A 12-year-old girl with eczema not responding to treatment

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A 12-year-old girl, who has had a history of intermittent skin rashes since infancy, presents for the sixth time in four months for exacerbation of eczema that is not responding to recommended treatment (daily baths, frequent moisturization and twice-daily application of medium-potency topical corticosteroids). Her parents express concern about the effect of her skin disease on the child's life. They are worried about her sleeping difficulties and decreased involvement in her regular activities; for example, she has stopped playing sports and attending school. During the interview, the patient makes minimal eye contact and appears agitated. Her medical history includes allergic rhinitis. She looks systemically well, with normal temperature and vital signs. Skin examination shows generalized xerotic skin and erythematous patches, with predominantly flexural and facial excoriations affecting about half of the body. There is no evidence of burrows, track marks, vesicular or pustular lesions, or honey-coloured crusts. The rest of the exam is unremarkable.

What is the likely primary diagnosis?

The patient's history and the results of the clinical examination strongly suggest atopic dermatitis, commonly referred to as eczema. Eczema is a chronic, relapsing, pruritic inflammatory skin disease that affects 15%–30% of children and 2%–10% of adults.[1] According to the 2014 American Academy of Dermatology consensus guidelines,[2] eczema is a clinical diagnosis based on the presence and distribution pattern of specific morphologic features, associated clinical findings, and patient and family history. Alternative diagnoses should be considered for cases with unusual presentations and those that are unresponsive to treatment (Box 1).[2,3]

Is the prescribed treatment plan appropriate?

From the history, it appears that the patient's treatment plan is appropriate. Treatment for eczema should target all implicated pathogenic mechanisms. The "triad of control" consists of frequent skin moisturization, control of itching and management of inflammation. Patients with eczema have a defective skin barrier that is further impaired by scratching and inflammation. Daily bathing with nonirritant, nonsoap cleansers and frequent application of emollients or humectants (or both) is recommended for all patients.[4] This approach forms the foundation of maintenance therapy and may be sufficient treatment for mild cases. Itching can be alleviated by nonpharmacologic means (e.g., behavioural modification, moisturization) and use of sedating antihistamines. Acute flares necessitate the additional use of topical corticosteroids or topical calcineurin inhibitors (or both). Phototherapy may be considered for patients in whom these treatment modalities have failed.[5] Use of systemic immunomodulators is reserved for patients with recalcitrant disease despite optimal topical and phototherapy measures.[5]

Why is this patient's eczema not responding to treatment?

Given that the diagnosis is correct and the treatment plan appropriate, it is important to consider additional reasons for treatment failure, including suprainfection, allergic contact dermatitis, nonadherence to treatment and psychosocial factors. The absence of honey-coloured crusts, vesicles, pustules, pain and fever rules out suprainfection. The history does not indicate any worsening of the skin with application of specific topical agents, which makes allergic contact dermatitis unlikely.

Nonadherence to treatment is common among patients with eczema.[6] It is important to allow the patient to describe in detail skin care and reasons for deviations from the prescribed regimen. Concern about the adverse effect profile, dislike of the prescribed vehicle, financial burden, forgetfulness, lack of understanding about the disease or its treatment course, and the time-consuming nature of topical treatments may contribute to poor adherence.[6] Finally, coexisting psychiatric conditions may also negatively affect treatment adherence and response.[7]

What psychologic factors could contribute to inadequate treatment response?

Given that psychosocial problems have been shown to precipitate or exacerbate eczema,[7] physicians need to establish a dialogue with patients and their families to explore any psychological factors that might be affecting adherence. Furthermore, there is a need to determine the effect of the disease on the patient's quality of life. Almost 50% of children with eczema report a severely negative effect of the disease on their quality of life.[8] Contributing factors include itch, sleep deprivation, disrupted daily

Box 1: Features to be considered in the diagnosis of patients with atopic dermatitis[2,3]

Essential features — must be present:

- Pruritus
- Eczema (acute, subacute, chronic)
  - Typical morphology and age-specific patterns*
  - Chronic or relapsing history

*Patterns include:

1. Facial, neck and extensor involvement in infants and children
2. Current or previous flexural lesions in any age group
3. Sparing of the groin and axillary regions

Important features — seen in most cases, adding support to the diagnosis:

- Early age of onset
- Atopy
  - Personal and/or family history
  - Immunoglobulin E reactivity
- Xerosis

Associated features — these clinical associations help to suggest the diagnosis of atopic dermatitits but are too nonspecific to be used for defining or detecting atopic dermatitis for research and epidemiologic studies:

- Atypical vascular responses (e.g., facial pallor, white dermographism, delayed blanch response)
- Keratosis pilaris / pityriasis alba / hyperlinear palms / ichthyosis
- Ocular/periorbital changes
- Other regional findings (e.g., periorial changes / periauricular lesions)
- Perifollicular accentuation / lichenification / prurigo lesions

Exclusionary conditions — it should be noted that a diagnosis of atopic dermatitis depends on excluding conditions, such as:

- Scabies
- Seborrheic dermatitis
- Contact dermatitis (irritant or allergic)
- Ichthyoses
- Cutaneous T-cell lymphoma
- Psoriasis
- Photosensitivity dermatoses
- Immune deficiency diseases
- Erythroderma of other causes

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activities, social embarrassment and depression. In addition, several cross-sectional studies have reported rates of depression and anxiety among patients with eczema that are higher than population estimates and control rates.[9,10] Patients with eczema may benefit from psychologic treatment, including cognitive behaviour therapy, relaxation therapy, hypnotherapy and individual psychotherapy.[7,11,12]

Box 2: "Red flags" that should prompt referral to psychiatry, psychology or social work

- No coping strategies, or maladaptive coping strategies
- School absenteeism
- Avoidant behaviour (school or activities)
- Evidence of depression, anxiety or other psychiatric conditions
- Treatment nonadherence

Might this patient benefit from referral to mental health services?

The patient's body language, paired with her refusal to attend school and extracurricular activities, raises suspicion of a potential comorbid psychiatric condition; therefore, referrals to psychiatry, psychology and social work, as appropriate, are important. School refusal in particular is a "red flag" for potential comorbidities and should prompt referral (Box 2).

A multidisciplinary approach to treatment of patients with eczema can be beneficial. Educational interventions like "eczema schools," including information on disease mechanisms and strategies for management and prevention, as well as development of a written action plan, can benefit disease severity and quality of life for both patients and families.[11,12]

Case revisited

During further discussion, the parents reported that the family was having difficulty adhering to the recommended topical therapy, because the patient felt overwhelmed by the treatment plan and refused to allow application of topical medications. As her skin failed to improve, she had started to refuse to go to school and to engage in her leisure activities.

An updated, written action plan with close follow-up was provided for the family. Additional management consisted of a psychiatry referral; a social work referral, to provide support and coping mechanisms and to help monitor the girl's return to school; and enrolment of the family in a series of nurse-led educational sessions about eczema. The psychiatric assessment showed that the patient was suffering from generalized anxiety disorder. She reported improved mood after several cognitive behaviour therapy sessions. Her skin also improved over several follow-up visits, and she returned to her usual activities.

References

1. Bieber T. Atopic dermatitis. *N Engl J Med* 2008;358:1483-94.
2. Eichenfield LF, Tom WL, Chamlin SL, et al. Guidelines of care for the management of atopic dermatitis: section 1. Diagnosis and assessment of atopic dermatitis. *J Am Acad Dermatol* 2014;70:338-51.
3. Eichenfield LF, Hanifin JM, Luger TA, et al. Consensus conference on pediatric atopic dermatitis. *J Am Acad Dermatol* 2003;49:1088-95.
4. Eichenfield LF, Tom WL, Berger TG, et al. Guidelines of care for the management of atopic dermatitis: section 2. Management and treatment of atopic dermatitis with topical therapies. *J Am Acad Dermatol* 2014;71:116-32.
5. Sidbury R, Davis DM, Cohen DE, et al. Guidelines of care for the management of atopic dermatitis: section 3. Management and treatment with phototherapy and systemic agents. *J Am Acad Dermatol* 2014;71:327-49.
6. Bass AM, Anderson KL, Feldmen SR. Interventions to increase treatment adherence in pediatric atopic dermatitis: a systematic review. *J Clin Med* 2015; 4:231-42.

7. Senra MS, Wollenberg A. Psychodermatological aspects of atopic dermatitis. *Br J Dermatol* 2014;170(Suppl 1):38-43.
8. Tollefson MM, Bruckner AL. Atopic dermatitis: skin-directed management. *Pediatrics* 2014;134(6):e1735-44.
9. Slattery MJ, Essex MJ, Paletz EM, et al. Depression, anxiety, and dermatologic quality of life in adolescents with atopic dermatitis. *J Allergy Clin Immunol* 2011; 128:668-71.
10. Dalgard FJ, Gieler U, Tomas-Aragones L, et al. The psychological burden of skin diseases: a cross-sectional multicenter study among dermatological outpatients in 13 European countries. *J Invest Dermatol* 2015;135:984-91.
11. Ersser SJ, Cowdell F, Latter S, et al. Psychological and educational interventions for atopic eczema in children. *Cochrane Database Syst Rev* 2014;(1): CD004054.
12. Sidbury R, Tom WL, Bergman JN, et al. Guidelines of care for the management of atopic dermatitis: section 4. Prevention of disease flares and use of adjunctive therapies and approaches. *J Am Acad Dermatol* 2014;71:1218-33.

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The clinical scenario is fictional.

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