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Cutaneous malignant melanoma: Tabuk experience

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Summary
Cutaneous melanoma (CM) has a rising morbidity and mortality in the western world but is rare in certain geographical areas including the Middle East. The aim of this study is to define the pattern of CM in this environment over a period of about two decades.

A review of associated histological reports, dermatology, plastic general surgical admissions and outpatient census statistic of the North West Military Hospital (N.W.A.F.H.) were carried out from January 1978 to June 1996. The clinico-therapeutic information from both the review case and newly discovered CM was then studied.

The result shows that CM is probably rare in the Tabuk military environment and possibly has a low mortality among the affected individuals.

The presence of only 2 cases of CM among 73,955 patients over about 20 years suggests that this neoplasm is rare in N.W.A.FH. Surgery, with localised expert reconstruction, probably offers the best cure for uncomplicated CM in this area. It is suggested that the geographical environment, genetic attributes, custom, attitude, presence of white, painted, sun-reflecting buildings, traditional dress-code, and behaviour of the indigenes probably contribute to the suppression of and protection against CM in Tabuk. It is recommended that regular, anti-mlanoma education awareness programmes among the indigenes and avoidance of sunbathing attitude of the expatriate community should be encouraged in order to maintain this suggested natural selection protection.

Keywords: *Melanoma, Epidemiology, Skin neoplasms, Surgery, Hospital, Saudi Arabia.*

Résumé
Le melanome cutané (CM) a un taux croissant de morbidite et de mortalite dans le monde occidental. Il est rare dans certaines regions geographiques incluant le moyen-orient. Le but de cette étude a été de definir le mode de CM dans l'environement du moyen orient, sur une periode de près de 20 ans. Une revue d'une association des rapports histologiques, dermatologiques et de chirurgie plastiques generale des patients admis et venant de l'exterieur a été compile a l'Hopital Militaire du Nord-Owest (N.W.A.F.H.). Cette compilation couvre la periode de Janvier 1978 à Juin 1996. Les informations clinico-therapeutiques des cas revus et des cas nouvelement decouverts de CM a été etudie. Les resultats montrent que le CM est probablement rare dans l'environement du camp militaire de Tabuk et a possiblement un taux faible de mortalite parmis les individual affectés. La presence de 2 cas seulement de CM parmis 73.95 patients sur une periode de 20 ans suggere que le neoplasme est rare au N.W.A.F.H. La chirurgie avec une reconstruction localise, offre probablement la meilleure guerison pour des cas non complique de CM dans cette region. Il est suggeré que l'environement geographique, les attributs genetiques, les coutumes, l'attitude, des abtiments blancs, batimoments refletant le soleil, le mode d'habillement traditonel et les habitudes des indigenes contribuent probablement à la suppression et protection contre la CM à Tabuk. Il est recommendé que un programmme regulier d'education et de prise de consciente contre le melanome sit developpé parmis les indigenes, et l'évitage des bains de soleil de la communaute expatrie devrait etre encouragé afin de maintenir cette protection naturelle.

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Introduction

The increased awareness among the western community to cutaneous melanoma (CM) has created an upsurge in the incidence and mortality of this disease [1]. This has ignited world wide prolific publications on this disease. This plethora of medical reports had catapulted CM to be one of the most important malignancies. CM has been associated with certain environmental and host factors: sunlight exposure, trauma and skin complexion among caucasians [2-6]. However, there is a poverty of medical reports about CM among Mediterranean or middle eastern population [7-8].

Tabuk, a Saudi Arabian northwest city about 2500 metres above sea level, and 150 kilometres from the Red Sea, sandwiched between Jordan in the north, and Egypt in the southwest has a population of about 100,000 people whose health is serviced by three hospitals: two Ministry of Health hospitals and one for the Ministry of Defense. The latter runs the North West Armed Forces Hospital (NWAFH), a 350-bed medical facility, in collaboration with the Royal Colleges of Surgeons & Physicians of Ireland. It is a teaching hospital with referrals from not only the other two non-teaching hospitals but also from other parts of the region. NWAFH, having been developed in collaboration with the west, has first-class surgical and medical facilities comparable to any standard European hospital.

In view of the uncommon reports of this interesting disease in the Middle East, we report an index case and an 18-year histological review of 926% general, assorted tissue biopsy specimens seen during 1978 and 1996 at a busy tertiary middle eastern medical centre. Furthermore, in order to highlight the pattern of CM in this hospital, the census statistics of dermatology and general, plastic surgical patients seen within the same period and in-patients seen in 1996 were also carried out.

Materials and results

Case 1

A 60-year old Saudi female reported in the Dermatology Clinic in November 1996 with a ten-year history of progressive, painless, localised hyperpigmented progressive left planter skin. She was not sure if she had any previous, precursor discolouration, e.g, a naevus of this area. She was worried when she noticed two discharging tender areas on

the centre of the dark skin. She used to walk barefooted at times.

On examination, she was a frail, slim lady, weighing 57 kg, 137 cm tall, with macular hyperpigmented, circumscribed area over left sole extending anteriorly to the webbed spaces between the 2nd, 3rd and 4th toes in the front covering a total area of 3x4 cm (Fig 1). The lesion had a variegate colour: brownish black. Proximal to the lateral three toes were two black necrotic nodules discharging serosanguinous fluid. She was normotensive, while there was no enlarged regional lymph glands. A clinical of Acral lentigo maligna melanoma was made.

Fig. 1: Left foot showing the planter discoloration (Lentigo Maligna)

Investigations: Sickly: positive, Genotype: AS, Chest, skeletal X-ray and CT abdomen for lymph glands were negative. Hamogolobin 12.1%, Hepatitis B surface antigen: negative Hepatitis C virus antibody: positive hepatitis B surface antibody: positive, venereal disease research laboratory test: negative; liver function tests, blood urea and electrolytes. No abnormalities detected. Swab of the discharging module: scanty gram-positive and negative bacillie but culture was negative. Skin history: abundant and dense melanin pigment in the infiltrating cells of the dermis while the melanocytes exhibited pagetoid epidermal spread. The infiltrating cells of the dermis while the melanocytes exhibited pagetoid epidermal spread. The infiltrating cells show both hyperchromatic, nucleated, spindle and epitheliodid cell types (Fig. 3). The tumour was 4 mm deep with dermal collagenisation between the perivascular and perineural tumour nests down to the subcutaneous fat. The necrotic nodular areas showed infrequent mitotic activity of the melanocytes with prominent melanin-engorged dendritic processes. (Fig 4). Histological diagnosis: Acral lentiginous melanoma (with the margins and the subcutaneous tissue negative for melanoma). CLARK LEVEL v. She had an immediate full-thickness extirpation of the tumour with 1 cm margin. Since the patient refused to skin flap, the deficit area was surgically repaired and reconstructed with a transpositional full-thickness skin graft taken from right thigh [Al-Shalash & Al-Shareef] (Fig. 2). She had an uneventful recovery and was discharged 3 weeks after the operation. The patient has not reported any complaints since discharge.

Fig. 2: Lentigo malgna melanoma of left sole. Left foot post surgery with the high skin graft.

Fig. 3: Lentigo maligna melanoma skin histology. Haematozylin & Eosin Stain. Magnification: 200 x. Showing malignant melanocytes with dense melanin pigments

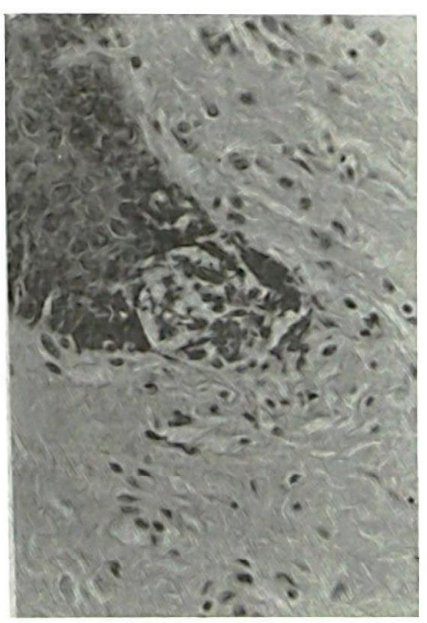

Fig. 4: Lentigo magna melanoma skin histology. Haematotoxylin & Eosin Stain. Magnification: 400 x showing melaoma cells and nest

Case 2

A 70-year-old Saudi female was admitted in March 1978 for treatment of relapse of a previously excised and grafted black nodule over the right cheek. Four months subsequently she developed a recurrence with ulceration of the skin graft.

On examination there was a 2.5 cm wide, depressed/split skin graft of the right cheek extending to the right lower eye lid. There was an ectropion of the right lower eyelid, and a 7 mm ulcerative invasive lesion. The surrounding area was indurated and hyperpigmented. Investigations: LFT, chest, abdomen, x-rays were normal. Skin biopsy: malignant melanoma.

A wide excision of the tumour was carried out. This involved the removal of both the old graft and the recurring tumour. The cutaneous deficit so created was grafted with a flap transferred from the forehead skin. The patient was discharged thirteen days postoperatively in good condition.

Discussion

A patient population of 60,360 and 13,595 attended the general and plastic surgery and dermatology clinics, respectively, between 1978 and 1996. However, throughout 1996, there were only 120 and 12 plastic surgical and dermatology admissions, respectively, which only two demonstrated the features of CM.

Our study highlights a probable rarity of CM in Tabuk, Saudi Arabi. This possibly connotes a salient environmental factor repressing CM incidence among the indigenes.

In Saudis, on the other hand, this pattern of CM may be due to host factors, e.g. the Saudis were all-white dresses (Thobe), which reflect UVA and cover the whole body, while westerners expose the skin to sunlight. The histological review of biopsy specimens over the past one-and-a-half decades revealed only one patient. This is not surprising realising that CM incidence increases among the caucasian race in proportion to the patient's latitude of residence [9]. CM in patients from Tabuk, an area in latitude 28^0-29^0 north, will even be rarer. The result of this study validates the works for Mughal & Robinson from Riyadh, Saudi Arabia (1982) [8] (which at that time had many expatriates). Although the latter reported 22 patients within 7 years and we reported 2 patients over an 18-year period. This is not unexpected as Mughal's study was from a national referral centre with higher awareness among the western medical personnel.

It is possible that not all cases of Tabuk CM were seen in NWAFH. Notwithstanding, comparing Tabuk and Riyadh experiences, the incidence is still low.

Even though our case 1 demonstrated lentigo maligma melanoma (LMM), which has a better prognosis than those of mucous membrane and the nodular varieties [10,11], Clark et al. (1969) [11] reported that the deeper such a tumour is the worse the prognosis, while Breslow (1970) [12] confirmed that palpability of such cancer is quicker, reliable and rough prognostic index [9-12]. But there are certain ominous parameters in CM patients: male sex, over 50-year age-group, modularity of ulceration, peripheral site of tumour (head, hands, feet), and presence of metastases [13-14]. However, our patients revealed some grave indicators: recurrent tumour, ulcerative nodules, acrol lentiginous melanoma, tumour thickness site and derma invasion of tumour.

This study also demonstrates the age presentation of CM, although our two patients had two different predisposing factors in the evolution of CM. The former patient, probably initially had lentigo maligma [15], while the other patient had a relapse of his CM on the right cheek [16]. Yakubu & Mabogunje (1995) recorded an 89% occurrence of CM on the feet and 50% of these appeared on the soles, among northern Nigerians [17].

The left sole tumour of Case 1 may be due to multifactorial reasons such as traumatisation and ultra-violet radiation of planter melanocyes from barefooted walking which may lead on to unexplained melanocytes hyperplasia and probably carcinogenesis, as previous suggested by Yakubu and Mabogunje among Northern Nigerian patients [17]. Although Case 1 probably has a good prognosis (in view of her sex and absent clinical suspicion of secondaries) the presence of Stage V Clark's Type histology could be a grave omen [14].

Most importantly, survival in CM depends on the treatment modalities employed in terminating the disease: chemotherapy, cryotherapy, immunomodulation and surgical therapy [14]. Case 1 did not have any destructive localised therapy, which has the demerit of not totally removing the cancer, even though it confers the best choice of treatment in elderly patients. The complete removal of the cancer without regional lymph node resection (which adds no prognostic advantage) in our patients probably gives them a promising future [1, 18-19].

Case 1 revealed the role of reconstructive surgery in the management of foot CM. The skin graft established warmth of her foot with easy, postoperative, painless mobilisation. Ideally an adipofascial flap, which will maintain a continuum of the neurovascular patency, should have been used had the patient agreed. She is still being followed up with regular CT, chest x-ray and clinical evaluation [14].

The low morbid incidence of cutaneous melanoma in Tabuk, Saudi Arabia, is probably because of the natural, Middle Eastern complexion of the inhabitants. Moreover the attitude and behaviour of the Saudi stick abstainance of outdoor business from 12 noon to 4 pm [i.e. avoidance of exposure of maximum ultraviolet radiation] also contribute to the low incidence of this cancer. Furthermore, the custom of painting all buildings white further helps in reflecting UVR away from the skin of Saudi individuals and reduces the incidence of CM.

This study also shows that Case 1 would not have developed LMM had she reported earlier, especially if she had left plantar congenital naevus [9]. Therefore there is a need for awareness education programmes among both the indigenes and European expatriates. This campaign should involve the general practitioners, physicians, nurses, well-baby clinics, schools and establishment of self-screening programmes among the expatriate.

In particular, suppression of sunbathing attitude among the latter community will go a long way to minimise the incidence of CM in Tabuk.

It will be nice to collaborate with colleagues in other Gulf States (e.g., Kuwait, Bahrain, Jordan) with modified dress codes and outdoor attitudes to observe difference, if

any, in the incidence of CM and other non-cutaneous melanoma.

It can be concluded that the knowledge of the damaging effect of sunlight on the skin, attitude and practice (KAP) of the Saudis, confer a protective advantage on the indigenes against developing cutaneous melanoma.

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