

CONTACT POINTS

Artificial nail wearing: Unexpected elicitor of allergic contact dermatitis, oral lichen planus and risky arthroplasty

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Despite the increasing use of (meth)acrylates both in dentistry and in beauty treatments, allergic reactions may often not be identified as such. We report a patient who developed dermatitis upon use of acrylate fingernails and exposure to paint dust, followed by oral pain and erosive lichen planus caused by acrylate-based dental fillings. Subsequently, the patient sought advice, as dental implants and a cemented arthroplasty were planned.

1,4-butanediol dimethacrylate, ethyl methacrylate, tetrahydrofurfuryl methacrylate and diurethane dimethacrylate on D2 and D3 (Supporting Information Figure S1). Erosions partly persisted at the D7 reading. After replacement of plastic composite fillings with “a non-acrylate-releasing material” the patient’s symptoms completely resolved. However, some years later, she presented again for evaluation prior to planned dental implantation and arthroplasty.

CASE REPORT

A 58-year-old woman had undergone replacement of amalgam dental fillings on the right jaw with plastic composite fillings. Subsequently, right-sided oral pain and burning developed. Neurological examination excluded neuritis. Thereafter, painful oral erosions (Figure 1) and ulcers appeared, and were classified as erosive lichen planus by histology. Careful history-taking showed, apart from itching and eczema caused by jewellery, that the patient had developed dermatitis of the fingertips upon wearing artificial acrylic nails years ago. Furthermore, a pruritic rash on her face and neck had been aggravated by paint dust in the paint division of a hardware store.

Because of a suspicion of acrylate allergy, patch testing was performed with the baseline series, and dental metal and dental technician series including acrylate preparations, according to the recommendations of the German Contact Dermatitis Research Group. Patch tests showed + positive reactions to nickel and palladium on day (D) 3, and +++ positive, partly bullous reactions to ethyleneglycol dimethylacrylate, 2-hydroxyethyl methacrylate, triethyleneglycol dimethacrylate, methyl methacrylate, 2-hydroxypropyl methacrylate,

DISCUSSION

The main elicitors of dental material allergy are palladium, gold, and amalgam.¹ Furthermore, allergy to metals is common in patients with oral lichenoid lesions.^{2,3} Acrylate allergy is less common, but may present with cross-reacting compounds. Theoretically, acrylates should be polymerized in dental prostheses and fillings. However, with inadequate polymerization, residual monomers are released and the risk of sensitization or elicitation arises.⁴ (Meth)acrylates are contained in various coatings, plastics, dental prostheses, hearing aids, paints, bone cement for arthroplasty, glass substitutes, acrylic nails, printing inks, and adhesives.⁵ A consumer may not interpret local eczema, and especially facial/neck dermatitis, as a manifestation of allergy to nail acrylates. However, such allergy is increasing both in occupational and in private settings.⁶

In our patient, previous sensitization to acrylates resulting from the use of artificial fingernails was not recognized, and led to both direct and airborne contact dermatitis of the face and neck. Moreover, “atypical symptoms” in terms of oral pain and burning were initially misinterpreted. The diagnosis of oral lichen planus



FIGURE 1 Erosive stomatitis in proximity to an acrylate-based dental filling

prompted allergy diagnostics, and the use of alternative materials relieved the symptoms. Another example of an “atypical symptom” is a metallic taste resulting from palladium allergy in dental material intolerance.⁷ The numbers of dental implants and of hip and knee replacements are increasing, and this is paralleled by the growing use of acrylate-based dental adhesives and of acrylate-based bone cements. In both settings, acrylate allergy may cause complications.^{8,9} This report underlines the fact that acrylate allergy may present with unusual symptoms, and that adequate patient evaluation before arthroplasty should include questions regarding acrylate-based complications (ie, by dental materials and artificial fingernails). Patients positive history should undergo pretreatment patch testing. In patients with acrylate allergy, uncemented arthroplasty and non-acrylate-releasing dental materials should be preferred.

CONFLICTS OF INTEREST

The authors have no conflicts of interest to report.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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Online supplemental Figure S1: Patch test result (day 3) to dental technician series

