

An intriguing occupational atypical dermatitis with respiratory symptoms

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Methylisothiazolinone (MI), alone or in association with methylchloroisothiazolinone (MCI), is widely used as a preservative in cosmetic and occupational products, and is currently inducing an outbreak of sensitization throughout Europe (1). In the 2000s, MI as stand-alone preservative was introduced in industrial water-based products. Since 2005, several cases of occupational dermatitis caused by MI and MCI/MI have been described, including airborne contact dermatitis among painters (2). Only rarely have related respiratory disorders been described (3). In this case, combined dermatological and respiratory problems were seen, mimicking atopic disease, following airborne occupational exposure to a facade render containing MI and MCI/MI.

Case Report

In June 2015, a 26-year-old man complained of persistent dry cough and rhinitis despite having received antihistamine treatment and a fixed-dose combination of corticosteroid and inhaled β_2 -agonists. A few days following these first symptoms, an eczematous eruption had appeared, located on his face, his eyelids, his chest, the nape of his neck, and the folds of his elbows (Fig. 1; written consent obtained). He was first examined by a specialist in pulmonary medicine, and was then referred to our dermatology department for suspected atopic eczema.

He had no history of any previous respiratory disease (asthma) or atopic dermatitis.

When symptoms appeared, he had been working for 2 years as site foreman in a construction company specializing in renovation work, during which solvent-free water-based paints and pulverized indoor facade renders were commonly applied. He did not directly manipulate them, but was daily present on the site where they were used.

Lung function tests were performed with normal spirometry and a 19% decline in forced expiratory volume in 1 second after stimulation by methacholine test.

Patch tests were performed with the European baseline series, preservatives series, and occupational products. Positive test results are shown in Table 1. Prick tests were also carried out with aqueous solutions of patch test preparations of MI (2000 ppm aq.) and MCI/MI (200 ppm aq.), and gave negative results with normally reactive skin (positive histamine control prick test, 7 mm/negative saline control prick test, 0 mm).

A slight improvement of clinical lesions after corticosteroid application was observed, and complete abolition of respiratory symptoms (with a normal methacholine test result) and dermatological lesions was obtained 2 weeks after the patient resigned from his job and definitively left the workplace.

Discussion

In the above case, combined dermatological and respiratory problems mimicked atopic disease following airborne occupational exposure to the biocides MI and MCI/MI.

The main sources of occupational airborne contact dermatitis caused by MI are water-based paints with high levels of MI, which is not yet subject to regulation (2). In our case, the patient was exposed to airborne MI from the paint, but also from pulverized indoor facade renders in

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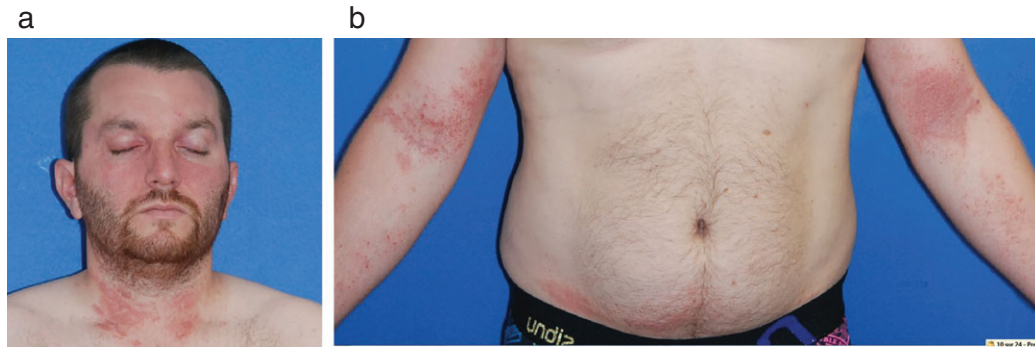


Fig. 1. An intriguing occupational atypical dermatitis. (a) Face and (b) body.

Table 1. Results of patch tests

Positive patch test results	Results (48 h)	Results (72 h)
MI (2000 ppm aq.)	++	+++
MCI/MI (200 ppm aq.)	++	+++
Water-based paint*		
10% aq.	–	–
'as is'	+	++
Indoor facade render*		
10% aq.	–	–
'as is'	++	+++

MCI, methylchloroisothiazolinone; MI, methylisothiazolinone.

*Used in the construction site and containing MI and MCI/MI.

aqueous phase spread with a spray gun. This is another source of occupational exposure, and has not previously

been described. The patient had positive patch test reactions to both MI, MCI/MI, and the two products used in the workplace.

The related respiratory symptoms with negative prick test results with MI and MCI/MI (carried out for the first time, to our knowledge) were probably attributable to irritation, as suggested by experiments conducted in mice (4).

This case shows the need for European guidelines concerning occupational exposure to MI. Harmonized classification and labelling for MI is currently being discussed in the EU, but no decision has been made. An acceptable limit value for safety of workers for MI also needs to be established (5).

References

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