

How should we advise patients with allergic contact dermatitis caused by (meth-)acrylates about future dental work?

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Although acrylic monomers are strong skin sensitizers (1), their corresponding fully cured polymers are considered to be inert.

Until recent years, allergic contact dermatitis caused by acrylates, the term comprising, in the following, also methacrylates, was primarily an occupational disease among dentists, printers, and fiberglass workers (2). In our practice, there has been a steady increase in the frequency of acrylate allergy in consumers and nail technicians (3) secondary to the increasing popularity of artificial nails and nail varnishes, and we find it challenging how best to advise patients with regard to future dental work involving acrylates, as there are no published data and only a few case reports of allergic contact stomatitis caused by acrylates (4).

Case History

A 40-year-old woman presented with a 2-year history of hand dermatitis with cracked/fissured pulpitis and

nail dystrophy affecting both hands (Fig. 1). She provided a history of having applied artificial nails and of having used “Shellac” (a nail varnish that hardens under ultraviolet light). As the dermatitis and nail changes worsened, she intensified her use of Shellac in an attempt to cover the skin changes. Apart from a known fragrance contact allergy, she had no personal or family history of atopy or dermatitis. Patch testing was performed with an extended European baseline series, a fragrance series, and an acrylate series (Finn Chambers[®] and Scanpor[®] tape). Unfortunately, the patient was not tested with her own Shellac. The patch tests were applied to the upper back and occluded for 48 hours. Readings were performed on day (D) 2, D3 and D7, according to ICDRG recommendations (5). Positive reactions to ethyl acrylate, *n*-butyl acrylate, 2-hydroxyethyl acrylate, ethyl methacrylate, 2-hydroxyethyl methacrylate, 2-hydroxypropyl methacrylate, ethyleneglycol dimethacrylate, 1,6-hexanediol diacrylate, triethyleneglycol diacrylate and tetrahydrofurfuryl methacrylate were found (Fig. 1), and confirmed the diagnosis of allergic contact dermatitis caused by acrylates.

The patient was advised to avoid future exposure to acrylates. Interestingly, she then informed us that, in the months prior to patch testing, she had a total of seven

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Fig. 1. Clinical presentation and positive patch test.

amalgam (silver alloy) fillings replaced with composite fillings, for cosmetic reasons. Acrylates were found in both the composite filling material and in the bonding agents used by the dentist; however, the patient never showed any oral symptoms.

Discussion

Our case illustrates that a patient with a strong acrylate contact allergy tolerated repeated dental work using acrylates. This observation argues against the general

practice of advising patients to avoid all exposure to acrylates, thus preventing them from having relevant and straightforward dental work performed. We propose that the vast majority of patients with acrylate contact allergy will tolerate acrylates in dental materials as long as mucosal contact is strictly avoided. However, the dentist should be informed and care should be taken to avoid direct mucosal contact with acrylates, to prevent allergic reactions. We therefore continue to inform patients that they are at risk of developing allergic reactions when undergoing dental restoration.

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