Short reports

Multiple pigmented papular basal cell carcinomas: a new pattern of industrial tar induced skin tumours

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The carcinogenic potential of coal tar products to the skin is well known.^{1,2} Skin cancer represents one third of annually occurring malignant tumours in the United States,^{3,4} but it is usually a multifactorial disease, the contributing factors being ultraviolet light, ionising radiation, and exposure to coal tar and its distillates.⁵ The skin tumours induced by tar have usually been squamous cell carcinomas that have developed from tar keratoses but multiple keratoacanthomas have also been described.⁶ Basal cell carcinomas are uncommon^{7,8} and if discovered usually present as a solitary lesion. This report describes the occurrence of dozens of small papular basal cell carcinomas presenting a pattern of industrial carcinogenesis of the skin not previously described.

Case report

A man aged 62 presented with an increasing number of brown papules on the face. They were painless, did not bleed, but during the previous five years had become more numerous and some had enlarged. During the same period he had noticed some crusty lesions on the dorsum of his hand and also on his right forearm. These too were pigmented. There were no lesions on his scrotum.

There was no family history of any skin disease and at the time he had had no important illnesses.

Employment record

The patient had been working on open coke ovens since the age of 17. Initially he worked loading the coke ovens with coal and was exposed to vaporising gas. During the second world war he served in Europe and was never in the tropics. Six years later he returned to the same employment and for the next 12 years worked in the plant making benzol which was

adjacent to the coking ovens. After this he was employed maintaining the plant and machinery, particularly repairing and maintaining burst pipes. He was thus directly in contact with light oils and benzol as well as with tar acids. He continued with this post for the next 13 years until he was made redundant. He was never in contact with pitch.

On examination he had multiple small papular glistening pigmented lesions (fig 1) which were most

Fig 1 Multiple pigmented basal cell carcinomas.

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Fig 2 Multiple pigmented papular basal cell carcinomas.

evident on both cheeks, forehead, and the sides of the neck. There were warty lesions on the dorsum of both hands which were clinically consistent with tar keratoses.

Histology of one of the small lesions (fig 2) on the face showed a deeply pigmented multicentric basal cell carcinoma with evidence of some epidermal atrophy and some keratin plugging.

He was treated by diathermy and curettage under local anaesthetic to all these multiple lesions, although new lesions continued to form.

Discussion

It was not surprising that this man had developed a carcinomatous change in his skin considering that he had been exposed to crude coal tar distillates for at least 30 years.^{5,9} What is so surprising is the nature of the skin tumours that he developed—firstly, the number of basal cell carcinomas and, secondly, their deep pigmentation. Gotz showed that keratoses tend to develop slowly but if untreated present as myriads of lesions.⁷ Squamous cell carcinomas develop singly

from keratoses and similarly basal cell carcinomas occur only singly. The physical appearance of the basal cell carcinomas in this case resembles much more the lesions seen in those suffering from the basal cell naevus syndrome where these tumours are small, superficial lesions rather than deep, cystic or morphoeic lesions.

The site of presentation mirrors the data for tar keratoses⁷ where the first lesions are found on the face and neck coupled with lesions on the dorsum of the hands. In this case it was most interesting that there should be basal cell carcinomas occurring on the face whereas typical tar keratoses appeared on the dorsum of the hands during the same period. There may be a predisposition for carcinogenesis to produce basal cell epitheliomas on the face in this particular patient as opposed to tar keratoses which appeared on his hands. Previous work has shown that there are patients without such well known genetic syndromes as Gorlin's syndrome who will develop basal cell carcinomas given a carcinogenic influence such as tar or trauma of either a chemical or thermal nature.

Much work has been done on the relation between

the induction of skin changes by tar and the occurrence of pigmentation within this change. Nearly all of the series of 111 patients seen by Gotz showed pigmentation that progressed with duration of exposure.⁷ In both human and animal systems it has been shown that tar products will stimulate melanogenesis,¹⁰ and one of the clues to aetiology in this particular case was the intense pigmentation that presented in these lesions. It was much denser than one finds in multiple seborrhoeic keratoses and coupled with the glistening papular nature of the lesions was a clue to the aetiological factors.

Treatment was with curettage and diathermy under local anaesthetic and was particularly effective because these lesions were not aggressive tumours. None of the lesions was deeply invasive and all remained discrete.

Throughout the period of observation new tumours continued to form but they could be adequately suppressed by regular two monthly sessions of treatment.

Correction

Mortality of men in the Rhondda Fach 1950–80 (November 1985)

The following corrections should be made to two tables on p 743. In table 6 the SMRs under “other

References

- ¹ Redmond CK. Cancer mortality among coke oven workers. *Environ Health Perspect* 1983;**52**:67–73.
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- ⁵ Everall JD, David PM. Influence of environmental factors on skin cancer. *Bull Cancer (Paris)* 1978;**65**:241–7.
- ⁶ Annamali R, Vasantha M, Umaselram M, Ashraf M. Multiple keratoacanthoma and squamous cell carcinoma in psoriasis. *Int J Dermatol* 1981;**20**:606–7.
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- ⁸ Pittelkow MR, Perry HO, Miller SA, Manghan W, O'Brien PC. Skin cancer in patients with psoriasis treated with coal tar. *Arch Dermatol* 1981;**117**:465–8.
- ⁹ Shahad LM, Janishera WJ, Firtz W. Zur Bedeutung polyzyklischer aromatischer kohlenwasserstoffe als kanzerogene riskofaktoren für den menschen. *Archiv für Geschubtforschung* 1980;**50**: 705–14.
- ¹⁰ Epstein JH. Experimental studies related to epidermal tumour formation. In: Rook A, ed. *Recent advances in dermatology*. Edinburgh: Livingstone, 1977:272–6.

respiratory” for all categories should read 82, 121, 115, 123, 151. Under “other circulatory” the No for category 0 should read 184. The SMRs under “other” should read 92, 92, 73, 86, 85. In table 7 the SMRs for category 0 should be 125 for “violence etc” and 152 for “stomach”.