

Occupational allergic contact dermatitis caused by isothiazolinones in ultrasound gel: 2 cases

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Adverse reactions to ecographic gels, mainly allergic contact dermatitis or contact urticaria, have been described in patients who undergo ultrasound procedures (1, 2). This report describes 2 cases of occupational allergic contact dermatitis (OACD) in 2 obstetrical sonographers.

Case Report

Two female non-atopic gynaecologists developed chronic eczema localized on the volar surfaces of their right wrists (Fig. 1); both, who were expert sonographers employed in the same obstetrical ecography unit, reported worsening of the lesions after their working activities and improvement during the weekend. Patch tests with the SIDAPA (Italian Society of Allergological, Occupational and Environmental Dermatology) baseline series (Lofarma, Milano, Italy) and the ecographic gel (Gel G006 FIAB®) tested 'as is' were performed. Patch test chambers (Van der Bend, Brielle, The Netherlands) were applied in occlusion on the patients' back for

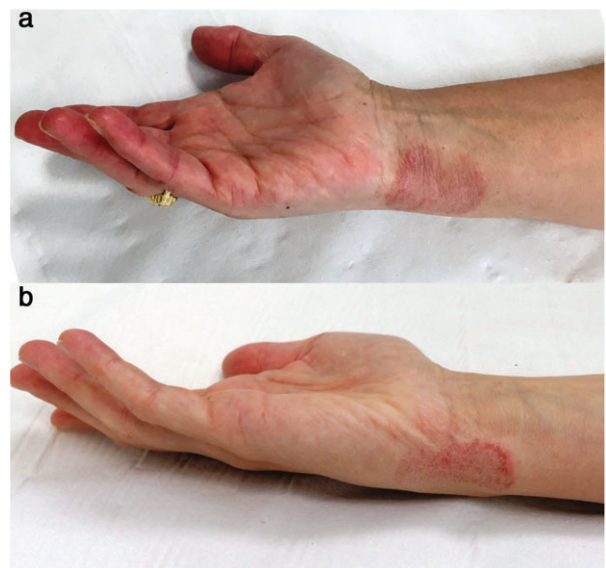


Fig. 1. Eczema of the volar surfaces of wrists of patient 1 (a) and 2 (b).

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2 days. Readings were performed on day (D) 2 and D4, according to the ESCD guidelines. Both patients showed positive reactions to methylchloroisothiazolinone (MCI)/methylisothiazolinone (MI) 0.01% (+/++) and no

reactions to the gel. Further patch tests were carried out with MCI 0.015% aq. (kindly supplied by M. Isaksson, Department of Occupational and Environmental Dermatology, Lund University, Skåne University Hospital, Malmö, Sweden) and MI 0.2% aq. Patient 1 showed a positive reaction only to MCI 0.015% aq. (–/++), whereas patient 2 showed strong positive reactions to both MCI 0.015% aq. (++/+++) and MI 0.2% aq. (+/+++).

The technical data sheet of the gel indicated the presence of MCI and MI. Chemical analysis of the gel was performed: high-performance liquid chromatography showed concentrations of 3.5 ppm for MCI and 0.7 ppm for MI. Ceasing the use of Gel G006 FIAB® and replacing it with an alternative isothiazolinone-free ecographic gel led to complete healing of dermatitis in both patients.

Discussion

Ultrasound gels, although frequently labelled as 'hypoallergenic', are possible sources of sensitization. The literature reports cases of contact dermatitis caused by various allergens in ultrasound gels (propylene glycol,

Euxyl® K 400, methyldibromo glutaronitrile, parabens, imidazolidinyl urea, phenoxyethanol, triethanolamine, and isothiazolinones) (1, 2). Contact dermatitis has mostly been described in patients undergoing diagnostic procedures. Only 2 previous cases of OACD caused by isothiazolinones in medical professionals have been reported (3, 4). Isothiazolinones are preservatives that are widely used in cosmetics, wet wipes, household products, and paints (5). In 2015, EU legislation banned the use of MCI/MI in 'leave-on' products, and the European Scientific Committee on Consumer Safety concluded that there is no safe level of MI for 'leave-on' products. Currently, there is no equivalent legal requirement for non-cosmetic products (6).

Although low levels of isothiazolinones were found in the analysed gel, friction, previous skin irritation and prolonged contact resulting from repeated occupational exposure may result in higher percutaneous absorption and elicitation of OACD (7, 8). For this reason, healthcare professionals may be at risk of developing OACD caused by gels and medical devices containing both MI and the more potent allergen MCI.

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