Common skin problems in children
Part 1: managing atopic dermatitis

The first article in this series on common skin problems in children focuses on atopic dermatitis, the most prevalent chronic skin disease seen in children, particularly before puberty.

GAYLE FISCHER
MB BS, FACD

Dr Fischer is a Paediatric Dermatologist at the Royal North Shore Hospital, St Leonards, and the Children's Hospital at Westmead, Sydney, NSW.

Worldwide, paediatric dermatology practice is dominated by atopic dermatitis. The prevalence of atopy in our population is about 20%; in young children atopic dermatitis is usually a much more common and more severe problem than it is in adults.

Clinical features

The onset of atopic dermatitis most often occurs in the first year of life, with dryness, itching and a patchy, excoriated, erythematous rash that may occur on any part of the skin but is most often found on the face, cubital fossae and popliteal fossae (Figures 1a and b). The severity is highly variable, ranging from mild dryness and a minor rash on the arms and legs to total body involvement (Figure 2).

The itching of atopic dermatitis may be very disruptive, particularly during sleep. Severely affected children may wake up many times during the night, and parents often comment that the child's sheets are streaked with blood from excoriations in the morning. Interestingly, small children often forget about the itchiness during waking hours until their clothes are removed, when they can literally go into a frenzy of scratching all over. Constant scratching often leads to areas of thickening of the skin. This is termed lichenification when it occurs in plaques and prurigo when it occurs in discrete nodules. Once these changes have occurred, they are very resistant to treatment.

Cutaneous infections

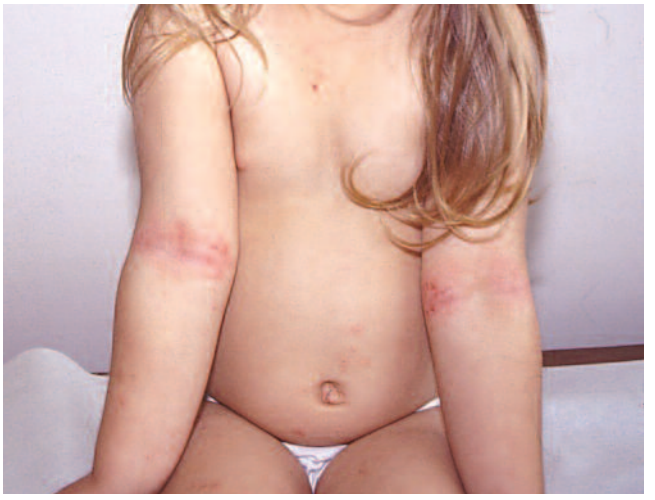
Cutaneous infections are very common, not only because of constant scratching and disruption of the epidermal barrier, but because of inherent immunological and cutaneous abnormalities in these patients. The most common bacterial pathogen is *Staphylococcus aureus*, which causes areas of weeping, crusting and folliculitis (Figure 3).

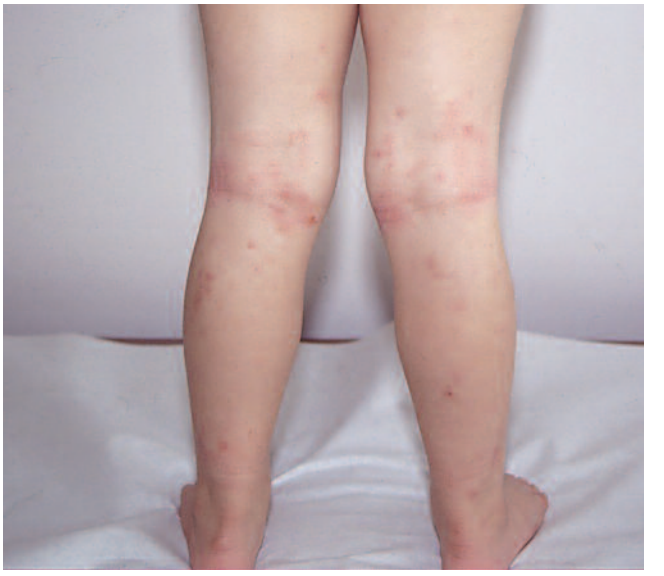
In some cases, children with atopic dermatitis are also prone to relatively severe infections with herpes simplex virus. In contrast to most children, who may only ever suffer from stomatitis or herpes labialis, widespread or generalised infection with systemic upset may occur.

Atopic children are probably not more prone than others to molluscum contagiosum, but the

IN SUMMARY

- **Itch and sleep deprivation can significantly disrupt the lives of children with atopic dermatitis and their parents.**
- **Simple environmental modification is an essential part of management, but measures such as removing carpets are usually unnecessary.**
- **Topical therapy with emollients and corticosteroids is the mainstay of treatment.**
- **Allergy testing is very popular with parents and often helpful in the more severe cases; however, it is probably carried out more than is necessary.**
- **When a child fails to respond to treatment, consider noncompliance, infection, allergy or combination with another dermatosis, most often psoriasis.**
- **The prognosis of this condition is good, with most children recovering by the end of primary school.**





Figures 1a and b. Atopic dermatitis on the cubital fossae (a, left) and popliteal fossae (b, right).

presence of the virus causing this certainly exacerbates dermatitis.

Environmental irritants and allergens

Children with atopic dermatitis are sensitive to environmental irritants and allergens, and this can include their topical therapy. It is well known that sand, wool, nylon, grass, house dust mite, soap and bubble bath will aggravate these children's skin. Temperature changes and overheating are also problems. Sometimes, even labels and rough seams in clothing can cause irritation. Allergy to latex can be a little thought of trap for the unwary if caregivers are wearing gloves. It is common for these children to complain that their topical treatments sting and for their parents to comment that they cause erythema. The antiseptic triclosan in some bath oils can cause a cutaneous reaction that simulates a chemical burn.

Food allergy and intolerance

Food allergy, which is immunologically mediated, and food intolerance, caused by direct histamine release, are by no means common causes of atopic dermatitis, but they can be very relevant in some patients. It is very common for parents to request investigation for these. Often they have good reason to do so, having observed their child's reactions

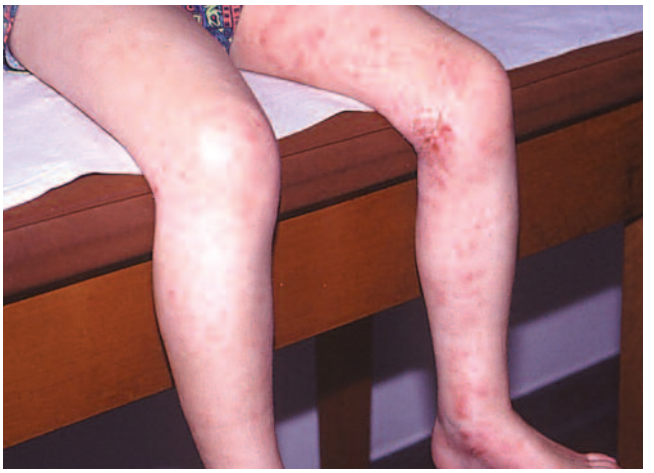


Figure 2. Atopic dermatitis on the legs.

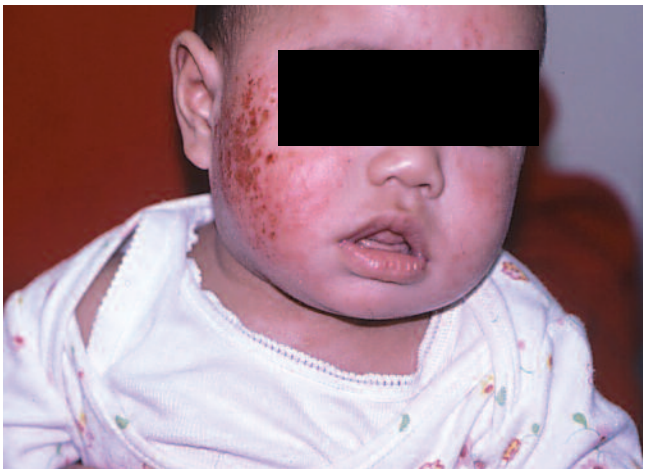


Figure 3. Atopic dermatitis infected with *Staphylococcus aureus*.

to certain foods – particularly cow's and soy milk, peanuts, eggs, shellfish and high salicylate foods such as tomatoes and fresh fruits.

Dermatitis and psoriasis

The presence of both dermatitis and psoriasis is not uncommon when the atopic dermatitis seems more difficult than usual to control, or never completely responds to topical corticosteroids (Figure 4). Both are common skin conditions in the community. Psoriasis in young children is much more subtle than that in adults, and the classic thickened plaques rarely occur.

Ask parents about the family history and look for signs of psoriasis in the child and parents – for example, scaling of scalp and postauricular skin, or cracking under the earlobe and nail pits. Psoriatic scaling on the dorsal surface of the knees and elbows in combination with dermatitis on the ventral surface is common.

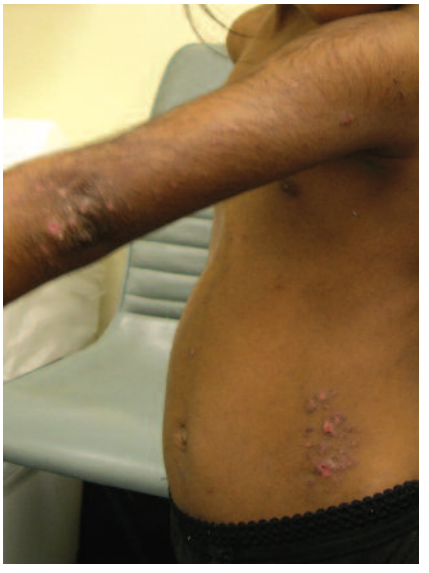


Figure 4 (above). Mixed atopic dermatitis and psoriasis showing lichenification.

Figure 5 (right). Patients with severe nonresponsive dermatitis may need corticosteroid treatment under wet dressings; such patients often require hospitalisation.

Psychological problems

Psychological problems are more often seen in children who are severely affected with atopic dermatitis. The most common problem is exhaustion from not sleeping well, leading to poor concentration at school. However, the management of atopic dermatitis can come to dominate the child's and parents' lives, and it is common for any child with a chronic condition to become weary of the daily routine of treatment and to complain, fight, abscond and resist. In the worst cases, outright rejection of the child by the parents may ensue, but most parents are just exhausted themselves.

Cost can become a factor as many of the required treatments are not listed on the PBS. In addition, many parents are confused by conflicting information on the safety of treatments, particularly corticosteroids, and almost paralysed by the fear of long term effects of treating their children.

Management

The management of children with atopic dermatitis is not simple, particularly in severe cases (Figure 5). The following factors need to be considered:

- compliance and counselling
- environmental modification
- control of dryness
- medical management of the dermatitis
- control of infection
- management of the dermatitis plus psoriasis combination
- in some cases, investigation and management of allergy.

Compliance and counselling

It cannot be stressed too strongly that atopic dermatitis is a chronic condition. The patient's parents or carers must understand the need for both continuous suppressive therapy at times of activity and ongoing preventive environmental modification at times of remission (see the parent and carer handout on page 43).

Treatment often fails because therapy is ceased as soon as the dermatitis clears in the belief that a 'cure' has been achieved. When the inevitable relapse occurs, parents may believe that treatment has been a failure and subsequently abandon further therapy. Treatment also often fails because parents are apprehensive about using topical corticosteroids. Parents need to be reassured that when used correctly, topical corticosteroids have a good safety record (see the box on page 44).

To encourage compliance, parents need a lot of education about the nature of atopic dermatitis, the fact that it tends to become less severe with each passing year, and the safety of the medication they are using.

It is often the little things that make a big difference, such as:

- devising a simple regimen that fits in with the parents' lifestyle
- minimising cost with the use of authority prescriptions
- providing clear written instructions

Helping your child with atopic dermatitis: what you should do everyday

What your child should avoid

- Soap, bubble bath and shampoo
- Woollen, nylon or furry clothes and items, including wool blankets, toys, bunny rugs, car seat covers, clothes you are wearing when carrying your child
- Sand pits and sand at the beach
- Chlorinated water
- Perfumed products
- Overheating – for example, wearing tight nylon clothes, using electric blankets, partaking in activities like aerobics or athletics
- Dust

How you and your child can do this

- Use a soap substitute instead of soap and shampoo, and use a bath oil in the bath.
- Keep products used on the skin simple and nonperfumed; experimentation can result in irritation of the skin.
- Wear loose cotton or cotton blend clothes.
- Don't put more clothes on your child than you would wear yourself, and avoid sudden temperature changes.
- Remove the sandpit at home, speak to the teacher at preschool about avoiding sand, and wipe off sand immediately from your child.
- Rinse off chlorinated water immediately and apply moisturiser.
- Buy a dust cover for your child's mattress and pillow; remove fluffy toys from the bedroom and dust and vacuum regularly.

What you should do each day

- Apply a bland, greasy moisturiser all over your child twice a day: after the bath and before getting dressed in the morning are the best times.
- Always use bath oil in the child's bath.
- Check daily to see which parts of the skin have dermatitis: use your child's cortisone creams and ointments on these areas.

Using cortisone creams

Many people will tell you that cortisone creams and ointments, which are usually preferable to other products, are very dangerous and should not be used on children. It is true that cortisone (also called corticosteroid) is a potent and effective medication; however, it is completely untrue that it is too dangerous to use in atopic dermatitis. The truth is that cortisone creams are very safe when used correctly. Inadequate use of these creams is one of the main reasons that parents find it difficult to control their children's dermatitis.

You should use your cortisone creams on your child as soon as you see a patch of dermatitis. Waiting until the dermatitis gets really bad before using them only results in having to use more. The earlier you start, the better you will control the situation. When the dermatitis is better, stop using the creams.

What about Elidel?

Elidel (which is also called pimecrolimus) is a new product for the treatment of dermatitis. It is called an 'immunosuppressive' drug, which means that it dampens down the body's immune, or defence, system. Its strength is equivalent to a weak-to-moderate strength cortisone cream.

Elidel does not thin the skin. Its main side effect is stinging or burning. We have no information about the long term safety of this product. Until we know more, it is wise to use a sunblock on any exposed areas being treated, as there are concerns about a possible link with skin cancer.

Specific instructions

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Problems your child might encounter

- **Stinging.** Particularly when dermatitis is severe, creams may sting. Sorbolene cream often causes stinging. If this happens, talk to your doctor about changing to another product.
- **Night waking.** This usually stops when the dermatitis is better, as it is the result of itching. Some sedating antihistamines, such as trimeprazine tartrate (Vallergan), taken at bedtime will often help.
- **Infection.** If dermatitis becomes crusty or weeping, or exudes pus get in touch with your doctor. Your child may need antibiotics.
- **No improvement.** Sometimes dermatitis just becomes difficult to treat and doesn't respond to the usual medicines. Again, contact your doctor in this case.

- recommending that the parents have a word with the child's teacher about dust, sand and grass exposure at school.

Regular follow up is always important to keep reassuring and reaffirming that parents are doing the right thing, modifying treatment according to response and complications, and praising positive results. There are so many negative influences on these families that it becomes imperative to keep repeating that of all the treatments

Atopic dermatitis: practice points

- Corticosteroid phobia has reached epidemic proportions in the community. It is essential to be positive and reassuring about the long safety record of topical corticosteroids otherwise parents may be too scared to use them.
- Recommend preparations that do not sting. Sorbolene cream is often the culprit of stinging, but, generally, ointments are less likely to cause this problem. Avoid recommending urea-containing products.
- Devise a simple to understand and execute regimen for your patient: remember this has to be a daily routine and children and parents will tire of it.
- It is not necessary for children to bath infrequently in cool water: this is a myth. Advise parents to add bath oil to the bath, and all will be well.
- Complex regimens and rigid restrictions on the number of days on and off topical corticosteroids do not work for many patients and result in poor control.
- Remember to make sure parents understand the nature of chronicity. Extra time given at the first consultation will be well worth it.
- The cost of managing atopic dermatitis can be considerable. Minimise cost with authority scripts and encourage patients to buy moisturisers and bath oils in bulk.
- Parents will pressure you to have their child allergy tested. Although this is not necessary for every child, it is often best to acquiesce: parents are often right.
- Review regularly. Parents need reassurance and affirmation in the face of enormous pressure that the Western medicine approach to atopic dermatitis is dangerous. The fact is, it still works the best.
- Beware the dermatitis/psoriasis combination as a cause for nonresponsiveness to treatment.
- Parents are very keen to try the new product pimecrolimus (Elidel). Inform them that this is an immunosuppressant agent with, so far, only a short period of follow-up. Their child should use sunblock while using it.

Table 1. Examples of bath oils and soap substitutes

Bath oils

- Q.V. Bath Oil (liquid paraffin)
- Dermaveen Shower and Bath Oil (colloidal oatmeal, paraffin oil)
- Alpha Keri Bath Oil (light liquid paraffin, wool fat)
- Hamilton Dry Skin Treatment Oil (light paraffin)
- Oilatum (liquid paraffin)

Soap substitutes

- Q.V. Wash (topical glycerol), Bar (dimethicone) and Balm
- Dermaveen Cleansing Bar (colloidal oatmeal)
- Cetaphil Gentle Cleansing Bar (surfactants, petrolatum, titanium dioxide)
- Hamilton Dry Skin Treatment Wash (disodium cocoamphodiacetate, light liquid paraffin)

available, by and large Western medicine still works best.

Environmental modification

Environmental modification is an essential part of atopic dermatitis management, and one that parents readily accept, in theory at least. It is always important when telling parents what to take out of the child's environment that you suggest what they should put in instead. Soap, shampoo and bubble bath do need to be eliminated. There are numerous soap substitutes that can be substituted (Table 1). Skin contact with woollen or acrylic clothes, blankets and toys should also be avoided, substituting pure cotton or at least 70% cotton blends.

Dust in the environment is a problem for most children with atopic dermatitis, although some are much more sensitive than others. Such sensitive children often have an accentuation of their rash in the periocular area or on the thighs where their skin contacts dust on the floor when sitting cross-legged at school. Dust is difficult to minimise; however, using plastic mattress and pillow covers, washing bedding and other fabric that comes in contact with the child's skin in hot water, eliminating dust-catching objects (e.g. fluffy toys), and vacuuming thoroughly can help. If the child has to sit on the floor at school, a washable bath mat should be used. In very severe cases, removing carpets and curtains may be indicated.

Many households, preschools and primary kindergartens have a sandpit. Sand is a major problem for children with atopic dermatitis. It is easy to get rid of the sandpit at home, but parents need to talk to carers about trying to keep the child out of the sand elsewhere. Sand tends to accumulate in socks and shoes, and is mostly a problem for hands and feet.

In summer, or year round for the child who is swimming training, chlorinated pools can be a problem. It can be helpful to apply a greasy emollient before swimming and to shower and apply emollient immediately afterwards.

Control of dryness

Dispersible bath oil should be used daily

in the bath. It is a common belief that baths should be taken infrequently and kept cool, but a normal daily bath is in fact helpful to reduce infection as long as one of these additives is used.

After bathing an emollient should be applied over the whole body. The frequency of use will depend on the child's degree of dryness. For mild cases, application of emollient after bathing is sufficient. For more severe xerosis, application two or three times daily is often necessary. Emollients are easiest to apply when the skin is still damp after bathing.

Numerous emollients are available (Table 2), and the choice depends on the severity of the atopic dermatitis (greasier emollients are used for more severe xerosis), the climate (a less greasy product is needed in hot, humid weather) and personal preferences. Cost can also be a factor, and as large amounts are required, compliance is more likely if this is minimised. Simple generic preparations, such as emulsifying ointment BP mixed with water, are as effective as proprietary compounds. Generally, greasier emollients available in tubs tend to be better moisturisers than thinner lotion preparations in pump packs.

The adverse effects of some emollients can limit their use. The ubiquitous product sorbolene cream can cause stinging in some children that can lead to noncompliance and loss of confidence in treatment. It is helpful to keep samples of various emollients in the office for patients to try before purchase to determine if there is a problem.

Useful over-the-counter emollient preparations include Q.V. Cream, Cetaphil Moisturising Cream, Dermaveen Lotion and Dermadrate (the latter is useful for severe xerosis, but it may sting).

Medical management of dermatitis

Topical corticosteroids, which have been available for many years and for which we have long term follow up information, remain the treatment of choice for mild to moderate atopic dermatitis. If used correctly, they are very safe and effective. Despite these facts, fear of their use is widespread in the community. Thus it is important that doctors prescribing them are positive and reassuring about their usefulness. It is important to keep in mind that many other people, including the pharmacist, baby health nurse, naturopath, friends and relatives, all possibly more trusted by the patient than is the medical profession, may be denouncing them as dangerous.

The main fears with topical corticosteroids are that they will 'thin the skin' and 'depress the immune system'. Both are theoretically true if potent preparations are overused or applied under plastic occlusion. However, when used as recommended below, this is unlikely.

Topical corticosteroids should be applied daily to any areas of active dermatitis, titrating the strength of the preparation and the frequency of application to the severity of the dermatitis. An emollient is applied to the entire skin before the corticosteroid is applied. Patients should have a range of topical preparations. If there is an inadequate response to a milder preparation after three days, a stronger one should be used.

Generally, the use of corticosteroids in children does not differ significantly from that in adults; however, the issues discussed in the box on this page are important to consider.

Topical immunosuppressive medication

Two new agents have been the subject of much interest from patients and doctors. Statements are already being made that they will replace topical corticosteroids in the treatment of atopic dermatitis. Both are calcineurin inhibitors and act as immunosuppressive NSAIDs.

Pimecrolimus 1% (Elidel) is available commercially and tacrolimus 0.1% and 0.03% (Protopic) is available through some hospitals and compounding chemists. Of the two preparations, tacrolimus is the more effective, but it also has more potential for systemic absorption and side effects.

Pimecrolimus has been evaluated in children and is indicated for the treatment of atopic dermatitis in children over 3 months of age. It is used twice

Using topical corticosteroids in children: important issues

- Hydrocortisone 1% is the only corticosteroid that should be used on the flexures. This is also usually true of the face, although more potent corticosteroids may be used on the face for short periods.
- Children have poor tolerance of preparations that sting. Ointments are therefore preferable to creams as they are less likely to produce stinging.
- In severe, nonresponsive dermatitis, corticosteroids may be used under wet dressings (see Figure 5); however, plastic film occlusion should not be used because of the risk of atrophy. Patients needing wet dressings often require hospitalisation.
- The corticosteroid should be used until the skin has normalised, then ceased until there is evidence of recurrence. It is not necessary to give patients strict guidelines about the number of days on and off corticosteroid treatment as this varies with every patient. Use should be matched to response.
- Breaks from therapy, even if brief, reduce the risk of adverse effects and minimise tolerance to the effect of the corticosteroid.
- Children who do not respond to the corticosteroid and those who flare rapidly after stopping this treatment should be referred to a dermatologist.

daily. Its main advantage over topical corticosteroids is its lack of atrophogenic properties, particularly in thin skin such as the face in children who are unresponsive to mild corticosteroid preparations or who need to use them continuously. Early studies indicate that it may also be more effective than topical corticosteroids at preventing flares of atopic dermatitis if used regularly.

The main side effects of these products are stinging and burning on application. These are less problematic with pimecrolimus, but they can limit the use of these agents in children.

Pimecrolimus is available on the PBS only with an authority script and is significantly more expensive than topical corticosteroids. Unlike topical corticosteroids, its very long term safety has not been established, although we have up to five years of follow up with tacrolimus so far. Because of the immunosuppressive properties of these agents, there has been concern that in the long term we may see skin cancer as a result of their use, particularly in sunny climates like Australia. It is wise, therefore, to use a sunscreen on exposed skin being treated. Only time will tell us how safe the use of these compounds on young children really is.

As with all new, well-promoted products, there has been enormous interest from parents of children with atopic dermatitis who are keen to avoid the use of topical corticosteroids. Most do not realise that these products are immunosuppressants with their own hazards.

Currently, because of cost factors and the unknown issue of safety on long term use, it is my opinion that calcineurin inhibitors are indicated for:

- severe facial dermatitis (Figure 6) not responsive to 1% hydrocortisone, when infection, food allergy and psoriasis have been ruled out as the cause of the nonresponsiveness
- in patients with the more severe types of atopic dermatitis controlled only by the continuous use of topical corticosteroids.

In some cases, patients may be able to substitute pimecrolimus or tacrolimus for topical corticosteroids, but most require both types of medication.

Oral immunosuppressive therapy

In general, oral immunosuppressive therapy is neither appropriate nor necessary for the treatment of atopic dermatitis in children.

Oral corticosteroids are contraindicated because severe rebound is usually experienced on withdrawal, and repeated courses destabilise the dermatitis and can result in erythroderma. This situation is completely different from treating acute exacerbations of asthma.

Oral cyclosporin (Cicloral, Cysporin, Neoral, Sandimmun) may be initiated by a dermatologist or clinical immunologist for the treatment of very severe atopic dermatitis in children. Treatment must be

Table 2. Examples of emollients

Very greasy	White soft paraffin, wool alcohols
Greasy	Emulsifying ointment
Moderately greasy	Sorbolene cream with glycerine 10%, aqueous cream

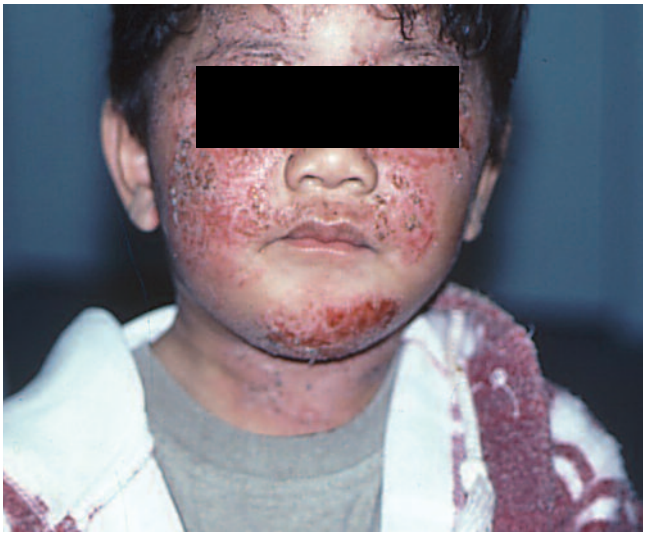


Figure 6 (above). Severe facial dermatitis.

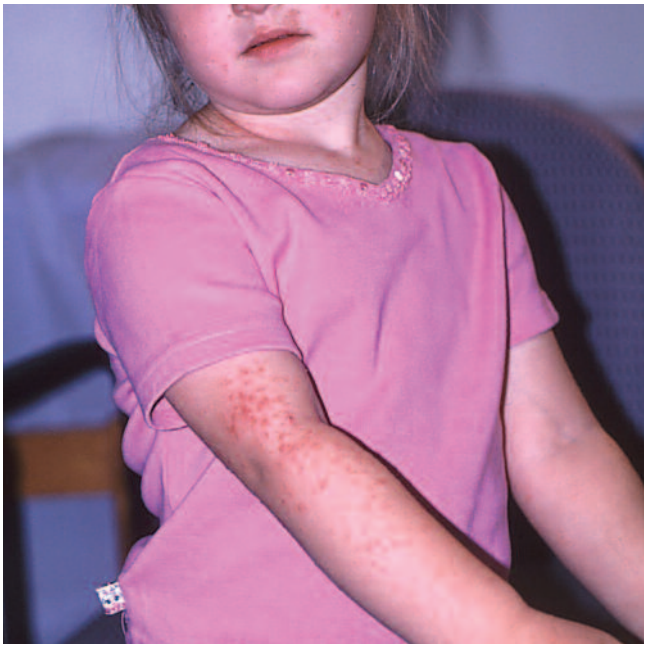
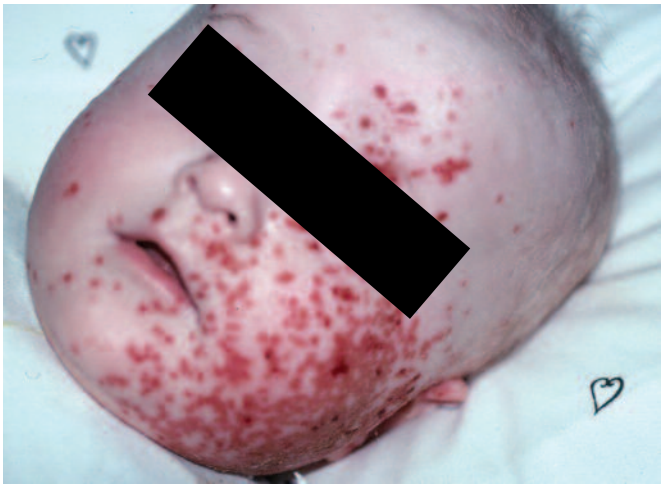


Figure 7 (right). Impetiginised dermatitis.



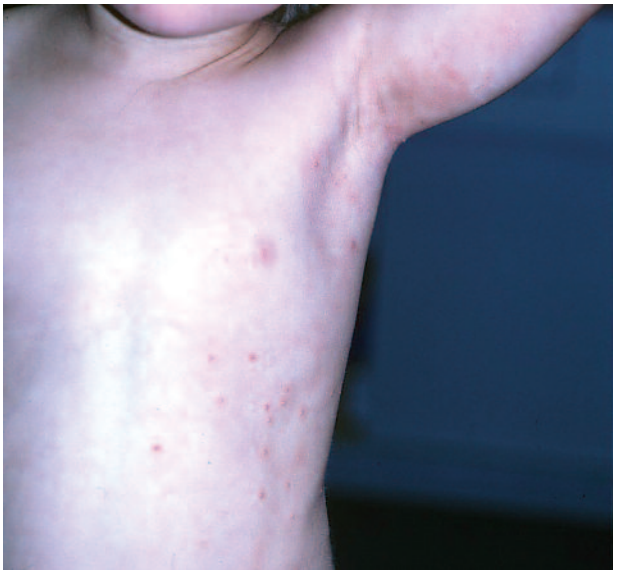


Figure 8 (above). Herpes simplex complicating atopic dermatitis.
Figure 9 (right). Molluscum contagiosum and atopic dermatitis.

very carefully monitored and this means numerous blood tests and blood pressure readings for the child. This is a huge step for most parents, although certainly it can be sanity saving in children with severe, life-disrupting atopic dermatitis. It is used when all conservative measures have failed to control the dermatitis and the patient's quality of life is severely affected.

Control of infection

The most common infections seen in children with atopic dermatitis are:

- impetigo (Figure 7) – most often due to *S. aureus*; occasionally due to a mixed infection of *S. aureus* and *Streptococcus pyogenes*, or *S. pyogenes* alone
- herpes simplex (Figure 8)
- molluscum contagiosum (Figure 9).

Any of the above infections often exacerbates atopic dermatitis, and control of infection is essential before the dermatitis can be treated effectively. A bacterial swab of lesions is a useful, inexpensive test that confirms infection and determines antibiotic sensitivities. Community acquired methicillin-resistant *S. aureus* is becoming more common and often requires treatment with clindamycin (Cleocin, Dalacin).

If herpes simplex is suspected clinically by the presence of grouped vesicles or erosions, viral swabs should be taken. This is always an acute, and sometimes also recurrent, event. When the infection is widespread, treatment with oral or intravenous aciclovir is needed and specialist referral recommended.

Molluscum contagiosum infection, although by no means confined to children with dermatitis, does often make the dermatitis refractory to treatment. The best way to eradicate the lesions is to remove them physically; however, this is often easier said than done. It can be difficult to change the course of the infection and one may have to accept that until the lesions resolve spontaneously, more aggressive treatment of the dermatitis may be necessary.

In many cases, the child's skin is chronically colonised by *S. aureus*. This can result in exacerbation of the dermatitis, difficulty in controlling it, and crusting and folliculitis. When any of these are encountered, cutaneous and nasal bacterial swabs should be taken to confirm the infection and determine the sensitivities of the *S. aureus*. This situation requires more than one course, and at times repeated courses, of oral antibiotics. Antiseptic bath additives such as bath oils containing triclosan 2%, or simply adding 5 mL chlorhexidine 5% solution (Microshield 5) to the bath water, are helpful. A topical antibiotic such as mupirocin 2% ointment (Bactroban) should be kept on hand to apply to crusted areas twice daily for a week. It is more effective if the crusts are removed by soaking under a wet cloth or in the bath. If nasal carriage is detected, mupirocin should also be used intranasally twice daily for seven days (Bactroban Nasal Ointment).

Flucloxacillin (Diflucan) or dicloxacillin (Diclocil, Dicloxsig, Distaph) is the treatment of choice for obvious secondary infection, but cephalexin or roxithromycin (Biaxsig, Rulide) is useful for patients who are allergic to penicillin. Many strains of *S. aureus* are resistant to erythromycin.

In some children in whom chronic infection makes atopic dermatitis impossible to control, long term oral antibiotic treatment may be useful. However, before embarking on this, specialist referral is recommended.

Treating the dermatitis/psoriasis combination

Patients with a combination of dermatitis and psoriasis need treatment for both conditions. Therefore, in addition to the usual management of atopic dermatitis,

tar creams and shampoos and topical calcipotriol (Daivonex) may be needed.

It is important that the parent understands which areas of the rash are atopic dermatitis and which are psoriasis. Managing this situation can be difficult, and referral to a dermatologist is recommended; this often happens anyway because the 'dermatitis' does not respond to treatment.

Investigation and management of allergy

Most parents of children with atopic dermatitis want to know 'why', and the answer, 'It's the way he or she is made', is not enough. As a result, many will request allergy testing. The thought that they may find a substance that if avoided will end the problem is very attractive and also gives them something tangible that they can control without the use of drugs.

In an ideal world, a child should be considered for allergy assessment if:

- the dermatitis is severe or difficult to control
- parents report exacerbations in relation to particular foods or infant formula
- there is an urticarial component
- the distribution is on exposed areas, particularly the periocular area or other parts of the face, indicating the role of an aeroallergen such as house dust mite.

In practice, however, many unnecessary allergy tests are conducted because of parental pressure, and children are sometimes put on very restrictive diets on thin evidence. Parents may also embark on expensive measures such as pulling up carpets and removing all the curtains, only to find that these make little difference.

Allergy testing may be carried out by either skin prick testing (usually considered to be more accurate) or radioallergosorbent testing (RAST). Allergy testing has many pitfalls, and results need to be considered in conjunction with clinical presentation. Not all food reactions are detectable with these tests, particularly when salicylates and other food additives are involved. Referral is strongly recommended before any major action, either dietary or environmental, is put into practice.

Prognosis

Generally, the prognosis of atopic dermatitis is good, with most children substantially improving by the time they start school and remitting by the end of primary school. A minority still suffer from the condition as teenagers, but in only a few does it continue into adult life.

Treatment resistance is often due to noncompliance, but infection, allergy or the onset of a new skin condition such as psoriasis should be considered.

Certain environmental situations may bring out the tendency for atopic dermatitis later – for example, an occupation or hobby where there is heavy dust or solvent exposure, or an outdoor sport in a patient who is allergic to grass. Certain geographical areas suit some patients better than others, no doubt related to humidity and aeroallergen levels.

Until remission occurs, parents need to maintain all environmental modification precautions and ensure treatment is given regularly. It is important in young children, and even in many teenagers, never to leave treatment up to the child. It is a bit like teeth cleaning: unless the parent nags, it often doesn't happen. MT

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