Received: 31 December 2019 | Revised: 6 January 2020 | Accepted: 7 January 2020

DOI: 10.1111/cod.13466

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Hand eczema from nail (meth)acrylates in an 11-year-old child

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KEYWORDS: (meth)acrylates, allergic contact dermatitis, case report, pediatrics

Allergic contact dermatitis (ACD) from nail (meth)acrylates is a well-known, increasing concern that commonly affects nail aestheticians,[1,2] with a significant negative impact in their quality of life. Because allergen avoidance may be difficult, some technicians have to leave the job.[3] In children, however, there are no case reports to date, as there is usually no exposure to such allergens.

CASE REPORT

An 11-year-old girl with a personal history of asthma and rhinitis presented with persistent recalcitrant hand eczema, affecting predominantly the dorsal aspects of the fingers, despite topical corticosteroids. The child's mother was a nail aesthetician and the patient reported frequent manipulation and "playing" of the child with the mother's professional products, in particular those used for nail aesthetics.

Taking this information into account, patch testing was performed with the Portuguese Contact Dermatitis Research Group baseline series, as well as with a few (meth)acrylates apart from 2-HEMA (hydroxyethyl methacrylate) present in the baseline series. Allergens were applied in IQ-ultra chambers (Chemotechnique Diagnostics, Vellinge Sweden) on the back for 48 hours and readings were performed on day (D) 3 and D7, according to ESCD guidelines. Strong (++) reactions to 2-HEMA, hydroxypropyl methacrylate (HPMA), hydroxyethyl acrylate (HEA), ethyleneglycol dimethacrylate (EGDMA), and

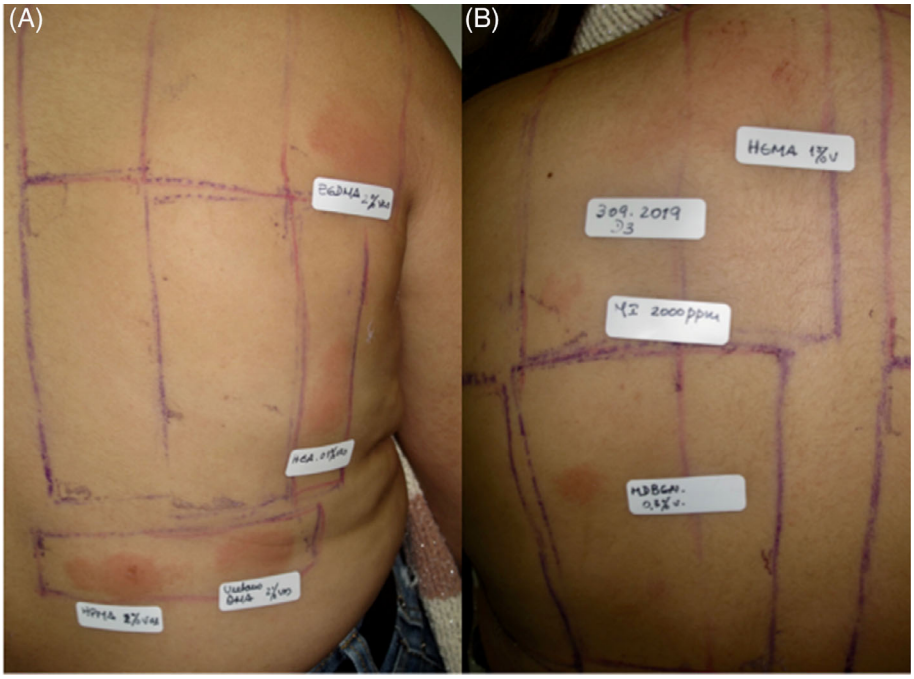

FIGURE 1 Patch test results. (**A**), Positive reactions to hydroxypropyl methacrylate (HPMA), hydroxyethyl acrylate (HEA), ethyleneglycol dimethacrylate (EGDMA), and urethane dimethacrylate (UDMA). (**B**), Positive reactions to hydroxyethyl methacrylate (HEMA), methylisothiazolinone, and methyldibromo glutaronitrile were also present

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urethane dimethacrylate (UDMA) were observed (Figure 1A,B). Weak positive (+) reactions to methylisothiazolinone and methyldibromo glutaronitrile were also present. Hand eczema resolved after avoidance of the above-mentioned products, thus confirming the diagnosis of hand eczema due to nail (meth)acrylate allergy in this child. The mother was informed about other possible sources of exposure that may affect future professional choices for the child, as well as on health care procedures involving (meth)acrylates (such as dental fillings).

DISCUSSION

(Meth)acrylate allergy is common in occupational settings, particularly in nail aesthetics, causing dermatitis with significant morbidity; workers may also complain of respiratory problems.[4,5] Consumers are also affected, and apart from ACD may also present with paresthesia, pain, onycholysis, and long-lasting and severe nail dystrophy.[5,6] However, such cases in the paediatric age range are presumably exceptional, apparently with none reported until now.

We emphasize the need to have a proper warning symbol concerning the sensitization hazard and potential risks on these nail aesthetic products, so that direct manipulation is indeed avoided by professionals and their bystanders. Particularly in a young individual, (meth)acrylate allergy is important to bear in mind in choice of career, namely for jobs such as aesthetician, dental assistant or technician, or dentists where acrylate exposure may be significant, at least in the nearby future.

CONFLICT OF INTEREST

None to disclose regarding the present article

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How to cite this article: Alves F, Morgado F, Ramos L, Gonçalo M. Hand eczema from nail (meth)acrylates in an 11-year-old child. *Contact Dermatitis*. 2020;1–2. https://doi.org/10.1111/cod.13466