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Chronic cheilitis caused by acrylates used as an adhesive for an orthodontic brace

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Case Report

A 13-year-old girl presented with a 4-month history of lip swelling, which was at its worse in the morning and settled throughout the day, and was not helped by antihistamines. She had been fitted with a fixed metal dental brace 8 months previously. She described itchy skin when wearing non-gold jewellery, and nickel allergy was suspected. Examination revealed clinical features of cheilitis.

Patch testing was performed with the British baseline, dental, bakery and facial series. There were positive reactions to methyl methacrylate 2% pet. on D2/D4 (?+/+), ethyleneglycol dimethacrylate 2% pet. on D2/D4 (-/+), 2-hydroxyethyl methacrylate 2% pet. on D2/D4 (+/++), dimethylaminoethyl methacrylate 0.2% pet. on D2/D4/D7 (-/-/+), and tetrahydrofurfuryl methacrylate 2% pet. on D2/D4/D7 (-/-/+), all within the dental series (IQ Ultra™ chambers; Chemotechnique Diagnostics' allergens, Malmö, Sweden; graded according to ICDRG criteria). No reaction to nickel was seen. A reaction to gold sodium thiosulfate 2% pet. was also seen (D2/D4, -/?+) but was of no clinical relevance.

Discussion with the patient's dentist revealed that the adhesive used to fix the braces contained ultraviolet-cured acrylates. Clinical improvement was noted following replacement with a non-acrylate containing adhesive.

Discussion

Allergic contact cheilitis can be caused by multiple allergens, including those found in personal care products, various foodstuffs, dental preparations, and dental appliances (1).

Allergic contact cheilitis caused by dental prostheses is normally the result of a metal allergy, most often to nickel (2). However, some dental prostheses, including dentures (3) and crowns (4), have been associated with acrylate allergy.

Fixed metal orthodontic braces constitute a recognized cause of allergic contact stomatitis and occupational hand dermatitis, and there are some reports of recall dermatitis. As with other dental devices, the causative allergen in such cases is almost exclusively nickel (5). In 2006, a report described 2 cases of allergic reactions to bisphenol-A-glycidyl dimethacrylate used as an adhesive for dental braces (6), both occurring within 24 hr of appliance fitting and resulting in acute reactions that rapidly resolved on removal of the devices. Our patient also had an acrylate allergy, but, unlike the previously reported cases, presented with a history of oedema and scale suggestive of chronic cheilitis that was not temporally associated with the insertion of the brace. In the absence of a history of other acrylate exposure (acrylate nails; composite fillings), it is probable that sensitization occurred via the adhesive. This case serves to highlight the fact that in patients with a suspected contact allergy to fixed metallic orthodontic braces it is necessary to test for acrylates, in addition to other possible allergens, as an allergy to the adhesive used for the brace may otherwise be overlooked. To our knowledge, this is the first report of chronic cheilitis caused by acrylate allergy resulting from this exposure.

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