



THE CENTRAL AFRICAN JOURNAL OF MEDICINE

Vol. 43, No. 6

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June, 1997

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Actinic keratosis: a case of sun damage in the tropics.

OA OLASODE, O ONAYEMI, *BJ OLASODE, *WO ODEANMI

Sun damaged to the skin in the tropics is not an uncommon event. There is need for a high index of suspicion especially in patients with outdoor occupations. Prompt diagnosis and therapy will prevent progression to a cancerous state.

We report a case of cutaneous horns secondary to actinic keratosis, a pre-cancerous condition relatively uncommon in Black skin. The importance of histological support in its diagnosis cannot be over-emphasized.

Case report

A 46 year old Nigerian farmer previously a timber merchant presented at the dermatological clinic of our Teaching Hospital in Ile-Ife, Nigeria. He was referred from a private hospital for an expert's evaluation and management. He gave a six year history of a progressively growing mass on the left thumb. This started as an itchy hypopigment patch on the left palm and gradually spread to involve the dorsu.. and palmar surface of the thumb. There was no preceding history of burns or any other form of trauma.

The patient later noticed a painful growth on the hypopigment scarred patch and this continued to increase in size creating an ugly spiky mass. There were no systemic symptoms but the embarrassment and incapacitation caused by the craggy mass made him desperate to seek expert care. Previous treatment he received included topical applications of sulfur and penicillin ointments and also a course of systemic penicillin.

Physical examination revealed a craggy verrucous mass infiltrating the proximal two thirds of the left thumb. The

underlying hypopigmented atrophic area of skin was surrounded by a hyperpigmented rim (Figure I). The nails were not affected and there was no clinical evidence of solar damage in other parts of the skin. The clinical picture was in keeping with a massive cutaneous horn on a depigmented patch. The X-ray of the hand revealed no involvement of the underlying bones. A skin biopsy of the active edge was taken for histological diagnosis.

The histological examination showed markedly hyperkeratotic and acanthotic epidermis with elongation and fusion of the rete pegs. The epithelia cells were pleomorphic with dysplastic nuclei especially in the basal area. Occasional mitoses are seen but there is no invasion of the dermis (Figure II). The histopathologic report was actinic keratosis.

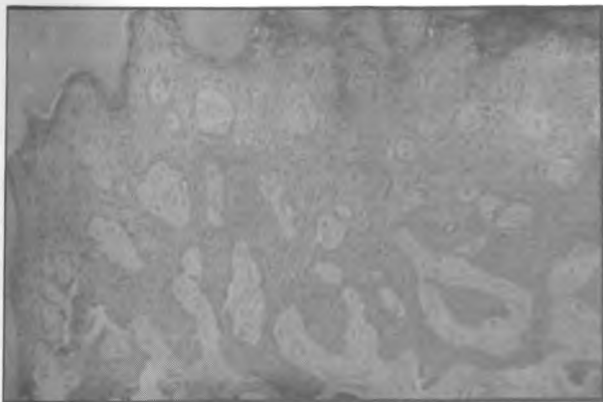
Discussion

Actinic or solar keratoses are sun induced epidermal dysplasias which are premalignant. They usually present as multiple discrete hypopigmented or reddish flat lesions with adherent scales which later can develop into horn-like masses called

Figure I: Massive cutaneous horn overlying actinic keratosis. Note the preservation of the thumb.



Figure II: Markedly acanthotic epidermis. The epithelial cells are pleomorphic and with dysplastic nuclei especially in the basal area (hematoxylin and eosin stain).



cutaneous horns as a result of exuberant hyperkeratosis. They are seen primarily in chronically sun exposed areas of the skin especially the face, ears, nape, bald head and the back of the hands. Occasionally they can be seen on the lips.

It is known that chronic exposure to the ultraviolet (UV) component of solar radiation is the major environmental cause of actinic keratoses (AKs), but intrinsic (host) factors also play an important role in its etiology.¹ For instance, AKs are common in the elderly White population^{2,3} but can affect fair skinned younger people in the sunbelt regions.⁴ They are more common in men than in women. Reports from Australia showed that increasing age is a predisposing factor with 40 to 50% of affected persons aged 40 years and above.^{5,6} There is a significant increase among people who have blue eyes and among those who burn easily or never tan compared with those who burn rarely or who tan easily. A few genetic syndromes such as albinism and xeroderma pigmentosum predispose individuals to the increased risk of developing UV related skin tumors including AKs.^{7,8} Outdoor workers are at a greater risk of developing AKs than indoor workers and they show more severely sun damaged skin. These damaging effects of the sun on the exposed skin are directly related to the wavelengths and to the total dose of UV radiation.⁶

Our patient was a farmer but formerly a timber merchant. Remarkably, both occupations predisposed him to repeated exposures to UV radiation with its cumulative effects on the

skin. These cumulative effects are influenced by the intensity, duration and frequency of sun exposure,^{4,5} and are less severe in Blacks than in Whites because of the photoprotective properties of melanin.

Melanin is a major absorber of both UV and visible light in the skin. This property of melanin reduces the quantity of UV radiation especially ultraviolet-B (UV-B), that reaches the papillary dermis of Blacks in contrast to that of Whites.¹⁰ Furthermore, the density and number of stratum corneum layers in the Blacks skin are estimated to be greater than Whites.¹¹ This probably also attenuates the damaging effects of the sun on the dark skinned persons. As a result, AKs are not usually seen in Black skin except where there is a defect in the photoprotective properties or synthesis of melanin.

The depigmented macule on the dorsum of our patient's left thumb coupled with the nature of his job could have predisposed him to the actinic damage and the subsequent development of cutaneous horn.

Cutaneous horns are benign hyperkeratotic protrusions which may occasionally have antler-like projections. They occur often on the face and the scalp but may be seen on the hands like in this patient. They may occur in isolation but could complicate conditions such as seborrheic keratoses, basal cell carcinoma, squamous cell carcinoma, viral warts and AKs.^{12,13} Since AKs are very rare in Blacks, a high index of suspicion backed up by histological examination of the base of the lesion is necessary for prompt diagnosis and treatment. The appearance of a cutaneous horn in AKs is an indication for biopsy to exclude malignant transformation.¹⁴ It is important to have many sections through the tissue block of a suspicious keratosis in order to exclude any complicating squamous cell carcinoma since AKs could be precursors of squamous cell carcinoma although such risk of malignant transformation appears to be less than one per 1 000 per year.¹⁵

Treatment of AKs includes cryotherapy, topical cytotoxics, curettage, diathermy and surgical excision. Guided exposure to sunlight in elderly Whites and light skinned individuals together with the use of sun screens, are preventive measures for avoidance of epidermal dysplasia. Follow up assessment of the patient is essential.

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