

Meanwhile, the shop owner provided an effective ventilation system, and the upstairs traveling of epoxy fumes was prevented. The patient was free of lesions in a 5-month follow-up.

Epoxy resin is a well-known airborne contact sensitizer, mainly inducing occupational allergic contact dermatitis among construction or shipyard workers, painters, carpenters, and laboratory workers using microscopy immersion oil.²⁻⁴ The housewife's severe facial eczema was surprisingly found to be caused by epoxy fumes transmitted from the downstairs neighbor's furniture shop along the shaft of the building. Similar to connubial or consort allergy, where the partners of the patient are the source of allergen transmission, neighbors might also play an important role, suggesting the term "neighborial allergy."

ZEBRA

This was an unusual example for nonoccupational airborne allergic contact dermatitis from epoxy resin, a well-known occupational airborne contact sensitizer, through a hidden and novel way of allergen transmission called "neighborial allergy."

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Allergic Contact Dermatitis to p-tert Butylphenol Formaldehyde Resin in a Continuous Positive Airway Pressure Strap

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PRECIS

Continuous positive airway pressure (CPAP) is standard treatment for many with sleep apnea. We highlight the CPAP mask

strap's role in our patient's dermatitis and suggest an avoidance strategy.

DISCUSSION

A search of the literature demonstrated a prior case of a patient reacting to his continuous positive airway pressure (CPAP) mask.¹ In this case, the patient presented with chronic scalp dermatitis in the distribution of his CPAP mask's neoprene rubber strap. Patch testing to the North American Contact Dermatitis Group standard allergens, a supplemental rubber series, and a sample of the neoprene from the patient's mask strap demonstrated relevant contact allergies to dialkyl thioureas as well as the neoprene strap.¹

Dialkyl thioureas and p-tert butylphenol formaldehyde resin (PTBFR) have both been implicated as contact allergens in neoprene.² p-tert Butylphenol formaldehyde resin is a top adhesive allergen, often used with leather, rubber, and neoprene, because of its rapid onset of action, flexibility, durability, and heat resistance.³ Allergy to PTBFR has also been reported as a leading cause of shoe-associated dermatitis⁴ and has been associated with dermatitis caused by sports equipment, that is, wrist supports, shin and knee guards, athletic tape, and swimming goggles.⁵

Recently, we evaluated a 73-year-old male veteran with a 4-month history of pruritic, scaly plaques localized to the posterior scalp, forehead, bilateral cheeks, and angle of his mandible. His dermatitis intensified, and he was seen in the emergency department, where he was given a 7-day course of trimethoprim and sulfamethoxazole and given a follow-up appointment in dermatology. At this evaluation, it was noted that the dermatitis distribution was mimicking the areas of contact with the CPAP strap.

We recommended that he cover the strap portion of his CPAP mask with a white cotton sheath (Fig. 1). When he returned for patch testing the following week, he was tested to a modified North American Contact Dermatitis Group standard allergen series, as well as his CPAP mask strap. Patch testing demonstrated a 1+ reaction to PTBFR and to the component of his strap. Upon continued use of the white cotton cover, the patient's dermatitis resolved nearly completely at his 10-week follow-up appointment.



Figure 1. Continuous positive airway pressure mask strap with a white cotton sheath.

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PEARL

Early intervention as simple as barrier creation can prevent these cases from becoming chronic and affecting one's quality of life.

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Allergic Contact Dermatitis From Depilatory Wax

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PRECIS

Allergic contact dermatitis from epilating products is an emerging problem, considering their widespread use and components variety, but reports of contact allergy are strangely infrequent.

DISCUSSION

A 35-year-old nonatopic woman developed a severe eczema on the lower limbs 24 hours after wax epilation. The dermatitis healed with systemic steroids. Previously, she had an “allergy to an adhesive tape,” which resolved after stopping its use.

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This study was carried out with the technical support of F.I.R.M.A. S.p.A., Firenze, Italy. Chemical tests were made in the laboratories of Menarini Group, Firenze, Italy.

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We performed patch tests with the Italian standard SIDAPA (Italian Society of Allergologic Occupational and Environmental Dermatology; www.sidapa.org) series, depilatory wax, and post-epilation cream tested “as is”: we observed a positive reaction only to the wax (+D2/++D3). We tested also the ingredients of this epilating product, kindly provided by the manufacturer and appropriately diluted in petrolatum: *Aloe barbadensis* extract 10%, cera alba 20%, colophony 20%, coumarin 5%, glycerol rosinatate 20%, glycine soja oil 10%, and *Zea mays* oil 10% (named according to INCI name, International Nomenclature of Cosmetic Ingredients). We observed positive result for colophony 20% pet (+D2/++D3). The patient refused further tests with commercially available components of colophony (abietic acid and abitol).

Interestingly, patch tests with colophony gave a negative reaction using standardized hapten of SIDAPA series (F.I.R.M.A. S.p.A., Firenze, Italy) and a positive result using that supplied by the manufacturer, at the same dilution.

Chemical analyses (high-performance liquid chromatography [HPLC], ultraviolet spectroscopy, mass spectrometry, nuclear magnetic resonance of hydrogen atoms [H-NMR]) were performed. Components of the 2 rosins (of F.I.R.M.A. S.p.A. and of wax) were first separated by HPLC, then analyzed by 2 detectors: a UV-Vis spectrophotometer and a mass spectrometer. Total ion current, that is, the total of the mass spectra for each compound versus time, is obtained by the latter.

Analyzing both the UV and mass spectra (TIC), several peaks resulted in colophony of F.I.R.M.A. S.p.A., whereas rosin of wax had a more intense signal (ie, the abietic acid) than the others (Fig. 1A). The height of the peaks indicates the relative amount of the corresponding substances.

Similar information was obtained also from H-NMR, carried out only for the unsaturated/aromatic fraction of components in the 2 rosins (Fig. 1B).

From these techniques, it resulted in a qualitatively similar composition, but with different concentrations of the constituents in both mixtures. In particular, the percentage of abietic acid was higher in colophony of wax (63% of abietic acid in pure colophony, corresponding to 13% in colophony 20% pet) than in that of F.I.R.M.A. S.p.A. (25%, corresponding to 5% in diluted hapten).

Colophony is a mixture of resin acids (90%) and neutral substances (10%) derived from Pinaceae trees. Its composition greatly varies, according to origin, handling, and storage, and consists of several compounds, among which abietic acid is the main (ranging from 30% to 50%).¹ This is considered a weak but important allergen by some authors,² whereas oxidation products are generally considered the stronger sensitizers by others.^{1,3–5}

In our case, the very simple composition of colophony of wax leads us to think the responsible allergen was just abietic acid. Colophony of F.I.R.M.A. S.p.A. is instead more complex, as it consists of many oxidation products. Therefore, abietic acid in this colophony is at a lower concentration than in colophony of wax.