Atopic dermatitis is chronic eczema/dermatitis caused by an atopic condition (allergic asthma, rhinitis, conjunctivitis).

Exudative eczema occurs on the face and ear pinna. It is characterized by eruptions of dry pityriatic scales.

The patient tests positive for white dermographism. The IgE value is high.

Filaggrin gene mutation is a key predisposing factor for atopic dermatitis.

These complications can occur: Kaposi’s varicelliform eruption, cataract, and retinal separation.

Topical steroids, topical immunosuppressants such as tacrolimus and pimecrolimus, oral antihistamines, and moisturizers are the first-line treatments.

In atopic dermatitis, chronic eczematous/dermatitis lesions are caused by various acquired stimulative factors, under conditions in which the skin barrier function is congenitally low and IgE is easily produced. The Japanese Dermatological Association defines atopic dermatitis as “a disease whose main lesion is itching eczema with recurrent remissions and exacerbations, and most patients have some atopic condition.” Type I allergy (an atopic condition, such as asthma, allergic rhinitis, or conjunctivitis) and type IV allergy are involved in most cases.

Atopic dermatitis is classified into three age periods: infantile (age 2 months to 4 years), childhood (early childhood to puberty), and adolescent/adult. Different eruptions characterize each period (Figs. 7.10-1 to 7.10-3). Atopic dermatitis is accompanied by intense itching in all the periods, with recurrent remissions and exacerbations. It tends to worsen when the skin is dry and during the summer. Although it most frequently occurs in infancy, its incidence in patients beyond infancy, including adults, has been increasing greatly in recent years.

1) Infantile atopic dermatitis

In the early stage of atopic dermatitis in infancy, erythema,
scales, and serous papules are produced on the head and face and these gradually spread to the trunk. The condition becomes exudative: erosions form, with crusts and scales attached to the surface. It resembles seborrheic dermatitis. Thick crusts on the head and ear notch, and lesions around the mouth and lower jaw (produced by causative agents in baby food) are also observed. The trunk and extremities become dry, and follicular papules aggregate, appearing as goose bumps. Scaly erythematous plaques form on these lesions and progress to childhood atopic dermatitis.

2) Childhood atopic dermatitis

In childhood atopic dermatitis the skin becomes dry. Lichenified plaques occur on the cubital fossa and popliteal fossa. Cracks are often found in the auricle area (ear notch). Multiple follicular papules occur on the dry skin of the trunk. This dermatitis is accompanied by intense itching, and it progresses quickly to eczematous crusty lesions.

3) Adolescent and adult atopic dermatitis

The symptoms are similar to those in childhood dermatitis, but the lichenified plaques progress and enlarge. Rough, dry, dark brown atopic dermatitis occurs all over the upper body. The lesions are more severe and widely distributed than those of childhood dermatitis. Thinning of one-third of the lateral eyebrow is present (Hertoghe’s sign, Figs. 7.10-1b and 7.10-1c). In serious cases, diffuse erythema occurs on the face, and a mottled appearance is seen on the neck and upper chest (poikilodermatous lesion, dirty neck, Fig. 7.10-2d). Atopic prurigo may occur repeatedly on the extremities.

Pathogenesis

There have been many studies on skin physiology and immune function in atopic dermatitis; however, the pathogenesis has not been fully clarified.

Abnormality of skin physiology: A defective skin barrier is important for the pathogenesis of atopic dermatitis. Filaggrin gene mutations have been shown to be a key predisposing factor for atopic dermatitis. Abnormality in vascular response can be tested by white dermographism (skin with atopic dermatitis becomes white when scratched, whereas normal skin becomes red) (Fig. 7.11). Dyshidrosis and decreased content (particularly a decrease in ceramides) of lipid in the horny cell layer, facial pallor, dry skin and multiple small follicular papules are present (atopic skin). The atopic skin is vulnerable to extrinsic irritation; intensely itchy eczema is easily produced by slight irritation, or even by perspiration or contact with animal fur, wool or chemicals.

Immune function abnormality: Atopic conditions such as allergic
Asthma, allergic rhinitis, conjunctivitis and atopic dermatitis are found in the family and patient’s history. Patients with atopic dermatitis readily produce IgE antibodies. When there is a high IgE value and positive intracutaneous reactions to various allergens, a congenital immune abnormality of some sort is regarded as being involved in atopic dermatitis.

### Complications
Eye diseases such as cataract (in 10% of severe adult cases), keratoconus, and retinal separation develop as complications of atopic dermatitis. Eye-rubbing from the itch and prolonged oral steroid use are thought to be the cause; however, this has not been confirmed. Infectious diseases including Kaposi’s varicelliform eruptions, molluscum contagiosum, and impetigo contagiosa may also be caused. Patients with atopic dermatitis may be hypersensitive to drugs and insect stings.

### Laboratory findings
The serum IgE value is high; IgE RAST for mites and house dust is positive in most cases. There is an increase in eosinophils in the peripheral blood. Although white dermographism is highly sensitive in detecting atopic dermatitis, it has low specificity.

### Diagnosis
When there are the clinical findings described above, atopic dermatitis is easy to diagnose. In diagnosis, it is also important to consider any family history of the condition. Atopic dermatitis in adolescents and adults has been increasing in recent years. Infant seborrheic dermatitis closely resembles infantile atopic dermatitis.

### Treatment
Topical steroid application is the primary treatment for the intense cutaneous symptoms. The application method and dosage of steroids are chosen according to the degree and course of the lesion. Ointments containing immunosuppressants such as tacrolimus and pimecrolimus have become widely used dermatological treatments (Chapter 6). These drugs are not used for erosions or ulcers; however, they are helpful for systemic lesions including those on the face, and they are frequently used internationally as first-line treatments. Moisturizer is helpful in treating mild symptoms. Oral antihistamines are effective at preventing...

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**The “atopy industry”**

Patients with atopic dermatitis have become the target of commercial ventures in recent years in Japan, not all of which are medically justified. This is called the atopy industry or atopy business, which has become a social problem. In light of this, some medical institutions such as university hospitals are providing educational hospitalization for atopic dermatitis, so that patients can learn correct knowledge of the clinical state and its treatments.
the eruptions from becoming aggravated by rubbing and scratching. Oral steroids are usually unnecessary for mild symptoms of atopic dermatitis.

Besides these medical treatments, improvement of the living environment (e.g., removing carpeting, keeping the temperature and humidity low to reduce perspiration), and skin care (avoiding contact with causative agents, keeping the skin clean) are important.

**Prognosis**

Atopic dermatitis tends to be chronic and recurrent. It mostly resolves spontaneously by the time the patient reaches age 10; however, the symptoms do not improve in some patients until they reach adolescence or adulthood. The incidence of adolescent and adult atopic dermatitis has been increasing in recent years.

### 3. Seborrheic dermatitis

**Synonym:** Seborrheic eczema

**Outline**

- Seborrheic dermatitis occurs on sites of skin where sebum is actively secreted. It is characterized by erythematous lesions accompanied by yellowish scales.
- This is one of the most common skin diseases, occurring in infants, adolescents and adults.
- *Pityrosporum* fungus resident in the skin is a factor in the occurrence.
- Skin care and application of topical steroids and antifungal agents are the main treatments.

**Clinical features**

There is some controversy as to whether seborrheic dermatitis in infants, adolescents and adults is the same disease, because there are minor differences in the clinical courses (Fig. 7.12). Dermatitis appears as follicular eczema on seborrheic sites or intertriginous areas in the head, face, axillary fossa, neck and external genitals. The main features of the lesions are oleaginous scales and erythematous plaques that may be slightly itchy.

In infants, yellowish crusts begin to form on the scalp, eyebrows and forehead. In infants, scaly erythematous plaques may also form 2 to 4 weeks after birth. In most cases they resolve 8 to 12 months after birth. In adolescents and adults, pityroid scales (commonly called dandruff) increase and scaly erythematous

**Pityriasis simplex faciei**

Partially hypopigmented macules accompanied by pityriasis scales are produced on the face in later childhood. It is most commonly observed in boys and may appear as a symptom of atopic dermatitis. It heals naturally in several years, in most cases.