INTRODUCTION

Urticaria is an eruption characterized by the appearance of multiple cutaneous wheals (Fig. 5.1). Angio-oedema (Fig. 5.2) is the same process, but involving the subcutaneous tissues. Individual wheals, almost by definition, arise and disappear within a short period of time (from about 30 minutes to 3–4 hours) and leave no visible mark. However, during an
attack of urticaria, crops of wheals continue to appear anywhere on the body surface. In some patients, the whealing tendency lasts for a few days at most. In other patients, the process can continue for months or years, but there may be days free of whealing and others where the problem is much more intense. Rarely, urticaria is part of a more generalized systemic reaction to injected, ingested, or inhaled proteins. This situation — known as anaphylaxis — may be associated with profound lowering of blood pressure and death.

The underlying process in urticaria and angio-oedema is initiated by the release of vasoactive chemicals from mast cells. The most important of these chemicals is histamine, but other compounds are undoubtedly involved in some instances, notably in more severe reactions and in some forms of physical urticaria (see below). It is not known what causes the release of these mediators in all cases. In some patients with acute forms of urticaria, the reaction is associated with interactions between antigens and IgE (Fig. 5.3) that disrupt the mast-cell membrane. Almost any substance can have antigenic properties, but the most commonly encountered antigens are drugs (e.g. penicillin), foodstuffs, possibly food additives, and some inhaled pollens and moulds. In other patients urticarial lesions may be part of a more generalized ‘serum sickness’ reaction caused by type-III hypersensitivity. Some chemicals (e.g. aspirin, opiates, and possibly food additives) may trigger mast-cell degranulation directly. In many instances the mechanism remains unclear.

Fig. 5.3 Type I hypersensitivity leading to urticaria. Specific IgE binds to mast cells; antigen then binds to the free end of IgE leading to release of histamine and other inflammatory mediators.
CLINICAL FEATURES

A number of clinical patterns and causes of urticaria are recognized (Figs 5.4–5.8).

<table>
<thead>
<tr>
<th>The urticarias - a working classification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute</strong></td>
</tr>
<tr>
<td><strong>Contact</strong></td>
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<tr>
<td><strong>Chronic idiopathic</strong></td>
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<tr>
<td><strong>Symptomatic dermographism</strong></td>
</tr>
<tr>
<td><strong>Cholinergic</strong></td>
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<tr>
<td><strong>The physical urticarias</strong></td>
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<tr>
<td><strong>Cold-induced</strong></td>
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<tr>
<td><strong>Heat-induced</strong></td>
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<tr>
<td><strong>Aquagenic</strong></td>
</tr>
<tr>
<td><strong>Light</strong></td>
</tr>
<tr>
<td><strong>Delayed pressure</strong></td>
</tr>
<tr>
<td><strong>Angio-oedema</strong></td>
</tr>
</tbody>
</table>

Fig. 5.4 The urticarias — a working classification.

Fig. 5.5 Symptomatic dermographism; linear wheals at the sites of scratching.
INVESTIGATION AND TREATMENT

It is important to take a good history, which will help to reveal potential triggers. It is usually prudent to perform simple haematologic and biochemical screening, especially if the condition is associated with any feeling of malaise or there are other general symptoms. Urticarial rashes are sometimes seen with hepatitis and other infections. Some clinical immunologists may wish to follow these tests with a range of IgE-based tests, including skin-prick tests and serum antibody screening (e.g. radioallergosorbent tests, RAST) to pinpoint a specific antigenic trigger. If it is suspected that the urticaria has a physical basis, a challenge test is appropriate: ice applied to the skin for cold urticaria; hot water in a container for heat-induced urticaria; ultraviolet radiation for solar urticaria; water for aquagenic urticaria. To test for delayed-pressure urticaria, a heavy weight should be left in contact with the skin (usually on a strap over the shoulder or thigh); the patient monitors the response over the next 12–24 hours.

The drug treatment of choice for most forms of urticaria begins with the H₁ antihistamines. Early H₁ antihistamines produced marked sedation in most individuals but there are now a number of agents in which this side-effect is much less troublesome (e.g. fexofenadine, desloratadine, levocetirizine); these would normally be used as first-line therapies. Some authors advocate the addition of H₂-receptor antagonists (there are also H₂ receptors in the skin) when the urticaria is not easily controlled by monotherapy. Some forms, especially the physical urticarias, are largely unresponsive to antihistamines of either class. A more aggressive approach involving systemic steroids may be required in a few patients, especially those in whom the urticaria is part of a major systemic allergic response.
ANAPHYLAXIS
Very occasionally, the vasoactive mediators released in urticaria may produce a profound vasodilatation, leading to a reduction in blood pressure, lowered cardiac output, and shock. Such reactions may occur with drugs (penicillin is a classical offender, but many other agents may be responsible) or foods (nuts are a common cause). The mechanism involved may either be type I (IgE-mediated hypersensitivity) or the reaction may occur as part of a type-III (immune complex) problem. Unless urgent action is taken, the patient may rapidly succumb to anoxic brain damage and die. The most immediate requirement is adrenaline (epinephrine) to improve circulatory performance. Patients may also need systemic steroids, antihistamines and intensive-care support. It is crucial that potential triggers are identified and avoided as far as possible.

URTICARIAL VASCULITIS (SEE ALSO CHAPTER 8)
In some urticarial eruptions, lesions with an otherwise typical morphology last much longer than usual and leave a purpuric stain in the skin (Fig. 5.9). Histologic examination of the lesions reveals true, low-grade vasculitis. Such lesions often occur as an isolated phenomenon, but may be part of a more generalized illness such as systemic lupus erythematosus.

- Urticaria is a common eruption of multiple cutaneous wheals caused by fluid leakage from vascular spaces into the dermis; angio-oedema is the same process but involving the subcutaneous tissues.
- Wheals arise and disappear within a short period of time (30 minutes to 3–4 hours).
- Process is initiated by the release of vasoactive chemicals from mast cells.
- Non-sedating antihistamines can be prescribed.
- Urticaria may sometimes be associated with profound vasodilatation, reduced blood pressure, lowered cardiac output, and shock (anaphylaxis); treat with adrenaline (epinephrine).

Fig. 5.9 Purpuric urticarial wheals on the legs in a patient with urticarial vasculitis.
INTRODUCTION
Inflammation within the skin is a factor in a number of conditions. This whole chapter is, of course, devoted to ‘inflammatory’ dermatoses such as psoriasis and lichen planus; skin infections are invariably associated with a degree of inflammation. Indeed, inflammation is one of the most basic and important of all the pathologic processes with which we, as doctors, are required to deal. However, some types of cutaneous inflammation are conventionally grouped together under the working title ‘eczema’ or ‘dermatitis’. This somewhat miscellaneous group of conditions share similar histopathology and an absence of other specific features that would require a reclassification into a group covering of the other disorders dealt with in this section of the book.

It is helpful in studying this group of disorders to produce a sensible working classification (Fig. 5.10); a number of recognized complexes of signs provide useful clinical distinctions. We also understand the causes of some forms of eczema and dermatitis; this offers further insights. However, it must be acknowledged that it is impossible (and possibly unhelpful) to ascribe a definitive label to every patient within the working classification.

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**Box 5.2**

**Eczema-dermatitis**
Term applied to inflammatory skin conditions caused by both exogenous (irritant, allergic infectious) and endogenous (genetic) factors.

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**Fig. 5.10** A classification of eczema-dermatitis.
It cannot be emphasized enough that nearly all eczema is caused by a combination of both endogenous (i.e. genetic) and exogenous factors. For example, atopic dermatitis clearly has a very significant genetic component (as shown by family involvement and the particularly high degree of concordance for the disease between identical twins). However, it seems highly likely that something in the environment needs to activate this genetic predisposition. The same is certainly true of irritant dermatitis, where the same exposure to irritants such as soaps or detergents will provoke a reaction much sooner in someone with a tendency to eczema than someone without. There may be several overlapping endogenous and exogenous factors at work.

- Eczema-dermatitis describes skin conditions characterized by inflammatory processes.
- Eczema is caused by a combination of both endogenous (i.e. genetic) and exogenous factors (e.g. skin irritants).

**CLINICAL FORMS OF ECZEMA–DERMATITIS**

**Primary irritant dermatitis**
The skin is capable of withstanding a significant degree of chemical insult but, if such trauma is excessively prolonged or the materials involved are particularly harsh, an irritant dermatitis may develop (Fig. 5.11). As indicated above, this occurs with greater speed in some patients, often because of an endogenous eczematous tendency. For example, irritant dermatitis is very much more troublesome in those with a previous history of atopic dermatitis. Common irritants include soaps and detergents, shampoos (especially in hairdressing), foodstuffs, and cutting oils. Working with the hands in a constant state of wetness may induce the same changes. Thus, certain occupations predispose to the development of condition: hairdressers; cooks and caterers; machine-tool operators; washers-up; nurses; and housewives/homemakers.

It often takes repeated injury over time for the reaction to develop but, once the process has begun, short remissions are followed by rapid deterioration. This is evident in the common experience that industrial hand dermatitis will frequently improve over a weekend away from work, only to return within a few hours of restarting. Longer periods away from the trigger (e.g. summer holidays) may produce longer relief.
**Investigation and treatment** — The only permanent solution to severe irritant dermatitis is the cessation of the provoking activity but, if this is impossible, some relief can sometimes be obtained by the judicious use of topical corticosteroids to suppress inflammation, the liberal use of emollients and non-soap cleansers, and avoidance measures such as gloves and barrier creams.

- Irritant dermatitis results from prolonged or harsh chemical insult (e.g. soaps, foodstuffs, and cutting oils)
- Short remissions are often followed by rapid deterioration.
- Cessation of the provoking activity is the only long-term solution but avoidance means include gloves, barrier creams or topical corticosteroids.

**Contact allergic dermatitis**
Some people develop type-IV, delayed, cell-mediated hypersensitivity to allergens in their environment. Exposure induces a dermatitis, predominantly at the site of contact. Often, only minute quantities of the offending agent are needed to cause reactions. These reactions begin within the epidermis when antigens, present on the surface of the Langerhans’ cells, trigger a T-cell response (Fig. 5.12). A large number of agents can induce contact allergic dermatitis (Figs 5.13–5.17)

Although dermatitis caused by contact allergy typically occurs at the site of contact, secondary spread onto adjacent or even distant non-contact sites is common and may cause confusion. Certain sites are more often affected than others, especially the eyelids, which are commonly inflamed in sensitivity to epoxy resins, plants, cosmetics and metal, for example.

**Type IV hypersensitivity**

![Diagram of Type IV hypersensitivity]

**Fig. 5.12 Type IV reaction** — antigen-presenting (i.e. Langerhans’) cells in the epidermis bind antigen and present it to T lymphocytes, triggering the release of a variety of cytokines (IL-1, IL-2, IL-4, etc.) which results in an inflammatory response.
Any material that is volatile, or can be airborne in the form of dust, can give rise to airborne contact dermatitis. The pattern of involvement here is often of a diffuse dermatitis of the face, backs of hands, and other exposed areas, simulating a light-sensitive eczema. However, the classical light-spared areas are usually involved.

**Investigation and treatment** — Investigation must begin with a careful history of exposure to potential sensitizers. It is important to establish a clear description of possible work and domestic sources. This should include details of all tasks carried out, hobbies and leisure pursuits, and cosmetics, toiletries, and medicaments applied to the skin surface. The key investigative technique is patch testing (Fig. 5.18), in which suspected offending agents are applied to the surface of the skin for 48 hours before being removed; the site is then examined for evidence of allergic dermatitis (Fig. 5.19). A second examination after 72 or 96 hours is also essential. It has been estimated that up to 30% of positive reactions will be missed if this is not undertaken because some compounds produce later reactions (e.g. lanolin, neomycin). In most instances, a battery of common test allergens is used and these may be modified and adapted for local circumstances or for particular problem areas (e.g. medicaments) or occupations (e.g. hairdressing). It is also often useful to test materials

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### Causes of contact allergic dermatitis

<table>
<thead>
<tr>
<th>Antigen</th>
<th>Common pattern/sites</th>
<th>Environmental source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nickel and cobalt (Fig. 5.14)</td>
<td>Eczema under jewellery, watches, fastenings</td>
<td>Non-precious metals</td>
</tr>
<tr>
<td>Chromates</td>
<td>Hands; feet; face (due to airborne contact)</td>
<td>Cement; tanned leather; industrial processes</td>
</tr>
<tr>
<td>Rubber chemicals (Fig. 5.15)</td>
<td>Hands, forearms, waist, feet</td>
<td>Gloves; shoes; elasticated materials</td>
</tr>
<tr>
<td>Colophony</td>
<td>Under sticking plasters</td>
<td>Sticking plasters</td>
</tr>
<tr>
<td>Epoxy resins</td>
<td>Face, hands</td>
<td>Domestic and industrial use</td>
</tr>
<tr>
<td>Phenylene diamines</td>
<td>Face, especially eyelids, which are often oedematous</td>
<td>Hair dyes</td>
</tr>
<tr>
<td>Formaldehyde, the 'parabens', ethylene diamine, and Quaternium 15</td>
<td>Almost anywhere but often eyelids and face; may complicate varicose eczema and otitis externa</td>
<td>Preservatives in medicaments and toiletries - formaldehyde especially in shampoos Medicaments and toiletries</td>
</tr>
<tr>
<td>Lanolin</td>
<td>Anywhere; may complicate varicose eczema and otitis externa</td>
<td>Medicaments and toiletries</td>
</tr>
<tr>
<td>Aminoglycosides (especially neomycin)</td>
<td>Anywhere; may complicate varicose eczema and otitis externa</td>
<td>Medicaments</td>
</tr>
<tr>
<td>Corticosteroids</td>
<td>Anywhere</td>
<td>Medicaments</td>
</tr>
<tr>
<td>Plant antigens (Fig. 5.17)</td>
<td>Linear streaks at point of contact; face (due to airborne contact)</td>
<td><em>Primula obconica</em> (UK); <em>Rhus</em> (poison ivy) (USA); <em>Parthenium</em> (India); <em>Chrysanthemum</em> and many others</td>
</tr>
<tr>
<td>Wood antigens</td>
<td>Hands; forearms; face (due to airborne contact)</td>
<td>Hardwoods, especially mahogany</td>
</tr>
</tbody>
</table>

**Fig. 5.13 Some common causes of contact allergic dermatitis.**
Fig. 5.14 Common sites of contact allergic dermatitis to nickel — (a) ear lobe (from cheap earrings); (b) wrist (from a watch strap); (c) back (from metal clasp on a brassiere).

Fig. 5.15 (a) Contact allergic dermatitis of the hands and forearms with a sharp cut-off at the mid-forearm due to wearing rubber gloves; (b) positive patch test to a piece of rubber.

Fig. 5.16 Periorbital dermatitis caused by contact sensitivity to preservatives in cosmetics.
• Contact allergic dermatitis can occur with minute quantities of offending agent at site of contact.
• Secondary spread onto adjacent or even distant non-contact sites is common.
• Investigation involves a careful history and patch testing.
• Treatment with topical corticosteroids may produce symptom relief.
suspected by the patient of being responsible (e.g. make-ups, materials handled at work). However, care must be taken not to place highly irritant chemicals on the skin. If there is any doubt, a specialized test should be used.

It may also be useful to visit the patient’s place of work to see precisely what is involved. This may draw attention to tasks and contacts that were not apparent from the history alone.

Treatment of an acute attack with potent topical corticosteroids may produce significant symptom relief; this could perhaps be combined with soaking in potassium permanganate solution if there is a vesicular or bullous component (see also Dermatitis of the hands and feet). However, it is essential to remove the causative agent from the environment as far as possible.

**Infective eczema**

Eczematous changes can be induced by invading organisms. The red, itchy rash that is associated with ringworm (tinea) is nothing more than an inflammatory response to the presence of fungal organisms in the skin (see Chapter 3). A bizarre form of this eczematous response to fungal infection is seen with the so-called dermatophytide, in which a widespread eczema and pompholyx of hands and feet develop because of hypersensitivity to a fungal infection, usually of one foot. Typical eczematous dermatitis also occurs commonly around areas of molluscum contagiosum, especially (but not exclusively) in children with an underlying tendency to atopic dermatitis. Bacterial infections may occasionally produce similar changes.

**Atopic dermatitis (called also atopic eczema, infantile eczema)**

Atopic dermatitis is one of the commonest disorders in the Western world. In the UK at least 15% of children are affected by the age of 4 years. Atopic dermatitis is classically associated with the other common atopic diseases: asthma and allergic rhinitis–conjunctivitis (hay fever). Urticaria and urticarial reactions, especially after contact with foods and animal hair, are also commonly seen in patients with atopic dermatitis.

**Definition** — One important question that has been addressed recently is the definition of what is and what is not to be considered atopic dermatitis. In many ways, this is one of the easiest skin disorders to diagnose but it can also present real difficulties and, particularly when considering population studies, clinical trials, and pathogenic research, it is essential to have a method of distinguishing atopic dermatitis from other forms of eczematous dermatitis. A set of diagnostic criteria can be derived from work conducted by the UK Atopic Dermatitis Working Party; this is the first properly evaluated diagnostic checklist (Fig. 5.20).

### Diagnostic criteria for atopic dermatitis

To diagnose atopic dermatitis, the clinician should observe:

- An itchy skin condition (or report of scratching/rubbing in a child) plus three or more of the following:
  - A history of involvement of the skin creases (folds of elbows; fronts of ankles; around neck; cheeks in children <4 years old).
  - Personal history of asthma or hay fever (or of atopic disease in first degree relative in children <4 years old).
  - History of generalized dry skin in past year.
  - Visible flexural eczema (or eczema of cheeks/forehead and outer limbs in children <4 years old).
  - Onset in first 2 years of life (not applicable to children <4 years old).

**Fig. 5.20** *Diagnostic criteria for atopic dermatitis (eczema).*
**Pathogenesis** — It is clear that genetics are fundamentally important in atopic dermatitis. As indicated above, a family history of asthma, rhinitis, atopic dermatitis itself, and other atopic phenomena is common in patients with the condition. Furthermore, a Danish twin study has demonstrated unequivocally that the risk of developing atopic dermatitis is much higher in monozygotic twins than in dizygotic twins or non-twin siblings. It also appears from some studies that there may be a significant degree of specificity in the inheritance of the atopic disorders. However, it is also apparent that this condition, and the other atopic disorders, are complex interactions between this genetic susceptibility and the environment in which the individual lives. Atopic dermatitis is more common in higher socioeconomic groups; in one community-based study in Leicester, we demonstrated that although atopic dermatitis is equally common among children of both (white) European and Asian families, a family history of atopic disease is significantly less frequent among Asians. One interpretation of these findings is that genetic susceptibility exists equally in both groups, but that an element of the Western environment has triggered the development of atopic dermatitis.

It is highly likely that disordered immunologic function is fundamental in this host–environment interaction. It is well known that the majority of patients with atopic dermatitis have high IgE levels and positive prick tests for allergens such as house dust mites, cat and other animal fur, dander, pollens, grasses, moulds, and some foods. However, it is also clear that the immunohistological features of the condition are more in keeping with those of a type-IV hypersensitivity reaction than the type-I reaction classically seen in urticaria. Attempts have been made with some success to reproduce eczematous lesions by the application of airborne allergens and house dust mite, and support for the possible importance of such allergens is beginning to emerge with therapeutic prophylactic and interventional studies.

Two discoveries have been made about the clinically involved skin of patients with atopic dermatitis: epidermal Langerhans’ cells bind IgE; IgE was also found to be present on the surface of antigen-presenting cells in the dermal infiltrate. This has led to the hypothesis that antigens absorbed through the skin might bind to allergen-specific IgE on the surface of epidermal Langerhans’ cells, thereby inducing T-lymphocyte activation and an eczematous hypersensitivity response.

Further work also appears to indicate that T-cell proliferation in patients with atopic dermatitis results in the preferential expansion of a clone of T cells known as the T-helper 2 subset. This type of work, together with a better understanding of the underlying molecular genetics, will continue to refine our knowledge of the intricacies of the interactions taking place in this disease.

We must not forget, however, that other factors may also play a fundamental or facilitative role in atopic dermatitis. For example, epidermal lipids are qualitatively and quantitatively abnormal. Much interest has in the past focused on cyclic nucleotide metabolism, especially in the leukocytes, and more recently abnormalities in neurotransmitters have attracted attention. There has also been much interest in the role of *Staphylococcus aureus*: nearly all patients with atopic dermatitis are colonized (see below). However, immunological dysfunction is clearly important, and further studies may begin to explain how and why atopic dermatitis starts in whom it does and, just as interestingly, why it so often seems to disappear.

**Clinical features** — Atopic dermatitis usually begins in childhood, often in the first year of life. However, the same skin changes may appear at any age. In its most typical form, beginning in infancy, the face is prominently involved (Fig. 5.21) with red, inflamed skin. Similar changes appear over the trunk and limbs (Fig. 5.22), often on the extensor surfaces initially. As time passes, there is an increasing tendency for the flexural surfaces to become
Fig. 5.21 Atopic dermatitis in childhood typically spares the periorbital and perinasal areas giving a characteristic appearance.

Fig. 5.22 Atopic dermatitis affecting (a) the trunk; (b) antecubital fossae; (c) lower limbs; (d) popliteal fossae and (e) ankles.
involved (antecubital and popliteal fossae; wrists and ankles) (Fig. 5.22). The skin may also become thickened and rough — a change known as lichenification (Fig. 5.23). A similar phenomenon occurs around the eyes, where the ‘Dennie–Morgan’ infraorbital fold is commonly seen (Fig. 5.24). Patients with this disorder often have a generally ‘dry’ skin. The term xerosis is often used to describe this situation, although a significant number of children have changes amounting to a true ichthyosis (see Chapter 11).

There are also, often, multiple scratches and abrasions present because atopic dermatitis is always itchy. The itch is probably the aspect of the disorder that causes the most distress. The symptom seems to become all-pervasive. Patients have feverish bouts of scratching, and some children seem never to stop rubbing and scratching at their skin. They may lie awake at night, keeping other family members from sleeping.

Another frequent finding is weepy, yellow crusts caused by impetiginization (Fig. 5.25). However, defining precisely what represents secondary staphylococcal infection in atopic dermatitis is not always straightforward. Most patients with the condition are colonized by Staphylococcus aureus all the time, and there seems to be a complex relationship between the skin and the organism: treating the lesions with topical corticosteroids reduces the level of staphylococcal colonization, and the use of antibiotics or antiseptics will frequently bring about an improvement in the skin. It has been suggested that staphylococcal proteins may
be involved in the perpetuation of eczematous changes in atopic dermatitis or the exacerbation of such changes (or possibly both), either directly or by immunological mechanisms.

The natural history of childhood atopic dermatitis is for spontaneous resolution in about 60% of cases. Unfortunately, a significant number of patients continue to have trouble into adolescence and adulthood. Furthermore, a large number of individuals with a past history of the disease develop primary irritant dermatitis from occupational or domestic exposure to chemicals (see page 183).

Eczema herpeticum (Kaposi’s varicelliform eruption)
It is very important that superinfection with the herpes simplex virus is detected in a patient with atopic dermatitis. Viral lesions spread widely over the skin surface, creating an appearance resembling chicken pox (hence the name originally used by Moritz Kaposi) (Fig. 5.26). This may be accompanied by a fever, particularly if the attack is associated with first-time exposure to the virus. This state can be life-threatening for three main reasons.

• The skin may cease to be an effective barrier to the retention of fluid and protein, leading to metabolic disturbances.
• The skin is susceptible to further invasion by bacteria that may cause septicaemia.
• Viraemia and viral encephalitis may occur.

If eczema herpeticum is suspected, and the patient is febrile or unwell, intravenous therapy with aciclovir (acyclovir), or one of the newer alternative drugs, should be started immediately. Topical corticosteroids should also be suspended, and the patient should be kept under close observation.

Investigation and treatment — There are few investigations that assist in the diagnosis or management of atopic dermatitis on a day-to-day basis. Swabs for bacterial culture may be valuable to determine antibiotic sensitivity. Samples for viral culture should be taken before commencing treatment if eczema herpeticum is suspected. Allergy tests (prick tests and serum assays for total IgE and specific IgE) are usually unhelpful, except in confirming the atopic state.
### First-line therapies in atopic dermatitis

| **Emollients** | Liberal use helps to keep the skin comfortable and may reduce the need for corticosteroids; often used in association with bathing, as oils, non-soap cleansers and post-bath applications; in general, the heavier the emollient the better it will work, but cosmetic factors also need to be considered; good emollient bases include white soft paraffin and lanolin. |
| **Corticosteroids** | Highly effective in controlling the inflammation; the major concern is with long-term use and the potential for atrophy and, especially in children, systemic absorption; for short bursts, it is reasonable to use stronger steroids but for maintenance, the weakest effective agent should be chosen. |
| **Antihistamines** | There is no evidence that histamine is important in atopic dermatitis unless there is a significant element of urticaria; however, older, more sedative agents (trimeprazine, promethazine, hydroxyzine) possess tranquilizing properties and can be very useful if given at night. |
| **Anti-infectives** | As indicated, agents that inhibit *Staphylococcus aureus* are useful adjuncts, either in short bursts, or as long-term additions to the regimen; there are several options: antiseptics added to the bath; antiseptic or antibiotic creams, either alone or in combination with corticosteroids; oral antibiotics. |
| **Tar** | Tar has been known to soothe itchy skin for many years; the most frequent method of application in atopic dermatitis is probably in the form of impregnated bandages; these are wound around affected limbs and produce both relief and protection from scratching; they are messy and smelly and are not always favourites with children or parents. Two forms are in common use: wood/coal tar and ichthammol. |

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**Fig. 5.27 First-line therapies in atopic dermatitis.**

Treatment is largely symptomatic. Figure 5.27 gives a list of first-line agents that most dermatologists would consider using in a patient with atopic dermatitis. Figure 5.28 records some of the therapies that may need to be considered if symptoms are out of control and the quality of life for patient, family, and friends has reached a critical point.

- Atopic dermatitis is very common and associated with other atopic diseases such as asthma and hay fever.
- Atopic disorders are complex interactions between genetic susceptibility and the environmental factors.
- Begins often in the first year with red inflamed skin, dryness and intense itch.
- Secondary staphylococcal infection is common; superinfection with the herpes simplex virus can be life threatening.
- Treatment is symptomatic and may involve emollients, corticosteroids, antihistamines, anti-infectives, tar.
Seborrhoeic eczema/dermatitis
This is a very common clinical pattern of eczema seen in adults. There is a form of eczema known as infantile seborrhoeic dermatitis, which occurs (as the name implies) in infancy. The two are not directly related and must be considered separately. The infantile form is considered below.

Clinical features
— There are a number of unmistakeable features seen in classical seborrhoeic dermatitis.

Pathogenesis
— Considered to be a purely endogenous disorder for many years, the pathogenesis of seborrhoeic dermatitis has at last begun to be unravelled. Although the precise mechanisms involved have still to be elucidated, it seems clear that the yeast *Malassezia/Pityrosporum orbiculare* (*Malassezia furfur*) plays a major role in inducing and perpetuating the inflammation (*see also* Pityriasis/tinea versicolor and Pityrosporon.

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**Second-line therapies in atopic dermatitis**

<table>
<thead>
<tr>
<th>Therapy Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topical calcineurin inhibitors (tacrolimus, pimecrolimus)</td>
<td>These agents provide an alternative to topical corticosteroids; they do not cause atrophy and are particularly useful for facial and flexural skin, and as an adjunct to conventional therapy: questions have been raised about possible carcinogenicity, but there is no evidence that this is an issue in clinical practice.</td>
</tr>
<tr>
<td>Ultraviolet radiation</td>
<td>Both ultraviolet B and PUVA have been shown to be effective in atopic dermatitis (for details, see Psoriasis).</td>
</tr>
<tr>
<td>Dietary and other environmental alteration</td>
<td>Anecdotal reports of improvements of atopic dermatitis with diet have led to several studies; a few show benefit, many do not; if all else fails it may be reasonable to try a restricted diet under careful supervision for a few weeks; house dust mite eradication has also been reported to have beneficial effects and may be worth considering.</td>
</tr>
<tr>
<td>Evening primrose oil</td>
<td>The evidence for any significant effect is thin. Systemic steroids and ACTH-like agents may occasionally have a role in producing short-term relief; azathioprine has its advocates and has been shown to be effective in two controlled tests; ciclosporin (cyclosporin) A is highly effective, if rather costly and potentially toxic.</td>
</tr>
<tr>
<td>Immunosuppressives</td>
<td>There is some evidence that some mixtures of Chinese herbs may be effective in some patients; at this time, these agents have not been licensed.</td>
</tr>
<tr>
<td>Chinese herbs</td>
<td>There have been reports of toxicity (notably hepatitis) and some creams have been found to be adulterated with steroids.</td>
</tr>
</tbody>
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Fig. 5.28  **Second-line therapies in atopic dermatitis.**

Seborrhoeic eczema/dermatitis
This is a very common clinical pattern of eczema seen in adults. There is a form of eczema known as infantile seborrhoeic dermatitis, which occurs (as the name implies) in infancy. The two are not directly related and must be considered separately. The infantile form is considered below.

**Clinical features** — There are a number of unmistakeable features seen in classical seborrhoeic dermatitis.

**Pathogenesis** — Considered to be a purely endogenous disorder for many years, the pathogenesis of seborrhoeic dermatitis has at last begun to be unravelled. Although the precise mechanisms involved have still to be elucidated, it seems clear that the yeast *Malassezia/Pityrosporum orbiculare* (*Malassezia furfur*) plays a major role in inducing and perpetuating the inflammation (*see also* Pityriasis/tinea versicolor and Pityrosporon.
folliculitis, see Chapter 3). It is also of considerable interest that seborrhoeic dermatitis is one of the skin signs associated with HIV infection, particularly at the point at which CD4 counts begin to fall.

**Investigation and treatment** — There are no useful tests to aid diagnosis, but HIV infection must always be considered in any case where the condition appears to be particularly severe or resistant to treatment. Patients will often benefit from either a topical corticosteroid cream or a topical antifungal agent such as miconazole, clotrimazole, or ketoconazole. (Ketoconazole was the first agent to be investigated and the one that, in part, resulted in the re-evaluation of the role of yeasts in this condition.) Sometimes a combination of corticosteroid cream and antifungal agent is helpful. Occasionally, severe seborrhoeic dermatitis requires oral treatment with an agent such as itraconazole.

- Certain sites are prominently involved:
  - Scalp. Mild scaling (or dandruff) represents one end of the clinical spectrum, with marked scaling and erythema at the other; seborrhoeic dermatitis is also one of the causes of the clinical change known as pityriasis amiantacea (Fig. 5.29; see also Psoriasis).
  - Nasolabial folds (Fig. 5.30a).
  - Upper chest (both front and back) (Fig. 5.30b).
  - Behind the ears.
  - Eyebrows (Fig. 5.30c).
- On the face the red, scaly, somewhat greasy-looking eruption is characteristic and may spread out on to the cheeks (Fig. 5.30c).
- Some patients also suffer from an inflammation of the eyelids (blepharitis).
- Others develop a more flexural (intertriginous) form, with lesions in the axillae, groins, and areas where skin surfaces are apposed; these lesions merge, often indistinguishably, with the clinical appearance of flexural psoriasis (see page 208).
- Flexural seborrhoeic dermatitis may be mild but may also be extremely troublesome.
- Adult seborrhoeic dermatitis usually presents in adolescence or early adulthood and, although the severity may fluctuate, the tendency often persists throughout life.

**Fig. 5.29 Pityriasis amiantacea** — *scale enveloping the lower part of hairs in seborrhoeic dermatitis.*
Infantile seborrhoeic dermatitis and napkin (diaper) dermatitis

Some children develop a widespread eruption involving the napkin (diaper) area, flexures, and scalp (Fig. 5.31). This state, known as infantile seborrhoeic dermatitis, generally appears in the first 3 months of life. The rash appears to cause no symptoms, although the napkin area may be rather sore and weepy. Certainly, itching is not a prominent feature (as judged by a lack of scratching and rubbing), which helps distinguish the rash from atopic dermatitis. However, perhaps 25% or more of children develop typical atopic dermatitis later. The skin lesions respond well to mild topical corticosteroids (often combined with an antifungal agent because of a fear of superadded candidal infection). The scalp changes
(known as cradle cap) often respond to the application of oils and gentle shampooing but may require more aggressive therapy with salicylic acid.

Occasionally the skin lesions resemble psoriasis (see below), and the term napkin psoriasis may be applied (Fig. 5.32).

There are also a number of other causes of inflammation in the napkin (diaper) area.

- Primary irritant dermatitis (Fig. 5.33). This is generally thought to be caused by faecal enzymes. The skin becomes sore and macerated. Exposure is curative but impractical in most instances. Treatment usually involves attempts to keep the area as dry as possible and the use of emollients and barrier creams. At its most extreme, blisters may occur that resemble herpes (Fig. 5.34).

- Jacquet’s erythema. This is seen in the older child, who may be somewhat neglected. A strong smell of ammonia is usually present in napkins and over-clothing. Areas of erythema are accompanied, in severe forms, by punched-out ulcers (Fig. 5.35).