



Levofloxacin Induced Erythema Multiforme

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ABSTRACT

Drug-induced skin reactions are common, with rates of reaction to several widely prescribed medications exceeding 1%. In this case study, a 49-year-old male who was admitted had previously experienced reddish violet lesions on his torso, both hands, and feet following levofloxacin use. Erythema Multiforme has only sometimes been linked to piroxicam, and there are no reports linking levofloxacin to the condition, despite the fact that Erythema Multiforme is extremely prevalent with trimethoprim-sulfamethoxazole and there are some reports of Erythema Multiforme developing after taking ciprofloxacin. This case report provides a thorough analysis of a patient who experienced erythema multiforme after receiving levofloxacin treatment. This research highlights the significance of careful monitoring and proactive management of levofloxacin-induced erythema multiforme to guarantee the best possible patient care by examining the clinical course, putative causes, and management techniques used.

Keywords: Erythema multiforme (EM), Levofloxacin, drug reaction.

INTRODUCTION

The symptoms of Erythema Multiforme (EM) include a skin eruption and symmetric erythematous, edematous, or bullous lesions of the skin or mucous membranes^{1,2}. EM is an acute mucocutaneous inflammatory and hypersensitive reaction. While more than half of the instances have an unknown aetiology, the other half are due to diseases, drugs, infections, or immunotherapy.²⁻⁴ The culprit medications include anticonvulsants (carbamazepine, phenytoin, phenylbutazone, phenothiazine-like drugs, barbiturates), allopurinol, nonsteroidal anti-inflammatory drugs (NSAIDs), oral antidiabetics (sulfonamides, chlorpropamide, tolbutamide), codeine, furosemide, gold, and protease inhibitors. Levofloxacin is rarely the cause of EM, despite the fact that it occurs rather frequently after the injection of trimethoprim-sulfamethoxazole².

Case Description

A 49-year-old male was prescribed with tablet levofloxacin 500mg bd and next day patient visited the hospital with a history of reddish violet lesions on his torso, both hands, and feet which started increasing on second day, hence patient was hospitalised for further management. Additionally, the patient had a history of less severe but similar numerous instances of drug allergy after taking nimisulide, as well as an itchy rash after taking phenytoin, acetazolamide, and multivitamin tablets. Vital signs during a physical examination were found to be normal. On local cutaneous examination, the patient was found to have several target lesions, the centre of which was dusky with a mild pallor and was surrounded by erythema on the upper and lower extremities, back, and chest.

On the day of admission, the patient was examined and started on intravenous Normal saline, tablet prednisolone, injection dexamethasone, tab ranitidine, and levocetirizine

for five days and lab tests revealed hyponatremia, a normal blood cell count, higher liver enzyme levels, increased total (direct & indirect) bilirubin levels, and a negative urine culture, increased PT and APTT levels and a low WBC count. After a 2-week follow-up, patient was examined and found to have no new lesions, but was still experiencing pedal edoema along with discomfort and pain in both hands and feet.

DISCUSSION

EM is a form of hypersensitive reaction that can be brought on by a number of irritants, most frequently by a medication or an infectious agent¹. Erythema multiforme can be brought on by NSAIDs and antibiotics^{1, 2}. Drugs, viruses, and bacteria can also induce EM¹, which has been categorised based on the form and spread of the skin lesions as well as the degree of mucosal involvement². Thus, EM minor, the most prevalent form, primarily affects a single mucosa and may be accompanied with symmetrical target lesions on the extremities². The skin involvement in EM major is more variable and often involves two or more mucous membranes². This characteristic is utilised to set it apart from Stevens-Johnson syndrome, which has a death incidence of 5% to 15%, widespread skin involvement, and severe morbidity³. Although men are more likely to get EM, both sexes are equally likely to experience drug-related EM⁴. The genetic component of EM exists. Specific HLA types, including HLA-DQ3, HLA-B15 (B62), HLA-B35, HLA-A33, HLA-DR53, and HLA-DQB1*0301^{2,3,5}, are associated with it. Patients with the HLA allele DQB1*402 may occasionally have extensive mucosal involvement⁵.

Trimethoprim-sulfamethoxazole may produce Stevens-Johnson syndrome, the more localised type, often known as EM⁴. Levofloxacin use may cause EM was previously noted in our patient. Skin biopsy may be required in



addition to the normal clinical method of diagnosis ¹. Skin testing or oral drug challenge tests are required because a skin biopsy is insufficient to determine whether or not EM is drug-induced ¹. EM lesions often manifest within 72 hours and have definite sites ¹. In our case, EM appeared 24 to 48 hours after the oral challenge with levofloxacin, and a biopsy could not determine the nature of the lesions. Although there are accounts of EM developing following

usage of ciprofloxacin ⁸, our patient's healing levofloxacin-induced EM lesions worsened after the oral challenge with levofloxacin⁸. In severe cases, fibrinoid necrosis can develop in the stomach, trachea, and bronchi ². Levofloxacin should be considered as a potential cause of drug-induced EM in addition to trimethoprim-sulfamethoxazole, piroxicam, and others⁷.



Figure 1 & 2: Erythema multiform lesions on palm and sole of feet



Figure 3: Erythema multiform lesions on both palms

In this case, the patient developed an adverse reaction within one day following administration of levofloxacin. Naranjo's algorithm was used to determine a plausible reaction due to levofloxacin. The following criteria were considered:

Naranjo's algorithm for causality assessment	Yes	No	Unknown
The adverse event appeared after levofloxacin was administered	2	-1	0
Adverse event improved when levofloxacin was discontinued	1	0	0
Adverse event reappeared when levofloxacin was re-administered	2	-1	0
Alternate causes that could solely have caused the reaction	-1	2	0
The adverse event confirmed by objective evidence.	1	0	0
The patient had a similar reaction to the same or similar drugs in any previous exposure	1	0	0

Based on the total score of 6, this erythema multiforme was categorized as 'probable' reaction to levofloxacin administration.

The Naranjo's algorithm for causality assessment indicated that it was "probable" with tablet levofloxacin. However, de-challenging the suspected medication showed improvement in the patient's condition, and the drug levels were also unknown as required for Naranjo's algorithm. In this case the reaction appeared after intake of the suspected drug, there is no other drug or disease to rule out the condition, and rechallenging was not performed. Before administering the causative medicine to this patient, it was crucial to establish a history of allergy as well because it was overlooked in this case.

CONCLUSION

The basis for the management of erythema multiforme is the prompt identification and withdrawal of the offending drug(s), early diagnosis, assessment of the severity and prognosis of disease, and rapid initiation of supportive care in an appropriate setting.

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