C. Diseases caused by extrinsic deposition

1. Carotenemia

Synonym: Aurantiasis cutis

Definition, Pathogenesis, Clinical features

Carotene concentration increases in the blood, resulting in carotene deposition in the epidermal horny cell layer and subcutaneous fat tissues. This yellows the skin (Fig. 16.17). The coloration is marked in the palms and soles, whose horny cell layer is thick. The color may appear in the face (e.g., forehead, ala nasi, nasolabial groove); however, it does not occur in the sclera or other mucous membranes, and it rarely becomes generalized. It is asymptomatic. Coloration tends to appear when the carotene concentration in the blood reaches 0.5 mg/dl. Carotenemia is caused by high intake of carotene-containing foods (citrus fruits, pumpkins, carrots, spinach, seaweeds, corn, egg yolks, butter), by liver dysfunction (carotene concentration in the blood increases when carotene fails to be metabolized into vitamin A), or by hyperlipidemia (carotene concentration tends to increase by hyperlipidemia because of its liposolubility).

Diagnosis, Treatment

Jaundice is differentiated from aurantiasis cutis by yellowed sclera, itching and bilirubin level. Aurantiasis cutis heals spontaneously when intake of the causative food is restricted.

2. Argyria

Definition, Pathogenesis, Clinical features

Argyria results from deposition of silver in the skin. This occurs from the use of silver medical supplies (silver needles, sutures, dental fillings) or prolonged intake of silver-containing foods. Cases caused by silver-containing health food products in Europe and the United States have been reported. Silver compounds deposit in collagen in the sweat glands, seborrheic glands, connective tissues and basal keratinocytes, giving the skin a bluish-gray hue. The condition tends to occur in exposed areas such as the face, neck and forearms.

Diagnosis, Treatment, Prognosis

Fine brown granular masses are found histopathologically. Silver can be observed by X-ray microprobe analysis. There is no effective treatment for argyria, except to refrain from intake of silver. Systemic complications of argyria include pulmonary fibrosis, pneumonitis, hepatotoxicity and myopathy.
3. Tattoos

Tattoos are images or text artificially created in the skin by injection of pigment or ink (Figs. 16.18-1 and 16.18-2). Pigmented granules tend to remain in the dermal upper layer; however, some are phagocytosed by macrophages and carried in the lymph flow to deposit in the lymph nodes. Allergic reaction against the injected pigment or photosensitivity may occur as complications. Laser therapies are useful in removing tattoos of certain colors.