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[About this Journal](#)

[Table of Contents](#) | [Browse TOC](#)

[Find Citing Articles](#) | [Email Jumpstart](#) | [Save Article Text](#)

[Email Article Text](#) | [Print Preview](#)

Links

[Abstract](#)
[Complete Reference](#)
[Catalogo Biblioteca ISS](#)

Outline

- [Abstract](#)
- [CASE REPORT](#)
- [DISCUSSION](#)
- [References](#)

Recent History

Allergic Reaction After R...



Allergic Reaction After Rubber Dam Placement

[Case Reports]

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Abstract

In the last few years allergic reactions to natural rubber latex (NRL) have increased in dental practice affecting both the dental team and patients. Some case reports discuss the potential risks of hypersensitivity to NRL products. An adverse patient reaction after dental rubber dam placement is reported. About 1 min after the isolation of the tooth with a rubber dam the patient presented signs and symptoms of hypersensitivity. Oxygen and intravenous hydrocortisone were administered and the patient kept under observation. After 2 h she had stable vital signs and no more allergics symptoms. It is unclear whether components of the NRL dam or the cornstarch powder incorporated with the rubber dam was responsible for the allergic reaction. Dentists must be aware of the health problem and be prepared for an adequate management in dental practice.

In the last few years, the allergenic potential of natural rubber latex (NRL) has received great attention due to reports of adverse reactions among health practitioners (1). This can be explained by the advent of universal precautions with the emphasis on infection control in the early 1980's (2).

The three main types of reactions associated with gloves, rubber dam, or other latex products are nonallergenic or irritant reactions, delayed or type IV hypersensitivity reactions, and immediate type I IgE-mediated responses (3).

NRL reactions have been reported to affect dental staff and patients with a prevalence of 6% (3) and 9.7% (4), respectively. Delayed hypersensitivity reactions (type IV) to NRL are caused by processing chemicals, whereas the major antigens for immediate type I responses are the cytoplasmic proteins from the *Hevea brasiliensis* tree. Cornstarch applied in the latex products (5) and the chemicals used in the processing of NRL, which can impregnate cornstarch, also cause sensitivity (6).

This report describes rubber dam allergy in a patient receiving endodontic therapy.

CASE REPORT

A 28-yr-old woman reported to the dental clinic with a complaint of pain in the maxillary first left molar. After clinical and radiographic evaluation, a diagnosis of a necrotic pulp with acute

apical periodontitis was made and root canal therapy was indicated. Medical history revealed episodes of allergic responses to aspirin and econazole nitrate.

After adequate preparation of the patient, isolation of the tooth was accomplished with a 5 × 5-inch rubber dam (Hygenic, The Hygienic Corporation-E.U.A., Akron, OH). About 1 min after the dam application the patient was anxious and excited, with evident erythema on the face, neck, torso and upper limbs, facial swelling, tachycardia, sudoresis, exophthalmos, and dyspnea. Oxygen and an intravenous injection of 100 mg of hydrocortisone hemisuccinate were administered immediately, and the patient placed with the legs raised and kept under observation. Forty minutes later the patient presented no signs or symptoms of allergy except erythema on the face, neck, torso, and upper limbs. After 2 h she was completely recovered.

DISCUSSION

Many studies in the last two decades have shown the benefits of the rubber dam in dental practice. Along with other advantages its use greatly reduces the microbiological content of aerosols produced during operative dentistry and protect the patient against foreign swallowing bodies (7).

Although not yet fully established, most researchers agree that chemicals used in NRL manufacture, latex proteins, and cornstarch lubricating powders may all be agents involved in sensitization. The most common route of exposure to NRL proteins is direct cutaneous and percutaneous contact with NRL products; however, mucous membrane exposure through direct or indirect contact by aerosolized NRL proteins and hematogenous exposure must also be considered (3, 6).

Reports of an immediate type I hypersensitivity reaction to rubber dam have confirmed the presence of IgE antibodies to latex in serum (8, 9). However, both the route of exposure and the amount of antigens required to sensitize a person are not fully clear (3, 10, 11). In the present case the patient reaction began after she had breathed the rubber dam powder. Thus

it is possible that the chemicals or proteins of NRL carried by cornstarch of the rubber dam were responsible for the allergic reaction, because the rubber dam powder itself is a rare sensitizer (3). This is supported by the fact that the patient was successfully treated with a rubber dam washed with sterile water 2 days after the first appointment, as suggested by an allergist to whom she was referred. Unfortunately the patient refused to complete allergen tests to determine the exact cause of her reaction. The use of a polydam-polythene sheet could be another alternative to prevent this type of reaction (12).

A guideline for dental management of a patient with latex allergy might include identification of high risk patients, avoidance of NRL products, identification of potentially antigenic rubber devices, and taking a medical history for allergy to drugs, food, chemicals, and, finally, being prepared to treat a reaction should it occur (13, 14). In conclusion, due to the potential serious risk of allergic reactions to NRL products, dentists must be aware of this health problem and establish strategies to protect themselves, the dental team, and patients.

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[Biblioteca](#) [ISS](#) [Bibliographic Links](#) [\[Context Link\]](#)
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[Biblioteca](#) [ISS](#) [Bibliographic Links](#) [\[Context Link\]](#)

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