Malignant melanoma of the skin in black South Africans: A 15-year experience

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Summary

Aim. To document the anatomical distribution of melanoma, extent of disease, results of treatment and survival among black patients in the north-eastern part of South Africa.

Methods. All available histological material was reviewed. All available addresses of patients were consulted to establish the status of patients treated in the drainage areas of, or referred to, Kalafong Hospital or Pretoria Academic Hospital retrospectively and prospectively for the 15-year period 1969 - 1983.

Results. Of the 185 patients with melanoma who were documented, 10 were eliminated for various reasons. Among the remaining 175 patients there were 128 documented deaths, 35 patients having died of melanoma within 1 year of presentation. Thirty patients survived for more than 3 years.

Because of late presentation and the nature of the disease, malignant melanoma has a very poor prognosis in black patients in South Africa.

Acral lentiginous melanomas develop on palmar, plantar and subungual skin and are, with few exceptions, the only form of melanoma occurring in black people. Most South African black patients present late for treatment, are in an advanced stage of the disease, and are therefore candidates for palliative rather than curative treatment.[1,2]

Because of difficulty with long-term follow-up, the ultimate fate of black patients presenting with such melanomas is to a large extent unknown. In this study of 175 patients a determined effort was made to establish the eventual outcome of the disease and to gather information on its course following diagnosis and the effect of the treatment given.[3]

Patients and methods

Selection process

During the 15-year period 1969 - 1983 a total of 185 black patients with melanoma were seen at Pretoria Academic and Kalafong hospitals. These cases were identified from a retrospective search of hospital records (1969 - 1972) and subsequently from prospective records kept at these hospitals (1973 - 1983). In 10 of these cases there was no demonstrable primary lesion or the primary lesion was on the mucous membranes of the face or anus and therefore not an acral malignant melanoma. These 10 cases were excluded from the series and the remaining 175 cases, all with acral malignant melanomas, are the subjects of this report.

To make the series as comprehensive as possible, all available sources of information were perused, including histopathological records, histology specimens from referring hospitals, and patients' hospital notes and records. A small number of these patients were the subject of an article published in another South African series covering cases presented at Baragwanath Hospital.[4]

All the cases initially seen at Pretoria Academic or Kalafong hospitals were confirmed histologically at the Institute for Pathology of the University of Pretoria. Histological material was also obtained from referring hospitals to determine Clark and Breslow levels.[5]
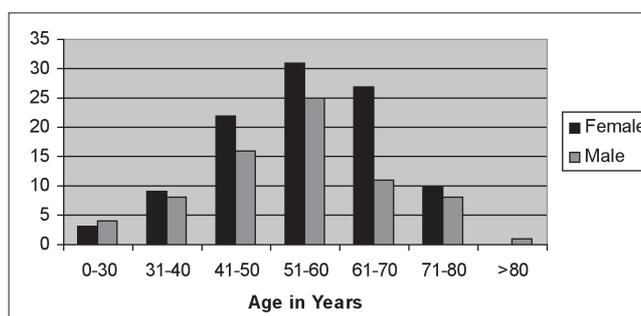

Fig. 1. Gender/age breakdown of 175 black patients with malignant melanoma.

Age

The age distribution is shown in Fig. 1. The majority (64.1%) of the patients were in the 50 - 70-year age group. Accurate establishment of the year of birth was not always possible.

Gender

As in most other series throughout Africa there was a preponderance of female cases (59%), with a male/female ratio of 1:1.43. Other series show the ratio skewed to either male or female preponderance.[6]

Physical location

The patients all either lived in the vicinity of Pretoria or had been referred from hospitals and clinics in rural areas, mostly to the north of Pretoria. Of the 175 patients in this series, 19% came from an urban environment.

Follow-up procedure

The follow-up procedure involved regular contact, wherever possible, with the patient through postal, telephonic or personal inquiry to all addresses on the admission documents. Where no contact could be made with a patient, other avenues of contact were used such as with hospitals/clinics where the patient may have subsequently been admitted or with school headmasters, police or social workers.

Findings

Stage of disease

At the time of presentation, clinical stage I disease was recorded in 55 patients, stage II in 90 and stage III in 25 patients (data for 5 cases had not been recorded). These figures illustrate the relatively advanced disease at initial diagnosis. This is further demonstrated by the dimensions of the primary lesions as determined clinically. Of the 114 cases where the clinical size on presentation was recorded, 66 (58%) were ≥40 mm in at least one dimension.

Treatment

The standard initial treatment was wide local excision. This was done in 107 cases, either subsequent to an incision biopsy or as the definitive local operation. For various reasons some treatments did not progress beyond the biopsy stage.[7,8]

Because of the size of the presenting lesion, together with a safe surrounding excision margin (2.5 cm), the resulting defect often represented a considerable area, particularly when on the sole of the foot. The deep margin of the excision was taken down to the plantar fascia or bone in the region of the heel. More than 90% of the sample presented with melanomas of the distal lower limb.

In spite of these being weight-bearing areas, split skin grafting was shown to be a satisfactory cover for the defect. Unfortunately many of the operations were relatively contaminated at the time of the excision procedure with subsequent skin graft loss. Repeat grafting was often necessary. The skin donor site was invariably on the opposite limb to the primary lesion.[9,10]

In lesions on the heel, where adequate local excision would have resulted in an unusable foot, below-knee amputation was the usual indicated procedure. However, because of the reluctance of many of the patients to accept amputation as an option, less adequate local excision was done. Fortunately

in spite of this compromise local recurrence was very uncommon and recorded in only 4 cases.[11,12]

Block dissection of the femoral (53 cases) or ileo-femoral (4 cases) region was performed in 57 cases either as a prophylactic or palliative procedure.[13]

Elective block excision of glands was sometimes done without lymph nodes being palpable because long-term follow-up of patients was unreliable.[14,15]

Nowadays this decision would be based on the results of a central node biopsy, although the problem of unreliability of follow-up remains.[14-16] By today's standards all of this series of cases would have qualified for elective excision of the regional lymph nodes on the basis of depth of infiltration of the primary lesion. The long-term results of this policy of excision were often unsatisfactory in that not only was the limb swollen with lymph oedema, but there was also diffuse infiltration by melanoma tissue trapped proximal to the block excision.[10,11]

No major ablative procedures were attempted. It has been suggested that the removal of a large tumour of the extremities or its destruction or injury by perfusion could eliminate any competition for nourishment, permitting uninhibited growth of the occult lesions.[15]

Deep radiotherapy was done in 34 cases because of refusal of surgery as treatment to control the primary lesions or as a palliative procedure for inoperable inguinal node infiltration. The results were not dramatic, but did sometimes serve to slow the local progress of the disease.[10]

One patient received chemotherapy. A 78-year-old woman initially presented at a peripheral hospital with a lesion on the heel and enlarged inguinal glands. The nodes were irradiated and she also received a course of procarbazine hydrochloride. She subsequently developed a pathological fracture of the femur and died 6 months after the initial diagnosis.

None of the patients in this series was treated with local perfusion.[17] Excision of massively enlarged and ulcerating glands was sometimes done in spite of demonstrable distal metastases in order to remove malodorous, bleeding tissue. Considerable palliative improvement was usually achieved. Moore and Gerner maintain that this is not justified.[10]

Pre-existing lesions

It has previously been suggested that local trauma to the feet is a possible causative agent explaining the relatively high incidence of lesions of the lower extremity in black patients.[8,18] Lewis and Johnson[19] have investigated this hypothesis without providing information to confirm this possibility. Series describing the anatomical distribution in African-Americans also show a higher incidence of lesions on the feet in a group who probably seldom traumatise their feet by walking barefoot.[5]

The possibility that an injury to the area drew attention to an already existing lesion cannot be excluded.[23]

In our series, only 9 of 153 patients related the development of the tumour to a previous episode of trauma.[20] Twelve patients were aware of a precursor naevus at the eventual site of the tumour.[21,22] Naevi on the soles of the feet have not been shown to be significant precursors of melanoma development.[31,23]

Site of the primary lesions

The present series shows the incidence of primary lesions to be highest on the lower limb, 171 being on the foot itself or,
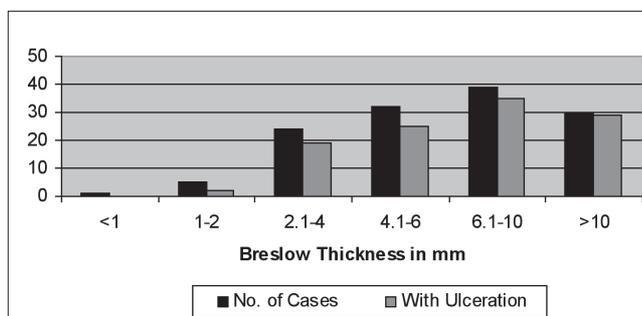
Fig. 2. Breslow thickness of 175 malignant melanomas in black patients, showing number of cases with ulceration.

in one case, on the ankle. Most of these lesions were at the junction of the sole with the dorsal, pigmented skin. A survey of the melanoma literature shows a progressively higher percentage of melanoma on the lower limbs in the more pigmented races, but it is extremely rare in the Australian aborigine.[1-3,5,8,24,25]

Of the 175 lesions, 4 were on the digits of the hands.

There were no albinos in the series.

Pathology

In 20 cases the macroscopic dimensions of the excised tumour were recorded. The sizes varied from 14×13×5 mm to 80×100×70 mm.[26]

All the available histological material at the Institute for Pathology of patients treated at Pretoria Academic and Kalafong Hospitals was reviewed, as was material obtained from referring hospital's histology laboratories.

The Breslow levels of the melanomas are shown in Fig. 2.

The Clark levels were determined, in 131 cases the Breslow thickness of the tumour was measured, and the presence or absence of ulceration was recorded. In a number of cases only a minimum value could be established because of the size of the tumour. None of the cases was found to be Clark level I or II. Three cases were Clark III, 60 were Clark IV and 62 were Clark V. Eighteen cases were determined to be at least Clark IV.

Measurement of the Breslow thickness, done in 131 cases, showed only 1 lesion to measure <1.00 mm (0.73 mm); 1 lesion measured 1.06 mm and 4 further lesions <2 mm (1.90 and 1.98 mm); 19.2% measured between 2.28 and 3.99 mm, 19.1% between 4.18 and 5.89 mm, 30.9% between 6.0 mm and 9.96 mm, and the rest >10 mm. The thickest lesion measured was 20.52 mm. In 26 cases the Clark level could not be evaluated on the available material and in 19 cases the Breslow thickness could not be measured.

Of a total of 148 cases, 118 lesions were ulcerated, 20 showed no ulceration and in 10 cases the presence or absence of ulceration could not be determined.[43,27]

From the above figures it can be seen that the great majority of patients had very advanced lesions with a poor prognosis when first seen at hospital. Additionally, 90 patients (i.e. all the clinical stage II cases) had palpable lymph nodes in the primary drainage area of the tumour when first seen, and in 8 of these cases the metastatic tumour had already ulcerated through the skin.

Follow-up

Because of the lack of published data on the long-term follow-up of melanoma cases in Africa, a determined effort was made to trace each patient by any means possible. Postal, telephonic or personal enquiry was made at all available addresses recorded on the admission documents. Letters of enquiry addressed to school principals resulted in a remarkable return of useful information.

Of the 128 patients documented as having died, 35 had died of melanoma within 1 year of presentation (43%). Within 3 years, 6 had died of other documented causes and in 8 cases the cause of death was unknown but was probably melanoma. Of the remaining 79 patients, 30 survived longer than 3 years.

Clinically, of the 170 patients for whom adequate data were available, 55 (32%) had stage I, 90 (53%) stage II and 25 (15%) stage III disease at first presentation at hospital.

Of 128 patients with adequate follow-up, 20 were alive with ongoing melanoma and only 10 were free of clinical disease. At 3 years, 92% were therefore either dead of disease or harboured residual disease.

Four patients survived for more than 100 months (113, 121, 127 and more than 120 months).

Multivariate analysis was unable to identify any factor predictive of long survival. However, depth of infiltration (Clark levels), thickness of the primary lesion and ulceration were highly significantly related to poor survival.

Discussion

Previous series describing melanoma in people other than whites have all shown a high incidence of primary lesions on the extremities, especially the lower limbs. In this series no case of primary malignant melanoma was diagnosed on any skin area proximal to the wrist or ankle.[43,28,29]

Malignant melanoma in black patients in southern Africa frequently presents at a clinically advanced stage of the disease. One hundred and fifteen cases in this series were clinical stage II or III. This is further shown by the depth of infiltration and ulceration and macroscopic size of the tumours. It is therefore not surprising that the survival of most of these patients was poor in spite of achieving at least adequate local control of the disease. Very occasionally, however, patients with clinically advanced disease survived for unexpectedly long periods of time.

In spite of the size of the primary lesions, adequate local control with primary excision was usually satisfactory. A number of publications refer to 'wide excision' without defining 'wide'.[2,9,30] In this series a margin of 25 mm could usually be achieved. The benefit derived from block excision of the draining lymph nodes is debatable. The object of such a dissection/excision is to remove the first draining lymph station to prevent further dissemination, but in our experience this objective is seldom achieved, hence the dismal rate of survival. Certainly block excision prevents the development of ulcerating, fungating tumour in the later stages of the disease, but success with regard to clinical cure in the long term is doubtful.

Current practice would couple the decision to do a block dissection of the regional lymph nodes with the results of a sentinel node evaluation.

A number of series comment on the later clinical presentation of black patients than in other groups. No explanation is offered.[5,9,31] Malignant melanoma in the Australian aborigine appears to be extremely rare.

Not all our follow-up letters or enquiries reached a destination that could supply information. A number

of patients contrived their 'formal' discharge on rather transparent excuses and were never seen again. Others refused any further treatment following a variety of incidents or even because of dreams they had had. This explains a number of cases where treatment did not progress beyond or even reach the biopsy stage.

As in any substantial series of melanoma cases, a number of bizarre clinical results were seen. Not all of these cases are part of this analysis.

A patient who survived for 115 months had metastases in 4 of 10 glands at the time of his initial treatment. During his terminal admission some metastatic skin tumours in the skin of the originally affected limb showed regression, while immediately adjacent to these lesions new metastatic tumours were developing, possibly indicating some degree of immune response. Another patient (not in the series) with an occult primary lesion diagnosed on excision biopsy of a metastatic nodule deep to the long saphenous vein in the mid-thigh was still alive 12 years after the initial diagnosis.

Despite adequate local control, acral malignant melanoma in the black African patient remains a disease with a dismal prognosis.

Conclusion

Acral lentiginous melanoma in black patients usually presents at an advanced clinical and histopathological stage with an expected poor prognosis. The course of the disease and the outcome of treatment of these patients are poorly documented.

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