

## Severe Psoriasis With Erythrodermic Rash Manifestation: A Case Report

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### ABSTRACT

**Introduction:** Severe psoriasis with generalized erythematous rash impacts on disability, disfigurement, mental health, and quality of life.

**Case presentation:** An Indonesian woman, 23 years old, complained of a chronic erythrodermic rash all over her body and scaly skin for two months. In addition, an unpleasant odor fluid oozes out from multiple erythematous rash lesions. The patient had a history of using herbal medicines and baths. The results of the supporting examinations showed increased leukocyte counts, anti-nuclear antibody (ANA) was detected, and a skin biopsy revealed psoriasis vulgaris. The patient received steroid therapy, and along the way, the patient experienced psychological problems while being treated in the hospital. The patient was an outpatient, was evaluated several times, and showed improvement.

**Discussion:** Psoriasis patients receive first-line treatment, and if it is not effective, biologic agent therapy can be considered. Psoriasis follow-up is important because, in its course, psoriasis is closely related to mental health and mortality, which is influenced by comorbidity and low socioeconomic status.

**Conclusion:** Mental health, psoriasis, skin biopsy, steroid.

**Keywords:** Factors, conditions, alternative health care, diabetes

### 1. INTRODUCTION

Psoriasis is a chronic inflammatory disease with clinical manifestations such as red scaly, sharply demarcated, and erythematous plaques (Rendon & Schäkel, 2019). The global prevalence of psoriasis is reported to be 0.09-11.43%, and there is an increase in the incidence of psoriasis every year (Global on Report Psoriasis, 2016). Psoriasis vulgaris is the most common type of psoriasis, with an estimated 90% of cases (Cita Rosita Sigit Prakoeswa et al., 2021). In addition, cases of immunological diseases, one of which is psoriasis, are more common in women, the etiology of which is not yet known with certainty. The psoriasis remission process ranges from 1 month to 1 year and has an impact on disability, disfigurement, mental health, and quality of life (Takeshita et al., 2017). We are interested in reporting the case of An Indonesian woman with skin eruptions all over the body manifesting as severe psoriasis. The surgical case report (SCARE) guideline (Sohrabi et al., 2023).

#### Presentation of Case

An Indonesian woman, 23 years old, complained chronic erythrodermic rash all over her body and scaly skin for two months. Visible folds and folding of the skin throughout the body secrete a yellowish malodorous fluid. In the left ear, the discharge is yellow, smells fishy and foul, there is no hearing loss, and there is no pain in the left ear. Fluctuating fever, chills, hair loss, dizziness, and a red rash on the cheeks when exposed to hot sun. However, she did not experience any joint pain.

The patient had no history of hypertension, diabetes mellitus, kidney or heart disease. She also did not smoke or drink alcoholic beverages. She has a history of 3 times being hospitalized because of fever and weakness, with a suspected diagnosis of fatigue and systemic lupus erythematosus (SLE). Previously, during treatment, the patient complained of an itch throughout her entire body, which improved after taking herbal medicine, but only at the beginning did it improve; however, it eventually did not have a significant effect. The family had no history of hypertension, diabetes mellitus, kidney disease, heart disease, or allergy. The family also believes in herbal medicine and herbal baths.

The patient currently has fever (temperature of 39 °C), alopecia, and moon face; the facial skin is dark and purplish, and the oral mucosa appears reddish (Fig. 1). There were wet skin lesions with yellow exudative fluid and a foul and fish-like scent on the back of the neck. Erythematous macules with indistinct boundaries, rough and smooth fissures, and erosions throughout the body. Laboratory examination revealed a white blood cell count of 22,230/ $\mu$ L and an antinuclear antibody (ANA) level of 1:320 (Table 1). Chest and lumbosacral radiographs sequentially showed normal limits and paralumbar muscle spasm. A skin biopsy revealed psoriasis vulgaris (Fig. 2), and the patient was diagnosed with psoriasis.

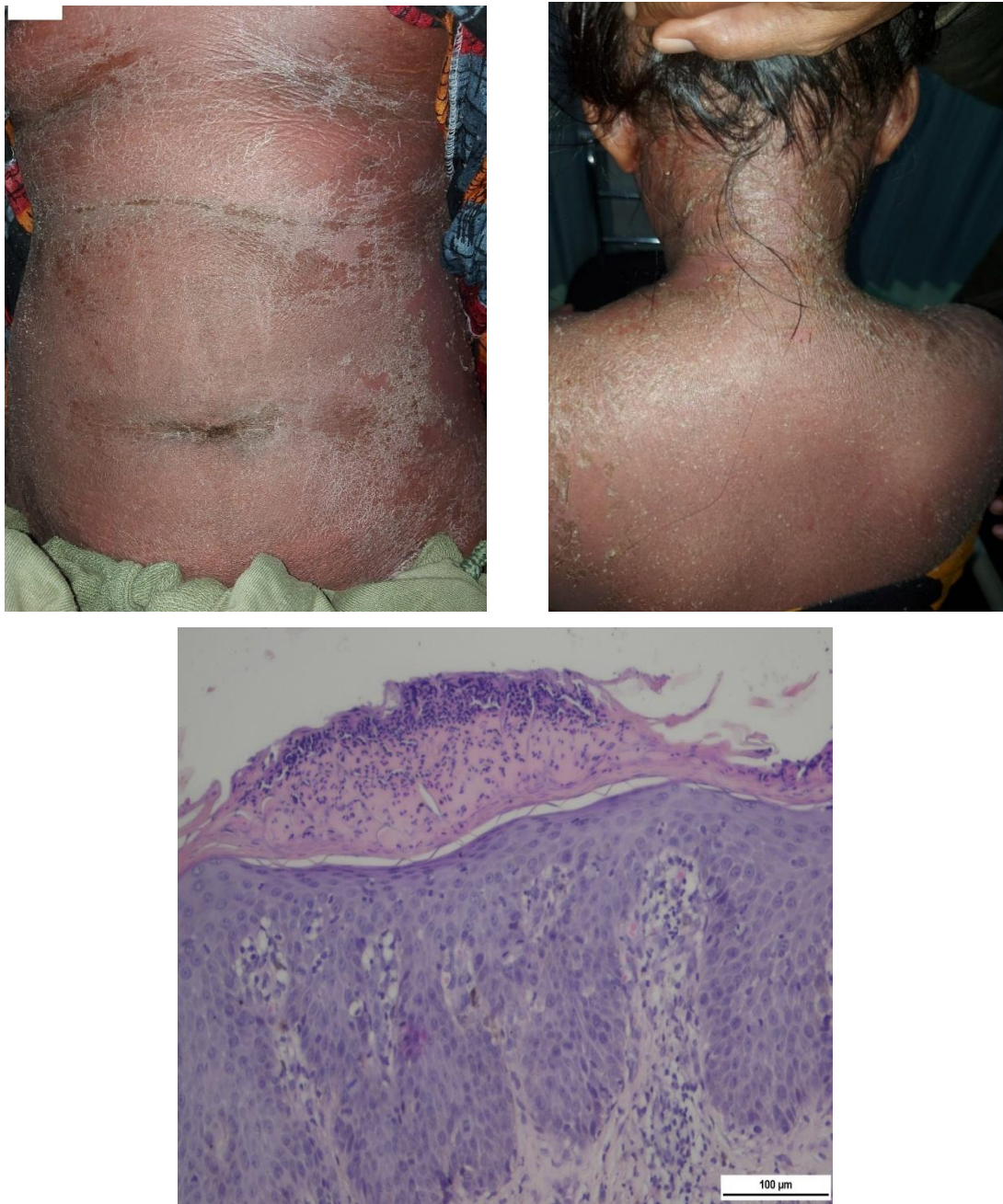
The patient received normal saline (1000 cc/day), a high-calorie, high-protein diet (2100 kcal/day), ceftriaxone (2 $\times$ 1 g/day), Methylprednisolone (62.5 mg/day, and paracetamol (3 $\times$ 500 mg/day (if necessary). On the fourth day, the patient complained of decreased itching, and there was no fluid discharge from the skin and ears. Laboratory monitor showed Hb of 10.3 mg/dL, hematocrit of 32%, mean corpus volume (MCV) of 93.3 fL, mean corpuscular hemoglobin (MCH) of 30 fL, erythrocyte of 1,280/ $\mu$ L, Neutrophile of 56.1%, Lymphocyte of 16.8%, Platelets of 207,000/ $\mu$ L, aspartate transaminase (AST) of 26 U/L, alanine aminotransaminase (ALT) of 34 U/L, albumin of 3.23, blood urea nitrogen (BUN) of 7 mg/dL, serum creatinine of 0.72 IU/ mL, Sodium of 143 mmol/L, Potassium of 3 mmol/L, and Chloride of 107 mmol/L. The patient received a change in fluid therapy to normal saline of 500 cc/12 h followed by potassium-containing fluid of 500 cc/12 h while the other medications were continued. The patient received additional therapy in the form of a slow-release potassium tablet (3  $\times$  600 mg/day). In consultation with the dermatology department, the patient is scheduled to undergo biopsy if a major lesion appears. The patient received additional therapy with dexamethasone (2  $\times$  5 mg/day), vaseline album (2  $\times$ /day), and cetirizine (10 mg/day).

On the 5th day, the patient complained of redness of the skin, and peeling of the skin on the face was ruled out. The therapy was continued, but the dose of methylprednisolone was reduced to 3 $\times$ 16 mg/day. On the 8th day, the complaint improved, but she looked sad and cried like a child. The patient received chlorpheniramine maleate 3 $\times$ 4 mg/day and cyclosporine (2  $\times$  25 mg/day). The patient was referred to a psychiatrist and was diagnosed with a mixed reaction of anxiety and depression. The patient received supportive psychotherapy with fluoxetine (10 mg/day) and clobazam (20 mg/day). The patient was discharged and received methylprednisolone 8 mg/day, loratadine 10 mg/day, CPG 75 mg/day, and cyclosporine 2  $\times$  25 mg/day. One week after the outpatient visit, the patient no longer felt hot or pruritic, there was no discharge from the skin, and the patient no longer felt restless. The patient received therapy in the form of Vaseline album 2  $\times$ /day on the skin eruption area, and the previous medication was continued. The patient's treatment prognosis showed significant improvement (Fig. 3). We followed-up the patient's progress at the 1st, 2nd and 6th months after hospitalization, and there was no recurrent skin eruption.

## 2. RESULT AND DISCUSSION



**Fig. 1. Clinical features on the head area showed skin eruption.**



**Fig. 2.** Skin biopsy showed pieces of skin biopsy tissue; the epidermis layer showed parakeratosis, acanthosis and psoriasiform images, and hyperplasia. There is a neutrophil infiltrate in the stratum corneum. The dermis layer shows dilated blood vessel capillaries, vascular lymphocyte infiltration, and melanophages distribution.

**Table and Legend**

**Table 1.** Laboratory examination on the first hospital admission.

Testing	Result
Hematocrit	41%
Mean corpus volume	90 fL
Mean corpuscular hemoglobin	30 pg/cell
Erythrocyte	22,230/ $\mu$ L

Neutrophile	71%
Lymphocyte	11%
Platelet	2336,000/ $\mu$ L
BUN	16 mg/dL
Creatinine serum	0.77 IU/mL
ALT	16 U/L
AST	19 U/L
Random blood glucose	109 mg/dL
Natrium	137 mmol/L
Kalium	3.8 mmol/L
Chloride	100 mmol/L
PPT	15.7 s
APPT	28.9 s
Bilirubin direct	0.32 mg/dL
Bilirubin indirect	0.91 mg/dL
pH	7.47
pCO <sub>2</sub>	36 mmHg
pO <sub>2</sub>	125 mmHg
HCO <sub>3</sub>	26.2 mEq/L
BE	2.5
SO <sub>2</sub>	99%
P/F	595
HBsAg	NR
HIV	NR
ANA	1:320

Note: ALT=alanine aminotransaminase; ANA=anti-nuclear antibody; APPT: activated partial prothrombin time; AST=aspartate transaminase; BE=base excess; BUN=blood urea nitrogen; H<sub>2</sub>CO<sub>3</sub>=carbonic acid; HBsAg=hepatitis B surface antigen; HIV=human immunodeficiency virus; NR=non-reactive; P/F=ratio PaO<sub>2</sub>/FiO<sub>2</sub> or ratio partial pressure of oxygen/fraction of inspired oxygen; PCO<sub>2</sub>=partial pressure of carbon dioxide; PO<sub>2</sub>=partial pressure of oxygen; pH=acidity; PPT=parameter prothrombin time; SO<sub>2</sub>=saturation oxygen.

Psoriasis is a chronic inflammatory disease with several clinical manifestations. The clinical manifestation of psoriasis may vary in clinical form and may present with different features depending on the involved body area. Psoriasis is further divided into four common sub-types: 1) plaque psoriasis, 2) guttate psoriasis, 3) pustular psoriasis, and 4) erythrodermic psoriasis. A systematic worldwide review found that the prevalence of psoriasis ranged from 0.5-11.4% in adults and 0-1.4% in children (Michalek et al., 2017; Raharja et al., 2021).

Erythrodermic psoriasis is characterized by widespread development of skin erythema, which may occur rapidly or gradually. The body surface area involved in patients with erythrodermic psoriasis is more than 75%, and scaling and exfoliation are also commonly found. Photosensitivity, pain, and burning sensation involving the region of the skin with prominent scaling have also been reported in patients with erythrodermic psoriasis. Due to the large body surface area involved, erythrodermic psoriasis patients are at a high risk of complications related to loss of adequate barrier protection, such as infection and electrolyte abnormalities, along with loss of protein (Lo & Tsai, 2021; Rofiq et al., 2024).

According to global reports on psoriasis by the WHO in 2016, there are three major forms of therapies: topical, systemic,



and phototherapy. To effectively and efficiently treat psoriasis, grading of the disease severity needs to be conducted by measuring the total body surface area involved, psoriasis in regard to body surface area is categorized as mild (<3%), moderate (3-5%) and severe (>5%). Mild cases of psoriasis usually require topical therapy, and if topical therapy such as glucocorticoids, vitamin D analogs, and retinoids are proven to be unresponsive, phototherapy can be used as an alternative. Moderate and severe psoriasis, such as erythrodermic psoriasis, usually requires systemic therapies. Cyclosporine, methotrexate, and acitretin are commonly used as first-line systemic therapies in patients with moderate-to-severe psoriasis. Biologic agents such as TNF- $\alpha$  inhibitors, IL 12/23 inhibitors and IL 17 inhibitors are also used when first-line systemic therapies are found to be ineffective or met with absolute contraindications (Global on Report Psoriasis, 2016; Sawitri et al., 2022).

Erythrodermic psoriasis is a rare and severe form of psoriasis vulgaris, with an estimated prevalence of 1-2.25% among psoriatic patients. In the Netherlands, the annual incidence of erythroderma varies between 0.9/100.000 persons, 4.9 persons in Thailand and 30-44/100.000 cases every year in Tunisia. Although psoriasis is a benign chronic systemic inflammatory condition, it is typically a lifelong condition for which a variety of treatments are used to treat this condition. It generally reduces the number of relapses and improves QoL. Psoriasis with comorbidities, such as metabolic syndrome or cardiovascular diseases, significantly increases severity, morbidity, and mortality. Further study and research related to the prognosis, as well as the factors contributing to the disease prognosis, could be beneficial (Rahmayanti et al., 2020; Singh et al., 2016). Previous studies have reported that Erythrodermic psoriasis has a high mortality rate after 3 years of follow-up, which is related to comorbidities and low socioeconomic status (Egeberg et al., 2016).

### 3. CONCLUSION

The prevalence of psoriasis has been reported to range from 0.5-11.4%. It is also known that genetic, environmental, and immunological factors play an important role in the pathogenesis of the disease. The diagnosis of psoriasis arthritis is made by evaluating the presented clinical signs and symptoms, and skin biopsy could further enhance and confirm the diagnosis. The treatment of the disease is further categorized into three major forms, which are topical, phototherapy and systemic therapy. The main goal of this therapy is to improve the quality of life and reduce the frequency of flares. The prognosis of psoriasis with comorbidities such as metabolic syndrome or cardiovascular diseases significantly increases the amount of severity, morbidity and mortality.

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