

## Immediate Systemic Allergic Reactions to Latex Rubber

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### ABSTRACT

Immediate systemic allergic reactions to latex rubber have been reported only in the last several years. Previously, most reactions reported were of contact dermatitis. Some of these allergic systemic reactions have been thought to be due to the corn starch talc on rubber gloves.<sup>(1)</sup> In those cases reported by Turjanmaa<sup>(2)</sup> and by Axelsson,<sup>(3)</sup> most of these patients had other manifestations of atopy. In the 3 cases reported here, 2 of the 3 had no other history of atopy. In none of the 3 were the reactions due to corn starch.

### INTRODUCTION

**R**EVIEW OF THE LITERATURE reveals 15 other systemic reactions to rubber exposure.<sup>(1-13)</sup> All had prior contact urticaria with rubber contact. In 2 cases reported by Slater,<sup>(6)</sup> none had other allergic symptoms. In 4 cases by Turjanmaa,<sup>(2)</sup> and in 3 cases reported by Axelsson,<sup>(3)</sup> they had other allergic symptoms, *i.e.*, atopic dermatitis, allergic rhinitis, or asthma. Also in the 3 cases reported by Axelsson,<sup>(3)</sup> 3 had positive allergic-type skin tests, but only 1 had a positive RAST. In a survey by Turjanmaa<sup>(2)</sup> of 512 hospital employees using latex gloves, 23 had a history suggestive of rubber allergy. Only 15/23 of those suspected had a positive skin test or RAST to latex rubber. Prick testing with a solution made by soaking the glove in saline was reported as a more reliable test than patch testing. Delayed reactions were reported in 3/512 tested. Two were sensitive to thiuram and one to PPDA.

The cases presented here, represent 3 more cases of acute allergic reactions to rubber exposure, 1 of which is probably anaphylactic.

### CASE #1

The patient is a 17-year-old white male who underwent surgery for an orchiopexy. He had a history of asthma in the distant past, but this was quiescent at the time of his surgery. His only other allergic condition was a past history of swelling of the lips and eyes, hives on his face, and wheezing when a rubber dam was placed in his mouth by the dentist. At the time of surgery, however, all that was known was that he had some swelling of lips and eyes once with rubber exposure.

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During the surgery a plastic mask, air hose, and a nonrubber rebreathing bag were used for anesthesia. Anesthesia was induced with thiopental and fentanyl, and was maintained with oxygen, nitrous oxide, and isoflurane. Thirty-eight minutes after induction, there was an increase in airway impedance unresponsive to an increase in anesthesia. The patient was intubated and given diphenhydramine 50 mg i.v., ranitidine 50 mg i.v., Solumedrol 125 mg i.v., and a bolus of aminophylline. Blood gases at the time of the bronchospasm showed evidence of respiratory failure with pH of 7.33, pCO<sub>2</sub> of 51.5, and a pO<sub>2</sub> of 43. An erythematous rash of the face and upper torso and swelling of the lips followed. There was no hypotension. The patient was extubated 90 minutes after his arrival to the recovery room; he was observed for 3 hours, and at the patient's request was discharged. He was discharged on prednisone and albuterol tabs for the next 2 days.

Subsequent investigation revealed the severity of his past reactions to latex rubber. In reviewing the anesthesia equipment used, it was discovered that the strap holding the mask to the face contained latex rubber. The strap contacted only the skin of the face and neck and did not come in contact with the mucosa. The strap was of black rubber and was reusable. It is doubtful that this was contaminated with corn starch talc.

A modified RAST test to latex rubber by Pharmacia Laboratories showed a class III result. The patient was to be patch-tested with the rubber strap and rubber components but never returned.

## CASE #2

The patient is a 26-year-old white female nurse. She had a past history of recurrent sinusitis and asthma. In the past she had a history of itchy skin when wearing latex gloves. Subsequently, she had dental work done and a latex rubber dam was used. Within a half an hour after leaving the dentist, she had angioedema of the lips and eyes and a sensation of difficulty breathing. When seen in the office, there was edema of the lips and cheeks. The throat and oral mucosa appeared normal. The chest was clear to auscultation; however, there was a slight increase in her peak flow from 550 to 590 following a injection of susphrine, and the administration of benadryl and prednisone.

The modified RAST test to *H. brasiliensis* (latex rubber) was only Class I. Prick test to a solution made by soaking the washed glove in saline was positive on the patient but not on a control subject. Prick testing to a solution of corn starch was negative.

## CASE #3

The patient is an 18-year-old female hospital volunteer with a past history of spina bifida requiring past orthopedic and urologic procedures. Beginning in 1988, she began having urticaria, sneezing, and pruritus of the palate and ears, whenever in the vicinity of rubber gloves or balloons. At that time she was working as a hospital volunteer. Terfenadine 60 mg taken 30 minutes before going to the hospital has provided adequate prophylaxis.

A finger cot without talc was soaked in 30 cc of sterile saline for 36 hours. A prick test with this solution resulted in a 16 mm of erythema, and 5 mm of induration.

## CONCLUSION

All three patients demonstrated systemic reactions to latex rubber. One patient definitely had other atopic symptoms; the other two had none. Prick testing was a more sensitive test than the RAST in patient #2. In patient #2, her prior reactions of itching to the latex gloves were definitely due to the rubber and not to the corn starch, in distinction to the case reported by Segev.<sup>(4)</sup> Patients' #1 and #3 reactions were unlikely to be due to corn starch talc; however, they were not tested specifically to it.

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