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CLINICOPATHOLOGICAL FEATURES OF CUTANEOUS MELANOMA AMONG PATIENTS AT KENYATTA NATIONAL HOSPITAL

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CLINICOPATHOLOGICAL FEATURES OF CUTANEOUS MELANOMA AMONG PATIENTS AT KENYATTA NATIONAL HOSPITAL

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ABSTRACT

Objectives: **To describe the anatomical location affected by the Malignant Melanoma lesion; To describe the histological characteristics of cutaneous Malignant Melanoma; To describe the clinical staging of patients presenting with Malignant Melanoma of the skin.**

Design: **A Cross-sectional descriptive study conducted over 6 months**

Setting: **Kenyatta National Hospital Plastic Surgery ward, General Surgery Wards, Surgical Out-Patient Clinic and Accident and Emergency Department.**

Subjects: **Patients with skin lesions confirmed on incisional biopsy, to be malignant melanoma.**

Interventions: **The patients underwent excision or amputation of the site affected by the melanoma lesion depending on their clinical staging. All tissue specimens were forwarded to the histopathology laboratory and evaluated by a dermatopathologist.**

Main outcome measures: **Patient age and gender, anatomical site of primary lesion, duration of symptoms, stage of disease, breslow thickness of the lesion and histopathologic subtypes**

Results: **This study demonstrated acral lentiginous melanoma as the commonest malignant melanoma subtype, followed by nodular melanoma. Majority of the patients presented with late stage disease.**

Conclusion: **In view of delayed presentation with thick primary lesions and advanced disease, early presentation is encouraged. Prevention initiatives need to be concentrated on sun avoidance education, wearing of sunscreen, importance of skin awareness and examination, and the screening of high-risk populations.**

INTRODUCTION

Malignant melanoma results from malignant transformation of melanocyte, the pigment-producing cell of the body derived from neural crest cells [1]. As such, it can occur anywhere melanocytes are present, skin, eye, mucous membranes of the upper digestive tract, brain, sinuses, anus, and vagina. The commonest tissue in which malignant melanoma arises is the skin.

From a clinical and public health point of view, malignant melanomas are the most important group of skin cancers. Although less common than the familiar skin basal and squamous cell tumours, they are much more frequently fatal, due to intrinsic tendency to lymphatic and haematogenous metastasis [2].

The four major histopathologic subtypes of malignant melanoma are: lentigo maligna, superficial spreading, nodular, and acral lentiginous. Rare subtypes include desmoplastic, mucosal, nevoid and verrucous. Local data on incidence, mortality and five-year prevalence is limited [3-4]. It is a deadly cancer with 5-year survival rates ranging from 15% to 97% [4] worldwide. Locally, there are no studies which have been carried out on the clinical and pathological characteristics of malignant melanoma in Kenya. This study hopes to improve on the local data and assist in planning on treatment and preventive strategies.

MATERIALS AND METHODS

The study was approved by the KNH and UoN Ethics Committee; P662/10/2015. Initially, 29 patients with skin lesions confirmed on incisional biopsy, to be malignant melanoma were enrolled consecutively from: Plastic Surgery ward, General Surgery Wards, Surgical Out-Patient Clinic and Accident and Emergency Department. Data collected included gender, age at diagnosis, clinical examination findings, histopathologic subtype, stage of the disease clinically and pathologically, Serum Lactate Dehydrogenase (LDH) level and radiological tests. All patients were counselled about the study design and given the option to enrol, after which they provided consent to the study. Inclusion criteria: Patients with skin lesions confirmed on incisional biopsy, to be malignant melanoma and patients who consent or accent to participate in the study. Exclusion criteria: patients who declined to participate and patients who did not undergo excision biopsy.

RESULTS

Of the 29 patients recruited, five patients didn't undergo excision biopsy after failing to present themselves for surgery. Of the 24 analyzed, 17 were female and seven male. Age range 38-90 years mean age 62 years, SD 12.9 years. Peak incidence in sixth and seventh decade of life (Figure 1). There was no statistically significant difference between age and gender as assessed by Fisher-Freeman-Halton exact test, ($p = 0.170$).

Sites of origin varied, with majority on feet. An albino, Fitzpatrick skin type 1, had eyelid, ear and lip malignant melanoma lesions (Table 1, Figure 2).

Four patients presented with symptoms for less than one year. More than three quarters of the patients had had symptoms for over a year (six men, 14 women, Figure 3). There was no statistically significant association between duration of symptoms in years and gender as assessed by Fisher-Freeman-Halton exact test, ($p = 0.934$).

Table 2 demonstrated gender difference in stage of disease. We couldn't assess for metastasis on all our study subjects, as they couldn't afford tests. These included serum LDH, CXR, U/S, abdominal and chest CT.

We couldn't assess the lymph node stage of all patients as sentinel lymph node biopsy (SLNB) and elective lymph node dissection doesn't form part of the protocol of management of malignant melanoma in KNH. This may have skewed our data on stage of disease. The available test results were incorporated to derive the tumour node metastasis (TNM) stage of each research participant. There was no statistically significant association between stage of disease and gender as assessed by Fisher-Freeman-Halton exact test, ($p = 0.737$).

Table 3 demonstrates results of Breslow thickness.

Acral lentiginous melanoma is the commonest histopathologic subtype in the Kenyan population presenting at KNH, followed by nodular melanoma (seven). Figure 4 demonstrates gender distribution and malignant melanoma subtype. There was no statistically significant association between histological subtype and gender as assessed by Fisher-Freeman-Halton exact test, ($p = 0.374$).
Where are the tables and graphics?

DISCUSSION

Malignant melanoma causes 90% of skin cancer mortality [5]. It is increasingly an important global health problem as incidence rates of cutaneous malignant melanoma continue to rise almost inexorably worldwide. Diagnosis at an early stage is almost always curable and a large proportion can probably be ascribed to a modifiable risk factor; sun exposure [6]. Major initiatives have concentrated on sun avoidance education, importance of skin awareness and examination, and the screening of high-risk populations.

Skin sun exposure results in short term effects; freckles, rashes and sunburn. Long term effect: accelerated skin ageing (dry, wrinkled, loose and dull) and pigment changes. It can also cause changes in the skin cells, which may lead to skin cancer. This exposure to UV radiation through sunlight, is a major etiologic factor associated with the incidence of malignant melanoma across all Fitzpatrick skin types [6-8].

The age distribution is in keeping with findings by Hudson and Krige in a South African population with a mean age of 60.5 years, ranging from 30 to 85 years, and peak incidence in the sixth decade [9]. Therefore, sun avoidance education and screening should target all age groups.

Site of lesion is in keeping with findings by Hudson and Krige in a South African study, the foot was also the commonest site of disease (45 of the 63 patients studied). Seven patients had subungual malignant melanoma, seven had primary mucosal lesions, and in six, the primary lesion could not be found [9]. In a study conducted by Kakande, majority of the tumours occurred on the foot, right more than the left, in contrast to our findings. Whereas three patients had malignant melanoma lesions arising from the eyelids, two had oral lesions, one in the nose and one involving the vulva vagina and cervix [5]. Among these patients, only one is reported to have suffered from xeroderma pigmentosa, presenting with forehead tumour [5]. None of these patients were reported to have albinism, a known predisposing factor [10-12]. Melanin deficiency in oculocutaneous albinism predisposes them to the harmful effects of ultraviolet radiation exposure, resulting in photophobia, decreased visual acuity, extreme sun sensitivity, and cutaneous malignancies including malignant melanoma [10-12].

SLNB where clinically positive nodes are absent, guides our elective lymphadenectomy and patient staging. This may dictate that we conduct more elective

lymphadenectomies. In contrast the Hudson and Krige study with 63 patients, thirty (47%) presented with stage I disease, two (3.1%) stage II, 23 (36%) stage III, and nine (14%) stage IV disease [9]. Possibility of achieving cure is less likely in our setting due to delayed presentation.

Radiological investigations are valuable as they provide baseline results for future comparison and reviewing response to therapy. Chest radiography is indicated for stage III, in-transit disease, or local recurrence [13]. Chest CT scan is indicated for a patient with stage IV disease. Whereas in patients with stage I, II, or III disease, it should be performed only if clinically indicated. Abdomen CT scan is indicated in stage III, locally recurrent, or in transit disease. Pelvis CT scan is indicated only if a patient has local regional recurrence below the waist, symptomatic, or has known metastatic disease with a history of primary tumors below the waist [13].

Histological subtype data is similar to other studies that reported acral lentiginous melanoma (ALM), followed by nodular malignant melanoma [5, 9]. Hudson and Krige also found superficial spreading melanoma [9]. Although rare in Caucasians and people with lighter skin types constituting 2-8% of malignant melanoma in whites, it is the most common subtype in people with darker skins, 35-60% in dark-skinned people [14]. Whether this could be attributed to the reduced melanin pigment in the non-hair-bearing glabrous skin of palms and soles remains to be confirmed.

Breslow depth, an accurate predictor of risk for lymph node metastasis, with deeper tumours being more likely to involve lymph nodes and therefore bearing advanced disease [15, 16]. This was quite similar to the mean Breslow depth of 6.15 mm (range of 1 to 25 mm) as defined by Hudson and Krige [9]. This indicates that in both studies patients presented with thick tumours, hence at risk of advanced disease.

Patients with localized disease were treated by wide local excision and skin graft, while patients with nail bed disease underwent amputation of involved digit. Patients who benefit from elective lymph node dissection are those with metastatic tumour in regional nodes but no viable tumour dissemination beyond the nodes. Thus, prophylactic dissection of regional nodes should interrupt the metastatic cascade and prevent spread. The debate surrounding this has been whether this is a substantial percentage of the patients or an inconsequential fraction [17, 18].

Delayed presentation or advanced disease at first hospital contact is patient related. Varying from financial difficulties in accessing healthcare, to lack of awareness on the importance of early diagnosis. We need to embrace microscopic nodal staging to improve prognosis, reduce dissemination and recurrence of disease.

CONCLUSION

This study has demonstrated ALM as the commonest molecular subtype, followed by nodular melanoma. In view of delayed presentation with thick primary lesions and advanced disease, early presentation is encouraged. Prevention initiatives need to be concentrated on sun avoidance education, wearing of sunscreen, importance of skin awareness and examination, and the screening of high-risk populations.

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