

Generalized Pustular Psoriasis - Case Report

Dr. Golda Sahaya Rani

Professor, Shri Sathya Sai College of Nursing, Sri Balaji Vidyapeeth (Deemed to be University), Pondicherry, India

Abstract: *Generalized pustular psoriasis (GPP) is an uncommon, persistent, and severe inflammatory skin condition. It is characterized by the abrupt appearance of sterile pustules on the skin, often accompanied by widespread inflammation throughout the body. If left untreated, GPP flare-ups can be life-threatening due to the possibility of severe complications like sepsis (blood infection) and cardiovascular failure. A male patient, 42 years old, was admitted to the hospital exhibiting symptoms of itching and irritation on his skin, particularly on his hands, along with the presence of scales, later entire body spread for the past three weeks. During a physical examination to assess for generalized pustular psoriasis (GPP), and the texture appeared dry and covered in scales. It's crucial to assess the patient's vital signs and conducted a thorough examination of the skin to understand the severity of symptoms, any triggers or exacerbating factors, and the impact on their daily life.*

Keywords: Generalized pustular psoriasis, skin, Nursing Care

1. Background

Generalized pustular psoriasis (GPP) is characterized by the presence of visible pustules on the skin, excluding the hands and feet, and not limited to existing psoriatic plaques. GPP can occur with or without systemic inflammation, coexist with plaque psoriasis, or appear independently, and can either be a recurring condition with multiple episodes or persist for more than three months (1). This condition can manifest with or without systemic inflammation, and it may occur alongside plaque psoriasis or as an isolated condition. Based on data gathered by the Japanese Psoriasis Association from 2003 to 2006, approximately 1% of psoriasis cases can be attributed to pustular psoriasis (2). This form of psoriasis primarily affects children and individuals in their thirties. While men have twice the likelihood of developing pustular psoriasis vulgaris (PV) compared to women, the condition is slightly more prevalent in women, occurring 1.2 times more frequently than in men (3). The symptoms associated with pustular psoriasis include skin manifestations like redness, pustules, and swelling, as well as systemic inflammation markers such as fever, increased white blood cell count, elevated C-reactive protein (CRP) levels, and changes in albumin levels (4). GPP can either be a recurring condition with multiple episodes or persist for an extended period. Understanding and managing GPP is crucial due to its significant impact on patients' quality of life and potential associated complications.

2. Case Description

Patient History:

A 42-year-old man was admitted to the hospital with the main complaint of experiencing scales on his hands, which eventually spread to his entire body. Initially, he sought medical advice from a physician at a private hospital who diagnosed him with anemia. Treatment was administered for this condition, but it did not yield positive results. Subsequently, he consulted a dermatologist who conducted a thorough examination of his skin. Various investigations were carried out, including a complete blood count (CBC), erythrocyte sedimentation rate, C-reactive protein, serum calcium, Albumin, and a skin biopsy. The skin biopsy

revealed the presence of multiple pustule formations in the epidermis. Based on these findings, the patient was diagnosed with Generalized Pustular Psoriasis (GPP).

Results of Physical Examination:

The nurse conducted a thorough physical examination focusing on the skin manifestations. Specifically, the nurse observed the presence of pustules, their distribution (whether localized or widespread), and the appearance of the surrounding skin (noting redness, scaling, and inflammation). A detailed assessment of the skin lesions was performed, including an examination of the pustules. The nurse carefully examined the entire body for erythematous (red) and inflamed skin patches. Areas with pustules, which could be small, sterile, and surrounded by redness, were identified. Some pustules had merged, resulting in larger affected areas. The nurse also checked for signs of skin breakdown, such as erosions, ulcerations, or crusting, which can occur due to severe inflammation and pustule formation, thus assessing skin integrity. Additionally, the nurse examined the mucous membranes, particularly focusing on the oral cavity, looking for signs of redness, ulcerations, or other indications of inflammation within the mouth. No abnormalities were found during the examination of other bodily systems. Vital signs were measured, and the patient's heart rate was 82 beats per minute, respiratory rate was 20 breaths per minute, temperature was 97.6°F (36.4°C), blood pressure was 130/90 mm Hg, and oxygen saturation was 98%.

Laboratory and Other Results:

Complete blood count showed anemia of chronic disease. The laboratory examinations showed hypoalbuminemia of 2.3 g/dl, erythrocyte sedimentation rate of 60 mm/h, C-reactive protein 6.23mg/dl and severe hypocalcemia (total calcium 3.5 mEq/dl). Other tests such as Liver enzymes, renal function and urinalysis were normal. The skin biopsy report of the patient with generalized pustular psoriasis revealed the following observations: The gross examination of the biopsy sample showed prominent erythema (redness), the presence of pustules (pus-filled blisters), and scaling. Microscopic evaluation of the sample demonstrated significant epidermal changes, including acanthosis (thickening of the epidermis) and loss of the granular cell layer. Notably, an inflammatory infiltrate consisting of neutrophils was observed in both the epidermis and dermis, which is a characteristic feature of

pustular psoriasis. Additionally, there was an indication of increased vascularity and dilation of blood vessels in the dermis. Therefore, it is crucial to identify and treat generalized pustular psoriasis at an early stage in order to enhance the patient's quality of life through timely intervention.

Primary Outcomes and Treatment Regimen

After being admitted to the hospital, the patient was prescribed acitretin at an initial dose of 50 mg per day. The response to the treatment was highly positive, following the administration of the initial dose, the progression of the disease was effectively halted, and the healing process of the lesions commenced promptly, leading to the resolution of pustules. The immunosuppressive drug methotrexate is used to slow down the growth of skin cells and decrease inflammation. Emollients are regularly used to keep the skin moisturized, preventing dryness and scaling. Pain relief is achieved through the prescription of nonsteroidal anti-inflammatory drugs (NSAIDs) medications to alleviate discomfort. Emergency resuscitative measures were promptly initiated, including the administration of blood transfusion to address chronic anemia. Significant improvement was observed within one month, leading to almost complete clearance of symptoms. Subsequently, the dosage of acitretin was lowered. All abnormal laboratory test results returned to within normal ranges. Upon observing the clinical improvement, the medical and dermatology team made the decision to commence treatment with methotrexate. Subsequently, the patient was referred for regular outpatient follow - up.

3. Discussion

Generalized pustular psoriasis (GPP) is a self-limiting condition that can be managed with topical corticosteroids and limited use of systemic steroids. In general, GPP does not lead to significant long-term complications⁶. Most patients experienced effective control of the condition through the use of topical treatments. Generalized pustular psoriasis (GPP) is a rare and severe form of psoriasis characterized by widespread, painful, and pus-filled blisters on the skin. It is considered a medical emergency due to its rapid onset and potential systemic complications⁷. GPP can affect individuals of any age, but it is more commonly observed in adults. The triggers such as infections, certain medications, or withdrawal of systemic corticosteroids. GPP is associated with abnormalities in the immune system, particularly an overactive response of T cells⁸. Clinically, GPP typically presents with sudden onset of fiery red skin with sterile pustules. The pustules may merge, resulting in large areas of redness and scaling. This condition can be associated with systemic symptoms such as fever, chills, fatigue, rapid heart rate, and muscle weakness. In severe cases, it can lead to life-threatening complications like fluid and electrolyte imbalances, bacterial infections, and organ failure⁹. The diagnosis of GPP is primarily based on clinical presentation and examination of skin lesions. The biopsy may be performed to confirm the diagnosis and rule out other conditions. Laboratory tests such as complete blood count, liver and kidney function tests, and inflammatory markers can help assess the severity of the disease and monitor systemic involvement¹⁰. Treatment of GPP aims to alleviate symptoms,

control inflammation, and prevent complications. Prompt medical intervention is crucial. Hospitalization may be required, especially in severe cases. Topical treatments, including corticosteroids and calcipotriol, can be used to manage localized symptoms¹¹. Systemic medications are often necessary and may include retinoid, methotrexate, cyclosporine, or biological agents targeting specific components of the immune system¹². Supportive care measures, such as wet compresses, emollients, and pain relief medications, can help alleviate discomfort and promote healing. In cases of severe systemic involvement, intensive care management may be needed, including intravenous fluids, electrolyte correction, and close monitoring of vital signs¹³. While treatment can effectively control GPP, it may require long-term management to prevent relapses. Regular follow-up with a dermatologist is important to monitor disease activity, adjust treatment as needed, and address any potential side effects of medications.

4. Nurses Responsibility of GPP:

The nursing management of generalized pustular psoriasis (GPP) involves providing comprehensive care and support to individuals with this condition. Here are some key aspects of nursing management for GPP.

1) Assessment and Monitoring:

- Conduct a thorough assessment of the patient's skin, noting the extent and severity of pustular lesions, redness, scaling, and signs of infection.
- Monitor vital signs, including temperature, heart rate, and blood pressure, as systemic involvement can occur in severe cases.
- Assess for any systemic symptoms such as fever, fatigue, and muscle weakness.
- Regularly monitor laboratory values, including complete blood count, liver and kidney function tests, and inflammatory markers, to evaluate disease severity and response to treatment.

2) Symptom Management:

- Provide pain relief measures, such as administering prescribed analgesics or offering non-pharmacological techniques like distraction or relaxation exercises.
- Assist with implementing wet compresses or baths to soothe the skin and alleviate itching.
- Encourage the use of emollients and moisturizers to prevent excessive dryness and scaling of the skin.
- Educate patients on proper skin care practices and the importance of avoiding triggers or irritants that may exacerbate symptoms.

3) Medication Administration:

- Administer prescribed topical medications, such as corticosteroids or calcipotriol, ensuring proper application and adherence to the treatment plan.
- Assist with the administration of systemic medications, including oral retinoids, immunosuppressants, or biologic agents, as directed by the healthcare provider.
- Educate patients about the purpose, dosage, potential side effects, and proper administration of medications.

4) Infection Control:

- Monitor for signs of secondary bacterial or fungal infections, such as increased redness, swelling, or discharge from pustules.

- Educate patients on proper hygiene practices, including gentle cleansing of the affected areas, avoiding excessive scratching or picking, and maintaining clean dressings if needed.
- Collaborate with the healthcare team to promptly initiate appropriate antibiotic or antifungal therapy if an infection is suspected or confirmed.

5) Emotional Support and Education:

- Provide emotional support and reassurance to patients who may experience anxiety, depression, or distress related to their condition.
- Educate patients and their families about the nature of GPP, its potential complications, and the importance of compliance with treatment and follow - up care.
- Promote self - care strategies, stress management techniques, and healthy lifestyle habits to enhance overall well - being ^(14, 15).

5. Conclusions

The treatment in GPP should be determined individually according to the severity of the disease, age, gender, and comorbidities, as well as according to the physician's experience with particular methods and their side effects. In addition, the availability of therapeutic options should be taken into consideration. generalized pustular psoriasis is a severe and potentially life - threatening condition. Early diagnosis and appropriate treatment are essential to control symptoms, prevent complications, and improve overall outcomes for individuals with GPP.

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