



# Unexpected patch test complication: onset of erythema multiforme-like lesions

*Complicação inesperada após teste de contato:  
aparecimento de lesões eritema multiforme-símile*

Amanda Bertazzoli Diogo<sup>1</sup>, Mario Cezar Pires<sup>1</sup>, Flavia Rodrigues Dias<sup>1</sup>, Maira Bortoncello<sup>1</sup>,  
Renata Marli Pires<sup>2</sup>, Maria Elisa Bertocco Andrade<sup>1</sup>

## ABSTRACT

Erythema multiforme is generally associated with infections and drugs. Although less common, there are also reported cases of this disorder after patch testing. We described a 22 year-old female patient who, 24 hours after patch testing, progressed to erythematous iris-shaped plaques and papules with central crust, symmetrically distributed over her hands, arms, and back, with severe itch. The erythema multiforme-like lesions presented in the case were interpreted as a manifestation of systemic allergic contact dermatitis secondary to the exam. Allergic contact dermatitis may be manifested as an erythema multiforme in a hypersensitive person. Few cases of systemic allergic contact dermatitis after patch testing have been reported, for example, due to diethyl thiourea, some textile disperse dyes, and povidone-iodine. The development of erythema multiforme is not noted in most literature references as a complication after patch testing. Although unusual, this disorder needs to be considered as a potential adverse effect of this exam.

**Keywords:** Erythema multiforme, patch tests, nickel.

## Introduction

Erythema multiforme is generally associated with infections and drugs.<sup>1</sup> Although less common, there are also reported cases of this disorder after patch testing. We reported a female patient who developed a patch test reaction with an unexpected complication that is not described as an adverse effect in major textbooks.<sup>2</sup>

## RESUMO

O eritema multiforme está associado comumente a infecções e medicamentos. Embora menos comum, também há casos relatados dessa doença após aplicação do teste de contato. Descrevemos uma paciente de 22 anos que evoluiu, em 24 horas após o teste, com placas e pápulas eritematosas, em formato de íris e crosta central, distribuídas simetricamente nas mãos, braços e costas, além de prurido intenso. As lesões eritema multiforme-símile presentes no caso foram interpretadas como uma manifestação alérgica secundária ao exame. Dermatite de contato alérgica pode se manifestar como um eritema multiforme em pessoas hipersensíveis. Poucos casos de dermatite alérgica de contato sistêmica foram relatados após este exame, por exemplo, devido às seguintes substâncias: dietil tiourea, corantes dispersos têxteis e iodopovidona. O desenvolvimento do eritema multiforme não é usualmente apontado como uma complicação do teste de contato alérgico, na maioria das referências literárias. Embora incomum, o surgimento dessa desordem após este exame necessita ser considerado como um efeito adverso.

**Descritores:** Eritema multiforme, testes do emplastro, níquel.

## Case reported

A 22 year-old female patient presented to the Dermatology Department to perform patch testing because she reported sensitization after wearing ear piercing, jewels, and metals. Before the testing, questions were asked about her medical and professional history. She did not work and had a mild atopic dermatitis without treatment. The patient had

1. Complexo Hospitalar Padre Bento de Guarulhos, Departamento de Dermatologia - Disciplina de Alergia e Imunologia - Guarulhos, SP, Brazil.

2. Hospital das Clínicas, Instituto de Pediatria - São Paulo, SP, Brazil.

Submitted: 3/17/2020, accepted: 5/19/2020.

Arq Asma Alerg Imunol. 2020;4(2):213-5.

no lesions on her skin prior to the test and she was not using oral or topical drugs. We performed patch testing with Brazilian standard series (Immunotech Company™), following our protocol. After 24 hours, erythematous iris-shaped plaques and papules appeared, which were symmetrically distributed over her hands, arms, and back, with severe itch. At D2 (48 hours), these lesions progressed with central crust (Figure 1). D4 (96 hours) showed strong positivity (+++) to nickel sulfate and neomycin sulfate (Figure 2). Anatomopathological exam from a target lesion showed necrotic keratinocytes and spongiotic dermatitis with lymphocytic and eosinophilic dermal infiltrate. Oral prednisone 40 mg daily was initiated, with progressive dose regression, leading to clinical improvement.

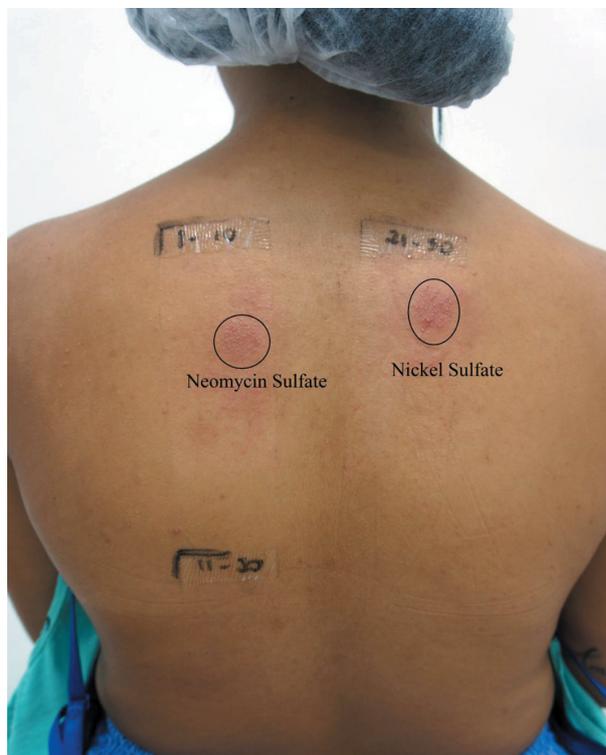
## Discussion

Erythema multiforme is characterized by symmetrically distributed lesions with acral predominance and concentric aspect, as described in the case reported. Possible causes are virus, bacteria, fungus, medications and chemicals.<sup>1</sup> The patient reported did not present a previous history of infection, besides denying the use of drugs during the weeks before patch testing.

Several topical allergens can cause erythema multiforme. Examples include corticosteroids, imiquimod, rubber, nickel sulfate, herbicides, paraphenylenediamine.<sup>2</sup> Our patient did not use these substances prior to the test.



**Figure 1**  
Iris-shaped lesions on both upper extremities that appeared 24 hours after patch test was performed



**Figure 2**  
Patch testing applied on the back showing positivity for neomycin sulfate (substance number 8) and nickel sulfate (substance number 27)

Few cases of systemic allergic contact dermatitis after patch testing have been reported, for example, due to diethyl thiourea and some textile disperse dyes,<sup>3</sup> but not after testing with nickel and neomycin sulfates. Additionally, it is not noted as a complication in the chapter on patch testing in the latest edition of the book entitled *Contact Dermatitis*.<sup>4</sup>

Allergic contact dermatitis may be manifested as erythema multiforme in a hypersensitive person.<sup>3</sup> This condition seems to be rare, but was described due to povidone-iodine.<sup>5</sup>

The characteristic target lesion has three distinct zones: a purpuric central zone (with or without vesicle), an intermediate edematous halo, and an external, erythematous<sup>2</sup>. The patient had typical target lesions, that usually appear symmetrically at the distal extremities and progress proximally,<sup>1</sup> as in the patient reported.

Our patient progressed to erythema multiforme-like lesions after a positive patch test to nickel and neomycin sulfate. The lesions presented in the case were interpreted as a manifestation of systemic allergic contact dermatitis secondary to the exam.

This complication is described as rare, with few cases reported.<sup>3,5</sup>

The low concentration of the patch test substances was enough to trigger generalized lesions in some patients.<sup>3</sup>

Although unusual, erythema multiforme after positive patch testing needs to be considered as a potential adverse effect of this exam.<sup>3</sup>

## References

1. Manjunatha, BS. Drug Induced Erythema multiforme: two case series with review of literature. *J Clin Diagn Res.* 2014;8(9):ZH01-ZH04.
2. Jappe V, Hausen BM, Petzoldt D. Erythema-multiforme-like eruption and despigmentation following allergic contact dermatitis from a paint-on henna tattoo, due to para-phenylenediamine contact hypersensitivity. *Contact Dermatitis.* 2001;45:249-50.

3. Bruze M, Eriksson T, Isaksson M, Tegner Y. Unexpected patch test complication in a professional ice hockey player. *Occup Med Health Aff.* 2016;4:229.
4. Lindberg M, Matura M. Patch Testing. In: Johansen JD, Frosch PJ, Lepoittevin JP, eds. *Contact Dermatitis*, 5th ed. Berlin: Springer-Verlag; 2011. p. 439-64.
5. Torinuki W. Generalized erythema-multiforme-like eruption following allergic contact dermatitis. *Contact Dermatitis.* 1990;23:202-3.

No conflicts of interest declared concerning the publication of this article.

Corresponding author:  
Maira Bortoncello  
E-mail: bortoncello.m@gmail.com