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Acute generalized exanthematous pustulosis induced by iodinated contrast media: a case report

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Availability of data and materials: all data supporting the findings of this study are included in this case report. Additional details are available from the corresponding author upon reasonable request.

Abstract

Acute generalized exanthematous pustulosis (AGEP) is a rare pustular eruption commonly triggered by drugs. It's characterized by acute onset of pustules on erythematous-edematous skin and often presents with fever. This report describes AGEP following exposure to iodinated contrast media (ICM), specifically iobitridol, in a 68-year-old male with multiple comorbidities. The patient developed characteristic erythematous patches with pustules on the body after initial CT imaging with ICM for a prostate abscess. Histological findings and recurrence following re-exposure confirmed AGEP, which was attributed to ICM. This case emphasizes the need for awareness of ICM as a potential trigger for AGEP. Management included topical steroids and antihistamines, resulting in a rapid recovery.

Introduction

Acute generalized exanthematous pustulosis (AGEP) represents a severe and infrequent reaction pattern primarily associated with drugs, marked by the development of superficial pustules over erythematous-edematous skin, accompanied by an episode of fever, which regresses a few days after discontinuation of the trigger. AGEP is characterized by a rapid clinical progression, distinct histology, and unique morphology.[1] While the triggers are commonly linked to drug exposure, other potential triggers, including infections, spider bites, and contrast sensitivity, have been suggested. However, instances of it occurring after the administration of iodinated contrast media (ICM) are uncommon. These occurrences are typically associated with T-cell mediation. Contrast media containing iodine are administered to enhance visibility in medical imaging procedures such as X-rays and computed tomography (CT).[2] ICM-related delayed reactions are probably underreported because they are not adequately recognized. We present a case study illustrating AGEP in a patient after exposure to ICM.

Case Report

A 68-year-old male with a history of diabetes mellitus, benign prostate hyperplasia, recurrent urinary tract infections, and previous gastric lymphoma treated with radiotherapy, presented with increased sputum production and dyspnea. An abdominal CT scan with iodinated intravenous contrast (iobitridol) identified a prostate abscess. Three days post-contrast, the patient developed generalized blanchable erythematous patches with scaling over the scalp, face, trunk (Figures 1 and 2), and extremities (Figures 3 and 4), along with pustules on the abdomen. Vital signs remained stable. There was no facial or limb edema, skin sloughing, bullae, erosions, mucosal involvement, or lymphadenopathy.

Laboratory findings revealed leukocytosis without renal or liver abnormalities. A drug chart was reviewed, and the likely triggers were identified as anidulafungin and contrast media. Histopathology of a skin biopsy showed subcorneal neutrophilic pustules and papillary dermal edema with mixed inflammatory cell infiltration, supporting a diagnosis of AGEP. Treatment included topical mometasone furoate 0.1% twice daily and oral antihistamines, leading to improvement. A second IV contrast CT scan led to a rash recurrence, confirming the ICM-induced AGEP diagnosis. The primary team was advised to avoid future ICM exposure unless necessary. Symptoms resolved within five days.

Discussion

Contrast media-related AGEP is a rare phenomenon, often overlooked or misattributed due to the variable presentation and patients receiving multiple medications simultaneously, especially in those with multiple comorbidities. Medications are usually the first to be suspected, so proper recognition and management are crucial to prevent complications and ensure favorable outcomes.

O'Driscoll *et al.* describe a similar case involving an 83-year-old woman who underwent contrast abdominal CT using iopamidol for the diagnosis of abdominal pain, leading to her developing AGEP twice due to the lack of recognition of ICM as a causative agent, and a third attack despite clear allergy labeling in the patient's medical records.[3] Mizuta *et al.* describe a 56-year-old woman who experienced systemic erythematous eruptions after her first administration of iopamidol during radiologic examinations for an inferior thyroid artery aneurysm.[4] Sarre *et al.* report a 53-year-old woman who developed a pruritic skin eruption with pustular lesions following an intra-articular injection of iodixanol for knee arthrography.[5] Kim *et al.* present a case of a 27-year-old man with chronic renal failure who noticed a rash six hours after angiography with ioversol.[6] Hammerbeck *et al.* note an 84-year-old man undergoing chemotherapy for stage IV bladder cancer who developed a skin eruption following a pelvic CT scan with contrast.[7] De Groot *et al.* identify 93 drugs resulting in 259 positive patch tests among 248 patients with AGEP, with ICM accounting for 7.3% of these reactions, underscoring the association between these agents and AGEP.[8]

These cases highlight the recurrent and severe nature of AGEP linked to ICM and antibiotics, as seen in our patient. This underscores the importance of considering AGEP in the differential diagnosis of cutaneous reactions following contrast media administration, particularly given the limited literature on iobitridol-induced cutaneous responses, especially in patients with predisposing comorbidities. When patients are receiving multiple medications simultaneously, it is possible to mistakenly attribute the reaction to oral medications. In general, patch testing emerges as a valuable diagnostic tool in establishing the link between the reaction and ICM.[4,9] Clinicians should be vigilant in recognizing

and managing this potentially serious adverse event to optimize patient care and outcomes. In our case, prompt discontinuation of the offending agent and initiation of appropriate therapy with topical steroids and antihistamines led to rapid resolution of symptoms. The case report describes a rare adverse event following iobitridol administration, which has been scarcely documented in the medical literature.

Conclusions

This case illustrates a rare adverse reaction following iobitridol use, stressing the importance of recognizing AGEP as a potential ICM reaction. Prompt identification and management can optimize patient outcomes and prevent further exposure.

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Figure 1. Erythematous patches and pustules on the chest.

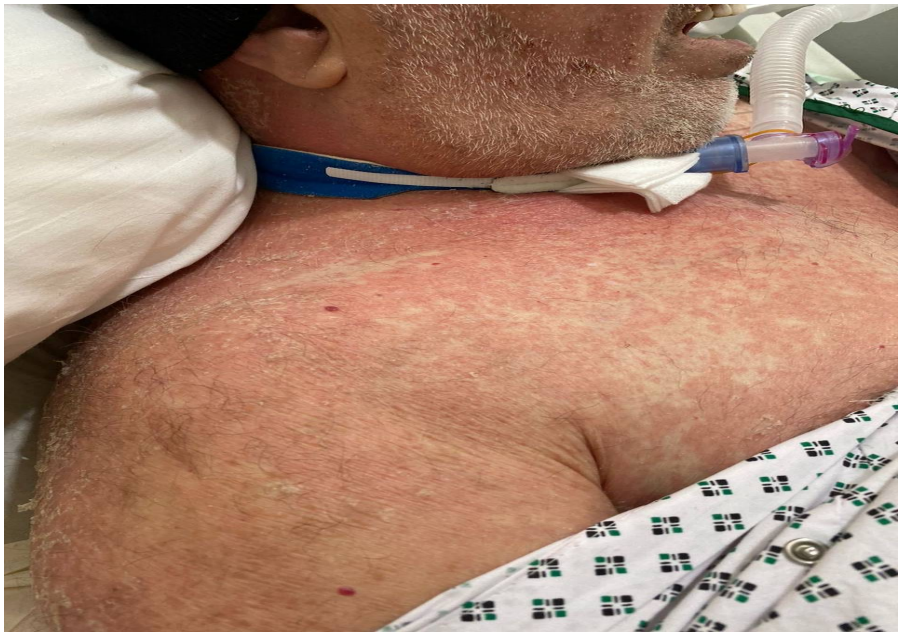

Figure 2. Extensive erythematous patches and scaling on the abdomen.

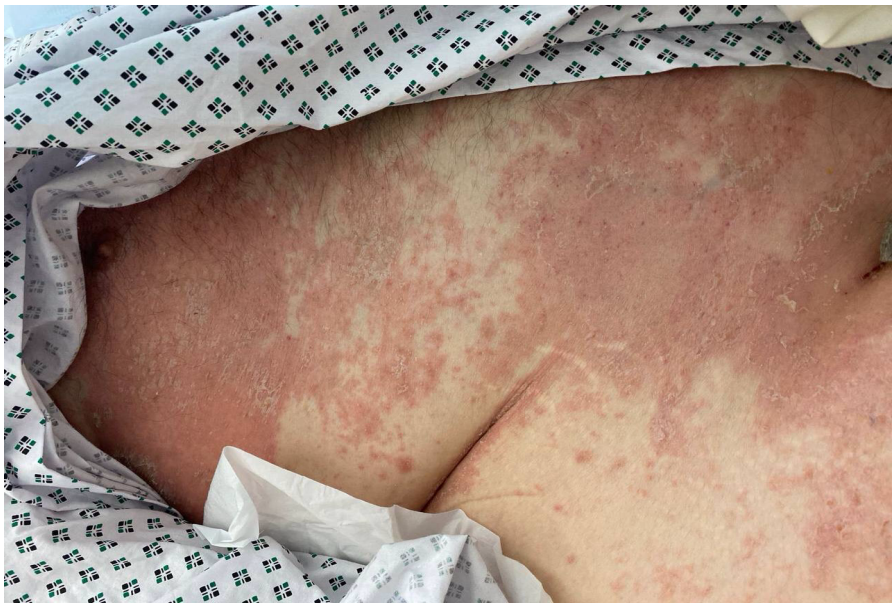

Figure 3. Red patches and scaly pustular eruption on the arm.

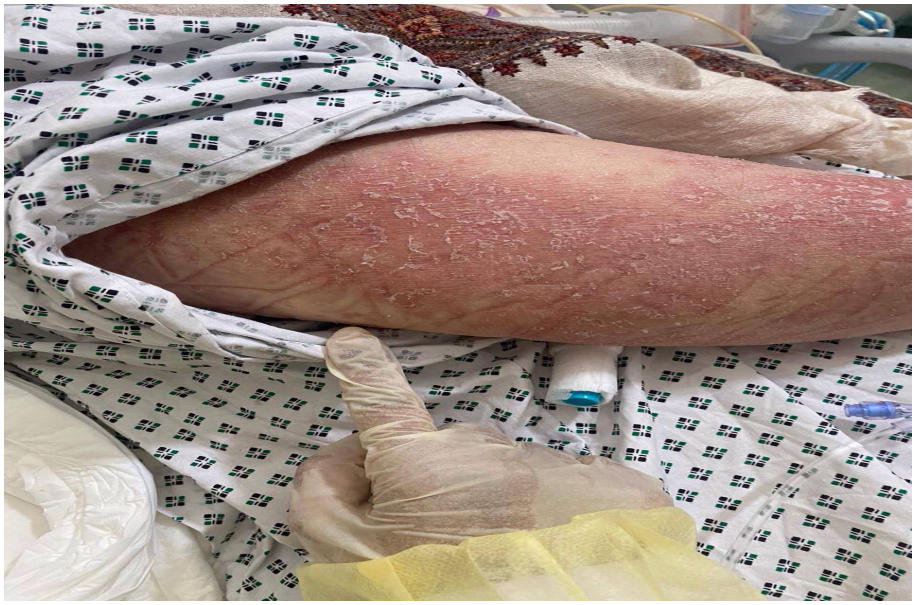

Figure 4: Erythematous scaling and pustules on the arm.