12

Skin conditions

Objectives

When you have completed this unit you should be able to:

- Recognise the common types of rashes.
- Diagnose and treat common skin infections.
- Diagnose and treat rashes caused by skin parasites.
- Manage rashes caused by skin irritations or insect bites.
- Manage rashes due to allergy.
- Manage mild acne.

INTRODUCTION

12-1 Are skin conditions common in children?

Yes. Skin conditions are common in children, as young skin is sensitive. As a result a child's skin is easily irritated or damaged. This may cause a rash.

12-2 What is a rash?

A rash is a skin disorder which causes a change in the normal appearance of the skin. It may appears suddenly or gradually and most rashes disappear after days or weeks. Some rashes may recur (come back repeatedly) or persist (become chronic). Any part of the body may be affected by a rash. However, if the rash only affects the skin of certain parts of the body, this may help with the diagnosis. While most rashes are mild and recover quickly, some are serious and need urgent treatment. There are many types (appearances) of rashes.

A rash is a skin disorder which causes a change in the normal appearance of the skin.

12-3 What are the common types of rash?

- **Macule**: This is a flat spot that can be seen but not felt. Macular rashes are usually pink or red (erythematous macules) and disappear (blanch) for a few seconds after pressing on them. This is because these macules consist of dilated, small capillaries. Rubella infection is one of the many causes of a pink macular rash. Pale or brown macules also occur, and are due to changes in the amount of pigment in the skin. They are often seen as part of the healing of damaged skin and do not disappear when pressed.
- **Papule**: This is a raised spot (a skin lump), which can be both seen and felt. A papule feels solid and can be any colour, although they are often pink or red or the colour of normal skin. Papular urticaria (allergic reaction to an insect bite) is one of the

many causes of a papular rash. A nodule is larger than a papule.

- **Vesicle**: This is a small fluid filled blister that can be both seen and felt. The fluid in a vesicular rash is clear and may look like serum or water. If the vesicles leak, oozing of the fluid makes the skin wet (weepy). When the fluid dries it leaves a crust. If a vesicle bursts it leaves a small ulcer. Fever blisters (cold sores) and acute eczema are typical of a vesicular rash.
- **Pustule**: This is a small pus-filled blister. A pustular rash can be both seen and felt. If a pustule bursts it also forms a small ulcer, which may crust. Bacterial skin infection is one of the many causes of a pustular rash.

See the full-colour illustrations of skin conditions at the back of the book.

One type of rash often changes into another. For example, in chicken pox the rash starts as red macules, which develop into papules and eventually change into vesicles that heal leaving pale or dark macules or sometimes scars. Although identifying the type of rash does not necessarily give the diagnosis, it is an important step in limiting the range of possible diagnoses. Therefore a detailed description of the rash is needed.

It is important to describe the type of rash accurately.

Some rashes are caused by bleeding into the skin, e.g. petechiae (purpura) or bruises (small or large pink or purple spots which do not fade with pressure).

NOTE Haemorrhagic rashes do not blanch with pressure but change colour from pink (red) to blue to yellow over a few days as they resolve.

12-4 Do all skin conditions present as a rash?

No. Some skin conditions do not present as a typical rash. They usually last for years or are permanent, e.g. a 'birth mark'. Most 'birth marks' present at or soon after delivery.

NOTE A naevus (mark) may be pigmented (does not blanch on pressure) or vascular (blanches on pressure).

12-5 How are skin conditions managed?

First you need to make a diagnosis, if possible. Then the correct treatment must be given. As with many illnesses, even if a definite diagnosis cannot be made, many skin conditions can still be treated symptomatically.

All local (topical) treatments need to be carefully explained and demonstrated to the caregivers. Otherwise the treatment will fail as the local treatment is not applied correctly.

12-6 Which groups of skin conditions are common in children?

Skin conditions caused by:

- Local infections
- Systemic infections
- Skin parasites
- Skin irritations
- Allergies
- Conditions of unknown cause

LOCAL VIRAL INFECTION

12-7 What local viral infections are common?

- Molluscum contagiosum
- Warts
- Cold sores

12-8 How is molluscum contagiosum recognised and treated?

Molluscum contagiosum is a papular rash caused by a viral skin infection. The condition is most common in children between 2 and 5 years of age. Papules usually occur on the face, trunk and back of the hands but can occur anywhere. The virus is spread by direct contact with other children. Molluscum contagiosum is common and often extensive in children infected with HIV. In these children with a

weak immune system, the papules may be large and not respond to standard treatment.

The molluscum papules have a typical, easily recognised appearance. They are pearly white and dome shaped with a central dimple. The papules vary in size but usually are as big as a match head. The rash is not itchy or painful, and usually clears spontaneously leaving no scars. Secondary bacterial infection of the papules can occur causing inflammation and pain.

It is best to leave them alone as they will disappear on their own after a few months. However, they can be treated by pricking each papule with a sharp stick (tooth pick). If necessary the contents can be gently squeezed out. With many papules, sedation or a general anaesthetic may be needed before treatment. Wart paint, benzoyl peroxide or liquid nitrogen have also been used.

Many common, mild skin infections may become severe and persistent in children with HIV infection.

12-9 How are warts recognised and managed?

Most children will have one or more warts during childhood. Warts are harmless growths on the surface of the skin. Most warts are skin coloured, raised, hard and have a rough surface. Sometimes they are flat, especially when on the face.

Warts are caused by a virus and usually disappear on their own after 6 to 12 months. They are mildly infectious as the virus is spread by direct contact. Rarely warts can occur on the soles of the feet (plantar warts) where they are very painful when walking. Warts can be extensive in children who are infected with HIV. Genital warts may indicate sexual abuse.

Warts are best left alone, especially flat warts on the face. They can be treated by applying wart paint daily. The clear wart paint is applied to the wart, using a tooth pick, and allowed to dry (becomes white). The painted wart is then covered with a piece of plaster for 24 hours. When the plaster is removed the wart should be softened by soaking in warm water. The softened surface of the wart is then gently scraped to remove any loose pieces. The area of skin should be washed well and dried before applying more wart paint. Repeat the process daily until the wart has completely disappeared. Genital warts and warts which do not respond to treatment should be referred to a skin clinic.

NOTE Warts are caused by the human papilloma virus. Wart paint consists of 1 part salicylic acid, 1 part lactic acid and 3 parts colloidion.

12-10 What are cold sores and how are they managed?

Cold sores (fever blisters) are caused by infection with the Herpes simplex virus. They present as small, painful blisters, which occur on and around the lips, often after exposure to excess sunlight or if the child is ill or emotionally stressed. They usually start with a tingling, itching, burning sensation for a few hours before the painful blister develops. The blister bursts after a few days and then dries, leaving a crust, which disappears in a week or two. The problem with cold sores is that they often recur at the same site. The outbreaks of cold sores usually occur every few months but tend to become less frequent over time.

The management consists of applying povidone iodine (Betadine) ointment or 2% vioform in zinc cream twice daily to prevent bacterial infection. Local antiviral agents are of limited use. In severe cases, oral acyclovir can be used.

NOTE Herpes simplex virus, which remains in nerve ganglia, causes recurrent attacks of cold sores. A history of a primary infection of herpes stomatitis with many painful, small ulcers of the mouth and tongue, together with fever, may or may not be obtained. Often the primary infection with herpes virus is asymptomatic. Cold sores typically occur when immunity is depressed.

LOCAL FUNGAL INFECTIONS

12-11 What local fungal infections are common in children?

- Ringworm
- Athlete's foot
- Tinea versicolor
- Dandruff
- Candida

12-12 What is ringworm?

Ringworm is not a worm. It is a rash caused by a fungal infection of the skin. Ringworm of the scalp (tinea capitis) is common. Less common is ringworm of the skin, feet (athlete's foot) and nails It is infectious and is spread by direct contact with infected humans (touching heads), things they use (sharing brushes, combs and clothes) or pets. Athlete's foot is infectious and usually caught from the wet floors of bathrooms and changing rooms at school. Pets may also have ringworm.

Ringworm is not a worm but a rash caused by a fungus.

12-13 How is ringworm recognised?

- Ringworm of the scalp commonly presents as dry, scaly patches with hair loss (bald patches). Occasionally, the infected scalp becomes red and lumpy with pustules. This can easily be confused with impetigo.
- Ringworm may present on the face or trunk as a group of itchy, scaly, pink papules. Often the rash forms a ring with a well defined raised edge and normal skin in the centre. Vesicles may also occur along the edge.
- Athlete's foot presents as a painful crack between the toes, usually between the small and next toe. It may also affect the sole of the foot. You do not need to be an athlete to catch athlete's foot.
- Infection of the nail causes discolouration (yellow or white nails) with abnormal nail growth (crumbly nails).

HIV-infected children may develop extensive, severe fungal skin and nail infections which do not respond to standard treatment.

12-14 How should ringworm be treated?

1. Ringworm of the skin and feet is usually treated with clotrimazole ointment (e.g. Canesten) or 2% miconazole cream (Daktarin) twice daily for 2 to 4 weeks until the rash has cleared. Ideally treatment should be continued for 1 to 2 weeks after the rash has healed.
2. Ringworm of the scalp can be improved but not cured with local ointment (cream or shampoo). Fortunately it often disappears on its own over time (especially at puberty). If left untreated it may infect other children.
3. To prevent athlete's foot, dry the feet well after washing, especially between the toes, wear clean socks every day and use open sandals.
4. Scalp ringworm and severe or chronic infection of skin, can be treated with oral griseofulvin 10 mg/kg/day for 6 weeks. Any secondary bacterial infection should be treated with antibiotics.
5. Fungal infections of the nails should be treated with oral griseofulvin 10 mg/kg/day for 3 months or until the nail returns to normal. It rarely gets better without treatment.

Every effort should be made to prevent the spread of ringworm to others. Families should avoid sharing clothes, towels and combs.

NOTE Because prolonged treatment is needed to cure fungal infection of nails, it is best to confirm the diagnosis by sending some crumbly discoloured nail for fungal culture.

12-15 What is tinea versicolor?

Tinea versicolor is caused by a fungal infection of the skin and presents as pale or pigmented patches on the neck or trunk. The patches do

not itch but are often covered with fine scales. After treatment the pale patches may remain for a few months.

Treat with selenium sulphide shampoo. Spread the shampoo over the whole body and leave it on overnight before washing it off. Treat weekly for 3 weeks. After treatment, the rash will take a few weeks to disappear. The rash may recur despite adequate treatment.

Tinea versicolor should not be mistaken for pityriasis sica alba, the common small, pale, scaly patches on the face, neck or arms.

> **NOTE** The causeof pityriaisis sica alba is not known. The pale patches tend to come and go but eventually disappear. Treatment is usually not needed although 1% hydrocortisone cream for one week speeds up healing.

12-16 How should you manage dandruff?

Dandruff is very common and is also caused by a fungus. It is usually mild and presents with fine flakes of skin on the scalp, in the hair and on clothing over the shoulders. Mild dandruff does not need treatment although it often improves with a change of shampoo. Treatment is needed if the dandruff becomes severe, the scalp becomes very itchy or red, or the scales become thick and greasy (seborrhoeic eczema). Dandruff usually recurs throughout life. People with dandruff often have greasy skin.

Treat with selenium sulphide (Selsun) or ketoconozole (Nizshampoo) or zinc pyrethium (Selsun Blue; Head and Soulders) or tar shampoos. To remove thick scales, 2 to 10% salicylic cream can be applied for 2 hours in infants or overnight in older children before being washed off with shampoo.

12-17 How should you recognise and treat a candida rash?

Candida is a fungus which grows in warm, moist creases where it causes a red rash. A candida rash (monilial rash) presents with groups of pustules. If severe the rash may ulcerate. It is typically seen in the creases covered by a nappy. This differs from the common nappy rash which is worse over exposed skin and spares creases.

Management consists of keeping the skin dry and applying mycostatin cream. For severe cases, oral mycostatin may be needed to clear the fungus from the gut and stool.

LOCAL BACTERIAL INFECTIONS

12-18 What local bacterial infections are common?

- Impetigo
- Boils

12-19 What is impetigo?

Impetigo is a common superficial skin infection of children caused by bacteria (Streptococcus or Staphylococcus). Impetigo is an infectious condition and children can catch it from one another. It often complicates other skin conditions (secondary infection) where the skin is broken, e.g. cuts, eczema, nappy rash, scabies, papular urticaria and cold sores. If impetigo persists or recurs, always look for one of these underlying skin conditions.

The rash of impetigo starts as a group of small blisters, which soon burst leaving a raw area that becomes covered by a yellow crust of dried serum. The rash is not painful and does not itch. Even when extensive the child is usually well and has no fever. Without treatment the rash may last for weeks and often spreads to other areas. In small infants, impetigo may present as pus filled blisters (bullous impetigo) which later burst leaving crusts or scabs.

Treat by gently removing the crust, after soaking the area in warm water or a dilute antiseptic solution (e.g. Savlon). Dry and apply 2% vioform ointment, 10% povidone iodine (Betadine) ointment or an antibiotic ointment, e.g. mupirocin (Bactroban). Impetigo should heal in a few days if correctly treated. If the impetigo is

widespread, give an oral antibiotic such as flucloxacillin or erythromycin for 7 days.

Sometimes the infection can spread to deeper layers of the skin to cause veld sores (ecthyma). They present as crusted ulcers, particularly on the lower legs of older children. Treatment is the same as for impetigo.

Impetigo due to bacterial infection often complicates other skin conditions.

Impetigo due to Streptococcus can result in acute glomerulonephritis.

12-20 How are boils diagnosed and managed?

Boils are common in childhood. They occur when bacteria (Staphylococcus) infect a hair follicle. Boils present as very painful, red lumps under the skin. After a few days pus collects and a yellow head forms which eventually bursts onto the surface of the skin. Once the boil has burst it usually heals with some scarring.

Healing of a boil can be speeded up if an oral antibiotic, such as flucloxacillin or erythromycin, is given. Oral antibiotics should also be given if the local lymph nodes are enlarged or the child is pyrexial. If the boil bursts, clean away the pus with an antiseptic solution (e.g. Savlon) and then apply 2% vioform ointment.

Children who have repeated boils should wash their body and hair twice weekly with povidone iodine (Betadine). Put 0.5% chlorhexidine cream or mupirocin (Bactroban) ointment into the nostrils twice daily for a week and keep the nails short to decrease the number of bacteria on the skin.

NOTE Boils sufferers often carry Staphylococcus in their nose, on their skin and under their nails. If boils occur repeatedly, screen the child for diabetes. They may also be nasal carriers of Staphylococcus.

RASHES DUE TO SYSTEMIC INFECTIONS

12-21 What common systemic infections cause a rash?

These are usually viral infections such as:

- Rubella (German measles)
- Measles
- Chicken pox and shingles
- AIDS

These infections are discussed in Unit 10 on common childhood illnesses and Unit 9 on AIDS.

NOTE Some serious systemic bacterial infections, such as meningococcal septicaemia, also present with a rash. Many drugs used to treat systemic infections and other conditions may also cause rashes. Petechiae (purpura) associated with fever is a dangerous sign and these children must be referred immediately for investigation and treatment. A purple rash suggests necrotic skin or bleeding into the skin, and should always be taken seriously.

12-22 How do you know that the rash is due to a systemic infection?

Because the child is usually generally unwell with a fever. In some infections the rash appears when the child first becomes unwell. In other infections the rash may only appear when the child has been ill for a few days.

LOCAL PARASITIC INFESTATIONS

12-23 What local parasites cause skin conditions in children?

- Scabies
- Head lice
- Sandworm

12-24 What is scabies?

Scabies is a common, very itchy rash caused by mites. The female mites burrow into the outer layers of the skin to lay their eggs. The eggs hatch and the young mites start new burrows. The mites irritate the skin and result in a rash which is very itchy. Mites are passed very easily from person to person by touching or holding hands. Therefore, both the mother and other close contacts often also have scabies. It is common to have scabies among a group of friends at school and in overcrowded homes with shared beds.

NOTE The rash of scabies is due to an allergy to the *Sarcoptes scabiei* mite. After infestation with mites, it takes about a month for the child to become sensitized to the mites. Only then does the itch and rash start.

12-25 What are the typical symptoms and signs of scabies?

The rash of scabies presents as many small, very itchy papules or vesicles, especially over the wrists, between the fingers, on the hands and feet and waist. A few itchy papules in the skin folds of the axilla (arm pit), around the nipples and umbilicus, and on the scrotum are common presentations in infants. The face can also be affected in small children. The itching is worse at night when the skin is warm. Blisters, sores and scabs often result from the scratching. Bacterial infection (impetigo) of the blisters and sores, which have been scratched open, is common.

Scabies presents as a rash which is very itchy, especially at night.

NOTE Sometimes the mite's burrows can be seen as thin lines under the skin between the fingers and on the wrists. The mite may be seen as a white or black dot at the end of the burrow. Some affected people have no symptoms as they are not sensitive to the mite.

12-26 How is scabies treated?

It important to treat all members of the family at the same time. Even members with no symptoms of scabies must be treated as they may still carry mites. Scabies can be treated with a local application of 12.5% benzyl benzoate (Ascabiol) lotion (half strength), which is applied from the neck down to the whole body. Only dress once the lotion has dried. In children over 2 years and adults, wash the lotion off after 24 hours. In children from 2 months to 2 years, use a 6.25% lotion (quarter strength) and wash off after 12 hours. After treatment, bath and dress in clean clothes. Wash all used clothes and change the bed linen. Remember that this lotion can be very irritating and may cause discomfort. A 1% hydrocortisone cream can be used after treatment to help control the itching.

Infants under 2 months should rather be treated with 5% sulphur ointment nightly for 3 days. Antiscabies soap alone is not effective treatment. Keeps nails short. Wash clothes and bedding in hot water.

The whole family must be treated for scabies at the same time.

If there is additional bacterial infection (impetigo), treat locally with 2% vioform in zinc ointment. Oral penicillin may be needed if the infection is severe, especially if the local lymph nodes are enlarged or the child is pyrexial. Treat the bacterial infection first before treating the scabies.

Secondary bacterial infection of scabies (impetigo) is a very important cause of acute glomerulonephritis.

NOTE Lindane, also known as gamma benzene hexachloride (Gambex), and pyrethrines (Lyclear and Nitagon), are less irritating but more expensive.

12-27 How does lice infestation present?

Head lice are very small insects, which live on blood, which they suck from the scalp. They

attach their small, white, shiny eggs (nits) to shafts of hair. Each egg is the size of a flake of dandruff. Lice are spread from person to person by direct contact and also by sharing brushes and combs. Epidemics of lice at schools are common, especially in girls with long hair.

Head lice usually present as itching and scratching of the scalp. Many small red spots can be seen on the scalp. While it is difficult to see the lice, their eggs are easy to recognise as they are firmly attached to the hairs. Unlike dandruff, nits are not easy to remove. Rarely lice may also infest other parts of the body. Some children have head lice without itching or scratching and only the nits are noticed. All children with head lice can spread the lice to others.

As with scabies, the scratching can cause secondary bacterial infection (impetigo) which must also be treated.

Lice infestation presents with itching and scratching of the scalp.

12-28 How should you treat head lice?

Massage about 30 ml 1% gamma benzene hexachloride shampoo (Gambex or Quellada shampoo) into the affected areas and leave on for 5 minutes before rinsing off thoroughly. Benzyl benzoate (Ascabiol) 12.5% (i.e. diluted 50:50) can also be used and applied to the whole scalp overnight and then washed off in the morning. Do not get the lotion into the eyes as it burns. Pyrethroid shampoos (Lyclear and Nitagon) are also effective in killing lice. The nits can be removed with a fine comb. Using hair conditioner after washing the hair helps to remove the nits as it makes the hair slippery. It is not necessary to cut or shave the hair off although this is an effective treatment. It is best to treat the whole family and look for nits in friends. Oral antibiotics should be given if impetigo is present. Do not share hairbrushes and combs.

12-29 How are sandworms recognised and treated?

Sandworms are the larvae of the dog or cat hookworm which burrow under the skin, especially over the feet, buttocks and genitalia. Infestation usually occurs when the child stands or sits in sand contaminated with dog or cat faeces. The pink, raised, red S-shaped burrows of the larvae can be seen and are very itchy. Treat with oral albendazole 1 tablet daily for 3 days.

> **NOTE** Thiabendazole 10% in petroleum jelly (Vaseline) can also be applied locally, but is difficult to obtain. Ethyl chloride spray can also be applied to the affected area but it is very painful.

RASHES DUE TO SKIN IRRITANTS

12-30 What skin irritants are common?

- Sunburn
- Nappy rash
- Insect bites and stings
- Miliaria

12-31 How should sunburn be managed?

Every effort must be made to prevent severe sunburn as it may permanently damage the skin and increase the risk of melanoma and skin cancer in adulthood. Children should not be exposed to prolonged periods in the sun, especially between 10 am and 4 pm. Hats, protective clothing and sunscreens should become part of a national campaign against sun damage. This is particularly important in infants and fair-skinned children who have very sensitive skins. Sunburn presents with redness and pain in areas exposed to excessive sunlight. Blisters and swelling can occur in severe cases.

Put a sunscreen on the child's exposed skin whenever he or she goes into the sun. Always use a sunscreen with a sun protection factor of at least 15.

When the sunburn is first noticed, cool the child in a bath or shower. A simple moisturizing cream can be used to sooth the inflamed skin. Give children with severe sunburn frequent drinks of water to correct dehydration. Paracetamol may be needed for pain. The redness and pain resolves in a few days. This is often followed by peeling and itching of the affected skin.

Children should be protected by a hat, clothing and sunscreen when going out into the sun.

NOTE Ultraviolet rays penetrate and damage the skin. Ultraviolet ray damage in childhood is an important cause of later skin cancer. Topical steroids may be used in severe sunburn.

12-32 What is nappy rash?

Nappy (diaper) rash is a red rash which occurs on the buttocks and perineum of infants who wear nappies. Most infants have mild nappy rash at times, especially if the stools are loose. Painful vesicles and small ulcers may develop if the nappy rash is severe. Secondary bacterial or fungal infection is common. Seborrhoeic dermatitis may also present in the nappy area as a nappy rash.

Nappy rash is usually caused by urine and stool in the nappy irritating the skin. The rash is worse on exposed parts of the skin while the creases are often protected.

Frequent nappy changes, together with a protective zinc cream or petroleum jelly (Vaseline), usually protects against nappy rash. The best treatment is to keep the skin dry by removing the nappy for a few days and allowing the infant to lie on an open clean nappy. Expose the buttocks to warm, dry air as often as possible. Linen or toweling nappies must be washed and well rinsed before use. Do not use plastic pants over nappies.

A rash in the nappy area can also be caused by a fungus (Candida). A fungal rash (candidiasis) is very red, often has small satellite spots, and is worse in the creases. Treat as for nappy rash but also cover the affected skin with mycostatin cream. In severe cases, oral mycostatin for a few days may also be needed to clear fungus from the stool. Any severe nappy rash that does not improve after 5 days treatment should be referred to a skin clinic.

12-33 How should common insect bites and stings be managed?

Insect bites and stings are usually due to fleas, mosquitoes and bed bugs at night. All cause a red, papular, itchy rash. Flea bites occur on skin covered by clothing or on the feet and lower legs. In contrast, mosquito bites occur on exposed skin, especially the face and hands. Bed bug bites tend to occur in rows as the bug bites as it walks along.

Children who are allergic to insect bites develop papular urticaria, which presents as raised, swollen and very itchy wheals. The papular urticaria should be managed by preventing the insect bites.

Prevent mosquito bites with insect repellent (Tabard, Peaceful Sleep). Remove any pools of standing water where mosquitoes breed, and use bed nets. As fleas often come from carpets and pets, vacuum the carpets and deflea cats and dogs. Bed bugs live in cracks in wooden beds. Therefore spray the bed with an insecticide and place the mattress in the sun.

Calamine lotion helps to relieve the itching. Oral antihistamines are useful in more severe cases. Do not use local antihistamine creams.

With bee stings, scrape the sting off with a blunt knife. Do not try to pull it out. The pain of both bee and wasp stings can be relieved by rubbing the area with ice. Bee stings can cause severe allergic reactions.

12-34 What is miliaria?

This is the very common heat rash usually seen on the neck of small infants who have a fever or who have been allowed to get too hot. The rash consists of small pink macules, which fade when pressed. The rash is caused by sweat irritating the infant's sensitive skin. Miliaria usually disappears when washed with cold

water. Prevent by not overheating the child. Avoid excessive clothes or blankets, especially in summer.

RASHES DUE TO ALLERGIES

12-35 What rashes are caused by allergies?

- Eczema
- Urticaria

12-36 What is atopic eczema?

Eczema (or dermatitis) is an itchy, scaly rash, which has many causes. The most common form of eczema in children is atopic or allergic eczema. Atopic eczema is a form of allergy of the skin and occurs in about 5% of children. Most children with atopic eczema have a family history of asthma, hay fever or eczema. These children start with atopic eczema before 2 years of age and often later develop other forms of allergic disorder. They all have very dry skins.

Children with atopic eczema usually have a family history of allergy.

12-37 What are the clinical features of atopic eczema?

In young children, the rash of atopic eczema consists of a red, very itchy, oozing and crusting rash on the cheeks (acute eczema). The rash may spread to the scalp, the chest, the front of the elbows, the wrists and behind the knees. These children are very irritable and unhappy and want to scratch all the time.

In older children the rash is usually chronic and consists of dry, itchy, thickened, scaly patches on the face, neck, front and back of the elbows and wrists, front and back of the knees and ankles (chronic eczema). Bacterial infection often complicates eczema as a result of the scratching.

The rash of acute eczema is very itchy.

NOTE Children with atopic eczema have an inherited tendency to produce IgE. This results in an immunological reaction in the skin, which causes inflammation. IgE testing or skin prick tests for common allergens is needed to confirm the clinical diagnosis of atopic eczema.

12-38 How should atopic eczema be managed?

Atopic eczema is rare in newborn infants and usually starts during the first months of life. In most children it disappears as they become older. In others it recurs or becomes chronic. A common pattern is mild chronic eczema with repeated flare-ups of acute eczema. Therefore, both the child and family need ongoing counselling and support as the condition may last for years.

Unless the eczema is mild, the child should be referred to a skin clinic at a hospital, if possible, for the management of acute eczema and the planning of management for chronic eczema. Specific management consists of the following:

1. Local management of the skin is most important in atopic eczema. Liberal amounts of emulsifying creams (moisturizing creams or emollients), such a 'aqueous cream', are used in acute eczema and emulsifying ointments, such as 'HEB' in chronic eczema. Emulsifying creams and ointments are used as first line treatment to prevent the skin from drying out. This helps to prevent inflammation. Emulsifying creams or ointments should be applied at least twice a day.
2. For mild or moderate eczema, 1% hydrocortisone in an emulsifying cream or ointment (emollients) should be applied twice daily. Stronger steroids (betamethasone) can be used on the trunk and limbs if 1% hydrocortisone fails to control the rash in 2 to 3 days. Do not use strong steroids for longer than one week without specialist advice. Do not use strong steroids on the face. Oral steroids must be avoided. The need for steroids is reduced if emulsifying cream or ointment is used to protect the skin. Many children

with mild eczema can be adequately managed with regular use of emulsifying cream or ointment alone.

3. 5% coal tar in emulsifying ointment is used on patches of chronic eczema.
4. If secondary bacterial infection (impetigo) is present, povidone iodine (Betadine) cream or ointment dressings are applied for 3 to 5 days. An oral antibiotic may be needed with widespread infection.
5. An oral antihistamine can be given for the itch and to provide some sedation in acute eczema. Local antihistamine creams are of no help. It is very difficult to stop small children from scratching. Unfortunately, scratching causes further itching and may introduce secondary bacterial infection. Gloves or socks over the hands may reduce scratching. Do not let the child get too warm as this makes itching worse. Keep the nails short.
6. The child should wash daily with aqueous cream instead of soap. Do not use soaps, shampoos, bubble baths or washing detergents as they often make the rash worse. Showers are better than baths. Aqueous cream or emulsifying ointment (or petroleum jelly) should be applied every day immediately after washing and drying.
7. Removing specific items from the diet may be useful in young infants but is less helpful in older children. Encourage breastfeeding.
8. Do not let the child overdress and get too hot. Avoid wool or nylon next to the skin. Cotton clothing is best.
9. Avoid people with cold sores, as secondary herpes virus infection is dangerous in children with eczema.
10. If the acute eczema is not much improved after a week of treatment, refer to a specialist skin clinic.

Emulsifying cream or ointment, with or without 1% hydrocortisone, is most important in treating eczema.

NOTE If possible, wet wraps should be used at night to manage acute eczema. Wet wraps are stocking bandages (Stockinette) that have been moistened with warm water and covered in generous amounts of emulsifying ointment or aqueous cream. The wet wrap is placed over the skin where steroid has been applied. It ensures deep penetration of the steroid, and rehydrates the skin, lessens inflammation, reduces itching and discomfort and hastens healing. Wet wraps alone reduce the need for local steroids.

12-39 What is 'lick eczema'?

This is a rash around the mouth caused by excessive licking or thumb-sucking. The lips are also dry and sore. The saliva irritates the lips and skin. Lip-licking and thumb-sucking are habits. The red scaly rash around the mouth, and the dry, chapped lips, get better when the habit stops.

1% hydrocortisone cream for a few days clears the rash. Petroleum jelly (Vaseline) can then be used to protect the skin. Lip cream will moisturize and protect the lips.

12-40 What is seborrhoeic dermatitis?

The cause of this condition is unknown. It presents with a red rash covered with greasy, sticky scales, especially over the face, behind the ears, the scalp, and the nappy area.
It usually does not itch. The rash is most common in infants and usually disappears after a few months. Seborrhoeic dermatitis of the scalp in infants is called 'cradle cap'.

The skin and scalp rash can be treated with 1% hydrocortisone ointment. Use baby oil or olive oil or 2% salicylic acid in vaseline to loosen the thick, yellow scales in severe cradle cap. They can then be washed off with shampoo.

Seborrhoeic dermatitis is becoming more common as it is associated with HIV-infected children.

NOTE As with atopic eczema, severe seborrhoeic dermatitis may need to be treated with a dilute steroid cream under a covered dressing.

12-41 How is acute urticaria diagnosed and treated?

Acute urticaria is a very itchy raised rash, which appears suddenly and fades within a few hours. It often reappears daily for a few days to weeks. The raised areas of skin are pale with pink borders. It can also present with larger areas of raised, swollen skin (wheals). Rarely, other signs of an acute generalized allergic reaction, such as wheezing, collapse and shock, may occur.

The cause in children is usually unknown but is probably caused by a viral infection. Less commonly, urticaria is a reaction to a specific food. These foods must be avoided.

Urticaria can usually be treated with an oral antihistamine. Local calamine lotion or 1% hydrocortisone cream may help. Local antihistamine cream is not effective. If the urticaria is recurrent, the child should be referred for a specialist opinion.

12-42 What is papular urticaria?

Papular urticaria is common and presents as groups of very itchy papules. The papules may develop into small blisters. The itching results in scratching and keeps the child awake at night. It often recurs or may become chronic. Secondary infection causing impetigo is a common complication of scratching.

Papular urticaria is caused by an allergy to insect bites, especially fleas, mosquitoes and bed bugs. It is particularly common in young children.

Papular urticaria due to flea or mosquito bites is a common cause of a very itchy papular rash.

12-43 How is papular urticaria managed?

Insect control is most important. Treat the rash with calamine lotion which decreases the itching. An oral antihistamine syrup, such as chlorpheniramine (Chortrimetron), promethazine (Phenegan) or hydroxyzine (Aterax), also decreases itching and helps the child to sleep. Do not use antihistamine cream. In severe cases, use 1% hydrocortisone cream for a few days as for eczema. Treat any secondary impetigo.

NOTE Non sedating antihistamines such as cetirizine (Zyrtec) and loratidine (Clarityne) are effective but expensive.

OTHER SKIN CONDITIONS IN CHILDREN

12-44 What is ichthyosis?

This is a group of inherited conditions, which cause very dry, thickened and scaly skin. It may only involve the palms and soles, but in some other children it affects the whole body. The pattern of ichthyosis is the same for all affected members of the family.

Treatment consists of keeping the skin soft and moist with aqueous cream. 10% urea in emulsifying ointment can be used in older children with severe ichthyosis. Severe cases must be referred to a skin clinic at a hospital.

NOTE Emulsifying ointment is a mixture of emulsifying wax, soft white paraffin and liquid paraffin. It is a very useful bland base for steroids and vioform.

12-45 What is psoriasis?

This is a chronic skin condition, which presents with thickened, red patches of skin covered with silvery scales. 5% tar in emulsifying ointment helps in mild cases. Severe cases should be referred to a skin clinic at a hospital for further management.

12-46 What is acne?

Acne is a common condition in teenagers. It presents with 'blackheads', pimples and pustules on the face. Severe acne can also affect the neck, back and chest, and results in cysts and scarring. Acne is more common in boys, especially if there is a family history

of acne and greasy skins. Acne may cause embarrassment and emotional problems.

At puberty, sex hormones result in an increase in secretion from sebaceous glands. This causes acne in some people. The ducts of the sebaceous glands become blocked (giving blackheads) and bacterial colonisation in the glands breaks down the sebaceous secretions causing inflammation (pimples) and pus formation (pustules). Diet has no affect on acne. Acne cannot be cured but the severity can be controlled until it clears spontaneously in adulthood. Acne is not infectious and not caused by poor hygiene (not washing).

12-47 What is the management of acne?

Most mild cases can be managed with local treatment:

1. Washing the face daily with water and a regular soap.
2. Acne cream (tretinoin) to promote mild peeling to open the blocked ducts of the sebaceous glands is the first line treatment of mild acne. This is best used at night. Stop treatment for a few days if the skin becomes red and tender.
3. A local antiseptic cream (benzoyl peroxide) to reduce inflammation in the sebaceous glands.
4. Mild exposure to sunshine.
5. No squeezing, picking or scrubbing the spots.

If the acne does not improve in 2 months, or if it is severe, the patient should be referred to a skin clinic at a hospital.

NOTE Topical antibiotics (clindamycin or erythromycin) or systemic antibiotics (doxycycline), oral contraceptives, especially if they contain cyproterone (Diane 35), in girls, or oral retinoids (which can cause congenital malformations if given during pregnancy) can be used in severe cases. Usually 6–8 weeks of treatment is needed before improvement is noted. Resistance to topical antibiotics, used to decrease the number of Propionibacterium acnes in the skin, is becoming a problem.

12-48 What is 'vaseline dermatitis'?

This is a common rash on the face of infants when petroleum jelly (Vaseline) is rubbed onto the skin. Vaseline blocks the sebaceous glands causing many small papules. It may also cause contact dermatitis. The rash disappears when petroleum jelly is no longer used. Greasy substances, such as petroleum jelly, should not be used on the face.

Vaseline is a common cause of a fine papular rash on the face of infants.

TYPICAL PRESENTATION OF RASHES

12-49 Which rashes typically cause itching?

- Scabies
- Ringworm
- Atopic eczema
- Urticaria

12-50 Which rashes are typically painful?

- Cold sores
- Athlete's foot
- Plantar warts

12-51 Which rashes are typically scaly?

- Ringworm
- Chronic eczema
- Psoriasis

CASE STUDY 1

A mother brings her 7-year-old son to the clinic as she is worried about bald patches which have developed on his scalp. On examination, you find a number of areas of pale, scaly skin with hair loss.

1. What is the diagnosis?

Ringworm of the scalp.

2. Is this caused by a worm?

No. It is caused by a fungus.

3. Is this an infectious skin condition?

Yes. It is common in school children, who often borrow each others' combs, brushes or caps and touch heads when they play. Pets may also have ringworm.

4. What is the correct treatment?

Oral griseofulvin 10 mg/kg/day for 6 weeks. Ringworm of the scalp will improve but not be cured with local treatment only.

5. Can this condition affect other parts of the body?

Yes. Ringworm often presents as a group of itchy, scaly, pink papules on the face or trunk. The rash typically forms a circle with normal skin in the centre. Vesicles may also occur. Treat with clotrimazole (Canesten) ointment twice daily for 2 to 4 weeks.

CASE STUDY 2

A mother brings her 3-year-old son to the clinic as he has an itchy rash over his wrists. He scratches both the rash and his scalp at night and sleeps badly. When you examine the child you notice that the rash is red and pustular with scratch marks. You also see small, shiny white spots in the child's hair.

1. What do you think is the cause of the rash?

The history is typical of scabies with an itchy rash on the wrists. The itching is much worse at night when the child is warm. Usually the rash is papular. Scratch marks are common.

2. Why is this rash pustular?

Because the scabies has been complicated by secondary bacterial infection (impetigo). This is a common complication caused by scratching.

3. What are the white spots in the hair?

Probably the nits (eggs) of lice attached to the hairs. Unlike dandruff, nits cannot be easily combed out as they are tightly attached to the hairs. Lice suck blood from the scalp leaving small red spots, which itch.

4. Why would it be important to examine the mother?

Because she may also have scabies and lice. Both are infections and are spread by direct contact, such as sleeping in the same bed.

5. How should you treat this child?

First use 2% vioform in zinc ointment on the rash for a few days to treat the bacterial infection. Then put 12.5% benzyl benzoate lotion over his whole body, except the face. Wash the lotion off after 24 hours and then dress him in clean clothes. Wash the bed linen. The mother and other family members must be similarly treated.

The lice should be treated with 1% gamma benzene hexachloride shampoo (Gambex or Quellada). This should be rubbed onto the head and then left for 5 minutes before washing off. Comb out the nits with a fine comb. The rest of the family should also be treated.

6. Should the child's head be shaved?

No. There is no need to cut the hair or shave his head.

CASE STUDY 3

A 4-year-old child presents with groups of very itchy, red papules on her face, arms and legs. She is generally well but her mother says she is restless at night because of the itching.

1. What is the most likely diagnosis?

Papular urticaria.

2. What is the cause?

An allergy to insect bites. As the rash is on exposed areas of skin, the allergy is probably due to mosquito bites.

3. How should the rash be treated?

Local calamine lotion is soothing. An oral antihistamine will reduce the itching.

4. What can be done to prevent the condition?

Every effort must be made to prevent the mosquito bites. Insect repellent is helpful.

CASE STUDY 4

A grandmother brings her grandson to clinic and complains that his atopic eczema has become much worse during the past few days. He is irritable and scratches all the time.

1. What is the appearance of the rash in acute atopic eczema?

The rash is red, oozing and crusted. It is very itchy and usually presents on the face and may spread to the scalp and chest, front of the elbows and wrists and back of the knees.

2. What is a common complication of the scratching?

Impetigo due to secondary bacterial infection.

3. How is this complication diagnosed and treated?

Impetigo presents as a group of small blisters which soon burst leaving a raw area that becomes covered by a yellow crust. It should be treated with 2% vioform or an antibiotic cream. An oral antibiotic, such as flucloxacillin, may be needed.

4. How is an acute flare up of atopic eczema managed?

Mild or moderate cases can be treated with 1% hydrocortisone in an emulsifying cream on the face twice daily. A stronger steroid ointment can be used for a few days on the rash over other parts of the body. The rash should respond and the treatment stopped in a week. Never use strong steroids on the face.

5. What is the long-term management of atopic eczema?

The skin must be kept moist and soft with regular use of an emulsifying ointment or aqueous cream twice daily .The child should wash daily with aqueous cream instead of soap.

CASE STUDY 5

A teenager complains of blackheads and pimples on his forehead and cheeks. He has had the rash for 6 months. He also has warts on his hand. Both make him embarrassed.

1. What is the rash on his face?

Acne. It is common at puberty, especially in boys. It presents with blackheads, pimples and pustules on the face. Severe cases can also involve the neck, back and chest.

2. What is the cause?

Acne is due to an increased secretion of sebaceous glands which happens at puberty due to increased sex hormone production. Acne is more common in families with greasy skins. It is not caused by poor hygiene or an incorrect diet.

3. What is the treatment?

Most cases of acne respond to tretinoin cream, which causes mild peeling, and benzoyl peroxide cream to reduce inflammation. Mild exposure to sunshine also helps. The rash may take a few months to respond. The patient should not pick, squeeze or scrub the rash.

4. When should patients be referred to a special skin clinic?

If the acne is severe or does not respond in 2 months.

5. How should warts be treated?

Many warts disappear spontaneously after a few months without treatment. Warts are best treated with daily applications of wart paint.