# A RARE CASE OF CUTANEOUS ADVERSE DRUG REACTION OF AZITHROMYCIN: A CASE REPORT


## ABSTRACT:

Azithromycin, a macrolide antibiotic, an azalide derivative of erythromycin, is a Schedule H drug that can be procured from pharmacies in India only with a prescription. Despite the strict regulations, it is commonly available as an over-the-counter (OTC) medication in most pharmacies in India. A 33-year-old male had complaints of fever and sore throat, for which he self-administered tablet Azithromycin 500 mg once daily for three days. Two days after the last dose, he noticed the development of an itchy, erythematous rash. He was diagnosed with acute generalised exanthematous pustulosis (AGEP). Azithromycin was discontinued immediately, and he was treated in the ICU with corticosteroids and antihistamines. Acute Generalised Exanthematous Pustulosis (AGEP) is a rare and self-limiting Severe Cutaneous Adverse Reaction (SCAR)induced by medications. It presents with the rapid appearance of numerous non-follicular, sterile pustules on a widespread erythematous base, often accompanied by fever and neutrophilic leukocytosis.This case highlights the potential for azithromycin, a commonly used and generally well-tolerated antibiotic, to induce rare but significant cutaneous reactions such as AGEP. Clinicians should remain vigilant when prescribing antibiotics, especially in patients who present with new-onset rashes during or after therapy.



**KEYWORDS:** Acute Generalised Exanthematous Pustulosis, Azithromycin, Severe Cutaneous Adverse Reaction, Over-the-counter medication.

**WORD COUNT:**741(Excluding abstract, keywords & references)


## INTRODUCTION:

Macrolide antibiotics are frequently prescribed in clinics and hospitals for a wide range of infections. Azithromycin, a macrolide antibiotic, an azalide derivative of erythromycin, is a Schedule H drug that can be procured from pharmacies in India only with a prescription.Despite the strict regulations, it is commonly available as an over-the-counter (OTC) medication in most of pharmacies in India. It is usually prescribed in a once-daily dosage due to its long half-life of more than 50 hours[1].Common adverse reactions with azithromycin include gastrointestinal disturbances. Hypersensitivity reactions to azithromycin are relatively rare and typically mild, with an incidence of 0.4% to 3%[2].This case describes one such rare case of a hypersensitivity reaction after taking Azithromycin in an otherwise healthy adult male.

## CASE DETAILS:

A 33-year-old male had complaints of fever and sore throat, for which he self-administered tablet Azithromycin 500 mg once daily for three days. Two days after the last dose, he noticed the development of an itchy, erythematous rash, for which he visited a dermatologist.On examination, the patient had multiple grouped, pinpoint-to-pinhead-sized pustules on an erythematous base, along with skin exfoliation over the neck, chest, abdomen (Figure 1), back, axillae, groin, and extremities (Figure 2). He was hemodynamically stable and afebrile. Auscultation revealed clear lungs; abdominal examination was unremarkable with no hepatosplenomegaly. The patient denied any

prior history of drug allergies or similar reactions. No family history of drug hypersensitivity was reported.

**Figure 1**: Pustular exfoliative lesions

**Figure 2**: Exfoliative lesion over left palm

He was diagnosed withacute generalised exanthematous pustulosis (AGEP). Azithromycin was discontinued immediately. The patient was admitted to the ICU for observation and was started on prednisolone 10 mg TDS for two days, tapered gradually to once daily over the next six days. He also received levocetirizine 5 mg daily for one week, along with a moisturiser lotion applied twice daily for skin hydration. Within 48 hours of treatment initiation, significant improvement in skin lesions was observed, and complete resolution occurred within one week without residual pigmentation or scarring.

**DISCUSSION**:

Acute Generalised Exanthematous Pustulosis (AGEP) is a rare and self-limiting Severe Cutaneous Adverse Reaction (SCAR)induced by medications. It presents with the rapid appearance of numerous non-follicular, sterile pustules on a widespread erythematous base, often accompanied by fever and neutrophilic leukocytosis. Diagnosis is primarily clinical but can be supported by histopathological findings and a temporal association with drug exposure[3,4].The pathophysiology of AGEP is thought to involve Type IVd hypersensitivity, a delayed T-cell–mediated immune response. Drug-specific CD4+ and CD8+ T cells are activated and secrete interleukin-8 (IL-8), a potent chemoattractantfor neutrophils. This leads to an influx of neutrophils into the dermis and epidermis, resulting in sterile pustule formation[5,6].

AGEP is mostly associated with β-lactam antibiotics and antimalarials. Macrolides like azithromycin have been rarely implicated in SCARs. Dakdouki et al.reported a maculopapular rash in a patient with infectious mononucleosis after

azithromycin intake, emphasising the possibility of immune interactions unique to viral-bacterial-drug overlaps[7]. Schissel et al. described a delayed exanthematous reaction to azithromycinin the context of Epstein-Barr virus infection, suggesting that even a commonly prescribed drug may exhibit unpredictable immunogenicity in certain hosts[8].Although our patient had no evidence of viral co-infection, these reports reinforce the necessity of clinical suspicion even in cases without underlying immunological triggers.

Severe cutaneous reactions to azithromycin have also been documented. Trevisi et al. described a case of toxic pustuloderma appearing just 16 hours after drug administration, which bears a close resemblance to AGEP but often involves deeper dermal involvement and more prominent systemic symptoms[9].In contrast, Saito-Sasaki et al. reported a purpuric eruption following azithromycin use, highlighting a vasculitic component not typically seen in AGEP[10].These cases help contextualise our findings by demonstrating that azithromycin may provoke a spectrum of dermatological reactions, from mild exanthema to pustular or purpuric eruptions. Our case stands out due to the classic AGEP morphology, relatively late onset after 72 hours of azithromycin use, and complete resolution with corticosteroid therapy, underscoring the diversity of clinical presentations associated with this drug.

## CONCLUSION:

This case highlights the potential for azithromycin, a commonly used and generally well-tolerated antibiotic, to induce rare but significant cutaneous reactions such as AGEP. Clinicians should remain vigilant when prescribing antibiotics, especially in patients who present with new-onset rashes during or after therapy. Early recognition and timely intervention can prevent complications and hasten recovery.

## DISCLOSURE:

Written Informed consent was obtained from the patient for publication of this case report and associated images.

**CONFLICT OF INTEREST**: NIL

**FINANCIAL SUPPORT**: NIL

## REFERENCES:

1. Tripathi KD. Essentials of Medical Pharmacology. 8th ed. Jaypee Brothers Medical Publishers; 2019.

2. Shaeer KM, Chahine EB, Gupta SV, Cho JC. Macrolide allergic reactions. Pharmacy (Basel). 2019;7(3):135.

3. Pereira HP, Lopes JC, Carrapatoso I, Faria E, Todo-Bom A. Immediate-hypersensitivity reactions to macrolides: experience in an allergy department. Asia Pac Allergy. 2024;14(3):152–154.

4. Campanón-Toro MV, et al. Acute generalized exanthematous pustulosis (AGEP) induced by azithromycin. Contact Dermatitis. 2017;76(6).

5. Britschgi M, Pichler WJ. Delayed drug hypersensitivity reactions. Curr Opin Allergy Clin Immunol. 2002;2(4):301–306.

6. Feldmeyer L, Heidemeyer K, Yawalkar N. AGEP: pathogenesis, genetic background, clinical variants and therapy. Int J Mol Sci. 2016;17(8):1214.

7. Dakdouki GK, Obeid KH, Kanj SS. Azithromycin-induced rash in infectious mononucleosis. Scand J Infect Dis. 2002;34(12):939–941.

8. Schissel DJ, Singer D, David-Bajar K. Azithromycin eruption in infectious mononucleosis: a proposed mechanism. Cutis. 2000;65(3):163–166.

9. Trevisi P, Patrizi A, Neri I, Farina P. Toxic pustuloderma associated with azithromycin. Clin Exp Dermatol. 1994;19(3):280–281.

10. Saito-Sasaki N, Sawada Y. Purpuric drug eruption caused by azithromycin: a case report and literature review. Cureus. 2024;16(2).