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FOCUS: PAEDIATRICS
JANMAR 2013
ISSUE06

Practical Management of Atopic Dermatitis in Children

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Introduction

Atopic dermatitis or atopic eczema is the most common dermatosis in infants and children. It affects 20% of school-going children in Singapore.[1] Up to 60% of patients present within the first year of life and 85% by 5 years of age.

Patients with atopic dermatitis frequently have a personal or family history of other atopic diseases i.e. allergic rhinitis, asthma and allergic conjunctivitis. Genetic mutations in genes encoding proteins that make up the skin barrier, in particular filaggrin, have been found to be associated with atopic dermatitis.[2] Other genetic mutations have been found in genes encoding cytokines, which are involved in skin inflammation.[3] Atopic dermatitis lesions are often secondarily infected with Staphylococcus aureus. Other common aggravating factors of atopic dermatitis include house dust mites, strong soaps and detergents, changes in ambient temperature and humidity, and emotional or physical stress.

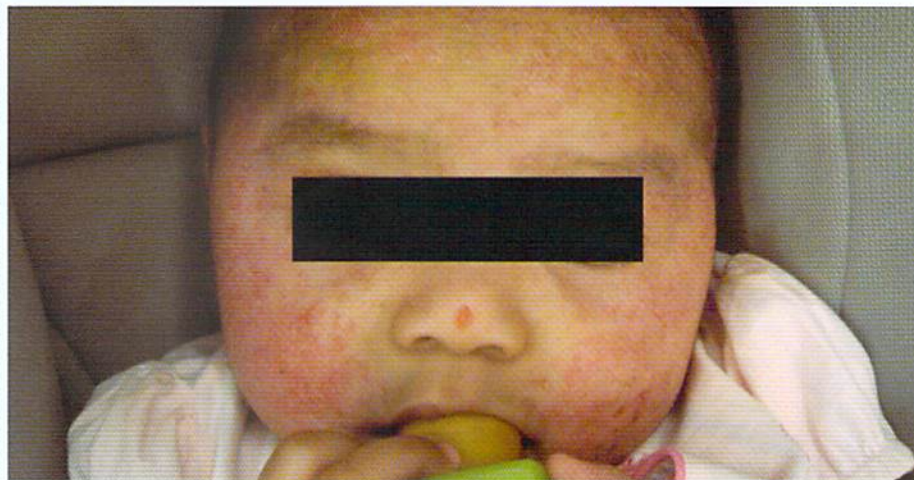
Clinical presentation

Atopic dermatitis presents as a chronic, recurrent, pruritic rash with an age-specific morphology and distribution of lesions.[4]

In infants, it commonly presents as pruritic, scaly, erythematous plaques, most commonly over the scalp, cheeks and forehead (*Figure 1*). In more severely affected patients, lesions can become more widespread, affecting the trunk and flexor surfaces of the limbs. Lesions can become secondarily infected and appear oozy and crusted. Lesions around the mouth can be worsened by irritating foods and saliva. In older infants and children, lesions have a tendency to develop features of chronicity e.g. thickening and lichenification (*Figure 2*). Commonly involved sites include the popliteal and antecubital regions, wrists, ankles, hands and feet. Nummular or discoid lesions are also commonly seen (*Figure 3*). The adult phase begins usually around puberty. Patients present with dry, scaly, erythematous papules and plaques, sometimes with larger, more lichenified plaques. Common sites include the face, neck, back, hands and feet.

Secondary infection and concomitant irritant contact dermatitis are not uncommon. Post-inflammatory hypo- or hyperpigmentation are common sequelae seen in Asian patients with atopic dermatitis, and may take several months to resolve. Other commonly associated dermatoses seen in patients with atopic dermatitis include pityriasis alba and keratosis pilaris.

Pityriasis alba presents as poorly demarcated, hypopigmented, slightly scaly patches on the face, which can be worsened by sun exposure and swimming. Commonly mistaken for



▲ **Figure 1** Infantile eczema presenting with scaly, erythematous plaques on the face.

tinea versicolor, it is believed to be a mild form of dermatitis with post-inflammatory hypopigmentation. Keratosis pilaris presents as small, hyperkeratotic, slightly erythematous, follicular papules, most commonly occurring on the outer arms, face and thighs.

Diagnosis

The diagnosis of atopic dermatitis is largely made on clinical grounds. Skin biopsies may aid if there is difficulty differentiating it from other less common dermatoses. Patch tests may be ordered in patients with suspected concomitant allergic contact dermatitis. However, the incidence of allergic contact dermatitis in children is low. Skin prick tests or specific serum IgE tests can be performed if certain foods are suspected aggravating factors. However, interpretation of these tests should be done in conjunction with a paediatric allergist, especially if there is a strong suspicion of food allergy worsening the condition.

Treatment

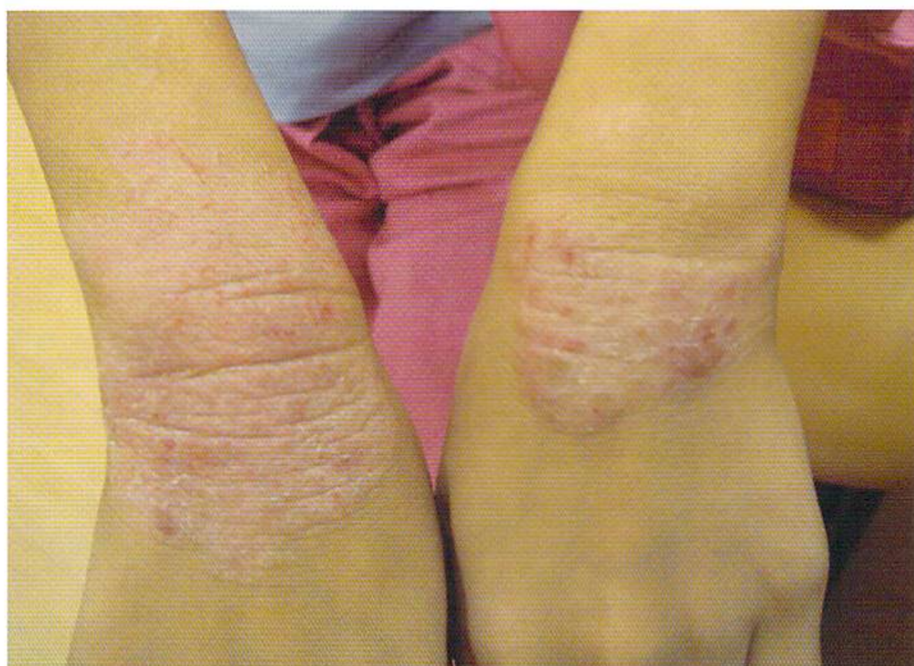
Treatment of atopic dermatitis depends on the age of the patient, and the severity and extent of disease. It usually requires a stepped approach.

General measures include avoidance of triggers e.g. harsh soaps and detergents, dusty, hot and humid environments.

Daily short (5-10 min) **showers or baths** using cool or slightly warm water, with a mild soap or soap substitute is recommended. Gentle soaps include emulsifying ointment, Dove Moisturising Body Wash, Cetaphil Gentle Skin Cleanser, Physiogel Cleanser and QV Wash. Bubble baths should be avoided. An anti-bacterial soap (e.g. chlorhexidine soap) or dilute bleach baths may be used 2-3 times weekly in patients with frequent secondary Staphylococcal infection.

Frequent, daily applications of moisturisers are essential in the treatment of atopic dermatitis to aid in restoring the damaged skin barrier. The thicker the moisturiser, the more effective it is as an emollient. Lotions are usually not effective in atopic skin. Some patients may find thick, greasy ointments (e.g. paraffin) unpleasant to use. Non-ointment moisturisers, especially newer formulations containing ceramides (e.g. Physiogel AI or Cetaphil Restoraderm) are usually more acceptable to patients. Advise patients to choose a moisturiser that is effective, pleasant to use, and affordable. Moisturisers should be applied on the entire skin surface within three minutes of a bath or shower, even on areas not clinically affected by eczema. It should be re-applied at least 2-3 times daily. To reduce the recurrence of flares, patients should be advised to continue daily application of moisturisers, even after the clinical signs of atopic dermatitis have resolved.

> **"Wet-wrap therapy increases the effectiveness of topical creams, helps to keep the skin hydrated and helps to cool the skin and decrease itch."**



▲ **Figure 2** Childhood eczema with features of chronicity including induration and lichenification.

Topical corticosteroids are still the mainstay of treatment for atopic dermatitis. These are available in a wide range of potencies and the choice of potency depends on patients' age, and the site and severity of eczema.

Low-potency corticosteroids (e.g. hydrocortisone 1% cream, desonide lotion) may be used in infants and on the face and groin areas of children. Mid-potency corticosteroids (e.g. betamethasone valerate 0.025% or 0.05%) may be safely used in older children, adolescents and adults with mild eczema. High-potency corticoisteroids (e.g. betametasone valerate 0.1%, mometasone cream) may be used for moderate-to-severe involvement in older children and adults. Very high-potency corticosteroids (e.g. clobetasol propionate, betametasone dipropionate) should be reserved for

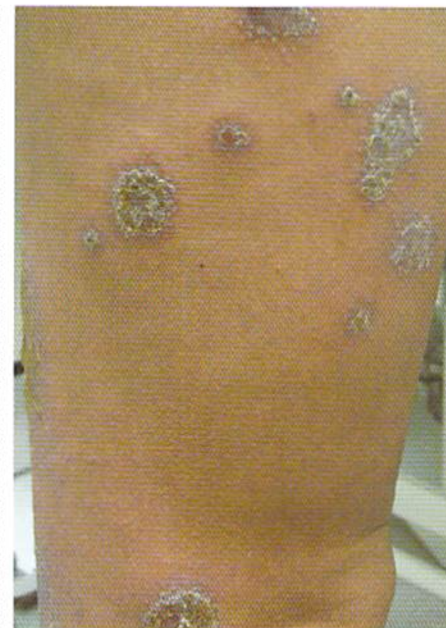
older patients with thick, lichenified lesions for short durations. Combination topical steroids and antimicrobials (e.g. Fucicort cream, betamethasone valerate with vioform) are useful if there are signs of secondary infection. Ointments are generally less irritating than creams and are more potent. However, they are greasier and patients may find them unattractive for daily use. Topical steroids should be applied 1-2 times daily, preferably immediately before or after applying moisturisers.

A step-down to lower potency formulations is recommended when lesions improve. It should be continued as long as lesions remain red, raised and pruritic. If a strong topical steroid is prescribed, early review of the patient is recommended so as to monitor for side effects of over-application. Cutaneous side effects of topical steroids include skin thinning, striae, telangiectasias, hypopigmentation and easy bruising. Systemic absorption of topical steroids can occur if large amounts of a potent formulation are used for long periods, leading to systemic side effects.

The topical calcineurin inhibitors (tacrolimus and pimecrolimus) are newer immunomodulators that may be used in place of topical corticosteroids. They do not exhibit the same side effects as topical corticosteroids (e.g. skin atrophy, striae, hypopigmentation and easy bruising) and are particularly useful for use around the eyes, face, groin and flexural areas. The topical calcineurin inhibitors should be applied twice daily on affected areas. Patients should be warned of skin irritation and burning on initial use. This usually improves on continued use and rarely requires discontinuation of treatment.

The use of **wet-wrap therapy** has been a more recent addition to the treatment of atopic dermatitis. This entails the use of two layers of tubular dressings (e.g. Tubifast) applied after the application of creams. The inner layer of dressings is moistened with tepid water, while the outer layer is left dry. Dressings are left on for several hours each day and the inner layer can be re-moistened when dried. Wet-wrap therapy increases the effectiveness of topical creams, helps to keep the skin hydrated and helps to cool the skin and decrease itch.

Sedating anti-histamines (e.g. hydroxyzine, chlorpheniramine) are useful at nights to help with itch and improve sleep time. Short 1-2 week courses of oral anti-staphylococcal antibiotics (e.g. cloxacillin, cephalexin) are useful for infected eczemas, together with potassium permanganate soaks. Similarly, short tailing courses of **oral corticosteroids** may be used to control flares of disease but should be limited to three times a year. Patients who have more severe, extensive disease or those with frequent flares should be referred to a dermatologist to optimise treatment. For these patients, other treatment options include phototherapy (e.g. narrow-band ultraviolet B) and systemic immunosuppressants (e.g. ciclosporin, azathioprine, methotrexate).



▲ **Figure 3** Discoid eczema in a child presenting with oozy, round erythematous plaques on the legs.

Prognosis

Atopic dermatitis tends to improve with age, with up to 70% of patients clearing by puberty.[5] However, it can recur again during adulthood. Most patients have mild disease, with minimal impact on quality of life. However, the quality of life can be severely affected in patients with moderate to severe disease, leading to significant impairment in sleep patterns, school performance and psychosocial development.[6] It is important to remind patients, parents and caregivers that even though the condition cannot be cured, good control can be achieved with good skin care and most patients do improve as they get older.

GP CONTACT

GPs can call for appointments through the Specialist Outpatient Clinic Appointment Centre at 6294 4050.

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