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PEER REVIEWED FEATURE
POINTS: 2 CPD/2 PDP

Scaly red plaques in children

Differential diagnoses and treatment

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Scaly red plaques are a common presentation in children and an accurate diagnosis is often sufficient on history and examination alone. The main differential diagnoses include discoid eczema, psoriasis, tinea corporis and pityriasis rosea. This article focuses on how to diagnose and treat each of these conditions.

Key points

- **The most common differential diagnoses of a presentation of red scaly plaques are discoid eczema, psoriasis, tinea corporis and pityriasis rosea.**
- **Discoid eczema is common and tends to be very pruritic.**
- **Psoriasis is well-demarcated, is a salmon-pink colour and has a silvery scale.**
- **There is usually a history of expansion of circular lesions with tinea corporis.**
- **Pityriasis rosea patches tend to have an internal scale.**
- **A biopsy can be helpful to aid with the diagnosis of children with red scaly plaques in difficult clinical situations.**

Scaly red plaques are a common presentation in childhood and the main differential diagnoses include discoid (nummular) eczema, psoriasis, tinea corporis and pityriasis rosea.

This article focuses on the presentation of scaly red plaques, which refers to the clinical situation where there are multiple lesions on the skin, usually circle to oval in shape with a rough or scaly surface. The differential diagnoses of red scaly plaques (see Table) and therapy for each of these common conditions are discussed in this article.

DISCOID ECZEMA

History

Discoid eczema, also known as nummular dermatitis, falls within the eczema category, although there are differences from the typical atopic eczema presentation. It can be seen in individuals who are not particularly atopic and/or without a significant past history of severe eczema. A biopsy of the lesions shows changes similar to any other form of eczema; however, the behaviour is different.

Discoid eczema appears to begin at one part of the body, triggered by any number of reasons. Particularly if the eczema is reasonably intense or becomes infected, it is then as if the entire skin becomes 'supercharged' and distant coin-sized patches of eczema start to break out over the body. It is often extremely itchy and the more the eczema is scratched the more it seems to feed the process and a significant vicious cycle is created.

Morphology

The lesions of discoid eczema tend to be more intense and oedematous in the central component of the plaque, fading out to an ill-defined edge. Examples of discoid eczema are shown in Figures 1a and b. If intense enough, the eczema can become weepy and a secondary bacterial infection is possible. As a rule it tends to be symmetrically distributed on the body.

Therapy

The basic premise for treating all eczema is to address the underlying triggers and then settle

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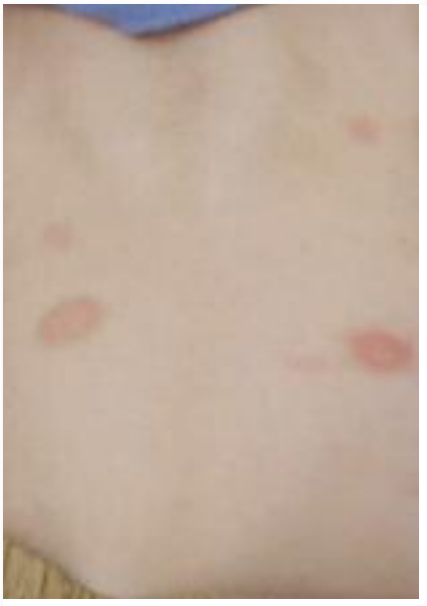
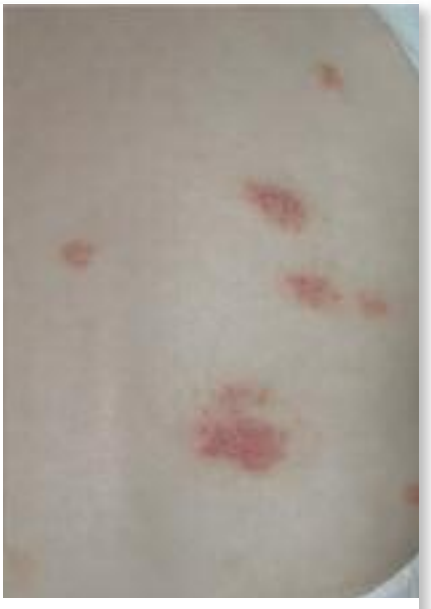




Figures 1a and b. Discoid (nummular) eczema.

the eczema with use of anti-inflammatory therapy. There are multiple triggers for eczema and most often the triggers are multifactorial, including dryness, irritation, overheating, food (allergy or intolerance), environmental allergies and infection. It is important to be thorough in addressing all of these potential factors in any child presenting with eczema. However, the major emphasis is using aggressive therapy in an attempt to break the vicious cycle that is present with discoid eczema.

Potent topical corticosteroids, such as mometasone or methylprednisolone ointments, should be used liberally and persistently in children presenting with discoid eczema. Notoriously, if therapy is used for only a short time, the condition will then immediately worsen. It is expected that corticosteroid creams will be needed for many weeks, and it is important that they be used until each particular lesion is totally clear rather than just improved. Side effects from prolonged use of topical corticosteroids are extremely rare, and the only areas where one would have any potential concern would be on the face (perioral dermatitis), around the eyes (ocular absorption of steroids) and in the areas prone to stretch marks in teenagers. However, for most areas on the skin there is no risk of side effects from use of topical corticosteroids, even with prolonged use.

At times other therapy is required for discoid eczema and short bursts of oral corticosteroids, ultraviolet B therapy and wet dressings (for more details see: www.rch.org.au/emplibrary/derm/Wet_dressings_eczema.pdf) are needed. Very occasionally stronger, longer-term immunosuppressive therapy with methotrexate, cyclosporin or azathioprine is warranted.

PSORIASIS

History

The history of onset of psoriasis is extremely variable but for most cases the first patch will occur during childhood. It can occur essentially anywhere on the body and may be mildly pruritic but not to the same degree as eczema. There is a family history of psoriasis in at least 25% of cases. The distribution in children is often different from that of adults. The typical sites in adults of the scalp, knees and elbows are less common in childhood. Facial and flexural psoriasis are

TABLE. DIFFERENCES BETWEEN THE MAIN DIFFERENTIAL DIAGNOSES OF SCALY RED PLAQUES

Plaques	Itch	Symmetry	Expansion of plaques	Morphology
Discoid eczema	+++	Usually	No	Mostly intense in centre, may be weeping Ill-defined edge
Psoriasis	0 to +	Usually	No	Salmon-pink and evenly coloured Silvery scale and well-demarcated
Tinea corporis	+ to ++	No	Yes	Clearing in centre with active 'serpiginous' edge
Pityriasis rosea	0 to ++	Usually	No	Oval plaques with long axis along ribline Scale on inside of outer annulus

more frequent in children as are genital involvement and napkin area involvement in babies (see Figure 2a). Certain sites are very suspicious for psoriasis as a diagnosis and these include the concha of the ear (see Figure 2b), umbilicus, genitals, nails and natal cleft. It is possible for psoriasis to co-exist with atopic dermatitis.

Morphology

Psoriasis can be more difficult to diagnose in children than in adults because the features are less conspicuous. A typical patch of psoriasis will be well-demarcated as well as even in colour and thickness throughout the plaque. It tends to be more of a salmon-pink colour than eczema and the scale tends to be more silvery in nature and have larger flakes than that of the powdery scale in eczema. Particularly in the flexural areas, the scale is often absent, making the assessment difficult (see Figure 2c).

Psoriasis can occur in a guttate form where there is sudden onset, widespread, raindrop-sized patches (see Figure 2d). Each individual patch tends to have the typical colour and scale of psoriasis and does not tend to be very pruritic.

Therapy

Unfortunately in most cases of psoriasis no particular cause or trigger is discovered. In children, psoriasis can be triggered by streptococcal infection and it is always worth questioning patients and/or their parents regarding a history of pharyngitis along with perianal soreness as potential sources for streptococcal infection. This is particularly relevant if there is a guttate flare.

Therapy for children with psoriasis is essentially suppressive therapy and is individualised depending on the severity and cosmetic impact for the child involved. A list of therapies for psoriasis is shown in the box on this page.

TINEA CORPORIS

History

The most common cause for widespread tinea in a child is contact with infected animals. These animals are normally kittens, puppies, pet mice or guinea pigs but other farm animal contact should be considered. Tinea is usually localised to a particular site rather than being widespread and symmetrical. Each particular lesion should have a history of expansion, which is unlike the patches of discoid eczema and psoriasis, which tend to be static.

Morphology

Tinea will often have evidence of a scaly outer edge with a tendency to clear centrally. Particularly if longstanding, the outline is often serpiginous. The degree of

THERAPIES FOR PSORIASIS

Topical therapy

Corticosteroids

Calcipotriol

Dithranol

Tar-based creams

Ultraviolet light therapy

Natural sunlight

Ultraviolet B therapy and psoralin with ultraviolet A

Oral therapy

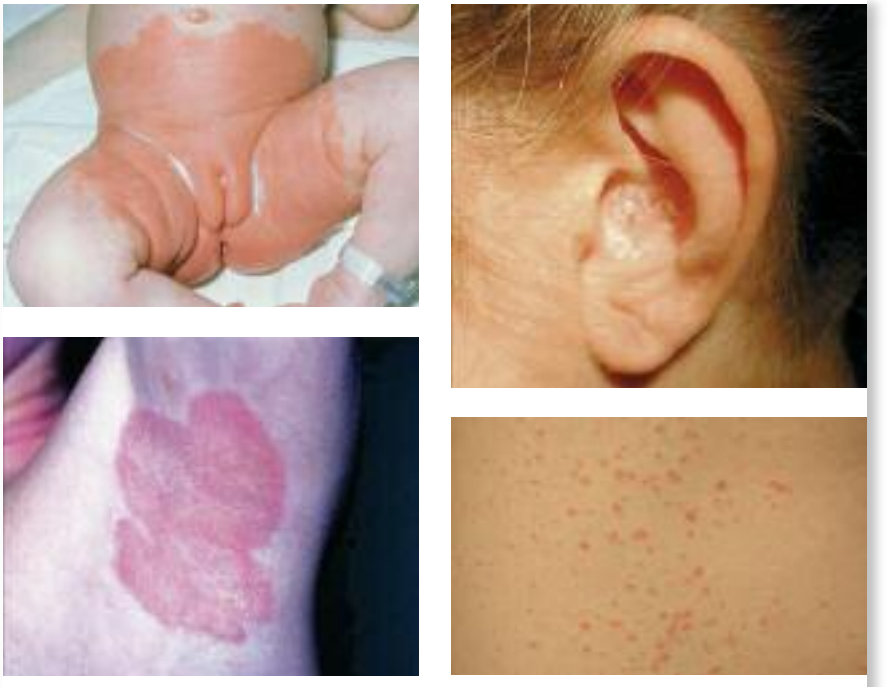
Acitretin

Cyclosporin

Methotrexate

Biological therapy

Access to some biological therapies for children may be available in some specialised centres



Figures 2a to d. Psoriasis. a (top left). Napkin involvement in a baby with psoriasis. b (top right). Psoriasis in the concha of the ear. c (bottom right). Well-demarcated salmon-pink plaque in the axilla. d (bottom left). Widespread raindrop-sized patches in a guttate form of psoriasis.

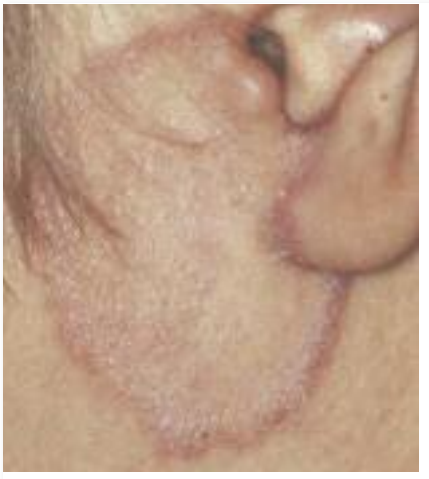
inflammation with tinea can be highly variable and primarily depends on the species of tinea – as a rule the animal-based tineas will cause more inflammatory reactions than the anthropophilic varieties. Examples of tinea corporis are shown in Figures 3a and b. Treatment with topical corticosteroids will cause a reduction in inflammation and apparent improvement; however, will generally accelerate the spread of the outline with a tendency to cause secondary folliculitis.

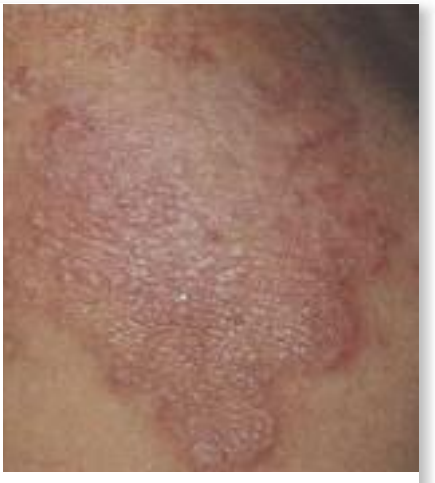
Therapy

It is always prudent to take a skin scraping for microscopy and culture when considering tinea as a diagnosis. Even though it can take up to four weeks to receive a culture result, it is helpful to have the diagnosis confirmed, particularly if therapy has only been partially successful.

The topical therapy of choice for tinea is terbinafine and a daily application until the tinea has cleared is usually all that is required for children with localised infection. At times there may be an increase in the inflammatory nature following the commencement of tinea creams, which can give the patient the false impression that treatment is ineffective.

If more widespread, there is involvement of hair-bearing areas or topical corticosteroids have been inadvertently used, oral therapy is justified. Oral griseofulvin at the dosage of 20 mg/kg/day in divided doses is required and often used for up to four to six weeks. If this is not tolerated or contraindicated, other oral agents include oral terbinafine or itraconazole.



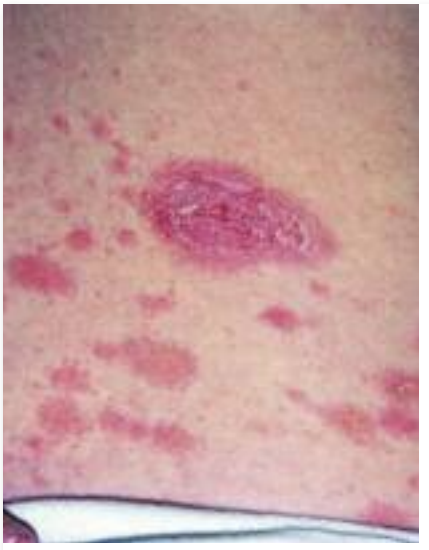


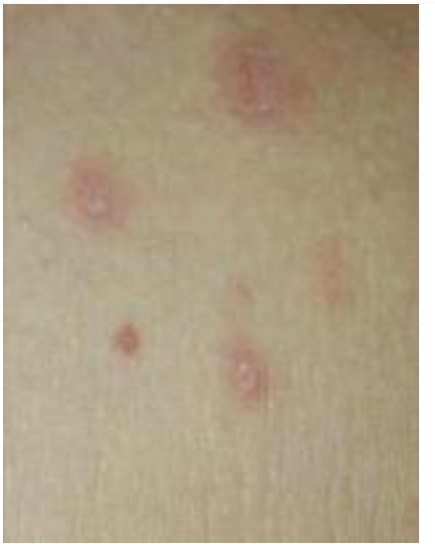
Figures 3a and b. Tinea corporis.

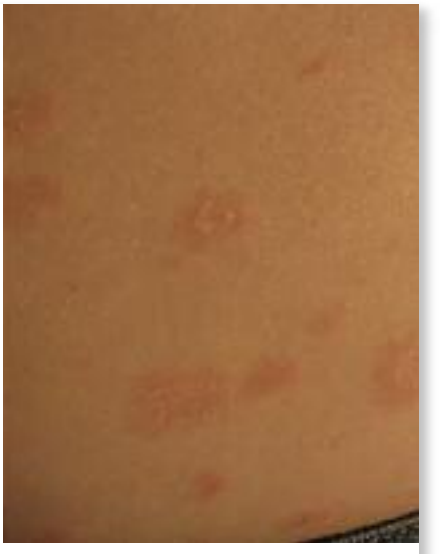
PITYRIASIS ROSEA

History

The typical history for pityriasis rosea is that of a herald patch or patches that arise spontaneously as a red scaly plaque, often near the shoulder or hip. After a number of hours or days a more widespread eruption occurs over the trunk and usually this is symmetrical. Itch is highly variable and pityriasis rosea can be asymptomatic through to extremely pruritic.







Figures 4a to c. Pityriasis rosea.

Morphology

The individual morphology of a plaque of pityriasis rosea is described as having a 'trailing' scale around the edge. Compared with tinea, where the scale will be on the outer edge of the annulus, in pityriasis rosea it will be on the internal aspect. Examples of pityriasis rosea are shown in Figures 4a to c. There is a tendency for the plaques of pityriasis rosea to be oval and the long axis of the oval to line up along the riblines.

Therapy

Treatment with topical corticosteroids tends to be disappointing for patients with pityriasis rosea; however, the eruption is self-limiting, usually over six weeks. Sunlight and ultraviolet B therapy tend to be helpful and there is some controversy as to whether oral erythromycin can be beneficial for patients who are pruritic.

OTHER DIFFERENTIAL DIAGNOSES

There are other potential differential diagnoses for children with red scaly plaques in children, including systemic lupus erythematosus, pityriasis versicolor, drug eruptions, lichen planus and congenital syphilis. A biopsy may sometimes be required if the presentation is unusual.

CONCLUSION

The presentation of children with scaly red plaques is common and usually there is sufficient information on history and examination to make an accurate clinical diagnosis. There are distinguishing features between the most common differential diagnoses of red scaly plaques; the main changes are summarised in the Table. MT

COMPETING INTERESTS: None.