

# Study and Therapy News

## Allergic Onycholysis Caused by Cyanoacrylate Used to Glue Artificial Nails

**Lasse Kanerva and Tuula Estlander**  
Section of Dermatology, Finnish Institute of Occupational Health, Topeliuksenkatu 41 aA, FIN-00250 Helsinki, Finland. Tel. 00358 9 4747 2288, Fax. 00358 95875449. lasse.kanerva@occuphealth.fi

### Introduction

Nail cosmetics can induce side effects such as sensitization (1-4). The most common side effect is allergic contact dermatitis from nail lacquer caused by toluene sulfonamide formaldehyde resin (4). Other causes are allergy to methacrylates and cyanoacrylates from acrylic nails or nail glues (1-3). We present a patient who had become allergic to cyanoacrylates used to glue her artificial nails, but who could nevertheless use photobonded sculptured nails.

### Case report

A 33-year-old hairdresser had had artificial nails for one year. When seen by us for the first time she had glued on her nails 3 weeks earlier, and this had caused paronychia. She used preformed plastic nails, glued on with 2-ethylcyanoacrylate (ECA) adhesive. When she removed the preformed nails, onycholysis was revealed (Fig. 1). Patch testing with her own nail glue 10% pet. provoked a 2+ allergic patch test reaction (Fig. 2), as did ECA 10% pet. Her paronychia



Fig. 1. Allergic onycholysis caused by cyanoacrylate used to glue on artificial nails.

healed completely when she did not use artificial nails. On a follow-up visit 6 months later, she informed us that

she had used photobonded sculptured nails for 3 months without getting any side effects.



Fig. 2. Allergic patch test reaction caused by cyanoacrylate nail glue (10% in petrolatum).

## Discussion

In the USA, artificial nails based on (meth)acrylates have for decades been a popular method of improving the cosmetic appearance of natural nails (1-3, 5, 6). During the past decade they have been increasingly used in Europe, too. Allergic contact dermatitis from acrylic nails was reported already in the 1950s (5). Furthermore, acrylic nails can induce side effects such as fingertip dermatitis, periungual dermatitis, onycholysis, par-esthesiae, Raynaud's phenomenon, and ectopial facial involvement (7).

Our patient used preformed plastic nails to be glued on with a cyanoacrylate adhesive. Another type of artificial nail, sculptured nails, are not preformed, and are made of two-component products containing a powder and a liquid (1-3). They are available in two varieties: (i) chemically cured nails containing various methacrylate monomers and polymers that polymerize in the presence of hydroquinone, and (ii) photo-bonded acrylate sculptured nails that harden in the presence of light, as do dental resins (1, 2). Methacrylates in chemically cured sculptured nails have caused allergy to the customers and on rare occasions, occupational allergy (1, 2). Cyanoacrylates can

cause allergic contact dermatitis (3, 6, 8) and asthma (9). Photo-bonded acrylate sculptured nails have induced allergic reactions (2).

Onycholysis means detachment of the nail from its bed at its distal and/or lateral attachments. Guin et al. (3) reported eczema of the fingertips and nail beds with prominent nail dystrophy, onycholysis and subungual hyperkeratosis in three patients, due to ECA glue. Allergic onycholysis has also been reported from hydroxylamine sulphate in colour developer, from anaerobic acrylic sealants, from toluene sulfonamide formaldehyde resin used in nail hardener and from benzalkonium in nail lacquer (see 10). Onycholysis can also develop from chemicals without an allergic mechanism (see 10).

On a control visit our patient informed us that she had made sculptured nails for herself 3 months earlier. These had not caused any harm. Photo-bonded sculptured nails contain various types of (meth)acrylates (1, 2) but not cyanoacrylates. Our patient was allergic to cyanoacrylate but apparently not to (meth)acrylates (10).

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