called delayed hypersensitivity (Fig. 3.9).

Typical lesions caused by type IV allergy are allergic contact dermatitis and graft-versus-host disease (GVHD).

D. Immune abnormality

1. Autoimmune diseases

Immunity is a mechanism whereby self is distinguished from non-self to exclude non-self. Therefore, autologous proteins do not usually induce immune reactions. If there is a disturbance in the body, antibodies (autoantibodies) are produced against autologous proteins and the immune mechanism tries to exclude self; this phenomenon is called autoimmunity, and the diseases caused by it are called autoimmune diseases. Autoantibodies are thought to appear by the following mechanisms.

- Organs that have been isolated from the immune system since the embryonic phase are exposed to the immune system for an unknown reason and are recognized as non-self (e.g., sympathetic ophthalmia, azoospermia).
- Normal tissues are degenerated by viruses or bacteria, and antibodies are produced against the degenerated proteins (e.g., mycoplasma pneumonia).
- Antibodies that have been produced against specific bacteria react with similar self antigens (cross-reaction) (e.g., rheumatic fever).
- Immunologic homeostasis becomes dysfunctional somehow, and lymphocytes that react against autoantigens (forbidden clones), which are excluded in a normal state, are not excluded (some autoimmune diseases, including systemic lupus erythematosus (SLE)).
- Regulatory T cells suffer reduced function for some reason, and immune reactions to self become uncontrolled (some autoimmune diseases, including SLE).

The major autoimmune diseases that are treated in dermatological practice include SLE, systemic sclerosis (SSc) and autoimmune blistering diseases such as pemphigus and pemphigoides.

2. Immunodeficiency

Immunodeficiency is subclassified into congenital and acquired. In congenital immunodeficiency, the immune factors are congenitally lacking. In acquired immunodeficiency the cause is secondary – the result of a disease or treatment. Different factors are dysfunctional in each disease, resulting in immunodeficiencies such as hypogammaglobulinemia, lymphocytopenia and the decrease of compliment titer.

In congenital immunodeficiency diseases, the infection is often
by bacteria, viruses, or fungi. The infection tends to become serious. Specific cutaneous findings may be present in each disease, such as the eczematous lesion observed in Wiskott-Aldrich syndrome, and the oculocutaneous albinism and photosensitivity reaction distinctively observed in Chédiak-Higashi syndrome.

Secondary immunodeficiency is caused by collagen diseases such as SLE, malignant lymphoma, immuno-proliferative diseases such as leukemia, HIV (human immunodeficiency virus), HTLV-I (human T-lymphotrophic virus 1), and immuno-suppressive treatment (e.g., by anti-cancer drugs, steroids, radiotherapy). The main symptoms are opportunistic infections, including bacterial and viral infections. In patients with AIDS, besides these symptoms, seborrheic eczema, psoriatic rash, purpura, tumor masses and Kaposi sarcoma may also occur (Chapter 23).