC et al. where the mean age of the patient was 68.5 ± 13 and 61 years respectively.¹⁴

In our data, 40% of the skin cancers were basal cell carcinoma representing the most common type of cutaneous malignancy. They were more prevalent in elderly male populations with head and neck being the most common site. Our results were similar to recent updates of WHO classification of skin tumors which says basal cell carcinoma is the most common malignancy in humans occurring in an individual with high sun exposure and in anatomical sites exposed more to the sunlight.¹⁵ Our study also showed a nodular variant of basal cell carcinoma as the most frequent subtype followed by basosquamous basal cell carcinoma which was similar to the study done by Kyuncuer A¹³ where the nodular variant was more frequent.

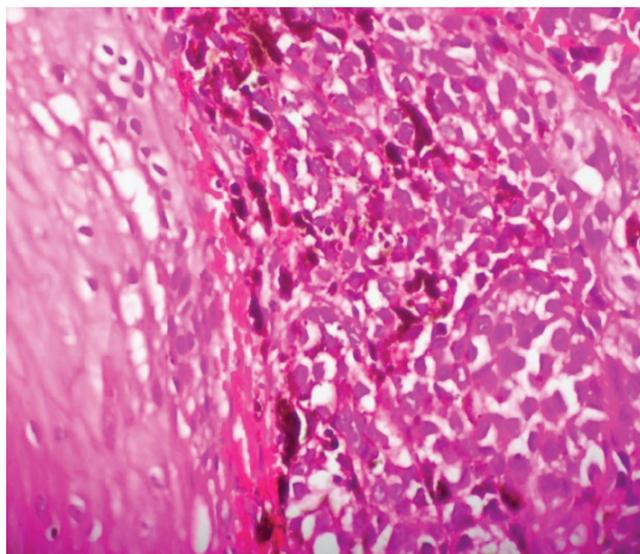


Figure 3: Photomicrograph showing atypical cells that are moderately pleomorphic and have round to oval nuclei with prominent eosinophilic nucleoli and infiltrating the dermis. Pigmentation is also noted. (HE stain; X400).

SCC (36%) was the second most common malignancy in our study affecting chronic sun-exposed skin of elderly individuals. Both males and females are equally affected. This finding was similar to the study of Adhikari RC et al. where squamous cell carcinoma constituted the second most common (26%) of the total case.¹⁴ However in contrast to our study Sherpa P et al. reported squamous cell carcinoma as the most frequent carcinoma followed by basal cell carcinoma.¹⁶ Out of 58 cases of Squamous cell carcinoma NOS, 35 cases (60%) were well-differentiated carcinoma which also included Keratoacanthoma and Verrucous carcinoma, 18 cases (31%) were moderately differentiated, and 5 cases (9%) were poorly differentiated carcinoma respectively. In accordance with our study Pyne j et al also got similar results on histological grading of squamous cell carcinoma. In their study, well-differentiated carcinoma was 87% followed by moderately differentiated carcinoma 11% and poorly differentiated carcinoma 2%.¹⁷

Furthermore, Schmitz L¹⁸ et al. also suggested grading squamous cell carcinoma whenever possible which guides the clinician to separate the skin cancer into low risk and high-risk malignancy and decide treatment options.¹⁸

In our study melanoma comprised 15% of the total skin cancer cases, more frequent in an elderly male with lower extremities being the commonly affected site. In accordance with our study, Matthews NH et al. also reported that melanoma was mostly prevalent among elderly people. However, a woman was more susceptible among adolescents and young adults and men were susceptible among people above 40 years of age. In their study lower extremities were the common site among males and back and shoulder in women.¹⁹ Recent updates classify melanoma into lesions arising from sun-exposed areas and sun shielded areas.

The sun-exposed melanoma is usually associated with cumulative sun damage.²⁰

Squamous cell carcinoma in situ is a carcinoma characterized by full-thickness dysplasia and confined to the epidermis and superficial adnexal epithelium. We reported 8 cases of Bowen's disease mostly affecting the elderly group in the past 5 years. Similarly in their study, Yanofsky Vr et al. saw the most affected age group was above 60 years and the site was mostly in sun-exposed areas of the head and neck. Also, it is considered as low-grade Squamous cell carcinoma with the majority of the study suggesting the risk of progression to invasive squamous cell carcinoma is 3-5%.²¹

CONCLUSIONS

Though there are not enough studies about the prevalence of skin cancer in Nepal. From our study, we can conclude that skin cancer is increasing in Nepal. Basal cell carcinoma is the most common malignancy followed by squamous cell carcinoma where the head and neck are the most common site of distribution.

Conflict of Interest: None

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