

ALLERGIC CONTACT DERMATITIS IN DENTAL PROFESSIONALS

Effective Diagnosis and Treatment

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ABSTRACT

Background. Like other health care workers, dental professionals are at risk of developing allergic contact dermatitis, or ACD, after exposure to allergenic chemicals. Common allergens include antimicrobials, preservatives, rubber additives and methacrylates.

Case Description. The authors describe an orthodontic assistant with severe skin disease, whose symptoms included redness, cracking and bleeding that persisted for 10 years. The patient had previously received an incomplete diagnosis. After performing patch testing, assessing symptoms and evaluating the patient's medical history, the authors diagnosed ACD resulting from exposure to several dental allergens. The patient received appropriate treatment and counseling to better manage her allergies; this resulted in resolution of all symptoms and averted permanent occupational disability.

Clinical Implications. Not all skin reactions are related to gloves or natural rubber latex. Dental professionals should be aware of common chemical allergens, symptoms of ACD and the appropriate treatment of occupational skin disease.

Allergenic chemicals can be found in many products used in the dental operator, such as bonding agents, disinfectants, preservatives and processing chemicals added to rubber products (*Table 1*). With repeated exposure, these chemicals can cause allergic contact dermatitis, or ACD, in dental professionals.¹ Research indicates that the prevalence of ACD in dentistry is increasing, particularly in reaction to the chemicals in bonding agents and disinfectants.² Because dental professionals often wait several years before obtaining an accurate diagnosis and undergoing effective treatment, chronic skin disease and permanent skin damage can develop.³

ACD (also referred to as a type IV or delayed hypersensitivity) is a localized immune response that is almost always confined to the area of skin contact. Symptoms of ACD can range from dry skin to patchy eczema to chronic sores that weep or bleed, much like a reaction to poison ivy. Skin symptoms develop slowly and may persist for weeks or months. Other irritating chemicals, such as bleach and alcohols, can exacerbate these symptoms. The broken and open skin supports bacterial proliferation and permits the penetration of foreign substances and pathogens. Effective treatment of ACD begins with symptom recognition, assessment of risk factors and diagnostic patch testing to identify the offending allergens (*Table 1*).

Obstacles to the effective treatment of ACD and other occupational allergies include the misinterpretation of symptoms, presumptive self-diagnosis and incomplete diagnosis by physicians. Dental professionals often assume that skin reactions on their hands are due to

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Table 1—Characteristics of allergic contact dermatitis, or ACD, or type IV hypersensitivity to dental and household allergens.

SOURCES AND EXAMPLES OF CHEMICAL ALLERGENS	• <i>Disinfectants and sterilants:</i> glutaraldehyde, formaldehyde • <i>Antiseptics and preservatives:</i> quaternium-15, formaldehyde, thimerosal • <i>Rubber chemicals:</i> carbamates, thiurams and mercaptobenzothiazoles • <i>Bonding agents, glues and expoxies:</i> methacrylates and bisphenol A • <i>Other:</i> eugenol, nickel and gold
MODE OF EXPOSURE	• Skin and epithelial surfaces • Oral mucosa
REACTION SITES AND SKIN SYMPTOMS	• Reactions involve skin, epithelial surfaces and oral mucosa • Itching, soreness and redness • Swelling and skin thickening • Cracks and fissures • Peeling, scabbing, crusting and scaling • Vesicles or blisters
DIAGNOSTIC BASIS FOR ACD	• Detailed medical history and symptom assessment • Patch testing
ONSET OF SYMPTOMS	• Usually several hours or days, but may occur within an hour
SYMPTOMS SUBSIDE	• Very slowly (within weeks or months)

gloves. Based on this assumption, they then assume that they have a latex allergy.

This allergy is known clinically as a type I (or immediate) hypersensitivity to the botanical proteins in natural rubber latex, or NRL. Unlike ACD, a type I hypersensitivity to NRL involves systemic immune reactions that develop rapidly, similar to those associated with allergies to medications, insect bites, plants and foods. Unfortunately, few physicians perform the full diagnostic series (that is, a detailed medical history and patch testing, as well as skin-prick or serologic testing) required to correctly differentiate between ACD and a type I hypersensitivity to NRL.⁴

Effective treatment of occupational skin disease requires a complete and accurate diagnosis by an experienced physician. An incomplete or assumed diagnosis of a type I hypersensitivity or ACD can have serious consequences. By describing this problem and its resolution

in a dental professional, we hope to provide guidance for improved diagnostic, treatment and management strategies in dentistry.

CASE REPORT

A 48-year-old female orthodontic assistant came to us for help in identifying a medical glove that would ameliorate her symptoms so that she could continue working. For the past 11 years, she had experienced severe skin problems, including redness, itching and pustules on both hands, as well as cracked and fissured fingertips.

She often treated these symptoms with over-the-counter creams and medications. She reported that she had consulted a dermatologist eight years previously, who attributed her symptoms to a "latex allergy" but did not perform diagnostic testing. The dermatologist prescribed topical corticosteroids and advised her to wear nonlatex gloves at work. Unfortunately, neither polyvinyl chloride, or PVC, nor nitrile gloves relieved the patient's symptoms. Her severe skin problems continued,

eventually leading to several months of occupational disability in late 1999. While on disability leave, the patient experienced complete healing of the skin on her hands. However, when she returned to her job a few months later, the symptoms recurred and intensified, ultimately resulting in a visit to an urgent care center.

Health History and Examination

At her initial visit, the patient's interview and health questionnaire revealed an extensive history of allergies and allergic reactions during childhood and early adulthood, including the following:

- childhood hay fever;
- eczema;
- an episode of erythema multiforme (purplish-red, itchy, hive-like vesicles) of unknown origin on her face, legs and hands;
- itchy pustules from the application of hair dye;
- hives after penicillin use;
- skin rashes after exposure to thimerosal (contained in over-the-counter antiseptics);
- allergy to pineapple.

During the previous 11 years, the patient also had experienced an increased frequency of localized rashes, itching or irritation after skin contact with household rubber gloves, elastic (for example, waistbands and sock cuffs), bandage adhesive, gold jewelry and other metal jewelry, some fragrances and perfumes, as well as household cleaners and soap. She also noted that she occasionally developed itching and irritation after applying artificial fingernails.

In the dental operatory at work, the patient reported that she reacted to the ultrasonic cleaners, soaps and disinfectants, and felt a burning sensation when her gloved or ungloved



Figure 1. Red, fissured, cracked and scaling fingertip consistent with allergic contact dermatitis observed during the patient's first visit.

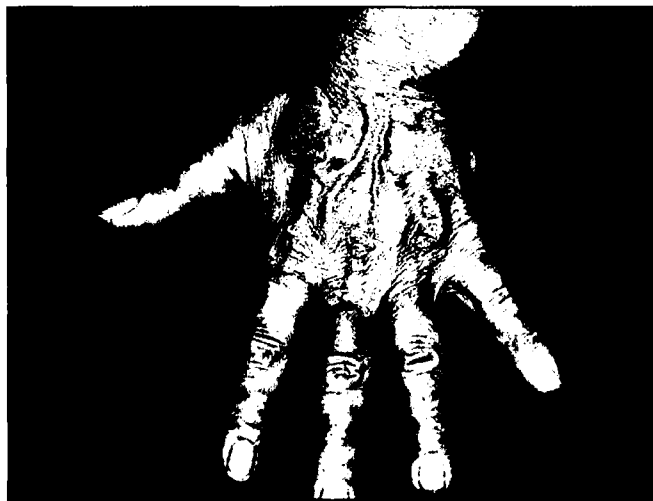


Figure 2. Skin with red, edematous patches symptomatic of contact dermatitis to chemical allergens. Note the leathery, indurated and thickened appearance of the skin near the metacarpal joints.

hands were in the glutaraldehyde solution for disinfecting instruments. According to the patient, several of the gloves that she had tried over the years (including those made of NRL, PVC and nitrile) had no effect or worsened her skin condition.

We examined the patient's fingers and hands during her brief initial visit. We observed that her hyperkeratotic fingertips were scaly, dry, thickened and deeply fissured (*Figure 1*). The skin on the back of her hands and wrists was mottled with red, edematous patches (*Figure 2*). Her skin was leathery, indurated and thickened near the metacarpal joints, while the skin closer to her wrists appeared thin.

Given her symptoms and medical history, we suspected that the patient had severe ACD related to exposure to several chemicals, with concurrent exposure at work and home. Therefore, in the interim period before diagnostic testing could be performed, we instructed her to avoid direct contact (gloved or bare-handed) with disinfectants and cold sterilizing solutions, as well as with the various bonding agents used to place orthodontic bands and brackets. We also advised her to remove

her artificial acrylic nails. We requested that she record where and when her symptoms occurred, document the various products that she came into contact with throughout the day and provide copies of product material safety data sheets, or MSDS, or ingredients lists from product labels.

Within two months of her first visit (and before diagnostic testing could be completed), the patient experienced a severe allergic reaction that required treatment at an urgent care center. She had fluid-filled blisters on her palms, as well as multiple raised, hard, red lesions on the backs of both hands, many of which were painfully cracked and weeping. In addition, she had developed a red, itchy area on her cheeks that she believed was related to wearing a face mask. Because of the severity of her hand symptoms, the patient was treated with corticosteroids (via intramuscular injection) and placed on a two-week course of oral prednisone therapy.

Patch and Skin-Prick Testing

We obtained informed consent and scheduled the patient for patch testing, which is used to diagnose

ACD. In addition, although she did not have the typical systemic symptoms associated with a type I hypersensitivity to NRL (for example, hives or rhinoconjunctivitis), she did have at least two major risk factors for this allergy.⁵ These risk factors were her health care occupation (28 years in the dental profession) and extensive allergic history, including an allergy to pineapple, which contains cross-reacting allergens to NRL.⁶ Moreover, a diagnosis of type I hypersensitivity to NRL should be made on the basis of medical history, symptoms and the presence of NRL-specific immunoglobulin E, or IgE, antibodies.⁵ Therefore, we also scheduled the patient for skin-prick testing and obtained her informed consent for this procedure.

Patch testing

We selected a total of 43 standardized chemical allergens for patch testing based on the patient's symptoms and recommended dental screening allergens (*Table 2*).¹ We applied 19 of the chemical allergens (Chemotechnique Diagnostics, Malmö, Sweden) to the patient's back using two customized patch-test panels (Finn Chambers on

Table 2—Patient's positive patch test reactions to standardized chemical allergens.*

PANEL 2 ALLERGENS (T.R.U.E. TEST)†	REACTION TIME		PANEL 3 AND 4 ALLERGENS CHEMOTECHNIQUE DIAGNOSTICS‡	REACTION TIME	
	48 Hours	72 Hours		48 Hours	72 Hours
Carba Mix (Diphenylguanidine, zincdibutyldithiocarbamate, zincdiethyldithiocarbamate; 0.25 mg/cm²¶ in hydroxypropyl cellulose)	++	+	Ethylene Glycol Dimethacrylate (2% in petrolatum)	+	—**
CI+Me-Isothiazolinone (5-Chloro-2-methyl-4-isothiazolin-3-one, 2-methyl-4-isothiazolin-3-one; 0.004 mg/cm² in polyvidone)	+	+	1,4 Butanediol Dimethacrylate (2% in petrolatum)	+	—
Quaternium-15 (0.1 mg/cm² in hydroxypropyl cellulose)	—	+	2-Hydroxyethyl Methacrylate (2% in petrolatum)	+	—
Mercapto Mix (N-Cyclohexylbenzothiazyl-sulfenamide, dibenzothiazyl disulfide, morpholinylmercapto-benzothiazole; 0.075 mg/cm² in polyvidone)	+	—	Gold sodiumthiosulphate (2% in petrolatum)	+	—
Thimerosal (0.008 mg/cm² in hydroxypropyl cellulose)	+	+	Glutaraldehyde (0.2% in petrolatum)	+	+
Thiuram Mix (Tetramethylthiuram monosulfide, tetramethylthiuram disulfide, disulfiram, dipentamethylenethiuram disulfide; 0.025 mg/cm² in polyvidone)	+	+			

* The patient was allergic to 11 (26 percent) of standardized chemical allergens.

† The complete list of chemical allergens included in the T.R.U.E. Test patch test can be obtained from the manufacturer (Mekos Laboratories, Hillerød, Denmark) ("www.truetest.com").

‡ Further information about these standardized chemical allergens can be obtained from the manufacturer (Chemotechnique Diagnostics, Malmö, Sweden) ("www.chemotechnique.se/").

§ mg: Milligrams.

¶ cm²: Square centimeters.

Plus sign indicates positive test reaction.

** Minus sign indicates negative patch test reaction.

Scanpor, Epitest, Tuusula, Finland). We applied 23 additional chemical allergens and one negative control using two preassembled patch-test panels of common contact allergens (T.R.U.E. Test, Mekos Laboratories, Hillerød, Denmark).

Using standard patch-test procedures, we applied the four patch-test panels to the patient's upper back and marked their position with a surgical skin marker. The allergen patch-test panels remained in place for two days, and then were removed. We evaluated the patient's skin reactions 48 and 72 hours after removing the patch-test panels. Red, raised skin reactions at the site of an applied

allergen were considered positive.

Skin-prick testing

This procedure screens for the presence of NRL-specific IgE antibodies and a corresponding type I NRL hypersensitivity. We screened by placing one drop of the following substances on the inside surface of the patient's lower arm in this sequence:

- histamine (10 milligrams/milliliter) serving as a positive control;
- NRL glove-wash solution number 1 prepared as described by Hamann and colleagues;⁷
- NRL glove-wash solution number

2 prepared as described by Hamann and colleagues;⁷

- standardized NRL extract (Stallergenes SA, Antony, France);
- unpreserved saline (150 millimolar concentration) serving as a negative control and prepared as described by Hamann and colleagues.⁷

We pricked the epidermis lightly with a sterile lancet (Prick Lancetter, Bayer, Leverkusen, Germany) and blotted any remaining solution with a 4-inch piece of gauze. We measured and recorded the size of the wheal or raised area at each prick at 15 minutes. We considered the reac-

tions to be positive if the wheal size was equal to or larger than half the size of the histamine wheal (positive control) and no reaction was observed to saline (negative control).

DIAGNOSIS AND TREATMENT

Positive test results

The patient's test results were positive for ACD in reaction to several chemicals (*Table 2*), including the three major groups of processing chemicals commonly found in synthetic and natural vulcanized rubber products: carba mix, thiuram mix and mercapto mix. Therefore, most gloves would worsen our patient's symptoms because latex (NRL), nitrile and chloroprene (or neoprene) gloves are manufactured with at least one agent from these compounding chemical groups.

Similarly, the patient's reported skin reactions to elastic waistbands, face mask straps and other rubber products are related to this allergy (*Tables 3 and 4*). Fortunately, the patient's skin-prick test results were negative for a type I hypersensitivity to NRL.

Our patient tested positive for ACD in reaction to the antimicrobial glutaraldehyde, which is commonly found in several disinfecting solutions (*Table 3*). Her test results explain her symptoms following instrument disinfection procedures. In dental professionals, skin exposure to glutaraldehyde commonly occurs when solutions and soaked instruments are transferred or handled.⁸ Because of their lack of chemical resistance to glutaraldehyde, medical gloves are not an effective barrier.^{9,10} Thicker, chemically resistant gloves are required, particularly when exposure to concentrated stock solutions may occur.

Consistent with her cracked, fissured and scaling fingertips, our

patient tested positive for ACD in reaction to three methacrylates. On the basis of the product MSDS, at least one of these methacrylates—2-hydroxyethyl methacrylate, or HEMA—was probably contained in the bonding agents used in the dental operator. A variety of methacrylates are constituents of bonding agents, resin-based composites and adhesives used in dentistry and medicine and found in consumer goods (*Tables 3 and 4*). Many methacrylates quickly permeate most medical gloves regardless of their material or composition.^{11,12} When the patient handled the adhesive directly while placing orthodontic bands, she was likely to be exposed to methacrylates regardless of the gloves she wore.

Compounding her exposure at work, our patient regularly applied artificial nails that often contain ethyleneglycol dimethacrylate. Her facial dermatitis also may have been related to these methacrylate allergies, particularly with respect to artificial nails.^{13,14}

The test results were clearly positive for ACD in reaction to thimerosal and methylchloroisothiazolinone, two of the preservatives tested. Thimerosal can be found in antiseptics, vaccines, over-the-counter eye, ear and nose medicaments, as well as in some cosmetics (*Tables 3 and 4*). Methylchloroisothiazolinone (for example, Kathon, Rohm and Haas, Philadelphia) is commonly used in medications, cosmetics and personal care products such as hand lotions and moisturizers.

Our patient exhibited a delayed, but somewhat equivocal, reaction to quaternium-15, a common preservative found in personal care products. Although the results were slightly ambiguous, we considered her reaction to quaternium-15 like-

ly to be positive, based on her symptoms, health history and occupation. Therefore, the patient's skin reactions to various hand care products, soaps and shampoos probably were attributable to an ACD in reaction to thimerosal, methylchloroisothiazolinone and quaternium-15 preservatives. We recommended that she avoid these chemicals when selecting personal care products for use both at home and in the office.

We also made a diagnosis of ACD in reaction to gold. Although she did not initially mention any metal-associated symptoms, our patient acknowledged that certain pieces of jewelry (for example, earrings) occasionally had bothered her. Asymptomatic allergies to gold and other metals are more common than previously thought, but probably are not occupationally related in dental professionals.^{1,15}

Treatment of symptoms and allergen avoidance

To expedite the immediate healing of her hands, we prescribed 0.1 percent tacrolimus ointment used for the topical treatment of atopic dermatitis.¹⁶ However, a permanent resolution of symptoms required strict and continuing long-term avoidance of all of the above-mentioned chemical allergens. To help the patient manage her allergies, we provided detailed information regarding these chemicals, including where they might be used and in what types of products (*Tables 3 and 4*), as well as synonyms and brand names for these chemicals.

We also reviewed the ingredient labels on her personal care products used at home and work, and suggested that she contact product manufacturers with any questions or concerns she might have in the future. We repeatedly emphasized the importance of reading ingredi-

Table 3—Common dental products that may contain these chemical allergens.

PRODUCTS	RUBBER COMPOUNDING CHEMICALS			PRESERVATIVES			GLUTARAL-DEHYDE	ACRYLATES*
	Carbamate	Thiuram	Mercapto-benzothiazole	Methylchloro-isothiazolinone	Thimerosal	Quaternium-15		
Adhesives, Tapes and Glues	X	—†	—	—	—	X	—	X
Antiseptics	—	—	—	—	X	—	—	—
Resin-based Composites	—	—	—	—	—	—	—	X
Dental Bonding Agents	—	—	—	—	—	—	—	X
Disinfectants	X	—	—	—	—	—	—	—
Equipment Sterilizing Solutions	—	—	—	—	—	—	X	—
Hand Care Products (soaps, lotions, creams and moisturizers)	X	—	—	X	—	X	—	—
Rubber Dental Equipment (dental dams, prophylaxis cups, mixing bowls, handles, aprons, tubing)	X	X	X	—	—	—	—	—
Rubber Emergency Equipment (gas mask, tourniquet, stethoscope)	X	X	X	—	—	—	—	—
Rubber Gloves (medical and utility)	X	X	X	—	—	—	—	—
Rubber Office Equipment (earphones, rubber bands, electrical cords, erasers, rubber pads)	X	X	X	—	—	—	—	—
Radiographic and Photographic Chemicals	—	—	—	—	—	—	X	—

* Includes methacrylates, cyanoacrylates and others.

† Dash indicates that the product does not contain the chemical.

ent labels, technical information and MSDS on all of the products she used (or intended to use) both at home and at work.

Nonvulcanized glove materials

To better manage her allergies at work, we suggested she use medical gloves made of PVC, polyurethane (Intacta, Dow Chemical, Midland, Mich.) or styrene-based thermoplas-

tics (for example, Elastylon, ECI Medical Technologies, Ontario, Canada) with patients, because these nonvulcanized glove materials usually do not contain carbamates, thiurams or mercaptobenzothiazoles. For handling chemically treated instruments, we recommended industrial-strength gloves made of polymers (such as FKM fluoroelastomer [Viton, DuPont Dow

Elastomers, Wilmington, Del.] or laminated polyethylene and ethylene vinyl alcohol [4H, North Safety Products, Cranston, R.I.]) because of their superior chemical resistance and lack of rubber compounding chemicals.

Because the patient used methacrylates daily, we strongly encouraged her to develop a "no-touch" technique. When some of

Table 4—Typical consumer and household products that may contain these chemical allergens.

PRODUCTS	RUBBER COMPOUNDING CHEMICALS			PRESERVATIVES			ACRYLATES*
	Carbamate	Thiuram	Mercapto-benzothiazole	Methylchloro-isothiazollnone	Thimerosal	Quaternium-15	
Adhesives, Tapes and Glues	X	—†	—	—	—	X	X
Artificial Fingernails (sculptured or bonded)	—	—	—	—	—	—	X
Cosmetics (blushes, bronzers, foundations, eye shadow, liner, mascara and remover)	—	—	—	X	—	X	—
Detergents and Fabric Softeners	—	—	—	X	—	—	—
Fungicides, Herbicides	X	X	X	—	—	—	—
Over-the-Counter Medications (nose, eye and ear drops, contact lens solutions)	—	—	—	—	X	—	—
Insecticides	X	X	—	X	—	—	—
Rubber Consumer Products (tires, condoms, diaphragms, hoses, earplugs, balloons, cables, cords, goggles, golf club handles, rackets, tools)	X	X	X	—	—	—	—
Rubber in Fabric (elastic waistbands, socks, underwear, swimwear)	X	X	X	—	—	—	—
Rubber in Shoes, Slippers, Boots, Insoles and Soles	X	X	X	—	—	—	—
Skin Care Products (soaps, lotions, moisturizers, creams, sunscreens)	X	—	—	X	—	X	—
Shampoos and Conditioners	X	—	—	X	—	X	—
Vaccines, Tuberculin Tests	—	—	—	—	X	—	—

* Includes methacrylates, cyanoacrylates and others.

† Dash indicates that the product does not contain the chemical.

her symptoms persisted, we observed her in the dental operator and discovered that she still briefly handled uncured adhesives. Because methacrylates in adhesives and bonding agents penetrate all medical gloves, we recommended that she find ways of isolating her fingers, such as by using gauze or instruments to manipulate orthodontic bands.

As a result of the diagnosis, product avoidance and improved understanding about her allergies, our patient's hands improved greatly within a few months. At her three- and 10-month follow-up visits, her hands had completely healed and

remained in good condition for the first time in 10 years (*Figure 3*). Equally important, she was able to continue working with renewed spirit and communicate a new awareness to her colleagues about potential allergens in the dental environment.

DISCUSSION

Occupationally based dermatoses occur frequently; recent studies suggest that between one-third and one-half are due to ACD.^{17,18} In the medical and dental professions, staff members are at increased risk of becoming sensitized to several chemical antigens. Compared with the general popula-

tion, health care workers are at least twice as likely to develop allergies to the biocides thimerosal, glutaraldehyde, formaldehyde and glyoxal, as well as to thiuram rubber processing chemicals.^{8,19} In addition, dental workers are at risk of developing allergies to the methacrylate components of dental bonding agents and adhesives.^{1,18}

In allergic symptomatic staff members, skin health can deteriorate quickly when repeated allergen exposure is coupled with the drying effects of regular hand washing and incomplete treatment. As discussed above, when ACD in reaction to chemicals is misdiag-



Figure 3. After the patient avoided chemical allergens at home and in dental products at work for several months, her skin healed and was normal in appearance.

nosed, skin problems can remain unresolved for years, with significant effects on an individual's physical health and career.

Between 4 and 12 percent of dental workers are estimated to have ACD in reaction to the compounding chemicals (that is, thiurams, carbamates, thioureas, thiazoles) that are found in synthetic and natural rubber products such as medical gloves and rubber dams.^{20,21}

Staff members often try new gloves and barrier creams to palliate their symptoms. However, these same chemicals are found in home skin and hair care products, adhesives, fungicides, herbicides and insecticides, as well as in rubber products. Their combined presence in products at work and at home often increases exposure and exacerbates symptoms.

Health care workers may be up to eight times more likely to develop a glutaraldehyde allergy than is the general population. Staff members often use medical-grade gloves that can be readily permeated despite the special precautions recommended for glutaraldehyde use.¹² Fortunately, our patient's proactive dental practice implemented new and improved disinfecting and sterilizing procedures as a result of her diagnosis.

Methacrylates are a recognized source of ACD in dentistry: 22 per-

cent of patch-tested dental workers experienced positive reactions to one of these compounds.^{1,18} Two of the most common—HEMA and ethylene glycol dimethacrylate—are found in dental adhesives and artificial fingernail preparations. Moreover, sensitization to HEMA may result in cross-reactivity to other methacrylates.²² In addition to the risk of developing contact allergies, repeated exposure to unpolymerized methacrylates may be responsible for finger or hand neuropathies with burning or prickling sensations.^{23,24} Medical-grade gloves generally are not resistant to methacrylates and provide little, if any, protection.^{11,12} Therefore, a no-touch technique is essential for all dental professionals regardless of their allergic history.

According to Schnuch and colleagues,¹⁹ health care workers are nearly three times more likely than the general population to be allergic to preservatives, antimicrobials or biocides, which are found in a variety of medical, dental and household products. Of these chemicals, thimerosal and methylchloroisothiazolinone are two of the more common allergens.²⁵ Health care workers with ACD often apply medications, moisturizers or protective creams to treat their symptoms. Because these products (both over-the-counter and prescription) usually contain preservatives and antimi-

crobials, people unknowingly exacerbate their problems.

During the past decade, dental professionals have become aware of the allergenic potential of latex (that is, NRL) gloves, but not of the myriad chemicals in the dental operatory. Therefore, it is not surprising that the prevalence of ACD in reaction to some dental chemicals is on the rise.² In addition, dental and medical professionals often do not seek immediate treatment; on average, people suffer for three years before obtaining a diagnosis, but they may wait as long as 40 years.^{3,26} Misinformation and presumptive self-diagnosis can delay obtaining a timely and accurate diagnosis, as well as an effective management strategy.

CONCLUSION

Resolving ACD in dental professionals requires several critical steps. First, dental staff members must acknowledge chemical exposure both at work and at home. Collecting chemical content information from dental and consumer products (for example, MSDS, product inserts, labels) can help identify potential chemical allergens and different routes of exposure.

The second critical step is to obtain an accurate diagnosis of recurring or chronic skin reactions. Patch testing is required and additional skin or blood testing may be needed. Because a diagnosis of ACD also is based on medical history, allergy history and current symptom assessment, chronicling all allergic reactions (for example, when, duration and degree) can be helpful. Moreover, dermatologists, allergists or other physicians with experience in occupational allergies are more likely to be trained in appropriate diagnostic procedures.⁴ These physicians can be an invaluable resource in resolving the

symptoms of ACD.

Finally, once a dental professional is diagnosed as having ACD, he or she must learn to avoid the products that contain the allergen or allergens and eliminate or minimize the potential routes of exposure. Although not a cure, this avoidance strategy is an effective way to manage ACD and its symptoms. However, education is paramount; dental professionals must continually learn about the chemical content of the products used at work and at home. Moreover, patch testing may not identify all allergens, and allergenic cross-reactivity is common between certain chemicals. Therefore, awareness of any new symptoms and potential exposure is important for people with ACD. By following these guidelines, dental professionals can be symptom-free with an intact skin barrier against pathogen transmission.

Notes

With the exception of polyvinyl chloride gloves, SmartPractice does not market any of the products mentioned in this article.

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