ORIGINAL ARTICLE

Malignant melanoma in a Nigerian tertiary hospital

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ABSTRACT

Background: Malignant melanoma is a neoplasm of melanocytes which usually arises from the skin and other parts of the body where melanocytes exist. The incidence is low in black Africa and occurs mostly in the extremities. Surgery is the main stay of treatment for localised disease.

Methodology: A 5-year retrospective study of patients with histological diagnosis of malignant melanoma at Nnamdi Azikiwe University Teaching Hospital, Nnewi, Anambra State, Nigeria.

Results: A total of 14 patients with 15 lesions of cutaneous malignant melanoma were managed during the study period. Their age range was 42-85years, and the female:male ratio was 2:1. Plantar melanoma was the most common occurrence, and only 3 patients had previous history of trauma. Surgery was the mainstay of treatment.

Conclusion: Malignant melanoma remains a rare condition. Sole of the foot is the most common site.

Keywords: *Dacarbazine, plantar melanoma, wide local excision*

INTRODUCTION

Malignant melanoma is a neoplasm of melanocytes. It usually arises from the skin but can arise from anywhere that melanocytes exist, such as in the bowel mucosa, retina and leptomeninges.[1] It is a rare malignancy accounting for less than 4.6% of skin malignancy but, is responsible for over 75% of skin cancer deaths.[2] The incidence is rising worldwide with a projected 76,100 new cases and 1.7% of all cancer deaths, in 2014.[2] This increase may be a reflection of the change of social habits and increased exposure of fair skinned Caucasians to the sun. The highest incidence of melanoma is in Australia.[3] The combined effects of predominantly light skinned population in a tropical latitude, and cultural emphasis on outdoor activities may have contributed to the problem. In Nigeria, melanoma though a rare condition, constitutes the most common skin malignancy in some regions, with a higher incidence in the northern part of the country.[4,5,6,7]

Of the 5 different subtypes of melanoma (*superficial spreading, nodular, lentigo maligna, amelanotic* and *acral lentiginous melanoma*), the acral lentiginous type is the most common form seen in blacks. It occurs more in the extremities including the palm, soles and sub-ungual areas.[8]

Several risk factors have been implicated in the aetiology of melanoma including genetic and environmental factors. Although exposure to solar radiation is the major risk factor in Caucasians, same seem not to hold for blacks. The high incidence of plantar melanoma in blacks has made some authors to speculate that trauma is the main culprit.[9]

With this in mind, the authors evaluated the various sites, possible risk factors and pattern of management of patients with malignant melanoma.

METHODOLOGY

We evaluated patients with histologic diagnosis of melanoma who presented to Nnamdi Azikiwe University Teaching Hospital (NAUTH) Nnewi from November 2008 to October 2013. The variables analysed were age, sex, site of lesion, previous skin pigmentation and treatment offered. Tables were used as appropriate, and data analysis was done with SPSS 17 (Chicago, Illinois).

RESULTS

A total of 14 patients with 15 lesions of cutaneous malignant melanoma were managed during the study period. Patients without histological diagnosis were excluded. The age range was 42-85years with a mean age of 64.5years. Female to male ratio was 2 to 1. The average duration of symptoms prior to presentation was 26.2months with a range of 2-36months. Various patterns of presentation are shown in Table 1, whereas Table 2 shows the various locations of the lesions. Three patients were referred to the institution after excision biopsy was done at a private hospital.

One patient had 2 separate lesions, and all the patients initially consulted unorthodox health care before presentation. Definitive surgical treatment was attempted in 12 of the patients as shown in Table 3. Two of them died from metastatic diseases before definitive treatment could be commenced. None of the patients had a complete course of the neo-adjuvant chemotherapy.

Table 1. Patterns of presentation in malignant melanoma

Clinical finding	Frequency
Leg ulcer	8
Nodular mass	4
No lesion*	3
Total	15

**Excision biopsy already done before presentation*

Table 2. Characteristics of the lesion

Site of lesion	Frequency	Regional lymph node	Preceding history of trauma	Hyperpigmentation
Plantar	11	5	3	7
Subungual	2	0	0	2
Pinna	1	0	0	1
Back *	1	0	0	1

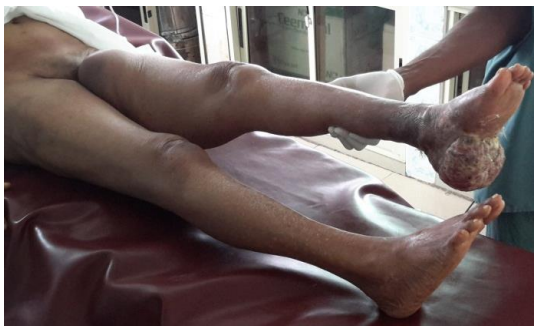
**Second primary inpatient that had plantar melanoma*

Table 3. Treatment offered to patients

	Wide local excision	Excision biopsy	Amputation	Chemotherapy
Plantar	9	2**	0	3***
Subungual	0	0	2	0
Pinna	0	1	0	0
Back	1	0	0	0

** *2 cases died before definitive treatment*
*** *Dacarbazine was given after surgical excision in patients with lymph node involvement*

Figure 1. A plantar melanoma on the left foot



DISCUSSION

From our study, an average of 3 cases of malignant melanoma presented annually over the period of review with female preponderance unlike reports from Calabar, Ilorin and Zaria where males predominate.[4,5,6] Though Mbuagbaw, *et al,* also reported a female preponderance.[10] This may be due to increased health seeking behaviour by women or lack of awareness by males. The mean age in our study was 64.5years. A similar finding was noted in previous reports with the mean age range 52–64years.[5,11] Also, all the patients in our study were aged above 40years as in keeping with reports by Asuquo and Ngadda, *et al.*[4,7] The incidence of childhood and adolescent melanomas are rare though increasing.[11]

Though melanoma can occur in any part of the body where melanocytes exist, the sole of the foot is the most common site in our study as shown in Table 1, and this is the usual pattern in blacks.[4,5,7,10,12] It is a rare clinical entity in caucasians, accounting for only 2-8% of melanoma cases in white patients. However, in blacks, melanoma arising on the sole of the foot accounts for 29-72% of diagnosed cases, and in our study it accounted for 73.3%.[8]

Malignant melanoma frequently presents at a clinically advanced stage in our environment hence, most of our patients presented with advanced lesions like ulcerated lesions and nodular masses. Initial presentation to traditional healers and patent medicine dealers may contribute to this late presentation. Two of our patients died before commencement of definitive treatment from metastatic disease. Asuquo, *et al,* in their study, also noted this late presentation and high mortality rate in patients with advanced diseases.[4] The management of advanced melanoma is challenging even in developed countries as reflected by a total of 8,420 related deaths reported in the United States in 2008.[13] However, in countries with established screening services, presentation is early, and this would usually imply better prognosis. The need for increased public health education on features of malignant melanoma becomes, therefore, very imperative.

Penetrating injury or repeated trauma to a mole with malignant transformation has been suggested by some authors as a possible aetiological factor of plantar melanoma in blacks since the sole of foot is not exposed to sun rays.[9] The proponents of this theory refer to the low incidence of plantar melanoma in endemic countries like Australia, and its high incidence in the rural African population where walking bare foot, which exposes the plantar area to repeated trauma, is a common habit.[9] In our study, only three patients remembered a previous history of trauma

(sharps prick) at the site of their lesions as shown in Table 2, while only one patient had melanoma in sun exposed parts of the body (pinna). Other risk factors such as fair skin, dysplastic moles, family history of melanoma and immunosuppression were not noted in our study.

A review of the epidemiological, clinical and scientific research on the role of trauma in pathogenesis showed equivocal results with proponents and opponents. Green, *et al,*' in a single centre report stated that penetrating trauma, exposure to agricultural chemicals, presence of pre-existing moles on the sole and high total body naevus count are implicated in the aetiology of plantar melanoma.[9] This finding was also supported by Zhang, *et al*, who reviewed 685 cases of cutaneous melanoma, retrospectively over 30years.[14] They concluded that epidemiological evidence suggests potential association between trauma and melanoma of extremities. On the other hand, some authors do not believe that trauma is responsible for plantar melanoma.[15]

Despite this conflicting evidence, the role of trauma in plantar melanoma should not entirely be discarded, rather, should encourage more prospective randomised controlled multi-centre studies to further elucidate the role of mechanical injury in plantar melanoma.

Adequate local control through surgical excision was the main modality of treatment adopted in our centre as shown in Table 3. Block regional lymph node dissection was not routinely done for patients with no clinical evidence of lymphadenopathy, though some reports of increased survival have been documented in some cases.[16] Sentinel lymph node biopsy can, also, be done to reduce the frequency of block regional lymph node dissection. However, this is not done routinely in our centre because of limited experience with this procedure.

Adjuvant chemotherapy, tamoxifen, isolated limb perfusion, immunotherapy (interleukin 2, interferon alpha), and target therapies (BRAF inhibitors) were additional treatment options.[17] Dacarbazine as a monotherapy was the only adjuvant treatment given to our patients. This methylating agent is the reference agent of choice in large clinical trials, more than 3 decades after its initial approval by the US Food and Drug Administration (FDA) in 1975, and has continued to be the standard of care for most patients with this disease.[18]

Though the use of more than one chemotherapeutic agent or combinations of biological and chemotherapeutic agents may improve objective response rates, they do not prolong survival and are known to be associated with greater toxicity.[18] We could not state the clinical response and outcome of patients who were commenced on dacarbazine because none of the patients completed their drug therapy, and they were all lost to follow-up.

LIMITATIONS OF THE STUDY

This study relied on information from patient records, and, therefore, important parameters such as stage of the disease, histologic type and outcome of treatment were not included. Some of these issues would have been addressed by a prospective study.

CONCLUSION

Malignant melanoma is a rare condition, and plantar melanoma is the most common type in our environment. Late presentation is common, thus, there is need for public health efforts to increase the awareness of this rare but, fatal skin malignancy. Surgery is still the main modality for the treatment of localised diseases, while chemotherapy is imperative in advanced diseases.

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