MELANOMA IN THE NEGRO

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Malignant melanoma is an uncommon tumor in the negro, if the scarcity of reports on the subject is accepted as an indication. There are, indeed, those who believe that practically all malignant tumors are much more rare in the negro than in the white race, and that negroes may even possess a sort of immunity to cancer in general. While it is readily admitted that some types of malignant tumors are unusual in negroes, and that they may possess a kind of immunity, especially to the skin tumors so commonly seen in the white race, a racial "immunity" to cancer in general cannot be said to exist. Every one is familiar with the frequency of keloid in the colored race—though this is probably not a true neoplasm—and of some types of fibroma. The squamous and basal types of skin cancer are but rarely seen, to be sure, and melanoma is probably still more unusual. On the other hand, according to the experience of the Steiner Clinic, cancer of the breast and of the cervix are of just as frequent occurrence in negroes as in white patients, the only difference being that cancer of the cervix is seen more often in young colored than in young white women. Guillot (1), commenting on the supposed immunity of the negro race to different types of malignant tumors, says that these growths are more common among negroes than is believed, and reports several cases of carcinoma and sarcoma occurring in natives of the Belgian Congo. He does not mention melanoma, however.

It is difficult to offer any satisfactory suggestion as to why this malignant pigmented tumor, or even the benign nevus, should be so rare in a skin which is normally the site of large amounts of pigment. Matas (2), who called attention to the rarity of melanoma in the negro some years ago, believes that pigment production is a normal function of the negro skin, and that it is under a well developed physiological control while in the white race pigment is limited to a few scattered areas and its physiological control is poorly developed. This may be suggested by the fact that the full-blooded negro shows an even distribution of black pigment in the skin of the entire body, only the palms of the hands and the soles

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of the feet showing a somewhat lesser degree of pigmentation. There are still other negroes in whom the pigmentation is perhaps less deep, but is still evenly distributed. In those of mixed blood, or light mulattoes, on the other hand, one frequently finds extensive areas of deeper pigmentation, and in those with very light skin, and perhaps light or red hair, freckles are numerous.

The deposition of pigment in the skin is believed to be a defensive measure, an attempt to protect the fine nerve endings in the skin from the damaging rays of the sun. Pigmentation is more highly developed in those races who have lived for centuries under intense sunlight. One would naturally expect, therefore, to find pigment production more orderly and under better control in individuals of these races than in those in whom this protection is less necessary or needed only at intervals.

In the white race, most melanomas arise from abnormal deposits of pigmented cells or nevi, which Masson (3) believes to be proliferations of the end-apparatus of the sensory nerves of the skin. The nevus is constituted of these proliferated cells and of chromatophores (4). The chromatophores in the skin are closely connected with the nerve endings, and it is probable that they may in some instances be developed from the nevus cell (5). It may be, also, that those which are stained only by the dopa reaction of Bloch are the earliest or resting forms of chromatophores, the invisible melanogen later becoming a visible pigment, melanin, by a process of aging and oxidation. The possibility is suggested that the normal production of pigment in the negro skin may have the same origin, the nerve endings producing the pigment for their own protection, and storing it up, the extent of pigmentation and storage depending upon the demand for such protection. The tanning of the white skin following sunburn could be considered another example of this function.

To explain the development of pigmented tumors of the skin, the presence of some factor causing a perversion of normal growth into true neoplastic growth must be assumed. Trauma will not explain the formation of nevi, but it helps to explain the development of melanoma in previous benign nevi as well as in previously normal skin. Although most nevi never develop into malignant tumors, it may be said that the cells have a potential malignant tendency and lack only a certain stimulus to upset the normal cellular equilibrium. This "stimulus" may be provided by trauma, not only in the nevus, but in normal skin as well. Several of the
cases of melanoma in negroes have begun in apparently normal skin, no known nevus having been present. It is possible, also, that extracellular deposits of liberated pigment may be a sufficient stimulus for cellular activity.

Supporting the theory of the neurogenic origin of nevi, is the fact that many cases of melanoma are associated with neurofibromatosis and neurogenic sarcoma. At times, also, supposed melanoma gives rise to recurrences or metastases which are indistinguishable from neurogenic sarcoma (6). Ewing accepts Masson’s theory of the origin of nevi and says: “The nervous origin of nevi throws much light on many clinical and structural features of nevi and melanomas; it permits the acceptance of all that body of knowledge of the chromatophores obtained by comparative histology; it opens the way to the recognition of sub-varieties of melanomas; it explains the occurrence of typical melanomas in regions where epithelial cells cannot be concerned; and it places nevomelanoma in a significant relation to other disturbances of the nervous system” (7).

The origin of melanoma, however, is still obscure. Ewing says: “The histological data appear strongly but not decisively in favor of the epithelial origin, while the theoretical considerations are all against the epithelial theory” (8).

Ewing (9) mentions the occurrence of melanoma in the negro and suggests the possibility that many cases are overlooked on account of the surrounding dark skin. Perhaps more of the benign nevi would be seen but for the difficulty in observing them. Howard Fox (10) believes that melanoma is extremely rare in the negro and does not mention this type of tumor in his Skin Diseases of the Negro. Hazen reports a case of melanoma primary on the sole of the foot in a negro male, aged forty-four, following a nail wound of a mole, with inguinal and pulmonary metastases (11). He writes that this is the only negro with melanoma he has seen, and, “curiously enough, he was almost full-blooded” (12).

Sutton and Mallia (13) reported a case in a negress, aged seventy-eight. The tumor began on the foot, with diffuse melanotic infiltration of the skin and deeper structures of the entire leg, especially marked about the larger vessels. The patient died with generalized metastases. In this case there was a history of repeated injuries to the small toe some time previous to the development of the tumor.

Bauer (14) reported two cases in 1926, the second case showing
extensive metastases from a lesion on the foot. His first patient, still living at the time of his report, has since died with generalized metastases (15). The primary lesion in this case was on the thumb, around the nail. He mentions the fact that the second case was in a "deeply pigmented colored laborer," but fails to give the depth of color of the other patient.

Pack (16), reviewing 246 cases of melanoma at the Memorial Hospital, found 3 cases occurring in negroes. The locations of the primary lesions were the superior alveolus, the plantar surface of the foot, and the subungual region. Lister (17) quotes des Ligneris (18), who reported from the Elim Hospital (Northern Transvaal) 17 cases of melanoma among 13,170 native patients. Although the disease is ultimately fatal, he believes that the course is somewhat slower in negroes than in white or European patients. All of the tumors which he reported occurred on the skin of the leg or foot, except one case of uveal melanoma. Simson (19) at the South African Institute for Medical Research found 30 cases of melanoma among Europeans and 22 in "natives," among 8732 pathological examinations, a ratio of 3 to 2.2. He, also, was inclined to believe that the malignancy was somewhat less in negroes than in white patients, and points out that the chief location of the primary lesion was on the lighter pigmented skin of the sole of the foot.

It is a rather striking fact that, with a few exceptions, melanoma in negroes is primary in the regions of the foot where the pigmentation is somewhat lighter than elsewhere, or about the nails of the fingers and toes, where there is slightly less pigmentation than in the skin in general. Pack's case beginning on the superior alveolus is quite remarkable. Apparently very few melanomas have been seen in the eye in the negro. Lister reported a case and there is one in the series to be reported in the present paper. Callender (20) found no cases of melanoma of the eye in the negro in all the eyes examined at the Army Medical Museum.

The apparent influence of trauma in the development of melanoma is worthy of note. Some cases have followed injury to supposedly normal skin, while in others there has been a history of injury, frequently repeated, to a presumably benign mole. In the present series the tumor appeared in supposedly normal skin following trauma in 2 cases (IV and V); it arose in known nevi following trauma in 3 cases (II, VI and IX). In 2 cases (I and VIII) the tumors apparently arose from nevi without known in-
jury, and in one case (VII) there was no known lesion until the appearance of the tumor.

It is to be expected that in a clinic limited to malignant and allied diseases, where the material is more or less "hand picked" and concentrated, and more especially in a locality with a large negro population, the occurrence of melanoma will be more frequent than where fewer patients of this race are seen. The proportion would also be higher than in a general hospital or clinic. In this respect, the present series of cases is more comparable to those from South Africa, with its high percentage of "native" or negro population (des Ligneris; Simson) than to any statistics from the northern United States.

In the Emory University Division of the Grady Municipal Hospital, a division limited to colored patients, 5 cases of melanoma were found from October 1921 to June 1931, in a total admission of 45,406 patients. The total number of tumor cases was 965. Specimens from two of these cases of melanoma were sent to the laboratory of the Steiner Clinic for examination, and are included in the case reports presented below.

In this laboratory, 5663 pathological specimens have been examined, showing 70 cases of melanoma, of which 9 were from negro patients, a ratio of 7.7 to 1. As will be seen in the case reports, these negroes were of varying degrees of color, some light and some darker brown, while a few were almost "coal black." Of the 9 patients four have died of the disease (Cases II, IV, V, and VII); one died of carcinoma of the cervix (Case I); one is living (Case VI) after six months and is without evidence of disease at present; and the remaining three cases cannot be traced.

Case Reports

Case I: N. S., a colored female, aged sixty-four, of a dark brown color, was admitted Oct. 4, 1924. She had had a hysterectomy twenty years before; otherwise she had been in good health. About thirty years ago the patient had noticed a small, bluish mole just above her right eye. This mole increased in size slowly until two years ago, when it began to grow more rapidly. The lesion measured 1.7 cm. in diameter and bled easily. The patient had several small black spots on her back. No enlarged lymph nodes could be found. On Oct. 7, the lesion was treated with radium, 647 millicuries, 2 mm brass filter, at 1 cm. distance. One week later it was excised. The cervical lymphatics were given prophylactic deep x-ray therapy. Examination of the tumor showed broad and fine arrangements of polyhedral hyperchromatic cells extending quite deeply into the tissue. The cells were somewhat epithelioid in character.
Fig. 1. Case I. Melanoma of the Forehead, Showing Area Resembling Cystic Epithelioma. × 140

Fig. 2. Case I. Melanoma of Forehead: Pigmented Area. × 140
Fig. 3. Case II. Melanoma of Lip

Fig. 4. Case II. Melanoma of Lip. × 175
The deeper cells were arranged in cords and were of smaller size. In a few areas were masses which resembled cystic epithelioma (Fig. 1). There was considerable dark brownish pigment in the cellular areas, and especially in the stroma (Fig. 2). On Feb. 19, 1930, the patient returned with a vesicovaginal fistula and extensive epidermoid carcinoma of the cervix, grade III. There was no evidence of a recurrence of the tumor of the forehead, nor were any cervical nodes enlarged. Death occurred a few weeks later from pelvic extension of the cervical carcinoma.

Case II: C. W., a colored female, aged eighty-seven, of light brown color, was admitted July 13, 1927. Both the patient's mother and brother had many pigmented moles, none of which had ever given any trouble.

The patient was completely blind and suffered from severe neuralgia. For many years she had had a bluish, deeply pigmented mole on the left side of the upper lip. One year before admission she had injured this lesion and since that time it had gradually enlarged, and become ulcerated and painful. It was removed with cautery July 18, 1927, and when the patient was last seen, in September 1927, the site of the tumor was healed but there were several small pigmented nodules in and around the scar (Fig. 3). Examination of the specimen showed a cellular growth of spindle and some polyhedral cells with hyperchromatic nuclei (Fig. 4). Scattered about were many large and heavily pigmented cells. Pigment was also seen in the stroma. There was no marked necrosis, although
ulceration and infection were prominent. The patient's granddaughter writes that the tumor invaded the mouth and neck and that the patient died June 23, 1928.

Case III: Unfortunately, it has been impossible to secure any reliable data on this third case, the only case of melanoma of the eye in a negro that we have seen. The eye was removed following a preoperative diagnosis of melanoma, at the Emory Division of Grady Hospital, and sent to this laboratory for examination. On cross-section of the eye (Fig. 5), there was found a smoothly outlined, rounded and deeply pigmented tumor in the region of the ciliary body. Sections of the tumor (Fig. 6)

![Fig. 6. Case III. Melanoma of Eye. × 175](image)

showed a cellular structure, composed of masses of elongated spindle cells, moderately hyperchromatic and with fine fibrillae. There was abundant dark brown pigment throughout the tumor and mitoses were present in moderate numbers. No necrosis was found and vascularity was moderate, with well formed vessels. The postoperative outcome of this case is unknown, as the patient's record has been lost from the hospital.

Case IV: A. R., a colored male, aged twenty-three, of light brown color. The specimen from this tumor was received from the Athens General Hospital, Athens, Ga., June 12, 1929. Two or three months before this time, the patient had burned his foot at the base of the toes with hot ashes. The burn healed quickly, but shortly afterwards there appeared
a small papillary tumor between two of the toes. The tumor slowly but steadily enlarged, together with the inguinal nodes of the same side. The primary tumor was excised for diagnosis. The specimen consisted of a small piece of brownish skin with a central roughened and slightly elevated portion. Sections showed a rather cellular tumor (Fig. 7) composed of moderately hyperchromatic cells of epithelioid type arranged in sheets and alveoli of medium size. There were numerous irregular masses of smaller and more hyperchromatic cells with occasional mitoses. The cells varied considerably in size and shape. They were mostly polyhedral with relatively large nuclei. The larger cells were more trans-

![Fig. 7. Case IV. Melanoma of Foot. × 175](image)

parent and the nuclei relatively smaller. There was moderate stroma separating the cell masses. Pigment was diffusely distributed about, both in the tumor cells and stroma, although no large pigmented areas or masses were seen. The patient's physician reported his death about June 20, 1929; there was no post-mortem examination.

**Case V:** C. L., a colored male, aged fifty-six. The specimen in this case was received from the John D. Archbold Memorial Hospital, Thomasville, Ga., Sept. 8, 1930. The history received with the specimen is as follows: "Incision had been made in the right heel about one year before admission. The trouble first started about two years previously, following a bruise on the heel; this had also been incised. The patient was extremely ill on entering the hospital, March 26, 1929. There was a
FIG. 8. CASE V. METASTATIC MELANOMA OF LIVER. $\times 175$

FIG. 9. CASE V. METASTATIC MELANOMA OF LIVER. $\times 175$

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large greenish black necrotic area on the heel and thigh, and the odor was very offensive. Death occurred April 9, 1929, and autopsy showed extensive metastases to the inguinal nodes, ribs, and liver.” The pathologist of the hospital wrote that this patient was almost coal black. The specimen consisted of a small piece of liver, which was almost completely replaced by rounded and heavily pigmented masses. The tissue was firmly fixed in formalin. Sections showed an almost entire replacement of liver structure by a diffuse and cellular tumor, composed of medium and small sized polyhedral hyperchromatic cells with a scattering of small spindle cells (Figs. 8 and 9). Almost all of the cells were filled with a very dark brownish pigment, so that it was difficult to make out the nuclear structure. Small areas of necrosis and traces of fatty degeneration were present.

Case VI: M. B., a colored female, aged nineteen, dark mulatto. The specimen in this case was received from the Patterson Hospital, Cuthbert, Ga., Feb. 14, 1931. The following history was sent with the specimen: “Father died of cancer of the stomach at the age of fifty-six. Mother, four brothers, and two sisters living. The patient was born with a flat black birth-mark, just above the left knee. When she was nine years old, she struck this area, and since that time there has been a small, hard mass in the center, which has gradually increased in size until it is now elevated above the surrounding surface and about one inch in

**Fig. 10. Case VI. Melanoma of Knee: Superficial Portion**
cross diameter. The surrounding birth-mark measures 3 in. long and 1 in. wide. It was again injured about two weeks before it was removed, after which time there was some ulceration and infection. The patient looks perfectly healthy. There is some glandular enlargement all over her body; the glands in the inguinal region are no larger than any others."

The specimen as received was fixed in formalin and consisted of a wrinkled and shrunken piece of skin of elliptical shape, 6 × 2 cm., with the central portion somewhat darker in color than the rest and partly elevated and ulcerated. A cross-section through this area showed a gross papillary formation about 2 mm. above the surrounding surface. The entire central portion was white, dense, and acellular. Sections through

![Fig. 11. Case VI. Melanoma of Knee, Showing Myxomatous Base. × 175](image)

the edges of the specimen were covered by the normal pigmented epithelium of the negro. The pigment increased toward the center (Fig. 10), where there were found long pegs and strands and small masses of nevus cells with a small amount of pigment. In the very center of the specimen, large bulky pegs were present, between which were large hyperchromatic and heavily pigmented cells in irregular masses, alveoli, and scattered single cells. The base of the specimen was made up of myxomatous connective tissue. In its more superficial portion this tissue resembled keloid formation, while in its deeper parts it had many of the features of myxosarcoma (Fig. 11). This myxomatous base was probably a scarring process resulting from repeated injury and infection.
Groups of nevus cells penetrating deeply into the base justified the diagnosis of early melanoma. The patient's physician reported no evidence of disease Aug. 7, 1931.

Case VII: C. B., a colored male, aged sixty-three, very dark-skinned, was referred to the clinic Aug. 8, 1927, with an advanced ulcerated melanoma of the heel, and metastases to the region of the knee and the inguinal nodes. The patient left immediately after examination and biopsy of the ulcerated lesion. Efforts to trace him revealed that he went from one hospital to another, and one city to another, and died early in 1928. The biopsy specimen was soft, necrotic, and edematous. There was an alveolar structure (Fig. 12) composed of masses of small and medium-sized hyperchromatic cells with relatively clear cytoplasm. A few cells of larger size were scattered about, and only a trace of pigment was found. The stroma was abundant about the alveoli and was very vascular and infiltrated with leukocytes.

Case VIII: T. F., a colored female, aged sixty, of medium brown color, was admitted Jan. 29, 1929. For many years the patient had had a number of black moles scattered over her body. One of these, on the anterior surface of the mid-thigh of the left leg, became sore and, for some unknown reason, ulcerated and then enlarged as a fungating tumor.
mass. The patient stated that she had lost about 25 pounds during the past year and suffered from some shortness of breath and pain in the lower abdomen. Physical examination was negative except for the thigh of the left leg (Fig. 13), where there was a rounded black tumor mass, 3 cm. in diameter and elevated about 2 cm. above the surrounding skin surface. The skin at the edge of the tumor was also deeply pigmented. The surface was ulcerated and bled easily. The entire lesion was excised Feb. 2, 1929. The elliptical section of skin showed a papillary tumor mass 3 cm. in diameter with 1 cm. of darkly pigmented skin surrounding it. The surface was ulcerated, and cross-section showed the lesion to be rather superficial and distinctly papillary. In the sections (Fig. 14) the structure was rather fibrous, with superficial papillary formation, the surface eroded and necrotic with hemorrhage. There were numerous large nests of nevus cells throughout the tumor, with a scattering of small masses of larger and heavily pigmented cells in disorderly arrangement. In some portions the superficial epithelium was very atypical in size, shape, and staining reaction, which, together with an occasional mitosis, suggested an epithelial origin. When the patient was last seen, during July 1929, there was no evidence of recurrence or metastasis.

Case IX: A. P., a colored female, aged fifty-five. A slide in this case was received from the Emory Division of Grady Hospital, for diagnosis. The patient gave a history of having picked a "sore spot" on her foot in April 1929. This became inflamed, and the entire foot was sore and painful. On admission, Dec. 10, 1929, there was an ulcerated, cauliflower tumor mass on the medial side, dorsum, and plantar surface of the left foot, at the metatarso-phalangeal joint. The tumor measured about 4 cm. in diameter, and the outer portions were considerably darker than the central part. The tumor was firm, and painful to pressure. The left inguinal nodes were large and firm. A biopsy had been done and a report of "melanoma" made, following which amputation was done in

![Fig. 13. Case VIII. Melanoma of Thigh](image-url)
Fig. 14. Case VIII. Melanoma of Thigh. × 175

Fig. 15. Case IX. Melanoma of Foot. × 175

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the middle of the lower leg. The inguinal nodes were removed at the
same time. The patient left the hospital in good condition on March 8,
1930.

The slide showed considerable thickening of the superficial epithelium
and some hornification. The basal layer was regular in outline and
normal in appearance. Toward one edge there were ulceration and
necrosis. Under this was a cellular tumor (Fig. 15) composed of small
spindle and polyhedral hyperchromatic cells with most of the structure
obscured by large masses of dark brown pigment, which was scattered
all through the section. Some portions were rather fibrous, with scanty
vessels. No deep necrosis or infection was observed.

**Discussion**

In this series we find the same variety of structures as are met
with in any group of melanomas. It is easily seen that from a
histological view, melanoma in the negro is identical with that in
the white race. In some of these cases the entire tumor was com-
posed of large, hyperchromatic spindle cells, strongly suggesting
a mesoblastic origin. In this group there is nothing which could
be identified as of epithelial origin or which even suggests such an
origin. The cells have lost all resemblance to any nevus type of
cell. In a second group the cells are of a more flattened type, al-
most pavement in character, resembling or suggesting a possible
epithelial origin, although pearls, hornification, and spines are
lacking. Alveolar formation is found in some of the cases, al-
though it is not so marked as in other tumors composed of smaller,
more indifferent types of cells. The structure of many of these
shows marked alteration due to infection and necrosis.

The amount of pigment is no criterion for the estimation of the
malignancy of the tumor. All the tumors in this series showed
pigmentation in varying amounts, some being so deeply pigmented
in portions as to obliterate the cellular structure, while in others
only minute traces of pigment could be found. It is well recog-
nized, however, that many of the most malignant melanomas show
little or no pigment, and absence of pigment is frequently observed
in metastases.

From the foregoing discussion and case reports, it will be seen
that, though rare, melanoma does occur in the negro, probably
more frequently than is realized. Though the origin of these
tumors in the negro race is a matter of conjecture, yet the clinical
and pathological features are identical with those of similar tumors
seen in the white race, and the ultimate outcome, in spite of treat-
ment, is equally disappointing.
References

8. Ibid., p. 937.
9. Ibid., p. 922.
10. Fox, Howard: Personal communication.