



Skin Cancer in an Albino Child: Is Ultraviolet Radiation Causing Faster Damage to the Skin?

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Abstract

We present the case of a thirteen-year-old male albino who had a one-year history of an ulcer on the scalp. The ulcer started as a nodule which ruptured and formed an ulcer. The latter enlarged gradually with mild pain and occasional foul-smelling discharge. We prepared him for excision biopsy and split thickness skin grafting. The histology result showed squamous cell carcinoma. The photomicrograph is shown on figure two.

Aim: To show that skin cancers may be occurring in younger people in recent years.

Keywords: Albino; Skin cancer; Solar damage

Introduction

Albinism is an autosomal recessive condition that results in inadequate or absence of melanin in the skin and other tissues. The melanocytes, the cells that produce melanin, though present, fail to produce the pigment because an enzyme, tyrosinase, is either absent or does not produce enough melanin. Therefore, there is variable absence of melanin depending on the degree of activity of the enzyme. Besides, focal failure of the enzyme in different parts of the body gives rise to conditions such as ocular albinism or isolated absence of melanin in the hair or any other part of the body.

The main culprit in the aetiology of skin cancers is ultraviolet radiation [1,2]. On the electromagnetic spectrum the ultraviolet radiation occupies the wave lengths between 400 nm and 200 nm, 400 nm to 700 nm being the visible spectrum. Ultraviolet radiation- A, B and C presently have health significance. Ultraviolet radiation A was initially thought to affect mainly the aging process by causing wrinkles but it has recently been implicated as a cofactor to UVB [3]. The latter is known to cause most of the skin cancers because it gets to the earth in significant amounts. Ultraviolet radiation C does not get to the earth in significant amounts because the ozone layer filters it out. However, production of fluorocarbons by human activity is making the ozone layer thinner and this will make UVC to steadily increase its appearance on the earth. It has been shown that the shorter the wavelength of ultraviolet radiation, the more the carcinogenic effect on the skin. Therefore UVC, having the shortest wave length among the ultraviolet rays, will cause more skin cancers if it gets to the earth in significant amount. Carcinogenicity of UV radiation is caused by mutation on the DNA [4]. Photochemical damage by UV radiation is repaired by P^{53} gene products and the repair mechanism is impaired with aging giving rise to skin cancers [5-7].

Case History

This is the case of a thirteen-year-old male albino who presented to us with a scalp ulcer of one-year duration. The ulcer started as a nodule which continued to increase in size and ruptured spontaneously to discharge a foul-smelling fluid. There was mild continuous pain and occasional fever. Dressing of the ulcer with honey and administration of tablets purchased over the counter did not heal it. Neither the patient nor his parents had education on sun protection for albinos [8] (Figure 1).

On examination the patient was chronically ill looking, mildly pale, anicteric and afebrile. The vital signs were a temperature of 36.8°C, pulse rate of 86 beats/minute and respiratory rate of 20 cycles/minute. There was extensive solar keratosis over the head, neck and upper limbs. The trunk and lower limbs had fewer solar keratosis. A fungating ulcer that measured 6 cm by 6 cm was located on the scalp, superior and lateral to the right ear. The posterior auricular, occipital, submandibular, submental and cervical lymph nodes were not palpable. The other regions of the body were grossly normal. We made a clinical diagnosis of basal cell carcinoma. The investigations done and their

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Figure 1: Fungating scalp ulcer.

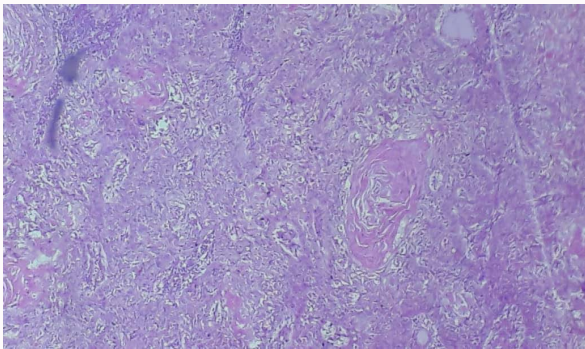


Figure 2: Photomicrograph of squamous cell carcinoma.

results were packed cell volume (32%), urine analysis was normal. Excision biopsy of the lesion was done and the histology result was squamous cell carcinoma (Figure 2).

Discussion

Our index patient is 13 years old and presented one year after the lesion started. Therefore, the cancer started at twelve years of age. This is an early age for albinos to develop skin cancer even in our tropical climate where the full impact of the sun is felt. It is believed that although a lot of the damage is done in childhood, skin cancers develop later in life. Indeed, one source quotes fifty percent of skin damage to have occurred at 15 years [5]. There is increase in the global incidence of skin cancers and now we are beginning to see these cancers in younger age groups. Therefore, the question to be answered by research is whether more UV radiation, especially UVC, is reaching the earth due to human activity. A retrospective study of skin cancers in our hospital for the last two decades will show the age profile the patients and younger people may be having skin cancers. However, the records of patients in the last 20 years are unreliable in our hospital. Most of the skin cancers are caused by UVB but UVC is known to be more carcinogenic if significant amount of the latter gets to the earth.

The finding of squamous cell carcinoma in our patient is not surprising because Asuquo et al. have shown that skin cancers

in albinos in our community are more commonly squamous cell carcinoma and not basal cell carcinoma as seen in Caucasians [9-11].

The management of skin cancers in our community is a challenge for many reasons namely ignorance, late presentation, and poverty. Ignorance and late presentation can be addressed by education of the people on radio, television and health talk in different institutions. Albino parents and the affected children, when they are old enough to understand, should cover the body with the right color that does not absorb UV radiation (e.g. white), use a hat with a wide brim or umbrella in the sun, do outdoor activities when UV radiation is least (between 6 am and 10 am and after 4 pm), use sunscreen with a sun protection factor of 15 and report early to hospital for treatment of solar keratosis and ulcers [12,13]. The government should treat skin lesions in albinos free or give a substantial waiver for the treatment.

Conclusion

Skin lesions in albinos are curable if presentation is early. The government and health care workers should do everything possible to help this socially stigmatized group of people in Africa.

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