



## Generalized Bullous Fixed Drug Eruption Following Metamizole (Re-)Exposure: A Medical Error-analytic Case Study

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As the Institute of Medicine's report "To err is human" showed (1), learning from errors is of utmost importance to prevent their recurrence. For this purpose, error-reporting systems have been used in aviation for many years with the positive effect of reducing pilot errors (2). Patient safety in medicine may benefit from similar error-analytic case studies (3).

We report here a case of generalized bullous fixed drug eruption (GBFDE) in a 68-year-old man following repeated (re-)exposure to metamizole due to a sequence of clinical errors.

### CASE REPORT

The patient was treated as an emergency in a department of surgery for acute occlusion of the left femoral artery by arterial thrombectomy. Despite a history of allergy to metamizole and penicillin documented on the patient's admission form, he received analgesia with metamizole and perioperative antibiotics with amoxicillin. When he developed generalized exanthema, a fixed drug eruption was diagnosed by a consulting dermatologist. In the referring letter to his general practitioner (GP), the drug reaction and the known allergy to metamizole and penicillin were mentioned, and an allergological work-up was recommended. No allergy passport was issued, and no subsequent action was taken by the GP.

Four years later, the patient was re-admitted to the emergency department of the same hospital, with severe abdominal pain, fever, malaise and diarrhoea, under suspicion of acute cholangitis. In his admission papers, only allergy to penicillin was documented. Due to the patient's serious condition, he could not be interviewed, but his wife informed the attending nurses about his allergies. Nevertheless, the patient was treated with metamizole, butylscopolamin, ciprofloxacin, and metronidazole for 2 days. On the second day, he developed a generalized erythematous eruption that was diagnosed and treated as "sunburn" by the treating gastroenterologists since the patient had been in the sun for a prolonged time before admission. The lesions spread and turned bullous, and the patient was transferred to the Department of Dermatology with a diagnosis of toxic epidermal necrolysis. On the basis of history, clinical findings and the results of a biopsy a final diagnosis of GBFDE was made by the Documentation Center for Severe Skin Reactions. Following systemic therapy with glucocorticosteroids and

topical antiseptic treatment, the patient recovered with only minor scarring and pigmentary changes.

### DISCUSSION

GBFDE is characterized by acute skin lesions, presenting with either generalized oval, egg-sized, brownish-violaceous macules or patches and subsequent blisters, which are clearly demarcated from healthy skin, or with diffuse erythema subsequently showing flaccid blisters (4). Mucous membranes are rarely involved. However, recurrences may lead to more widespread skin detachment and therefore to a more severe disease course (4).

The occurrence of medical errors in complex organizations is explained by Reason's system model (5). Several barrier layers may prevent errors, but holes may remain. When several holes (as in a "Swiss cheese") coincide, the barriers are ineffective and an error occurs. The causes of barrier breakdown are active errors by caregivers and latent conditions (errors of and in the organization), which increase the probability of errors of the responsible persons. Damage is therefore the result of a complex interaction of different causes.

In the present case, the serious cutaneous drug reaction was probably due to the administration of metamizole, with the following error-chain: (i) despite a known allergy to metamizole and penicillin, the patient had been treated with both drugs at the Department of Surgery, leading to a fixed drug eruption; (ii) the recommendation for an allergological work-up was disregarded by the GP; (iii) no allergy passport was issued, and no alternative medication was recommended. An allergy passport is an essential safety measure, especially in case of emergency medical treatment, in order to avoid the re-administration of suspected allergens. (iv) On re-admission to the emergency department, an incomplete allergy history was taken, and the information provided by the patient's wife's was disregarded, leading to renewed exposure to metamizole. (v) When the patient developed a rash, this was not fully investigated, but was treated under a false diagnosis. Discontinuation of the causal agent and appropriate treatment were thus delayed.

Considering the significant mortality of 22% in elderly patients with extensive GBFDE (6), avoidance of unintentional re-exposure to suspected drugs must be assured by a functioning clinical safety culture (7) to which error-analytic studies may contribute significantly.

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