Acute Generalized Exanthematous Pustulosis (AGEP) is a rare dermatological manifestation of the adverse drug reaction that manifests for a variable duration after the receipt of certain drugs, especially antibiotics.

AGEP has a characteristic clinical presentation and rapid resolution soon after the removal of the offending drug. Special findings on histology include single-cell necrosis of keratinocytes with edema out papillary dermis accompanied by components of vasculitis and/or exocytosis of eosinophils.

Management consists of Moist antiseptic dressings, antibiotics if needed, and avoiding antibiotics as much as possible. Here, we present a case of AGEP in a setting of cutaneous lymphoma, steroids, and Ceftriaxone in a setting of cutaneous lymphoma.

A 75-year-old female with a past medical history significant for Diabetes Mellitus, hypertension, coronary artery disease, history of cutaneous lymphoma, lumbar spinal stenosis secondary to a motor vehicle accident in 2009, status post multiple spinal surgeries, bedridden under the impression of decubitus ulcer infection, was admitted to the general medical floor for fever and non-follicular pustules on an erythematous base, without mucosal involvement.

The term AGEP was first coined by Beylot et al. in 1980 when referencing drug-induced pustular eruptions with clinical and histological criteria. AGEP is diagnosed by history, clinical examination, and histology.

The typical onset time, pattern of distribution, and histology findings are important for the clinical diagnosis as well as need for treatment. The results from fresh frozen pathology revealed skin with no evidence of apoptotic keratinocytes and/or necrosis; aggregates of neutrophils mitis bacteremia. The antibiotics were switched to Meropenem and Daptomycin. Blood culture results showed Enterobacter cloacae.

The patient was tachycardic (110 bpm), the temperature later. Upon arrival at the emergency department, the patient was admitted to the general medical floor for fever and non-follicular pustules on an erythematous base, without mucosal involvement, was started on multiple medications and presented a rash a few days later. The patient also had perioral and periorbital hyperpigmented patches, multiple pink to violaceous keratotic nodules on forearms, generalized skin erythema, and dryness/scaliness. The patient was then given Vancomycin, and Morphone and obtained laboratory and imaging analysis. Initial testing was remarkable for leukocytosis (19,700 uL) with mild left shift and anemia (hemoglobin 9.3 g/dl).

The patient was admitted to the general medical floor under the impression of decubitus ulcer infection, was started on Cefepime and Metronidazole, and continued on Vancomycin. Preliminary blood culture results revealed Gram-negative bacilli. MRI of the lumbar spine demonstrated a deep sacral decubitus ulcer, without evidence of osteomyelitis. Wound care was consulted and recommended Surgery evaluation for wound debridement.

Case details continue...

The term AGEP was first coined by Beylot et al. in 1980 when referencing drug-induced pustular eruptions with clinical and histological criteria. With an approximate incidence of 1 to 5 cases per million patients every year, it is believed that many AGEP cases go unreported or incorrectly reported as drug-induced pustular psoriasis. Antibiotics like aminopenicillins, pristinamycin, sulphonamides, quinolones, hydroxychloroquine, terbinafine, and diltiazem are the most frequent causative agents. The timing of the appearance of the rash varies from 24-48 hours to 10-14 days after the medication use.

AGEP is diagnosed by history, clinical examination, and histology. AGEP presents with pustules on an erythematous edematous base and can be found initially within the folds and spreads rapidly to larger surface areas, i.e., trunk, and limbs. Pustules rapidly resolve in hours-days after removal of the offending drug. Histology may indicate single-cell necrosis of keratinocytes, edema of the papillary dermis, vasculitis, or exocytosis of eosinophils.

It is suspected in a patient who presents with fever and non-follicular pustules on an erythematous base, without mucosal involvement, within hours to days after starting a new drug. The pustules are intraepidermal and also sub/intraepidermal. Histopathological analysis reveals spongiform features, necrotic keratinocytes, papillary edema, and dermal eosinophils. There are also dermal neutrophilic infiltrate, with an absence of dilated or tortuous blood vessels. A patch test, after the lesions have cleared, is used to confirm the diagnosis.

Differentials include Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS), Stevens Johnson Syndrome (SJS), and/or toxic epidermal necrolysis (TEN). The criteria set by the EUROSCAR study (Table 1) can help in identifying and isolating cases of AGEP. The patients are classified as having definite, probable, possible, or no AGEP using this score.

AGEP can be differentiated from pustular psoriasis and SJS/TEN and DRESS by its time of onset, characteristic morphology, and histopathology (Table 2). Pustular psoriasis has a slower onset, with personal or family history of psoriasis. Histologically, the presence of eosinophils and the absence of tortuous blood vessels favors AGEP, while the presence of parakeratosis. Onset for DRESS is 2-6 weeks and an erythematous morbilliform rash that spreads from the face to the trunk, upper extremities, and lower extremities, with mucosal involvement. TEN involves full-thickness necrosis of the epidermis along with lymphocytic infiltrates at the dermo-epidermal junction. Sweet syndrome has a dermal neutrophilic infiltrate.

Withdrawing the suspected offending drug should be the first step in the management. It usually results in complete resolution. Moist antiseptic dressings can be used. Antibiotics are avoided unless there is evidence of infection. Topical steroids are sometimes recommended. For selected cases therapies like oral corticosteroids, and infliximab have proven useful.