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LETTERS TO THE EDITOR

Basal Cell Carcinomas in Port-wine Stains Treated with Thorium X

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Sir,

Thorium X, a natural isotope of radium, was the main radiotherapeutic modality for treating vascular lesions of the skin including port-wine stain (PWS) available to dermatologists during the 1930s to 1950s. It disappeared from dermatological practice around the 1960s, and the chapter on thorium X was considered closed (1, 2). However, occasionally long-term sequelae have been described (2). Here we report three further patients with basal cell carcinomas (BCCs) arising in PWS.

CASE REPORTS

Patient 1

A 61-year-old woman had been treated for a facial PWS at the age of 11 years with a monthly series of thorium X paints which was stopped after 1 year since the PWS persisted. At age 40, a BCC within the PWS was excised, and 20 years later a second solid BCC was removed.

Patient 2

A 71-year-old woman with a PWS on the left cheek had been painted with thorium X from age 5 to 12 years until 1944, when the Berlin thorium X plant was destroyed in an air attack. At age 65, a BCC within the treated area of the left cheek was removed. Later scars were revised by plastic surgeons and the remaining PWS was successfully treated with a flashlamp-pumped dye laser.

Patient 3

A 65-year-old woman reported that at the age of 15 years a PWS had been treated with applications of thorium X at 4–6 week intervals for about a year, until the stain had mostly disappeared. From the age of 45 a progressively tuberous degeneration appeared in the form of numerous smooth, soft facial nodules. When a hard nodule on the temple (above the left eyebrow) was excised, a solid BCC was found.

DISCUSSION

BCC in PWS has been reported both in the absence of any previous therapy (3) and in patients treated with thorium X (4–6). BCC appeared at varying time spans (5–75 years) after therapy (4–6). In most cases, however, this time span could not be determined exactly, and the number of applications and the cumulative dose remained unknown (6).

Thorium X was routinely applied in vehicles such as aqueous or alcohol paints and ointments. Before treatment, the skin area was degreased, then the solution or ointment was applied. At 24–48 h later, an erythema and oedema-like sunburn developed, regardless of the vehicle used. The treatment was repeated at 6–8 week intervals, until the desired result was achieved (7).

Thorium X applications used in Germany contained 1000 e.s.u. (electrostatic units) per mg, in England 500 e.s.u. with an average cumulative dose of 6000 e.s.u. (7).

Thorium X was primarily used for the treatment of flat vascular naevi, but also for facial pigmented or verrucous naevi. Furthermore, it was employed in a wide range of dermatoses such as atopic dermatitis, lupus erythematosus, alopecia areata, psoriasis, hyperpigmentations and keloids (7).

In Eastern Germany, regular treatment was possible due to a continuous supply that was available from 1953 onwards. From 1953 to 1956 the department of dermatology in Dresden treated 134 PWSs, mostly in small children, but also in older children and adults (7).

The association of the two lesions – BCC and PWS – raises the question of thorium X as a causative factor in the occurrence of BCC. The authors felt that cutaneous malignancy may become more common in this group of patients (7). Tuberous or nodular alterations within a PWS and a history of thorium X application should be subject to further examination before laser treatment.

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