


A case of allergic contact dermatitis to dental bonding materials, masked by the use of gloves

Claudio Conforti¹ | Roberta Giuffrida² | Ludovica Toffoli¹ | Paolo Romita³ 
Federico Berton⁴ | Iris Zalaudek¹ | Nicola di Meo¹

¹Dermatology Clinic, Maggiore Hospital, University of Trieste, Trieste, Italy

²Department of Clinical and Experimental Medicine, Dermatology, University of Messina, Messina, Italy

³Department of Biomedical Science and Human Oncology, University of Bari, Bari, Italy

⁴Department of Medical, Surgical and Health Sciences, University of Trieste, Trieste, Italy

Correspondence

Paolo Romita, MD, Department of Biomedical Science and Human Oncology, University of Bari, Italy, Piazza Giulio Cesare, 11 – Bari, 70124, Italy.
Email: romitapaolo@gmail.com

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CASE REPORT

A 27-year-old man presented with eczema on the volar aspect of his left hand, associated with itching and burning (Figure 1A). The skin lesion had developed 1 week earlier, with itching and scaling. Questions about occupational exposure revealed previous contact with snakes and fish, but no history of allergic diseases nor previous skin symptoms. The patient suffered from epilepsy and had been treated with valproate and lamotrigine from the age 6 years, but was otherwise healthy. Suspecting an infectious disease caused by snakes or fish, a punch biopsy and deep swab were performed. The

histopathological examination showed epidermal necrolysis with eosinophils and T-lymphocyte infiltration, neutrophilic spongiosis, pustules formation, and impetiginization. According to these findings, the pathologist suspected an adverse drug reaction or insect/arthropod bites. The lesion healed with topical betamethasone and fusidic acid twice daily for 2 weeks; however, in the following months the patient consulted twice more for recurrence of the same skin lesion on the left hand (Figure 1A).

As the recurrences always reappeared in the same site, and in view of a history of taking antiepileptic drugs, a fixed drug eruption was suspected. However, when further investigated, the patient



FIGURE 1 (A) First consultation: Well circumscribed erythema of the left hand with central erosions. (B) Second consultation: Tense blister located in the left hand with minimal erythema

reported that he had worn dentures for years and that he used to apply a dental fixation agent over his left hand and then use it in the oral cavity. As he used latex gloves during this procedure, he did not consider this to be unsafe. Of note, the dental fixation product contained 10-methacryloyloxydecyl dihydrogen phosphate (MDP; CAS no. 85590-00-7), 2-hydroxyethyl methacrylate (2-HEMA), and dimethacrylate monomer.

Patch testing was carried out with Haye's test chambers (Haye's Service, Alphen aan den Rijn, The Netherlands) on Soffix tape (Artsana, Grandate, Italy) and readings were performed on day (D)2, D4, and D7.¹ On D4, strong (++) positive reactions to 2-HEMA and to the dental bonding agent 1% pet. were observed. Patch testing with the same bonding agent in 20 healthy subjects was negative. In a second round, methyl methacrylate 2% pet., 2-hydroxypropyl methacrylate 2% pet., and ethylene glycol dimethacrylate 2% pet. were patch tested, with strong (++) positive reactions on D4 to the latter.

DISCUSSION

Acrylates and (meth)acrylates are well-known contact sensitizers, both in non-occupational and occupational settings (e.g. orthopaedics, dentists, nail artists) and, recently, affecting the younger population.²⁻⁶ Adverse reactions to dental materials are not an uncommon occurrence, although hypersensitivity has gained renewed interest in light of public concerns over the safety of dental materials. Acrylates in dental bonding agents are a common source of allergic contact dermatitis, mainly in occupational settings such as for dental professionals.⁷ The distribution of the skin lesions is typically on the fingertips that are used to manipulate dental bonding material, but it can be caused by individual habits, as demonstrated by our case. Despite the anatomical site of contact dermatitis, the bonding agents are often not suspected as a source of contact allergy because of the misconception regarding the protective effect of gloves. However, different studies have demonstrated the inadequacy of natural rubber latex and nitrile gloves in protecting against acrylate induced contact allergy.^{8,9} We suggest that the information about the contents of sensitizing acrylates in denture fixation products should be highlighted to create awareness of the presence of these compounds. These products should also display a mandatory a hazard statement, in accordance

with the Globally Harmonized System/Classification, Labelling and Packaging regulations.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

ORCID

Paolo Romita  <https://orcid.org/0000-0002-5559-9722>

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