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Generalized Pustular Psoriasis Mimicking Acute Generalized Exanthematous Pustulosis: A Case Report

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KEYWORDS

Histopathology, munro microabscess, spongiform pustule of kogoj, generalized pustular psoriasis, acute generalized exanthematous pustulosis

ABSTRACT:

Introduction: Generalized pustular psoriasis (GPP) is a rare but severe variant of psoriasis, characterized by widespread sterile pustules that may involve the entire body surface and are not limited to pre-existing psoriatic lesions. The diagnosis and management of GPP and acute generalized exanthematous pustulosis (AGEP) can be challenging due to the difficulty in distinguishing them both clinically and histopathologically. This case highlights the challenge of establishing a diagnosis of GPP and emphasizes the importance of re-evaluating differential diagnoses to provide the most appropriate therapy.

Case: A 52-year-old male presented with diffuse erythematous patches and pustular lesions over the entire body for two months, with exacerbation in the last five days. The pustules were associated with pruritus, burning, and pain. He had previously been diagnosed with AGEP and treated with methylprednisolone without improvement. Dermatological examination revealed generalized erythematous plaques with multiple papules and pustules, some confluent forming "lakes of pus," accompanied by scaling and erosions. Histopathology showed hyperkeratosis, parakeratosis, hypogranulosis, Munro's microabscesses, spongiform pustules of Kogoj, regular acanthosis, and dermal capillary dilatation with lymphocytic and neutrophilic infiltrates, consistent with GPP. The patient was treated with intravenous 31.25 mg every 12 hours, omeprazole 40 mg daily, diphenhydramine 1 ampoule/ 24 hours, and topical vaseline album mixed with desoximetasone 0.25% cream (1:1). After 7 days of the treatment, the lesion showed marked improvement but persisted partially.

Discussion: This case highlights the inherent difficulty in differentiating GPP form AGEP as both entities may present with extensive sterile pustules and overlapping histopathological features. The chronic course of the eruption, poor response to corticosteroid therapy, and the presence of characteristic histologic hallmarks such as Kogoj's spongiform pustules and Munro's microabscesses were key in establishing the diagnosis of GPP. These findings underscore the critical importance of thorough clinical evaluation supported by histopathologic assessment to achieve diagnostic accuracy.

Conclusions: A case of GPP in a 52-year-old man initially mimicking acute AGEP was reported. Clinical and histopathological evaluation confirmed the diagnosis, highlighting the essential role of skin biopsy due to overlapping features with AGEP.

1. Introduction

Generalized pustular psoriasis (GPP) is an uncommon and severe psoriasis variant characterized by widespread sterile pustules on inflamed skin, frequently accompanied by systemic inflammation [1]. Its pathogenesis involves dysregulation of innate immune pathways, especially IL-36 signaling often associated with mutations in IL36RN, CARD14, and AP1S3, leading to epidermal neutrophil hyperactivation [2,3]. Although rare, GPP exhibits considerable clinical heterogeneity, fluctuating between flares and remissions,

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and is triggered by factors such as infections, stress, medication changes, or abrupt corticosteroid withdrawal [4].

Epidemiologically, its global prevalence ranges from 1–7 per million, with notable geographic variation [5–9]. Indonesian hospital data likewise demonstrate that GPP is most frequently seen in adults aged 41–50 years [10]. Diagnostic criteria formulated by ERASPEN and the Japanese Dermatological Association emphasize the presence of primary sterile pustules on non-acral skin, systemic symptoms, and characteristic histopathology, including spongiform pustules of Kogoj and Munro microabscesses [11,12].

Acute generalized exanthematous pustulosis (AGEP), in contrast, is a drug-induced type IV hypersensitivity reaction mediated by T cells, typically arising within 24–48 hours of exposure to agents such as β-lactam antibiotics, macrolides, antimalarials, or calcium-channel blockers [13–16]. Clinically and histologically, AGEP may closely resemble GPP, creating significant diagnostic challenges [17]. This case demonstrates such an overlap and underscores the necessity of integrating clinical evolution and histopathology to distinguish between these two pustular disorders.

2. Case report

A 52-year-old man presented to the Emergency Department at our center with a five-day history of widespread pustular eruptions. The lesions initially appeared as erythematous macules on the chest before progressing to multiple pustules that extended to the abdomen and subsequently involved almost the entire body. The pustules were accompanied by pruritus, burning sensation, pain, and generalized malaise. He reported a similar episode two months earlier requiring hospitalization. There was no history of drug or food allergy, psoriasis, hypertension, diabetes mellitus, or other chronic illnesses, and no family history of similar conditions.

On examination, the patient appeared moderately ill, alert, with blood pressure 112/78 mmHg, pulse 98/min, respiratory rate 20/min, temperature 37.1°C, and VAS pain score of 4. His BMI was 21.8 kg/m². Dermatologic evaluation revealed generalized erythematous macules, patches, papules, and multiple discrete to partially confluent pustules with scaling and erosions, forming "lakes of pus" (Figure 1). Initial differential diagnoses included GPP, AGEP, and subcorneal pustular dermatosis (SPD).

Laboratory evaluation showed neutrophilia (88.3%) and mildly elevated monocytes (8.2%). Random blood glucose and liver function tests were within normal limits. Gram staining of pustular content demonstrated 0–1 polymorphonuclear cells and 2–3 gram-positive cocci per high-power field, interpreted as non-significant, supporting the presence of sterile pustules (Figure 2). Skin biopsy revealed hyperkeratosis, parakeratosis, hypogranulosis, Munro microabscesses, spongiform pustules of Kogoj, and regular acanthosis with focal bulbous rete ridges. The dermis showed mild edema, dilated superficial capillaries, and perivascular lymphocytic infiltration, consistent with GPP (Figure 3).

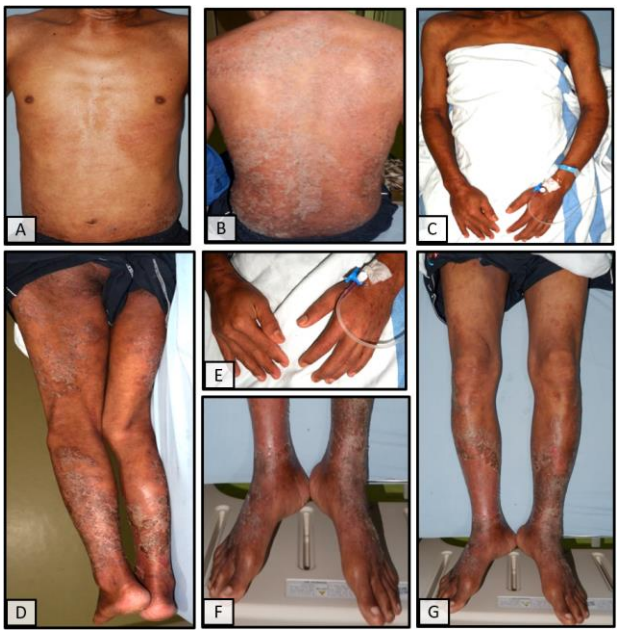

Figure 1. (A–G) Generalized regions showing erythematous plaques with papules and pustules, discrete and partially confluent, accompanied by scaling and erosions; lake of pus (+).

Based on clinical presentation and histopathologic findings, the patient was diagnosed with generalized pustular psoriasis. He was admitted for inpatient treatment and received intravenous Ringer's lactate, methylprednisolone 31.25 mg every 12 hours, omeprazole 40 mg daily, diphenhydramine once daily, and topical vaseline album mixed with desoximetasone 0.25% cream applied twice daily. During the first days of

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hospitalization, erythema, scaling, and pustules persisted.

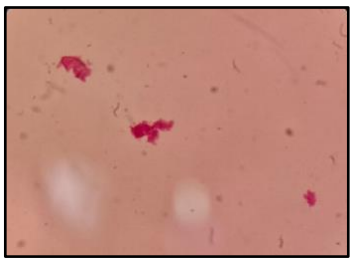

Figure 2. Gram stain showing PMN 0–1/HPF and gram-positive cocci 2–3/HPF; magnification 10×.

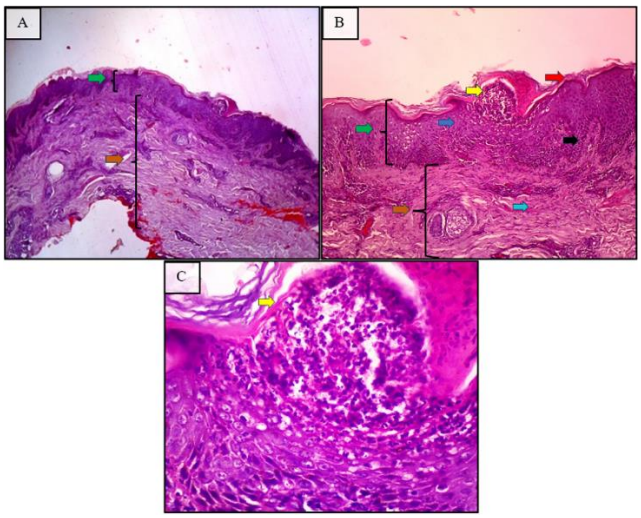

Figure 3. (A) Epidermal layer (green arrow) and dermal layer (orange arrow) (H&E, 4×). **(B)** Epidermis showing hyperkeratosis (red arrow), hypogranulosis (blue arrow), Munro microabscesses (yellow arrow), and spongiform pustules of kogoj (black arrow); the dermis shows inflammatory cell infiltrates, predominantly lymphocytes (turquoise arrow) (H&E, 40×). **(C)** Munro microabscess (yellow arrow) (H&E, 100×).

3. Discussion

GPP is a chronic neutrophilic dermatosis that typically presents in adulthood and manifests with recurrent sterile pustules that may coalesce into “lakes of pus” [18,19]. The relapsing nature of this patient's symptoms over two months aligns with the chronic-recurrent pattern of GPP. Systemic manifestations such as fever, malaise, and leukocytosis are common in GPP, reflecting its autoinflammatory nature driven by IL-36 pathway activation [20,21]. In this case, systemic symptoms and neutrophilia support active inflammatory disease.

Clinically, GPP presents with widespread pustules over erythematous skin, typically on the trunk and proximal extremities, often accompanied by pain, burning, and pruritus [2,22]. The patient’s symmetric, generalized pustules with confluent areas and scaling closely mirror these hallmark features.

Histopathology is crucial when clinical differentiation is uncertain. GPP classically exhibits subcorneal or intraepidermal neutrophilic pustules, Munro microabscesses, spongiform pustules of Kogoj, parakeratosis, hyperkeratosis, and regular acanthosis, as well as capillary dilation with perivascular lymphocytic infiltrates [23–25]. These features were all present in this patient, strongly supporting the diagnosis.

The primary differential diagnoses were AGEP and SPD. AGEP is typically an acute drug-induced eruption with rapid onset, systemic symptoms, and spontaneous recovery after discontinuation of the offending drug [13–15]. Unlike GPP, AGEP resolves within days to two weeks and is highly associated with identifiable drug triggers, absent in this patient [26]. AGEP histopathology may overlap with GPP, but more commonly exhibits eosinophils and prominent dermal edema [16]. The absence of eosinophils in this case favors GPP.

Recent diagnostic scoring systems distinguish AGEP from GPP by considering psoriasis history, recurrent pustulosis, arthralgia, purpura, and drug exposure [27]. This patient's recurrent pustules and arthralgia effectively shift the likelihood toward GPP. SPD, another differential, involves more superficial pustules limited to flexural regions and lacks systemic involvement, and is often associated with IgA paraproteinemia features not seen here [28–30].

Altogether, the chronicity, relapse pattern, lack of drug triggers, systemic symptoms, and characteristic histology strongly support GPP over AGEP or SPD in this patient

4. Conclusion

This case describes a 52-year-old man with generalized pustular psoriasis initially suspected of AGEP due to similar clinical morphology. A comprehensive evaluation, including sterile pustules, a relapsing course,

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absence of drug triggers, and classical histopathological findings, confirmed GPP. This case highlights the essential role of biopsy and careful clinical reassessment when confronting pustular dermatoses with overlapping features.

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CONFLICT OF INTEREST

The author declares no conflict of interest

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