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Eden L. Parks
Drexel University College of Medicine

Kojo-Frimpong B. Awuah MD
Allegheny Health Network

Caitlin D. Couper MD
Allegheny Health Network

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Case Report

An Unusual Presentation of Erythrodermic Psoriasis

Eden Parks[1], Kojo-Frimpong Awuah[2], Caitlin Couper[2]

1 Drexel University College of Medicine
2 Allegheny Health Network

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ABSTRACT

INTRODUCTION: Erythrodermic psoriasis is a rare form of psoriasis, occurring in less than 3% of patients with psoriasis. Limited information is known regarding diagnosis and treatment for this form of psoriasis, with most studies involving small groups or single patients. This unusual case of erythrodermic psoriasis outlines the presentation, diagnosis, and treatment that occurred in a 53-year-old patient who initially presented with dyspnea and a fever.

CASE PRESENTATION: The 53-year-old patient was originally admitted for dyspnea and a fever. A maculopapular rash developed diffusely on the upper extremities, lower extremities, trunk, and face. The rash then desquamated over several days, appearing as exfoliating and scaling skin. The patient underwent two punch biopsies for diagnosis and was treated with Hydrocortisone (2.5%) cream for the face and inguinal regions and Triamcinolone for the trunk. The patient continued this regimen daily for 2 weeks, and then alternated days for the following 2 weeks.

DISCUSSION: There are many different causes and potential risk factors for a flare of erythrodermic psoriasis: history of psoriasis, systemic corticosteroids and excessive use of topical steroids, phototherapy complications, severe emotional stress, and preceding illness. The patient in this study had several precipitating factors worth noting, including recent diagnosis of colorectal cancer and infection with evidence of leukocytosis. She was also under a fair amount of emotional stress given her health issues and prolonged hospital stay. The patient was also receiving several medications that may have increased her risk of a flare, most notably being Vancomycin. Initial treatment is the use of topical corticosteroids and systemic therapy is considered if this does not improve symptoms. Prior case reports have shown that difficult to manage cases can be treated with Acitretin or systemic therapies such as Methotrexate.

KEYWORDS: Psoriasis, dermatology, rash, erythroderma

INTRODUCTION

Erythrodermic psoriasis is a rare form of psoriasis, occurring in less than 3% of patients with psoriasis. Limited information is known regarding this form of psoriasis, with most studies involving small groups or single patients. We present a case of erythrodermic psoriasis in a patient who initially presented with dyspnea, fever and suddenly developed a diffuse rash.

CASE PRESENTATION

A 53-year-old female with a past medical history of type 2 diabetes, psoriasis, COPD, atrial fibrillation, peripheral arterial disease, and DVT. She initially presented to an outside hospital with shortness of breath, fever, and chills. Lab work showed evidence of leukocytosis and viral testing was done; COVID and RSV were negative, but influenza B was positive. Patient then developed atrial fibrillation with rapid ventricular response with rates up to 137. At this point she was transferred to our facility for further workup and management. On arrival, CT of the chest, abdomen, and pelvis was obtained, and this was negative for PE. Upon arrival, the patient was also noted to have purulent drainage with surrounding erythema from a right lower extremity wound. Of note, the patient had recently been admitted for a right lower extremity thrombectomy. She was started on vancomycin and Zosyn. She was also started on Tamiflu for influenza B.

Correspondence to Eden Parks at elp68@drexel.edu

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FIGURE 1A.

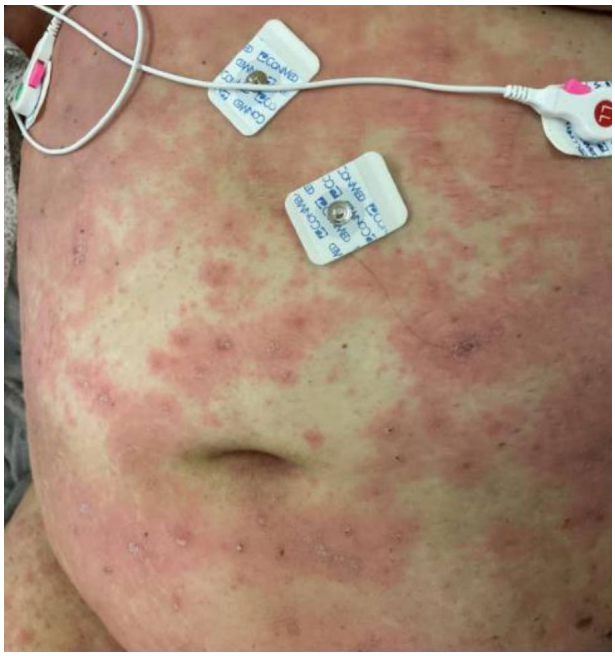


FIGURE 1B.

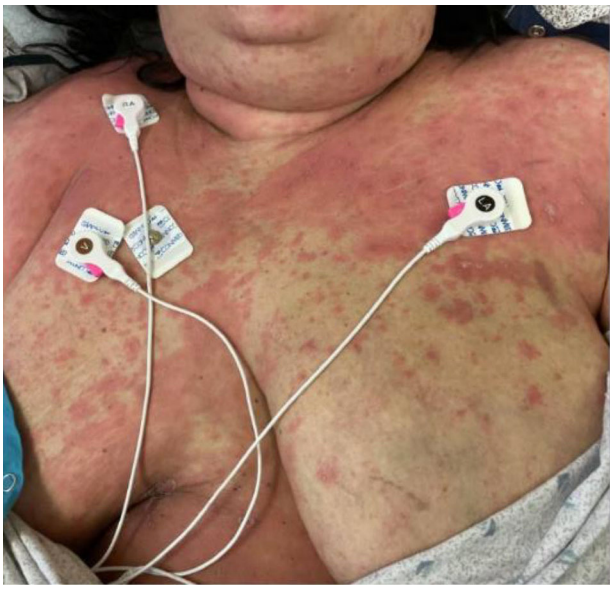
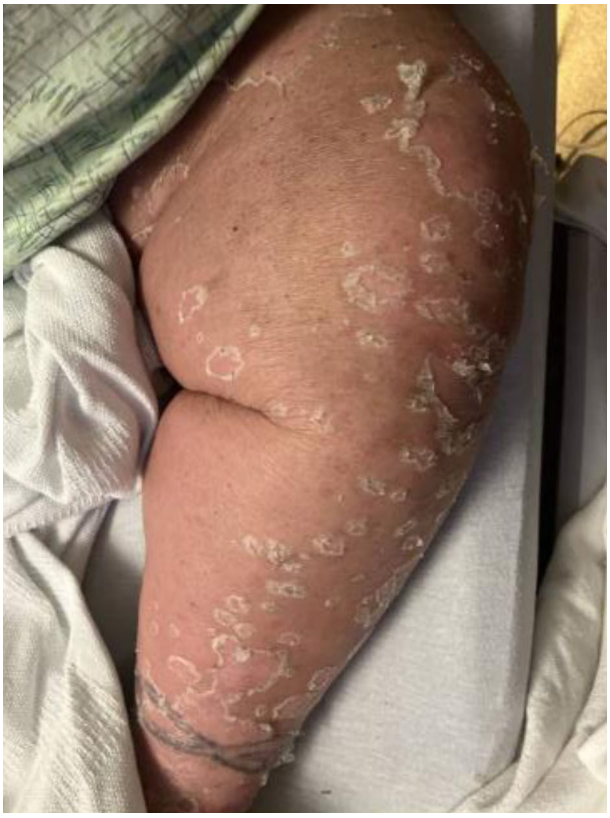


FIGURE 1C.



Vascular surgery was consulted, and the patient underwent debridement of the right leg wound with a wound VAC placement. Cultures were taken from the wound and grew MRSA. Zosyn was discontinued and Vancomycin remained. Suddenly, the patient developed a diffuse, confluent pruritic, nonpalpable/pustular rash in the bilateral upper and lower extremities and trunk regions (*Figures 1A and 1B*) with white plaques on the extensor surfaces. She did not have any mucosal, ocular, or palmar lesions. At this time, the rash was believed to be secondary to Vancomycin, and it was switched to Linezolid as a result. Despite the Vancomycin being discontinued, the rash continued to progress, and her lactic acid and creatinine levels continued to uptrend at this time, with the highest values of 3.6 and 2.35, respectively. There was concern that the patient was continuing to have fluid loss due to the exfoliation of the skin from the rash (*Figure 1C*). She was started on maintenance fluids due to the concern of fluid loss, and this was continued throughout the admission. As the rash began to improve, the patient's lactic acid and creatinine began to normalize. Complete blood count and metabolic panels were checked daily. Patient had a maximum white count of 37.25, which returned to normal limits with the continuation of antibiotics. She was also noted to have a CRP of 21.7.

Dermatology was consulted at this time. The patient underwent a punch biopsy of the abdomen; results showed nonspecific inflammatory changes. Dermatology preliminarily diagnosed the patient with psoriasis with recommendation for Hydrocortisone 2.5% cream for the face and inguinal regions and Triamcinolone for the trunk. The patient was to continue on this regimen daily for 2 weeks, and then alternate days for the following 2

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weeks, and then stop. It was also recommended that the patient keep the skin hydrated when not using a steroid with thick emollient such as Vaseline, continue fluids, and continue oral hydration.

The patient continued the topical steroid regimen, but experienced interval worsening of the rash. At this time, surgery performed another biopsy, this time of the left upper extremity. The patient was ultimately discharged to a skilled nursing facility with plans to follow up outpatient with dermatology. The biopsy results showed psoriasis; epidermis with minimal spongiosis, mild regular acanthosis, and neutrophilic parakeratosis overlying a superficial perivascular and interstitial infiltrate of lymphocytes and occasional neutrophils.

DISCUSSION

The differential diagnosis for this patient included psoriasis, exanthematous drug eruption, vasculitis, or a paraneoplastic process related to newly diagnosed colorectal cancer. The patient had a known history of psoriasis with intermittent treatment with oral Prednisone for flares, but she had not had a recent course of steroids prior to this admission or ever used other systemic treatment in the past. A drug reaction could be likely as the patient was started on Vancomycin, but the rash continued to worsen after switching the antibiotic to Linezolid, making this less probable. A paraneoplastic process is also a possibility, but a colorectal cancer would be expected to present with hyperpigmented macules or seborrheic keratoses rather than an exfoliative rash. Additionally, the cancer may have exacerbated the psoriasis flare. Her labs values were challenging to interpret in the setting of her multiple medical complications. She was being treated for a lower extremity wound and had an elevated white count likely secondary to this. Her elevated creatinine was likely due to dehydration and a prerenal acute kidney injury. This began to correct when maintenance fluids were started due to concern for fluid loss from the rash.

Erythrodermic psoriasis can be challenging to diagnose, and also challenging to treat. A flare of the rash may be the initial presentation in some patients who have not had a prior diagnosis of psoriasis. The first step of diagnosis is obtaining a detailed history and physical examination with a focus on a personal or family history of psoriasis, exposure to potential disease triggers, and coexistence of other features of psoriasis.[1, 2] There is dispute regarding the exact percentage of body surface area required to make a diagnosis, ranging from 75% to at least 90%.[2] The patient in this study had a rash covering the majority of the trunk, upper extremities, and lower extremities, further supporting the diagnosis. Careful examination of the rash is important. Common rash findings are scaling and exfoliation, and pustules may or may not be present. The rash is often pruritic and can be painful. The patient in this study experienced evolution of the rash over time, with prominent exfoliation and scaling as well as pruritus and pain. (*Figure 1C*). A clinical diagnosis can be made based on skin findings and ruling out other plausible causes of erythroderma.[3]

A skin biopsy is also generally indicated for diagnosis but may not always show evidence of psoriasis. In a study of 45 patients diagnosed with erythrodermic psoriasis, only 88% of biopsy results showed evidence of psoriasis.[4] Diagnosis was made based on clinical and laboratory data for all patients, including those that had a negative biopsy result. Other potential etiologies were ruled out and symptoms improved with standard erythrodermic psoriasis treatment. The erythroderma was the presenting sign of psoriasis for 5 patients in this study.[4] The patient in this study initially had a nonspecific biopsy result, followed by an additional biopsy that showed evidence of psoriasis. The microscopic findings showed epidermis with minimal spongiosis, mild regular acanthosis, and neutrophilic parakeratosis overlying a superficial perivascular and interstitial infiltrate of lymphocytes and occasional neutrophils. A case study of a 45-year-old patient diagnosed with erythrodermic psoriasis was found to have pathomorphological features of regular acanthosis, spongiosis, and hyperkeratosis with perivascular infiltrates in the derma consisting of lymphocytes, macrophages, and fibroblasts.[5] Psoriasis generally shows epidermal acanthosis, parakeratosis Munro microabscess, and dilated tortuous papillary blood vessels. It is worth noting that Munro microabscess and parakeratosis may not be prominent histologically due to exfoliation and loss of stratum corneum.[3]

There are many different causes and potential risk factors for a flare of erythrodermic psoriasis. The most common being a prior history of psoriasis, certain medications, and infections. A study of 50 patients with erythrodermic psoriasis found that common precipitating factors were the following: systemic corticosteroids and excessive use of topical steroids, phototherapy complications, severe emotional stress, and preceding illness.[2] The patient in this study had several precipitating factors worth noting, including recent diagnosis of colorectal cancer and infection with evidence of leukocytosis. She was also under a fair amount of emotional stress

given her health issues and prolonged hospital stay. The patient was also receiving several medications that may have increased her risk of a flare-up, most notably being Vancomycin.

Initial treatment is the use of topical corticosteroids and systemic therapy is considered if this does not improve symptoms. The patient in this study initially had improvement with topical steroids but had interval worsening of the rash after a few days. Acritretin was discussed, but ultimately not started when the patient began to have improvement of the rash. Recent studies have recommended using topical steroids as a temporary or adjunctive measure while an alternative treatment is introduced, such as Methotrexate.[3] This patient will likely benefit from systemic therapy in the future if another flare-up occurs. For difficult cases such as the patient in this study, a systemic agent may be beneficial if she continues to have flare-ups. In conclusion, this case underscores the complexity and severity of erythrodermic psoriasis, highlighting the importance of prompt diagnosis, appropriate management, and ongoing monitoring to optimize patient outcomes and quality of life.

REFERENCES

1. Lebwohl M. Psoriasis. Lancet. 2003;361(9364):1197-1204. https://doi.org/10.1016/S0140-6736(03)12954-6

2. Boyd AS, Menter A. Erythrodermic psoriasis. Precipitating factors, course, and prognosis in 50 patients. J Am Acad Dermatol. 1989;21(5 Pt 1):985-991. https://doi.org/10.1016/S0190-9622(89)70287-5

3. Singh RK, Lee KM, Ucmak D, et al. Erythrodermic psoriasis: pathophysiology and current treatment perspectives. Psoriasis (Auckl). 2016;6:93-104. https://doi.org/10.2147/PTT.S101232

4. Tomasini C, Aloi F, Solaroli C, Pippione M. Psoriatic erythroderma: a histopathologic study of forty-five patients. Dermatology. 1997;194(2):102-106. https://doi.org/10.1159/000246075

5. Miadzelets, Valeryia. Pathology - Journal of the RCPA.2009; 41(80) https://doi.org/10.1097/01268031-200941001-00201