

POLYHEXAMETHYLENEBIGUANIDE HYDROCHLORIDE EXPOSURE AND ERYTHEMA MULTIFORME IN A PHYSICIAN

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Abstract

A 52-year-old woman physician developed recurrent erythema multiforme. Occupational and environmental exposure assessment suggested a disinfectant containing polyhexamethylenebiguanide hydrochloride (PHMB), Phagosept®. Elimination of the product was followed by disappearance of symptomatology. Literature search revealed cases of sensitization and anaphylaxis due to contact with PHMB, but to our knowledge, this is the first report on PHMB-induced erythema multiforme.

Key words:

Erythema multiforme, Occupational exposure, Polyhexamethylenebiguanide hydrochloride

CASE REPORT

A 52-year-old woman reported sick with recurrent widespread eruption, fever, tiredness, cough and joint aches. Physical examination showed erythematous-edematous papules with target-like lesions. Mucous membrane erosions were absent.

A skin biopsy with histological examination revealed perivascular lympho-histiocytic dermal infiltration, consistent with erythema multiforme (EM). Direct immunofluorescence results were negative.

Treatment with corticosteroids was followed by disappearance of symptoms. No infectious, immune or medicinal etiology for EM was observed.

The patient was a physician. An assessment of several episodes of the disease over more than one year demonstrated that symptoms routinely occurred only few days after

her weekend hospital duty. On this occasion, she worked in other wards than that she worked in on weekdays. All potential occupational exposures on weekdays and during the weekend, including medications, equipment, gloves or disinfectants used were compared. A disinfectant, Phagosept®, was suspected because it was the only product used exclusively in the wards she worked in during the weekend. Among different compounds of this product, we focused on biguanide (polyhexamethylenebiguanide hydrochloride (PHMB), CAS n° 32289-58-0), because the other compounds (didecyl dimethyl ammonium hydrochloride and isopropanol) were usually present throughout the hospital environment.

Due to the presence of systemic reactions, the patient refused any patch testing or specific exposure testing. Phagosept® was removed from all the departments where this

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physician worked on the weekend duty. One year after her work continued in the same wards and elimination of the disinfectant, the physician was still asymptomatic.

COMMENTS

An initial literature review was not useful for identifying a specific chemical that could be responsible for the observed symptoms. We chose an exposure assessment approach, which indicated the Phagosept ® disinfectant. The coincidence of the symptoms with use of Phagosept ® in the work environment and their disappearance after removal of the product from the hospital wards confirmed the origin of EM. Patch tests are not used in exploration of EM. Furthermore, several cases of symptoms exacerbation with patch testing have been reported [1,2]. Moreover, allergic *in vitro* tests were not applicable to clinical diagnosis, and *in vivo* tests were not accepted by the patient.

Erythema multiforme induced by occupational exposure is rare. Cases related with exposure to insecticides (methyl parathion, pyrethre, dimethoate), tropical wood (rosewood) and plants (primula, poison ivy, weeds), metals (cobalt, nickel, mercury), epoxy resins, cutting oil, rubber or chemicals (hair dyes, bromofluorene, trichloroethylene,

Amphosept ® disinfectant [2], epichlorohydrin and formaldehyde) have been reported. Occupational EM often occurs in association with allergic contact dermatitis and type III or type IV hypersensitivity mechanism has been suggested.

The toxicity of PHMB could result from possible, but rare sensitization [3]. Two cases of severe anaphylaxis generated by a disinfectant (Lavasept ®) which contained PHMB were reported [4]. To our knowledge, this is the first report on PHMB-induced erythema multiforme.

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