12 of 63 (19%) were quite certain that exposure to the sun was the cause of their melanoma; seven (11%) blamed sunbed use and 10 more (16%) did not exclude the possibility that exposure to UV radiation was the cause of their melanoma (Table 1). Males attributed their melanoma directly to the sun or sunbeds more often (32%) than females (22%).

Patients who were more susceptible to the sun (fair-skinned, blue eyes, blond hair) and had been sunburned frequently during childhood and adulthood were more likely to hold UV radiation responsible for their melanoma. Of those with skin type 1 and 2, 43% attributed their melanoma directly to the sun or sunbeds, whereas 47% of those with skin type 3 and 4 assumed the opposite, with an odds ratio of 3.9 (95% CI 1.4–10.6). Comparing patients with a lower level of education to patients with a higher level of education, 60% vs. 40%, respectively, mentioned UV radiation as a possible cause of their melanoma. Only two of five patients with melanomas on the most exposed areas of the body (head and neck) blamed exposure to the sun for their melanomas. In the category ‘other’, one patient mentioned the Chernobyl incident and two patients mentioned swimming in polluted water as a cause. The latter received a lot of attention in the media after it was listed as a risk factor for melanoma in a 1994 Dutch study. Four people assumed that they had a greater risk of developing melanomas because a relative had had (skin) cancer: a father with non-melanoma skin cancer, a grandmother with melanoma, two relatives with cancer of unknown type. Four patients with prolonged history of chronic idiopathic onycholysis dramatically responded to ingestion of carotene-rich food. Swimmers and the media.

Exposure to the sun have been reported extensively in the media.

References


Chronic onycholysis dramatically responds to enhanced intake of carotene-rich food

Sir, Onycholysis refers to the detachment of the nail from its bed at its distal end and/or its lateral attachments. It may be associated with a variety of conditions such as psoriasis, onychomycosis, hyperthyroidism, drug photosensitivity, etc. Among them, contact and irritant and/or moisture and trauma are the most common. However, chronic idiopathic onycholysis is often seen without associated conditions and there are no reliable therapeutic modalities. Here, we report two patients with prolonged history of chronic idiopathic onycholysis that improved dramatically after 12 weeks of ingestion of carotene-rich food.

A 44-year-old waitress presented with distal separation of the nail plates on all fingers that started 8 years ago and became more severe in the past 3 years (Fig. 1a). Topical treatment including clotrimazole, clobetasol propionate, and salicylic acid ointment produced little effect. There was no known
history of psoriasis, autoimmune disorders, anaemia or other familial nail diseases except for a nodular goitre in euthyroid status. She denied excessive wet work, use of nail cosmetics or taking medicine. Examination revealed distal separation of nail plate of different severity in all fingers. The nail plates were clean and thin without pitting. The toenails were all normal. No suspicious psoriatic skin lesions were found on her scalp or trunk. She was encouraged to ingest a glass of papaya milk juice, a popular beverage in Taiwan, daily, and carrots every other day. No other medication was given. Onycholysis started to improve from the first month. Three months later, the onycholysis had improved strikingly in all fingernails (Fig. 1b). Carotenosis could be observed from the marked yellow skin colour of both palms and all her skin diffusely. No intolerance was observed during the food supplement except that the yellowish skin discoloration aroused the concern of her family and friends. She is now still on carotene-rich diet but at a lesser dose.

Another patient, a 71-year-old housewife, complained of distal separation of her fingernails for 1 year. She had diabetes mellitus and hypertension, under regular medical control for 4 years. On examination, distal nail onycholysis was noted in all fingernails. Nail thickening with yellowish (oil-spot like) colour distally was found in several fingernails of this patient (Fig 2a,b). Psoriatic nails, although suspected, could not be further supported owing to the absence of nail pitting and psoriatic plaques on the trunk and scalp. Her toenails were also thick but without pitting or onycholysis. Previous treatment with topical clotetasol dipropionate and calcipotriol for 6 months had produced little improvement. Three months after encouraging carotene-rich food intake, the onycholysis improved visibly in all her fingernails (Fig 2c,d). She could barely tolerate the taste of carrot and papaya, so thereafter she continued on a very small amount of the food additives.

Onycholysis is a disease of heterogeneous aetiology. The administration of rational treatment strategies for onycholysis relies on the discovery and verification of its causes. Quite often, however, treatment is not satisfactory, and sometimes patients have no possibly relevant causes or precipitating factors. The most important treatment principles proposed for onycholysis are all passive and preventive. They include elimination of the predisposing causes; strict irritant/contact moisture avoidance; keeping the nail short; avoiding trauma to the nail; and informing the patient in advance that the healing process is slow, and that all therapy must be followed. Frequently, the longer the onycholysis is present, the less likely it is to resolve. From our experience, these principles do little help to patients with onycholysis owing to poor compliance. To date, an active reliable treatment modality with consistent effect on onycholysis is lacking.

In our clinic, a patient told us that her prolonged separation of distal nail plates disappeared since she had been on a carotene-rich diet several years ago. Although we were not able to examine her nails to confirm the diagnosis of onycholysis, we tried carotene-rich food in our two patients because of its simple feasibility without obvious harmful effects. These two patients showed dramatic improvement of onycholysis in 3 months without adhering to the preventive principles described above. The possibility of spontaneous healing, while it could not be excluded, may be remote as the improvement correlated significantly with the encouraged intake of carotene-rich food. Such a dramatic improvement had never occurred spontaneously nor been achieved by any previous treatment measures. The nail improvement in these two patients in parallel with the food supplements may suggest a beneficial effect of carotene, presumably the major component in carrot or papaya.

Carotenoids are natural pigments that are synthesized by plants and are responsible for the bright colours of various fruits and vegetables. β-carotene has been best studied as, in most countries, it is the most common carotenoid in fruits and vegetables. A lower risk of lung cancer has been observed in individuals who eat more fruits and vegetables that are rich in carotenoids, and in people who have higher serum β-carotene. However, high-dose β-carotene supplements associated with an increased risk for lung cancer among smokers was observed in two human intervention studies. Inconsistent results in chemoprevention of skin cancer, or decrease in the risk of coronary heart diseases were also observed. The
puzzle may be explained in that β-carotene itself may act as an anticarcinogen or antiatherosclerosis agent (both by reducing free radicals through antioxidation), but its oxidized products (increased in smokers) may facilitate carcinogenesis.4,6 The benefit reported in some observational studies may be related to consumption of foods rich in β-carotene rather than β-carotene itself, as foods rich in β-carotene are usually also rich in other antioxidant vitamins and micronutrients.6 Regarding the effect on other skin diseases, β-carotene has been successfully used against photosensitivity in patients with erythropoietic protoporphyria,7 but it only slightly increases the sunburn threshold in normal humans. The photoprotection must therefore work through an alternative mechanism other than a direct sunscreen effect.8 Actions on lipid peroxidation pathways may be an important element of any protection activities it exerts.9 To date, a specific effect on nail disorders has not been reported. The obvious effect on onycholysis in these two patients may imply a role of carotene in sunlight protection of the nail bed or alternatively a role in normal epithelial differentiation or keratinization of the nail plate. Nutritional imbalance or photosensitivity in the pathogenesis of onycholysis may therefore be proposed. Both speculations need further studies for verification.

Carotenaemia after ingestion of carotene-rich food is a benign condition. It has been proven that hypervitaminosis A does not occur despite massive doses of carotene because the conversion of carotene to vitamin A is slow.10 This simple and practicable fruit intake or additive of carotene-rich food without significant side-effect seems to be promising for patients with chronic idiopathic onycholysis. A rough estimation of the carotene intake in patient 1, who ingested the recommended food more regularly in the first 6 weeks, was around 10 mg daily, a level easily obtainable by a change in diet. A larger scale trial with carotene-rich food supplement or quantitative intake of specific carotene in non-smokers to verify its effect on onycholysis is warranted.

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References