AAE Position Statement

The following statement was prepared by the AAE Resarch and Scientific Affairs Committee to address issues being raised by some endodontic patients. AAE members may download a copy of this position statement at www.aae.org/guidelines *and may photocopy it for distribution to patients or referring dentists.*

Natural Rubber Latex Allergy

Natural rubber latex (NRL) is manufactured from the sap of the Hevea brasiliensis, or rubber tree. During the pro¬duction of commercial latex, several chemicals are added. The proteins found in natural rubber and/or the chemicals used to manufacture commercial latex products can cause some individuals to have allergic reactions.

Three types of reactions can occur with the use of natural rubber latex. ***Irritant contact dermatitis*** is the most common reaction to latex products, mainly caused by the chemicals added to NRL during manufacturing. The chemicals directly injure the skin, resulting in redness, swelling, dryness, itching and burning. This reaction can also occur from the powder added to latex gloves. *Irritant contact dermatitis* is not a true allergy, and the symptoms disappear within several hours after removal of the stimulus. *Allergic contact dermatitis* is a cell-mediated, type IV (delayed) hypersensitivity of immunological response resulting from the chemicals used in the manufacturing of the latex product. These chemicals penetrate the skin, resulting in an allergic reaction. Symptoms such as redness and swelling occur between 24 and 48 hours after exposure and can last for several days. This delayed type of allergic response accounts for approximately 80% of the true allergic reactions to latex. *Latex allergy* is an immediate, type I hypersensitivity response to proteins found in natural rubber latex. The response begins within minutes of exposure to the allergen (protein) and can take the form of urticaria (hives) if exposure is through the skin, or respiratory symptoms (wheezing, runny nose, sneezing) if the allergen is inhaled. In some cases, an anaphylactic reaction (facial swelling, difficulty in breathing and a severe drop in blood pressure) may occur if the protein is introduced directly into the blood. This immediate type of hypersensitivity is most likely to be found in those individuals who have multiple allergies and are frequently exposed to NRL products. Because of a similarity of proteins, individuals allergic to latex may also be sensitive to foods such as chestnuts, bananas, kiwi fruit and avocados. Patients should be informed of this potential cross-allergenicity. The incidence of hypersensitivity reactions to natural rubber latex has risen significantly since the late 1980s. The Food and Drug Administration attributes this rise to a 10-fold increase in the use of latex gloves. While only approximately 1–6% of the general population is allergic to latex, the prevalence in health care workers and others whose occupations involve exposure to rubber products is approximately 5-10%.[1-4] Children and adolescents with spina bifida have an increased incidence because of their frequent exposure to latex products from birth.[5]

As a result of the chemical similarity between natural rubber and gutta-percha, the material used in filling the root canal, questions have arisen concerning its use in patients with a history of natural rubber latex allergy. To date, there are only two case reports that speculate of a type I immediate hypersensitivity reaction during endodontic therapy in NRL-sensitized patients.[6,7] There was no definitive proof that the patient had a true allergic reaction to the gutta-percha or an acute irritation from other chemical components of the gutta-percha. Instead, the reactions observed are largely attributed to other latex-containing materials such as rubber dam and gloves. Several studies have confirmed that no such cross-reactivity between gutta-percha and NRL exists.[8-11] Furthermore, if cross-reactivity were real, more cases would be reported. Therefore, it is unlikely that gutta-percha points, commercially available for endodontic use, can elicit or initiate an allergic reaction in NRL-sensitive patients.

A complete medical history and dental history should include identifying patients with a history of latex allergy or those at high risk for being allergic. Precautions must be taken to safely treat these patients. "Hypoallergenic" gloves

Phone: 800/872-3636 (U.S., Canada, Mexico) or 312/266-7255 (International); Fax: 866/451-9020 (U.S., Canada, Mexico) or 312/266-9867 (International)
Email: *info@aae.org*; Website: *www.aae.org*

and rubber dams in which the manufacturer has removed most of the allergy-causing chemicals can be substituted. If, however, the patient has an immediate type of allergy to the proteins found in natural latex, the practitioner should avoid any product with questionable latex content during the treatment of such a patient and vinyl or nitrile rubber gloves and dams must be used. Endodontic instruments must be used without rubber stoppers or with the use of indelible ink or wax to mark the working length. In addition, thought should be given to treating the patient as the first appointment in the day in order to minimize exposure to airborne particles of latex. Special latex-free rooms may be necessary for the most severe cases. Any patient who experiences a hypersensitivity reaction should be referred to an allergist for definitive diagnosis before continued endodontic treatment. Lastly, a medical consultation may be requested when there is history of robust, life-threatening allergic reactions to dental procedures despite the use of non-latex products.

References

1. Berky ZT, Luciano WJ, James WD. Latex glove allergy. A survey of the US Army Dental Corps. Jama 1992;268(19):2695-2697.
2. Galindo MJ, Quirce S, Garcia OL. Latex allergy in primary care providers. J Investig Allergol Clin Immunol 2011;21(6):459-465.
3. Tarlo SM, Sussman GL, Holness DL. Latex sensitivity in dental students and staff: a cross-sectional study. J Allergy Clin Immunol 1997;99(3):396-401.
4. Spina AM, Levine HJ. Latex allergy: a review for the dental professional. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1999;87(1):5-11.
5. De Queiroz M, Combet S, Berard J, Pouyau A, Genest H, Mouriquand P, et al. Latex allergy in children: modalities and prevention. Paediatr Anaesth 2009;19(4):313-319.
6. Knowles KI, Ibarrola JL, Ludlow MO, Anderson JR, Newcomb BE. Rubber latex allergy and the endodontic patient. J Endod 1998;24(11):760-762.
7. Kleier DJ, Shibilski K. Management of the latex hypersensitive patient in the endodontic office. J Endod 1999;25(12):825-828.
8. Susini G, Andre C, Charpin D. Gutta-percha does not include main latex allergens. Ann Allergy Asthma Immunol 2006;96(4):632-633.
9. Kang PB, Vogt K, Gruninger SE, Marshall M, Siew C, Meyer DM. The immuno cross-reactivity of gutta percha points. Dent Mater 2007;23(3):380-384.
10. Hamann C, Rodgers PA, Alenius H, Halsey JF, Sullivan K. Cross-reactivity between gutta-percha and natural rubber latex: assumptions vs. reality. J Am Dent Assoc 2002;133(10):1357-1367.
11. Costa GE, Johnson JD, Hamilton RG. Cross-Reactivity studies of gutta-percha, gutta-balata, and natural rubber latex (Hevea brasiliensis). J Endod 2001;27(9):584-587.