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When Eczema Is Not the Whole Story: A Case of Extensive Erythroderma

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Abstract

We describe a 40-year-old woman with a history of eczema who presented with a generalised painful, pruritic, weeping rash accompanied by chest and abdominal pain. Before admission, she had been treated for eczema with oral corticosteroids and topical tacrolimus without adequate control. Acute surgical and gynaecological causes of her abdominal pain were excluded. On dermatological assessment, she was diagnosed with severe atopic dermatitis with secondary erythroderma affecting approximately 89% of her body surface area.

Emollients, topical corticosteroids and oral prednisolone produced only mild improvement. She developed delirium during treatment, and prednisolone was discontinued as a suspected contributor, after which her skin disease worsened. Ciclosporin was introduced with a good clinical response, and she was discharged home. During follow-up, missed appointments and interruptions to treatment were followed by recurrent flares and further hospital admissions, and ciclosporin was discontinued after a rise in serum creatinine and an episode of acute kidney injury. Dupilumab was planned as the next line of therapy but had not been started at the time of writing because of non-attendance.

This case shows how erythroderma can be mistaken for a flare of pre-existing eczema, and how adverse effects of systemic therapy, mental health needs and inconsistent follow-up can complicate long-term management. It highlights the value of early dermatology involvement, careful monitoring of systemic treatment and coordinated follow-up.

Categories: Internal Medicine, Dermatology
Keywords: biologic treatment, ciclosporin, eczema management, erythroderma , severe atopic dermatitis

Introduction

Erythroderma, also known as exfoliative dermatitis, was first described by von Hebra in 1868. It is a severe cutaneous inflammatory state associated with impaired skin barrier function and metabolic dysfunction. It is often preceded by a morbilliform rash, dermatitis or plaque psoriasis. The annual incidence in Europe is estimated to be one to two cases per 100,000 population [1].

Erythroderma, although rare, is a potentially life-threatening dermatological emergency that requires prompt diagnosis and early resuscitation. Although its pathophysiology remains unclear, adhesion molecules and their ligands are thought to play an important role in endothelial leucocyte interactions, influencing the adhesion, migration, and infiltration of lymphocytes and mononuclear cells during inflammation [2].

It is characterised by generalised exfoliative dermatitis associated with erythema and scaling involving more than 80% of the total body surface area. It is associated with significant morbidity and mortality because of delay or misdiagnosis, its systemic complications and diverse underlying aetiology [3].

Erythroderma may result from several conditions, including pre-existing skin disorders such as eczema or psoriasis and drug reactions. For instance, psoriatic erythroderma has been associated with certain triggers, including sudden withdrawal of topical or systemic steroids and methotrexate [4], malignancies, and idiopathic causes. Identifying the underlying cause is therefore important for appropriate management [1,3,5]. A detailed history should include possible triggers such as recent infections, systemic and topical treatments, and sun or ultraviolet exposure [2].

Failure of the skin barrier can lead to fluid imbalance, impaired thermoregulation, cardiovascular strain, protein loss, and secondary infection [3]. These complications may be fatal even with appropriate treatment, and the prognosis largely depends on the underlying cause [2].

Initial management in the emergency department should prioritise supportive care, restoration of the skin barrier, and identification and treatment of organ dysfunction. It includes managing acute complications

such as hypothermia that can be caused because of disruption of barrier integrity [6] and dehydration secondary to functional cutaneous failure causing transepidermal water loss [7].

Other serious complications include an increased susceptibility to *Staphylococcus aureus* colonisation of the skin, which can progress to sepsis [1]. Additionally, peripheral vasodilatation and cutaneous shunting may precipitate pedal oedema and high-output cardiac failure [3,8]. Cardiac arrhythmias have been reported in up to 11% of patients [5]. Although the underlying cause should be investigated, definitive treatment of the primary condition is not usually the immediate priority in the acute setting, except in cases involving severe drug reactions or infection [3].

Case Presentation

A 40-year-old female, with a background of eczema, endometriosis and mixed anxiety with depression, presented with skin redness with a burning and itching sensation across her whole body (Figure *1*). Associated symptoms included chest, abdominal and right flank pain. Her primary care physician prescribed co-amoxiclav and prednisolone, but her symptoms did not resolve. Seven weeks later, she presented to the emergency department with tachycardia, fever, nausea without vomiting, bilateral knee pain, brown coloured urine and constipation without flatus for two days. Both lower limbs were erythematous and oedematous (Figure *2*).



FIGURE 1: Clinical photograph of the patient's back demonstrating diffuse erythema, skin thickening over the lower back and an uneven skin surface.



FIGURE 2: Clinical photograph demonstrating widespread erythema and excoriations affecting both lower limbs.

Initial blood investigations showed normocytic anaemia, with a haemoglobin concentration of 112 g/L (reference range: 120-150 g/L), thrombocytosis, with a platelet count of 473 × 10^9/L (150-410 × 10^9/L), and eosinophilia, with an eosinophil count of 1.6 × 10^9/L (0.0-0.5 × 10^9/L). Urea, electrolytes and troponin were within normal limits. C-reactive protein was elevated at 56 mg/L (0-8 mg/L), and D-dimer was elevated at 878 ng/mL (0-500 ng/mL). An initial abdominal X-ray showed faecal loading without radiographic evidence of bowel obstruction. The patient was treated with laxatives.

Within 48 hours of admission, she deteriorated further. She became tachypnoeic prompting a repeat of laboratory investigations and performance of blood cultures since a diagnosis of sepsis was considered. CT abdomen and pelvis was requested because of suspected peritonitis. It revealed an enlarged cervix and left ovary with a cystic lesion. Malignancy was ruled out with negative findings on MRI, blood investigations and inpatient gynaecology consultation.

Intravenous antibiotics were administered for urosepsis since urine microscopy found a white blood cell count of >100 × 10^6/L (0-10 × 10^6/L); beta-human chorionic gonadotropin was negative.

A dermatology in-patient consultation was requested to address the extensive skin peeling, erythema and oedema. The decision was taken to commence a course of oral corticosteroids along with topical emollients.

Acute confusion with vacant episodes and drowsiness ensued, accompanied by shaking and a subjective feeling of falling. The family confirmed that these were new symptoms. Critical care and psychiatry opinions were sought. CT head revealed no acute changes.

Psychiatric review identified disorientation to time, place and person, with reported tactile, visual and auditory hallucinations. The patient denied tobacco use, alcohol consumption and illicit drug use. She had a pre-existing diagnosis of depression, with a history of low mood, reduced energy, anhedonia, social isolation, self-neglect and poor appetite. Steroid-induced psychosis was considered a differential, so prednisolone was discontinued with a notable resolution of psychiatric symptoms. In view of the severity of her physical illness, priority was given to optimisation of her medical condition, with arrangements made for ongoing community mental health support following discharge.

Once she was more coherent, the history was revisited and revealed a several month history of painful, peeling skin affecting both the upper and lower limbs. The condition began on the arms and legs before rapidly spreading across the body and was associated with scalp pruritus as well as painful knees and wrists (Figure 3). She reported no visual symptoms and denied any recent initiation of new medications. She described a burning sensation affecting the skin following the application of emollients. Clinical examination was significantly limited by severe pain, to the extent that even light contact with a stethoscope was intolerable. The bedsheets were noted to be wet and adherent to the skin due to extensive weeping lesions. Cutaneous involvement was widespread, affecting all skin surfaces except the palms and soles, with an estimated body surface area involvement of 89%. The skin was diffusely thickened, erythematous, pruritic and exquisitely tender (Figure 4). Topical steroids and emollients were given.



FIGURE 3: Clinical photograph showing erythema and excoriations over the patient's right shoulder, consistent with severe inflammatory skin disease.

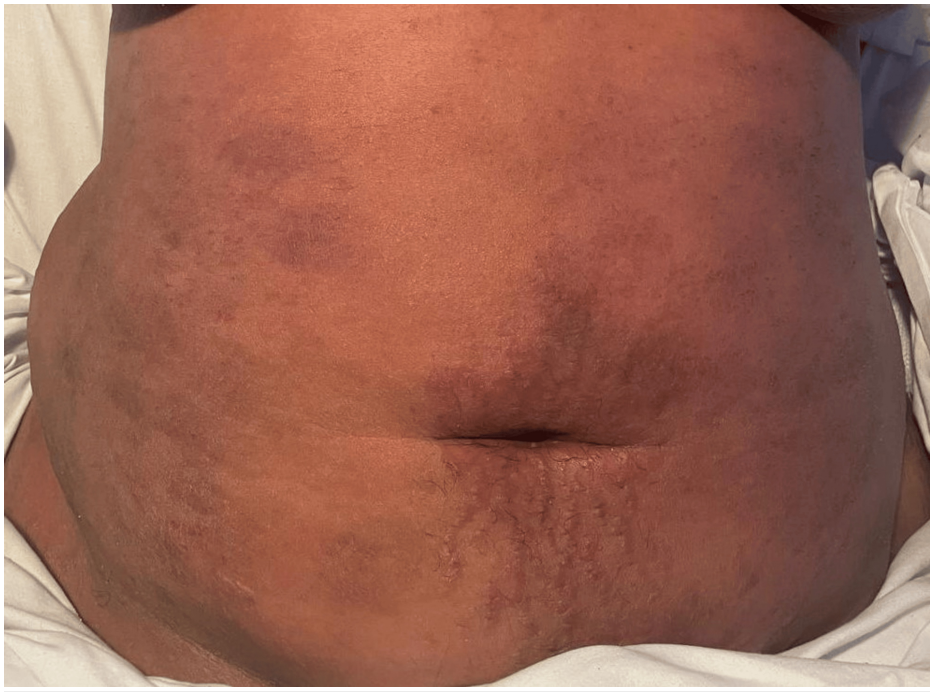


FIGURE 4: Clinical photograph of the abdomen demonstrating widespread erythema with focal skin thickening around the umbilicus.

Dermatology re-assessment was requested with a consideration of erythroderma as a possible differential, considering widespread involvement of the skin and systemic symptoms. Careful examination revealed a vesicular rash covering her whole body with palms and soles spared. Further investigations revealed an IgE level of 4157 kU/L (0-114 kU/L) and positive herpes simplex virus type I and II IgG antibodies. Screening tests included QuantiFERON TB test, fasting lipid profile, varicella Ab IgG and U&Es. Acyclovir 400 mg was given for five days while continuing with the emollients.

A flare was observed following discontinuation of prednisolone, so ciclosporin 3 mg/kg was offered.

The patient was commenced on a trial of ciclosporin, which was well tolerated with no adverse effects observed. A treatment plan was therefore established to continue ciclosporin at a dose of 100 mg twice daily for two weeks, with regular outpatient follow-up, blood pressure monitoring, and renal function surveillance, including U&Es. Over the subsequent days, there was a noticeable improvement in her skin disease, with reduced erythema and fewer excoriations. In light of this clinical improvement, she was considered medically fit for discharge.

After admission and follow-up

At the two-week follow-up in November 2025, the patient reported no adverse effects from ciclosporin and demonstrated significant improvement in her skin condition, with only a few residual excoriations. Blood pressure remained normal, and there was no evidence of systemic infection. Blood tests showed a 30% rise in serum creatinine to 60 µmol/L (41-86 µmol/L) and a mildly elevated alkaline phosphatase of 155 U/L (30-130 U/L), with a normal full blood count, prompting a reduction in ciclosporin dosage to 100 mg in the morning and 50 mg at night. Repeat blood monitoring was arranged; although the patient did not attend the subsequent two clinic appointments, she continued to undergo blood testing, and a further follow-up appointment was organised given the importance of ongoing treatment monitoring.

Following periods of non-adherence and treatment interruption, the patient experienced recurrent flares of her dermatitis requiring re-initiation of ciclosporin. Despite some improvement, treatment was complicated by suspected ciclosporin-related adverse effects and subsequent acute kidney injury during a severe flare requiring admission to another hospital. Given the concerns regarding renal toxicity and suboptimal disease control, ciclosporin was discontinued and a decision was made to commence dupilumab, with follow-up arranged to assess response and tolerability.

While awaiting initiation of dupilumab, the patient experienced a further flare requiring a third hospital admission and was discharged on topical therapy after declining oral corticosteroids. Subsequently, she did not attend her scheduled dermatology appointment in September 2026, and the homecare team were unable to commence dupilumab, as they were unable to contact her. She also failed to attend a rearranged follow-

up appointment in October 2026, resulting in further delays to treatment initiation.

Differential diagnosis

The differential diagnosis played an important role in the evolution of this case. Given the patient's known history of eczema, her skin symptoms were initially attributed to an eczema flare. However, the severity and extent of involvement, affecting approximately 89% of the body surface area with marked erythema, pruritus, weeping, and excoriation, were disproportionate to her previous flares and warranted reconsideration of the working diagnosis. Furthermore, the symptoms had been present for several weeks and had not responded to treatment prescribed in primary care, suggesting an alternative or additional underlying pathology.

The abdominal pain was initially investigated as a possible acute abdominal or renal pathology. CT imaging excluded these diagnoses and instead identified gynaecological findings and significant faecal loading. As the gynaecological findings required no acute intervention, management focused on treatment of the constipation with laxatives and enemas.

Diagnosis

The final diagnosis from dermatology was severe atopic dermatitis with secondary erythroderma. It likely developed due to previous failed management, which included topical Betnovate and tacrolimus with oral steroids. Erythroderma was clinically diagnosed considering the percentage of body surface affected and the clinical features. The patient had a past medical history of eczema, which is one of the common causes [4]. Though it is not a definitive diagnostic factor, her IgE levels were found to be raised, suggesting a hypersensitive immune response [9]. Infection markers returned to normal values throughout the course of admission, which supported that infection was not a contributing factor.

Gynaecological investigations ruled out endometriosis, which she initially thought she had. The patient was safety-netted with advice on when to seek medical advice. She was referred to the community mental health team for further specialist assessment and management.

Treatment

She was initially started on intravenous cefuroxime and metronidazole as per the trust guidelines for a suspected peritonitis. She was given supportive intravenous fluid resuscitation and analgesia. Laxatives were started to help relieve the faecal impaction and topical steroids and emollients for symptomatic relief of the skin symptoms. Given that her pain was not being controlled, her analgesia was stepped up to intravenous morphine a few days later. Gynaecology agreed to continue the same antibiotic treatment while their investigations occurred and suggested starting clotrimazole 10% for vaginal thrush.

The patient did not respond well to the oral steroids, as they were suspected to cause delirium, which led to the decision of starting ciclosporin as a trial. The ciclosporin continued until after discharge, but due to non-attendance at the outpatient clinic and non-compliance, the patient had long periods during which she did not receive any treatment. Ciclosporin was later discontinued due to adverse reactions causing deranged kidney function. The plan to start a trial of dupilumab was made.

The patient's clinical course, investigations, treatment and follow-up are summarised in Table *1*.

Timeline	Clinical findings	Investigations and management
September 2025: GP visit	Skin redness with burning and itching, and right flank pain	Co-amoxiclav and prednisolone prescribed
October 2025: emergency department presentation and admission	Persistent skin symptoms, tachycardia, fever, nausea without vomiting, knee pain, brown urine and constipation for two days without flatus	Blood tests showed normocytic anaemia, eosinophilia and raised C-reactive protein. Treated with cefuroxime and metronidazole for suspected peritonitis, laxatives, intravenous fluids, analgesia, topical corticosteroids and emollients
October 2025: dermatology review	Skin peeling, erythema and oedema.	IgE testing and viral swabs requested. Oral corticosteroids and additional topical emollients prescribed
November 2025: psychiatry review	Disorientation to time, place and person, with tactile, visual and auditory hallucinations	Oral corticosteroids stopped
November 2025: dermatology review	Generalized vesicular rash, sparing only the palms and soles	IgE: 4157 kU/L; positive herpes simplex virus types I and II IgG antibodies. QuantiFERON-TB testing, fasting lipid profile, varicella-zoster virus IgG, and urea and electrolytes requested. Acyclovir 400 mg for five days and ciclosporin 3 mg/kg initiated
November 2025: dermatology review	Symptoms unchanged from the previous review	Screening investigation results awaited. Ciclosporin 100 mg twice daily prescribed
November 2025: dermatology follow-up	Significant clinical improvement, with a few residual excoriations	Blood pressure remained normal. Creatinine increased; alkaline phosphatase was raised. Ciclosporin adjusted to 100 mg in the morning and 50 mg at night
December 2025: dermatology follow-up	Appointment not attended	Appointment not attended
January 2026: dermatology follow-up	Appointment not attended	Appointment not attended
January 2026: dermatology follow-up	Recurrent dermatitis flares following periods of non-adherence	Ciclosporin restarted at 150 mg once daily for four weeks, followed by 100 mg daily for eight weeks
May 2026: admission to another hospital	Severe flare following initial improvement	Blood tests identified acute kidney injury. Ciclosporin stopped; dupilumab planned
September 2026: dermatology follow-up	Appointment not attended	Appointment not attended. The homecare team was unable to contact the patient to arrange dupilumab
October 2026: dermatology follow-up	Appointment not attended	Appointment not attended

TABLE 1: Summary of the patient's clinical course, investigations, treatment and follow-up

Discussion

Erythroderma can result in disruption of the epidermal barrier, leading to fluid and electrolyte disturbances, impaired thermoregulation, increased susceptibility to infection and haemodynamic instability [3].

Assessment of a rash in the emergency department requires consideration of both skin disease and underlying systemic illness. Serious causes, including infection and drug reactions, may be difficult to recognise when the presenting features are non-specific or atypical [10].

This case highlights the difficulties in recognising and managing erythroderma, particularly when systemic treatment is complicated by adverse side effects and interruptions in follow-up. The patient had a background of eczema; however, the extent and severity of her skin involvement were considerably greater than those of a localised flare. This included widespread erythema and persistent skin weeping affecting an estimated 89% of body surface, associated with pain described as severe enough to limit routine physical examination. The extensive erythema and skin pain were consistent with the recognised features of erythrodermic atopic dermatitis [11].

The patient's elevated IgE level, although consistent with an atopic background, cannot independently establish the cause of erythroderma, as raised IgE levels are observed in atopic dermatitis [9]. Overall clinical presentation and dermatological assessment were useful in identifying potential causes.

Initial management was focused on controlling inflammation and restoring the compromised skin barrier. Despite these measures and previous treatment with oral prednisolone, the patient's symptoms remained poorly controlled, including reporting burning on application of emollients. Prednisolone was subsequently discontinued because it was suspected to be contributing to delirium, as it could have neuropsychiatric adverse effects, including mood disturbance and confusion [12]. Epidermal barrier disruption due to erythroderma and increased susceptibility to infections due to corticosteroids may have given rise to the patient’s vaginal thrush.

It is difficult to determine whether corticosteroid exposure was the cause of her delirium or whether other factors associated with her acute illness contributed, such as pain and burning sensation. Given the severity of the erythroderma and the limited response to previous treatment, ciclosporin, which has an established role in atopic dermatitis, was introduced, with awareness of the need to monitor adverse effects, particularly nephrotoxicity [13].

One of the principal challenges in this case was maintaining continuity of treatment. Repeated missed appointments and interruptions to ciclosporin therapy were associated with recurrent disease flares, highlighting the difficulty of achieving sustained disease control. Treatment was further complicated by deteriorating renal function, including a rise in serum creatinine and a subsequent episode of acute kidney injury, leading to discontinuation of ciclosporin and a decision to commence dupilumab. However, dupilumab could not be initiated as the homecare team was unable to establish contact with the patient.

The patient's mental health difficulties and social circumstances may also have contributed to the complexity of management, particularly in relation to treatment adherence and follow-up. While her history of depression pre-dated the dermatological presentation, repeated missed appointments and treatment interruptions raised concerns regarding access to care and ongoing engagement with services. This case is limited by the uncertain cause of her delirium, the unconfirmed contribution of ciclosporin to her kidney injury, and the difficulty in assessing long-term treatment effectiveness due to inconsistent follow-up.

Conclusions

This case highlights the need for recognition, differentiation and management of erythroderma in a patient with underlying atopic dermatitis. Our patient initially responded well to ciclosporin after corticosteroids were stopped because of suspected delirium, with marked improvement in erythema and excoriations at two-week follow-up. However, missed appointments and interruptions to treatment were followed by recurrent flares, and ciclosporin was eventually discontinued after a rise in serum creatinine and an episode of acute kidney injury. Although dupilumab was planned as the next line of therapy, it had not been started at the time of writing because of non-attendance and difficulty contacting the patient, and she had needed a third hospital admission in the meantime.

We emphasise the importance of close monitoring of systemic treatment, involving specialists, and providing patients with a coordinated approach to follow-up that takes account of mental health and social factors affecting adherence.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Isil Ekin Donmez Erkal, Ameer F. Patel, Twesige Mugisa, Ahmed Ibriak, Anam Paracha

Acquisition, analysis, or interpretation of data: Isil Ekin Donmez Erkal, Ameer F. Patel, Twesige Mugisa, Ahmed Ibriak, Anam Paracha

Drafting of the manuscript: Isil Ekin Donmez Erkal, Ameer F. Patel, Ahmed Ibriak, Anam Paracha

Critical review of the manuscript for important intellectual content: Isil Ekin Donmez Erkal, Ameer F. Patel, Twesige Mugisa, Ahmed Ibriak, Anam Paracha

Supervision: Twesige Mugisa

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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Ameer Patel and Anam Paracha contributed equally to the work and should be considered co-first authors.

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