sulfonylurea drugs. Familial cases have been reported; these are autosomal dominantly inherited. Men in their middle ages and older and those who have habitually drunk alcohol for a long period of time are most commonly affected.

**Pathology**

Subcutaneous blistering is found. Endothelial cells are injured. PAS-positive substances are detected in the peripheral blood vessels.

**Laboratory findings**

Red fluorescence of porphyrins is observed by liver biopsy. There are elevated levels of uroporphyrins in the urine.

**Treatment**

Abstinence from alcohol consumption, shading from light, phlebotomy (300 ml to 500 ml of blood drawn over the course of 2 to 3 weeks), administration of an iron chelating agent, liver support therapy, and oral sodium hydrogen carbonate are effective.

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G. Skin manifestations associated with diabetes

Various cutaneous lesions are induced by diabetes.

1. **Diabetic gangrene**

Gangrene occurs on the toes, soles, and fingers. It is associated with underlying diseases such as microangiopathy and arterial sclerosis. External factors such as injury, burn or secondary infection induce ulceration. Sharply circumscribed necrotic foci occur secondarily to ulceration, and these become intractable (Fig. 17.23). Circulatory stimulants, antibiotics, and surgical treatments including débridement, ablation and revascularization are conducted in combination with treatments for diabetes. Arteriosclerosis obliterans in the main artery is surgically treated.

2. **Diabetic scleredema**

Scleredema occurs in the nuchal region (Fig. 17.24). Although it is clinically similar to scleredema adularum, acute infection does not occur in diabetic scleredema as a prodrome nor is there spontaneous healing.

3. **Diabetic xanthoma**

Eruptive xanthoma occurs commonly on the extensor surfaces of the extremities and buttocks. When hyperlipemia is resolved by diabetic treatment such as administration of insulin, xanthoma also subsides.
G. Skin manifestations associated with diabetes

4. Necrobiosis lipoidica

The frontal tibiae of women age 40 or older are most commonly affected. Irregularly shaped, vaguely circumscribed, atrophic, and yellow to tan plaques of 5 cm to 10 cm in diameter occur. The periphery is purplish-brown, accompanied by telangiectasia (Fig. 17.25). Histological findings are similar to those for granuloma annulare. It may also occur on the thighs and hands.

Clinical images are available in hardcopy only.

5. Diabetic bulla

Tense bullae like those seen in burns are produced by minor trauma. Microangiopathy is thought to be the cause of diabetic bulla. Because the reduced sensory perception of diabetic patients tends to make them less sensitive to high temperatures, differentiation from second-degree burn is necessary.

Clinical images are available in hardcopy only.

6. Dupuytren contracture

Painful subcutaneous core-like induration occurs on the palms and soles. As it progresses, flexion contracture occurs in the fingers and toes. It often accompanies diabetes.

Clinical images are available in hardcopy only.

7. Pretibial pigmented patches

Atrophic brown patches are caused by microvessel abnormality in the frontal areas of the lower extremities.

Clinical images are available in hardcopy only.

8. Disseminated granuloma annulare

Aggregated, solid, light-pink papules or infiltrating erythema occurs (Chapter 18). Glucose intolerance is frequently seen.

Clinical images are available in hardcopy only.

9. Eczema, Pruritus

The seborrheic and intertriginous areas are the most commonly affected areas. If diabetes is not treated appropriately, the dermatitis recurs, and photosensitivity and purpura occur as complications. Sebum reduction, xeroderma and pruritus are also present. Topical steroids tend to induce mycotic infection.

Clinical images are available in hardcopy only.

Can necrobiosis lipoidica occur without diabetes?
Necrobiosis lipoidica used to be understood as a skin lesion caused by diabetes, hence the name “diabetic necrobiosis lipoidica.” However, some cases without diabetes have recently been described. Even so, reports have found a close association between the two. This textbook includes it in the diabetes section.

MEMO

Fig. 17.23 Diabetic gangrene.
a: Ulceration occurring secondarily after tinea pedis. b, c: Ulceration resulting from shoe sores. d: Progressed diabetic gangrene in a foot. The aponeurosis is exposed by the deep ulcer.
Cutaneous infectious diseases, including various opportunistic infections, occur. These include folliculitis, subcutaneous abscess, cellulitis, perionychia, necrotizing fasciitis, erythrasma, non-Clostridium gas gangrene, mycosis and viral infections.

Fig. 17.24 Diabetic scleredema in the nucha.
This is a markedly firm, large, plate-like plaque.

Fig. 17.25 Necrobiosis lipoidica.
Sharply demarcated, irregularly shaped, atrophic plate-like plaques on the tibial anterior regions.