Cross reactivity between gutta-percha and latex

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Q. I was consulted on a patient who has an immediate type allergy to latex; can she have dental work with gutta percha and is there a test for IgE mediated allergy to this material; your advice is greatly appreciated.

A. Thank you for your recent inquiry.

As you can see from the abstracts copied below, there is no cross reaction between gutta-percha and latex. There, however, is potential cross reactivity between gutta-balata and latex. On occasion, gutta-balata is added to gutta-percha, and therefore you should make sure, in regards to the patient in question, that pure gutta-percha is used.

Unfortunately I was not able to find any in vitro tests for gutta-percha allergy.

Thank you again for your inquiry and we hope this response is helpful to you.

Cross-reactivity between gutta-percha and natural rubber latex: assumptions vs. reality.
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Abstract
BACKGROUND: Immunological cross-reactivity between gutta-percha and natural rubber latex, or NRL, has not been demonstrated clearly despite recent concerns and several suspected cases reported in the literature.
METHODS: The authors analyzed aqueous extracts of commercial gutta-percha points and raw gutta-percha samples for cross-reactivity to NRL by radioallergosorbent test, or RAST, inhibition; immunoblot inhibition; direct enzyme-linked immunosorbent assay, or ELISA; and ELISA inhibition using sera from NRL-allergic people as the source of anti-NRL immunoglobulin E, or IgE, antibodies. To confirm in vitro results, the authors conducted skin prick testing, or SPT, on a patient with type I NRL allergy using aqueous extracts from raw gutta-percha, ammoniated gutta-percha and gutta-percha points.
RESULTS: Aqueous extracts from commercial gutta-percha points did not cross-react to NRL in RAST inhibition or immunoblot inhibition, ELISA or ELISA inhibition assays. However, three of 13 sera from subjects with type I NRL allergy exhibited IgE binding to raw gutta-percha extracts in direct ELISA. Moreover, in ELISA inhibition, the binding of IgE to raw gutta-percha extracts was inhibited in a dose-dependent manner by raw NRL and vice versa. SPT results from a subject with type I NRL allergy were positive for NRL and raw gutta-percha extracts but negative for gutta-percha point extracts.
CONCLUSIONS: The authors found no detectable cross-reactivity between NRL and commercial gutta-percha points. However, their ELISA and SPT results demonstrated that some allergenic cross-reactivity exists between raw gutta-percha and raw NRL.
CLINICAL IMPLICATIONS: Gutta-percha alone is not likely to induce symptoms in patients with type I NRL allergy. However, other materials used in obturating root canals may be irritating and potentially allergenic in patients with pre-existing allergies.

Cross-Reactivity studies of gutta-percha, gutta-balata, and natural rubber latex (Hevea
Gutta-percha and gutta-balata are derived from the Paliquium gutta and Mimusops globosa trees, respectively, that are in the same botanical family as the rubber tree Hevea brasiliensis. For this reason the potential for immunological cross-reactivity between the gutta-percha and gutta-balata used in endodontics and natural rubber latex (NRL) has been the subject of some controversy, because these products may be used in latex-allergic individuals. The objective of this study was to investigate the potential cross-reactivity between gutta-percha, gutta-balata, and NRL. Physiological extracts of seven commercially available gutta-percha products, raw gutta-percha, raw gutta-balata, and synthetic transpolyisoprene were each analyzed for cross-reactivity with NRL in a competitive radioallergosorbent test inhibition assay. No detectable cross-reactivity was observed with any of the raw or clinically used gutta-percha products. In contrast the raw gutta-balata released proteins that were cross-reactive with Hevea latex. We conclude that the absence of gutta-percha proteins that can react with Hevea latex-specific IgE antibody supports the minimal potential for commercially available gutta-percha to induce allergic symptoms in individuals sensitized to NRL. Because gutta-balata is sometimes added to commercial gutta-percha products caution should be exercised if products containing gutta-balata are used in endodontic care of latex-allergic individuals.

The immuno cross-reactivity of gutta percha points.
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Abstract
OBJECTIVE: The purpose of this study is to test the postulated immuno cross-reactivity between proteins derived from raw gutta percha (RGP), gutta percha point (GPP) and natural rubber latex (NRL).
METHODS: Antigenicity and cross-reactivity of proteins were determined by the FITkit (FITBiotech, Finland) and ELISA inhibition assays.
RESULTS: Antigenicity of proteins derived from RGP or GPP was not demonstrated. Except for NRL glove extracts, neither extracts from RGP or GPP were reactive in ELISA inhibition assay.
SIGNIFICANCE: There is no immunologic cross-reactivity in vitro between proteins derived from RGP or GPP, and from NRL gloves. Thus, therapeutic use of GPP is unlikely to initiate adverse immuno-reactivity in individuals previously sensitized to NRL proteins.

Sincerely,
Phil Lieberman, M.D.

Key Words: gutta-percha, gutta-balata, latex