

## SQUAMOUS CELL CARCINOMA ASSOCIATED WITH PROLONGED BLEACHING

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### SUMMARY

Squamous cell carcinoma related to cumulative exposure to ultraviolet radiation is common in Caucasians but rare in blacks. Continuous skin bleaching results in the loss of melanin pigmentation. A case of squamous cell carcinoma with pulmonary metastasis is presented in an adult Ghanaian female who earlier in life indulged in skin bleaching with hydroquinone predominantly for more than 20 years.

**Keywords:** Ghanaian female, skin bleaching, sunlight-exposed skin, squamous cell carcinoma.

### INTRODUCTION

Sun-related skin carcinomata such as squamous and basal cell as well as melanoma are rare in the dark skinned individuals<sup>1</sup>. However albinos from black families are known to develop such carcinomata<sup>2</sup>. Squamous cell carcinoma however may develop from chronic ulcers such as Buruli ulcer<sup>3</sup>, cutaneous tuberculosis, syphilis and chronic osteomyelitis scars<sup>2</sup>. When melanoma occurs in the black it is often of the acral type. Skin bleaching has been reported from various parts of the world, particularly the African continent<sup>4,5,6,7,8</sup>. Among the common chemicals used are topical steroids and hydroquinone-containing creams.

### CASE HISTORY!

A 58 year old retired female clerical officer was first seen in the Dermatology Clinic of the Korle Bu Teaching Hospital, Accra, on 13/11/97 with complaints of dark patches on light-exposed areas of the face, arms, neck, hands, legs and feet of about 10 years duration. She has also become aware of an ulcer over a firm swelling on the right side of the neck during a period of one year. She has used liberally, since her mid thirties, various skin bleaching agents, particularly, the hydroquinone containing types and lately steroids. In addition she had hypertension and lumbosacral spondylosis. Her medications consisted of Nifedipine and various brands of non-steroidal anti-inflammatory agents.

On examination her skin showed milia formation and ochronosis of the light-exposed areas of the face, neck, arms, backs of hand, fronts of legs and tops of feet (figure 1).

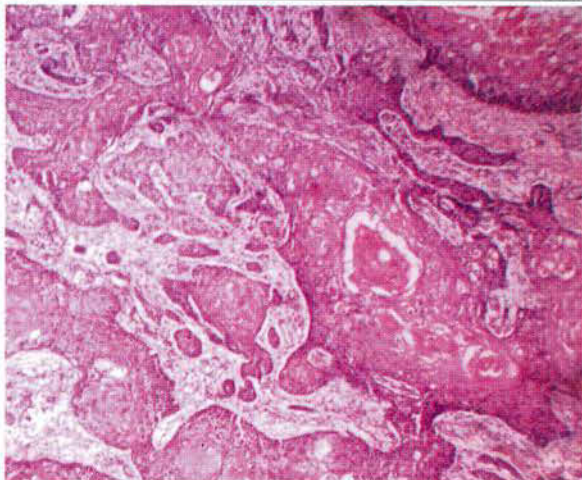


**Figure 1** Shows ochronosis and milia formation of light-exposed areas of the face, neck and arms.

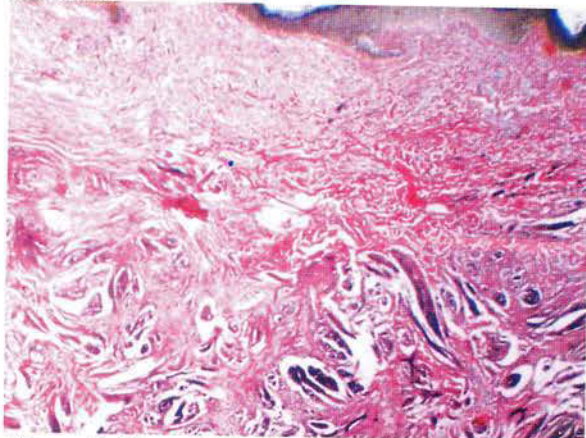
In addition she had an ulcerated nodule on the right side of the neck. Her blood pressure was recorded as 160/100. The rest of her clinical examination was normal. Haematological and biochemical examinations showed no abnormality.

Daily wound dressing of the ulcer with antiseptic agents and later mupirocin did not improve the ulcer. However there was improvement in the ochronosis following the use of topical retinoid cream (Retin A). She was subsequently referred to the plastic surgeon in August 1998 for excision biopsy of the ulcerated lesion, which was then suspected to be neoplastic. The excised specimen was reported as showing a piece of skin (7 x 5cm) with an ulcer in the centre with raised edges. An invasive squamous cell carcinoma was diagnosed which appeared to have been completely excised (figure 2a). Figure 2b represents histology of adjoining skin with ochronosis.





**Figure 2a** Well-differentiated squamous cell carcinoma of the skin with islands and tongues of malignant keratinizing squamous epithelium invading the dermis. H&EX20.



**Figure 2b** The reticular dermis contains broad bands of hyalinized, hypocellular collagen and irregular thickened and fragmented elastic fibres.

The ulcer however remained unhealed but rather increased in size with necrotic centre, which turned into a fungating tumour with raised edges (Figure 3).



**Figure 3** Shows a large fungating ulcer of the right side of the neck on a background of well-defined plaque of

ochronosis and milia formation of back of the neck and upper back.

She was readmitted to hospital on 29/1/99 with complaints of dyspnoea on minimal effort, cough, fever, palpitations, weight loss and severe back pains. Clinical examination and chest x-ray showed evidence of consolidation of the right upper lobe suggestive of lobar pneumonia. Her general condition however deteriorated in spite of treatment with Augmentin. Wound swab examination isolated *Klebsiella* for which she was given cefotaxime. HIV I and II serology was non-reactive.

She continued to deteriorate and died on 23/2/99. Post mortem examination showed squamous cell carcinoma of the skin of the right side of the neck with pulmonary metastasis and left intracerebral infarction and right lobar pneumonia as the cause of death.

## DISCUSSION

Squamous cell carcinoma of light-exposed skin with pulmonary metastasis in a black female Ghanaian is reported. She had over the previous 20 years or more constantly bleached her skin with hydroquinone and later steroid-containing creams. She also demonstrated the typical cutaneous complications on light-exposed skin of ochronosis, milia formation and nodules associated with the prolonged use of hydroquinone-containing creams.

Continuous skin bleaching with hydroquinone and topical steroids leads to the loss of melanin. It has been shown that melanin pigmentation and thickness of the stratum corneum contribute significantly to natural photo-protection<sup>10</sup>. In addition development of squamous cell carcinoma is related to the cumulative exposure to ultraviolet radiation. These predisposing factors are present in the Caucasian living in the tropics; hence the high incidence of squamous cell carcinoma and other sun-related skin carcinomata in such people. Albinos from black families also develop such carcinomata in the tropics. Although squamous cell carcinoma has been reported in association with chronic ulcers in blacks<sup>1,3</sup>, its occurrence in this patient is probably related to sunlight-exposure and prolonged skin bleaching with loss of melanin. In spite of the fact that her occupation as a clerk was mainly indoors, the presence of sunlight-related hydroquinone-induced phototoxic reaction would suggest that she had more than adequate sunlight exposure in her daily life.



While it is tempting to discourage the use of skin bleaching agents by banning the importation and selling of such products, one should recognize that it is a widespread social practice which cannot be easily banned. Similar problem occurs in the Caucasians who indulge in excessive sunbathing and the more effective method of public education and use of appropriate sun-screening creams have been recommended as a more acceptable approach. Similar approach would be required in the use of bleaching creams. It should also be made mandatory that all hydroquinone-containing creams on the market have the appropriate sun-screening agent incorporated in them. Since topical steroids are supposed to be issued only on prescription, the enforcement by the necessary national agents should be increased. Hydroquinone-induced reaction is probably phototoxic and therefore low concentrations only (less than 2%) should be allowed on the market.

This case may represent the tip of the iceberg of neoplasm in the use of bleaching agents in the black skin and clinicians would have to anticipate such complications particularly in those who have developed nodules of the sunlight-exposed skin areas.

### ACKNOWLEDGE

I wish to thank Mr. John Appiah of the Department of Medicine, University of Ghana Medical School for typing the manuscript, Mr. A Laing of the Department of Surgery for the excision biopsy and the Department of Pathology, University of Ghana Medical School for histological report and photomicrograph.

### REFERENCE

1. Hazen H.N., Freeman C.W. Skin cancer in the American Negro. *Arch Dermatol Syphilol* 1960; 6: 22.
2. Mackie R.M. Tumors of the skin. In: Textbook of dermatology. (Rook A., Wilkinson D.S., Ebling F.J.G. et al eds., Oxford, Blackwell Publication 1986; Vol. 3, 2431-6.
3. Addo H.A. Mycobacterium ulcerans infection (Buruli Ulcer) in Ga District of Greater Accra Region. *Ghana Med J* 1995; 29: 595-602.
4. Addo H. A. A clinical study of hydroquinone reaction in skin bleaching in Ghana. *Ghana Med J* 1992; 26: 53.
5. Findlay G.H., Morrison J.G.L., Simson I.W. Exogenous ochronosis and pigmented colloid milium from hydroquinone bleaching creams. *Br J Dermatol* 1975; 613-22.
6. Barr R.D., Rees P.H., Cordy P.E. et al. Nephrotic syndrome in Adult Africans in Nairobi. *Br Med J* 1972; 2: 131.
7. Hardwick N., Van Gelder L.W., Van Der Merwe C.A. et al. Exogenous ochronosis in an epidemiological study. *Br J Dermatol* 1989; 120: 229-38.
8. Muchadeyi, Thompson S., Baker N. A survey of the constituents, availability and use of the skin lightening creams in Zimbabwe. *Cent Afr J Med* 1982; 29: 225-7.
9. Collison D., Abelle D.C., O'Quinn J.L. Localized exogenous ochronosis. *J Am Acad Dermatol* 1983; 8: 882-9.
10. Pathak M.A., Fitzpatrick T.B. The role of natural photoprotective agents in human skin. In: Sunlight and man, normal and abnormal photobiological responses. Pathak M.A., Harber L.C., Seiji M., Kukitia A., (eds.). Tokyo: University of Tokyo Press 1974; 725-50.
11. Armstrong B.K., Krickler A., English D.R. Aetiology and pathogenesis of skin cancer. Skin-exposure and skin cancer. *Australia J Dermatol* 1997; 38 (suppl.); S1-6.