

## HISTOLOGICAL REVIEW OF MELANOCARCINOMA IN PORT HARCOURT

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### ABSTRACT

**Background:** Melanocarcinoma is a malignancy of melanocytes affecting more females; and commoner in the farming population. It is also associated with high morbidity and mortality.

**Objective:** To determine the pattern, outcome of melanocarcinoma and a survey of presentation of the tumor in Port Harcourt was undertaken.

**Design:** A retrospective descriptive study for 11 years (1<sup>st</sup> January 1990- 31<sup>st</sup> December 2000).

**Setting:** University of the Port Harcourt Teaching Hospital, Port Harcourt.

**Method:** Histological slides previously stained with hematoxylin and eosin of 15 cases of melanocarcinoma were retrieved and re- evaluated for the study. Special stain like Mason Fontana stain was also used for proper diagnosis of some of the tumors. Tissue slides or blocks which could not be located and those with inadequate documentations were excluded from the study. The 15 cases were staged according to Clark's Staging System.

**Result:** Melanocarcinoma is rare in this environment as it accounted for 0.8% of total malignancies for the period under review. The age ranged from 39-76 years. Majority of the cases were female with F:M ratio of 3:2. The peak (73.3%) frequency of occurrence was among the age group (51-70) years. Only the nodular and the acral leniginous types were seen, of which the nodular type was the commonest (80%). The feet and the legs were the commonest predilection sites (46.7%) while the head and neck as well as the knee were the least site of occurrence. There was no stage I and II melanocarcinoma in this study. The cancers were seen in stage V, IV and III in decreasing frequency.

**Conclusion:** melanocarcinoma, thought rare in this environment, present at advanced stage of the disease. Public enlightenment and awareness campaign as to the physical characteristics of the tumor is needed to make patients present early for diagnosis of the disease and treatment.

**Key Words:** Melanocarcinoma, Port Harcourt, Presentation.

### INTRODUCTIONS

Melanocarcinoma are cells derived from the embryonic neural that migrate to the epidermis during development.<sup>1</sup> They produce melanin which are distributed in the basal layer, appearing as large clear cells. There is no racial difference in the number of melanocytes but skin pigmentation is dependent on the rate at which melanin's are synthesized.

Melanocarcinoma is a primary cancer of melanocytes affecting the skin, mucosal surfaces of the oesophagus, oral cavity, anorectal region, uveal tract of the eye, meninges, subungual region of the fingers and toes, palm, sole of the foot and head and neck region.<sup>23</sup>

The risk factors include congenital nevi, xeroderma pigmentosum and immunodeficiency state.<sup>4</sup> Childhood melanocarcinoma is very rare. In adults, sun sensitive skin, multiple dysplastic nevi and positive family history of melanocarcinoma as well as environmental factors including mechanical trauma and ultraviolet radiation are the predisposing factors.<sup>5,6</sup> There is a familial predisposition of melanocarcinoma in about 11% cases in Australia.<sup>7</sup>

About 20-50% of melanocarcinomas arise denovo and develop at sites rarely exposed to the sun.<sup>8</sup> Epidemiological studies have however clearly indicate the importance of sun exposure in the etiology of the cancer as well as epidermal immunosuppression.<sup>9</sup> The volar skin and the nail bed are infrequent sites of this

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tumor Caucasians<sup>3</sup> but there is variation in the incidence and regional distribution of this malignancy in different ethnic groups.<sup>10</sup> There are four common types of melanocarcinoma based on the growth pattern, mode of onset, course and prognosis. They are superficial spreading, nodular, lentigomaligna and acral lentiginous melanocarcinoma.<sup>3</sup> These tumors present as epitheloid, spindle shaped and pleomorphic histological patterns simulating a wide variety of benign or malignant neoplasms.<sup>11</sup> Poor prognostic factors include: the tumor thickness, lymph node infiltration and higher number of lymph nodes involved, distant metastasis, anatomic site of the cancer, ulceration of the cancers, the male gender and the extent of lymphocytes infiltration of the tumor.<sup>13</sup>

Clinically, this lesion may itch, bleed, ulcerate or develop satellites. There may also be physical characteristic as asymmetry, border irregularity, color variation, increasing tumor diameter and elevated tumor surfaces.<sup>3,12</sup> This study to relate the frequency of melanocarcinoma based on sex, age, sites and the stage of the tumor at diagnosis as they present in Port Harcourt and to compare the findings with those recorded in other areas where literatures are cited.

## MATERIALS AND METHOD

A retrospective study of 15 melanocarcinomas was carried out at University of Port Harcourt Teaching Hospital (UPTH) over eleven years period (January 1<sup>st</sup> 1990 to December 31<sup>st</sup> 2000). Paraffin sections of all these tissue, stained with hematoxylin and eosin (H&E) were retrieved and reviewed individually. The ages, sex and sites of the tumors were extracted from the histology request forms and daily specimen register. New slides were made in cases where the original ones could not be found from the tissue blocks and stained with H&E. In other cases where neither the slides nor the tissue blocks could not found, or those request forms improperly documented were excluded from the study. In some cases, Manson Fontana stain was used to demonstrate melanin pigments. These tumors were staged on Clark's staging of 1969.<sup>14</sup> The results were collated and tabulated in percentages.

## RESULTS

A total of 1853 malignant tumors were diagnosed in the University of Port Harcourt Teaching Hospital (UPTH) during the study periods. Seventeen cases were diagnosed as melanocarcinoma (0.9%). Only 15 cases representing 0.8% of malignant tumors during the periods under review had adequate records for this study while remaining 0.1% were excluded due to record inadequacy.

Six of the tumors were diagnosed in males and nine in females giving a ratio of 1:1.5 (2:3) female dominance. Majority of the tumors (53.3%) were diagnosed in the age group 61-70 years with a peak at 64 years. (table I).

The nodular type constituted the majority, 12 (80%) which is characterized by extensive vertical growth into the dermis with a minimal radial component. Eleven of the tumors are pigmented. The acral lentiginous types accounted for the remaining 3 (20%) of cases and this is characterized by cellular proliferation along the dermal-epidermal junction with minimal invasion of the dermis. Nine cases (60%) of the tumor showed lymph node metastasis (Table II).

Table III shows the feet and legs as the commonest sites of melanocarcinoma representing 46.7% and involved more females. The frequency in the anus is same as that of the hand representing 20% each. The knee and the head and neck region were the least, representing 6.7% each. The Clark's classification of melanocarcinoma is prognostic based and depend on the level of tumor infiltration of the muco-cutaneous tissue.<sup>14</sup>

**Table I: Age and Sex distribution of Melanocarcinomas in Port Harcourt.**

Age range in years	Male	Female	Total	%
0 -10	-	-	-	-
11 -20	-	-	-	-
21 -30	-	-	-	-
31 -40	-	1	1	6.7
41 -50	1	-	1	6.7
51 -60	1	2	3	20.0
61 -70	3	5	8	53.3
71 and above	1	1	2	13.3
<b>Total</b>	<b>6(40.0%)</b>	<b>9(60.0%)</b>	<b>15</b>	

**Table II: Frequency distribution of various histological and nodal involvement of melanocarcinoma in Port Harcourt.**

Histological Types	No.	%	Lymphnode metastatis
Nodular melanocarcinoma	12	80	8
Acral lentiginous melanocarcinoma	3	20	1
Lentigomaligna	-	-	-
Desmoplastic Melanocarcinoma	-	-	-
<b>Total</b>	<b>15</b>	<b>100</b>	<b>9(60%)</b>

**Table III: Distribution of sites, stage and sex of melanocarcinomas in Port Harcourt.**

Sites	Atomic		Clark's Stages			Sex		Total (%)
	I	II	III	IV	V	Male	Female	
Head and neck	-	-	1	-	-	1	-	1 (6.7)
Feet and legs	-	-	1	2	4	2	5	7 (46.7)
Anus	-	-	-	1	2	1	2	3 (20.0)
Hand	-	-	2	1	-	1	2	3 (20.0)
Knee	-	-	-	1	-	1	-	1 (6.7)
<b>Total</b>			4	5	6	6	9	15 (100)
			26.7%	33.3%	40%	40%	60%	

Stage I: Intra epidermal lesion only (insitu)

Stage II: Invades the papillary dermis but not papillary dermal interface.

Stage III: Invades and expands the papillary dermis up to the reticular interface but not reticular dermis.

Stage IV: Invades reticular dermis but not to the subcutaneous tissue.

Stage V: Invades into the subcutaneous. Based on this classification, 6 tumors (40%) were stage V, 5(33.3%) stage IV, and 4 (26.7%) stage III respectively. No tumor was diagnosed at stage I and II level in this study.

## DISCUSSION

Melanocarcinoma, a primary tumor of melanocytes is very rare among pigmented races and appear where the pigment is least but commoner among whites in sun exposed areas<sup>3</sup>. The rarity of the tumor is confirmed by the 0.8% of all the malignant tumors recorded during the period under review. The histological presentation varies from the in-situ type at one end and the nodular type in the other end of the spectrum.<sup>11</sup> But contrary to this, there was no diagnosis of the lesion in insitu stage; only the acral lentiginous and the nodular types were seen in this study. It differs from an Ife study<sup>2</sup> where all the tumors were nodular. The intradermal melanocarcinoma (stage I & II) has better prognosis because they spread superficially and never extend beyond the papillary dermis hence rarely metastasizes and easy to cure by simple excision with or without chemotherapy<sup>14</sup>. The reverse is the case for stage III, IV and V which constituted the lentiginous

and nodular type that spread vertically to different levels of the muco-cutaneous tissue with a bad prognosis. The former is commoner in the sole of the foot muco-cutaneous tissue with a bad prognosis. The former is commoner in the sole of the foot, palms and mucocutaneous junction of the anus while the later can be seen in all body surfaces and are often ulcerated.

This study recorded a sex ration of 1:1.5 female dominance in the distribution of melanocarcinoma as against 1.2:1 male dominance in Ife<sup>2</sup> but similar to the 1:2 female dominance in Lagos<sup>15</sup>. The reason for the variation is unclear but may be attributed to the sample size. The age group of occurrence of this tumor for both sexes in this study varies from 40 to above 71 years with a peak age at 64 years. This is similar to the age incidence in other center<sup>2,3,15</sup>. The age incidence in females is in the late fifties to early sixties whereas those of males in this study occur mainly in sixties and progresses upwards.

The commonest predilection site is the foot: representing 46.7% of the total number of cases. This is the commonest mode of presentation in female and it is in keeping with the South African study<sup>3</sup>. The reason is attributed to the frequency of mechanical trauma to the foot during farming as most of them walk bare footed in the area of study. The frequency is fast reducing as farmers wear shoes to the foot and the lateral (small) toes are mostly affected in this study, which is at variance with the Ife study where all the tumors of the foot affect only the sole<sup>2</sup>. At this site, the pigmentation and the rate of irradiation are reduced but more vulnerable to trauma, in accordance with an earlier African studies<sup>2,3,15</sup>. Irradiation from sun light is one of the foremost predisposing factors for melanocarcinogenesis. The reason is that, the rate of melanin synthesis is reduced in the sun exposed area when compared with blacks which are protected by the melanin's from the radiant energy of the sun. This variation of predisposing factors between the Caucasians and Africans suggests possible geographical differences in the incidence of the tumor.

The depth of tumor infiltration is an important determinant of prognosis. The deeper the infiltration the worse the prognosis. This corresponded with the Clark's staging system of the tumor<sup>14</sup>. Secondly, the magnitude of lymphocyte response at the margin of the tumor correlates with the prognosis and corroborates with an earlier study<sup>13</sup>. The usual primary route of dissemination is the lymphatic system like other carcinomas; no wonder 9(60%) of our cases presented with lymph node involvement. Also, dysplastic nevi are recognized precursor of melanocarcinoma but this was not recorded in this study and secondly though the prevalence of melanocarcinoma in our study is low.

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There is need for further study of the clinicopathological presentation of this cancer in Nigeria, relating the clinical signs to anatomical variety and to define its geographical spread nationally.

In conclusion the diagnosis of melanocarcinoma in this environment like in other studies<sup>3,16</sup> is often delayed hence presenting when the tumor is at an advanced stage. For this reason, early diagnosis with an intention of cure should be aimed. This entails serious public enlightenment about nature, the cause and the course of the disease.

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