

Is latex a potential source of an aeroallergen?

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Latex, an emulsion produced from the rubber tree *Hevea brasiliensis*, can cause contact urticaria, as first reported by Nutter (4). It can also cause acute allergic reactions by simple cutaneous or mucous membrane contact, as recently reported by Leynadier et al. (3) and Turjanmaa et al. (5). Recently, Baur & Jager (1) and Lagier et al. (2) have also suggested that latex is a potential source of an aeroallergen, on the basis of reactions after exposure to rubber gloves. We have observed a case supporting this hypothesis.

Case report

Mme Marie-France B., born in 1943, qualified as a nurse in 1966 and soon specialized in hemodialysis. In 1973, she developed contact eczema and several episodes of angioedema during or after occupational contact with dialysis equipment. The symptoms disappeared when she moved to another department for 6 months, but angioedema and palmar pruritis quickly reappeared when she returned to the hemodialysis unit. No cutaneous or respiratory symptoms occurred over a 3-year period when she again worked in a different department. On her return to the hemodialysis unit in 1977, she progressively developed episodes of sneezing when at work, together with dyspnea; she also developed pruritis when she wore latex gloves for short periods, and regional urticaria

and angioedema when they were worn for longer periods. When interviewed, she mentioned a buccal reaction after eating bananas, as well as intolerance of avocados over the previous few months, manifested by spasmodic coryza and, a few days earlier, an asthma-like attack with wheezing apparently in the left lung. On the day of the examination, the chest sounds were normal, the peak expiratory flow was 250 l/min, the arterial pressure 130/80, and the pulse 68/mn. Radiographic examination showed the sinuses and the chest to be normal. Functional respiratory tests gave normal base-line results for both volume and flow. FEV₁ fell by 28% after inhalation of 320 µg of histamine, and this was reversed by the administration of a β_2 -adrenergic drug. Prick tests showed normal positive reactions to histamine and codeine. Positive reactions were obtained with latex and banana, and negative reactions with avocado, apple, peach, orange, and diluent. Total serum IgE level was 32 kIU/l. RAST was positive for latex at 1.32 PRU/ml, but negative for avocado, banana, ethylene oxide, isocyanates, phthalic anhydride, and formol.

As shown in Fig. 1, after she had worn latex gloves for 10 min, the patient's FEV₁ fell by 18% at 10, 60, and 90 min; urticaria appeared at 50 min, and an ocular reaction (pruritis and conjunctivitis) at 60 min. When latex gloves were rubbed together for 10 min in the patient's presence (no direct contact), FEV₁

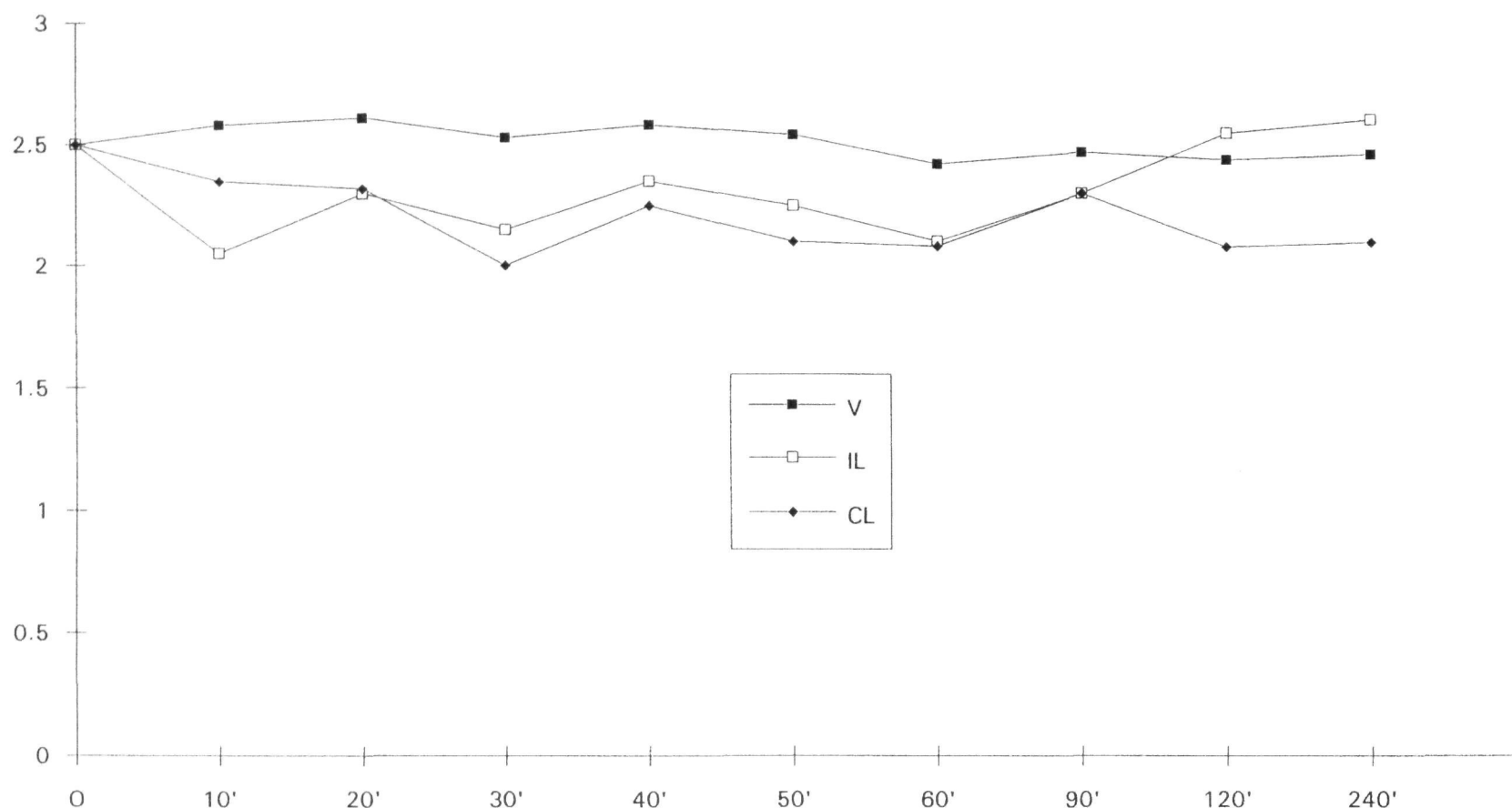


Fig. 1. Relationship between patient's FEV₁ and degree of exposure to latex. x-axis shows time in minutes; y-axis, FEV₁ values. V: patient wearing vinyl gloves (no latex contact); CL: patient wearing latex gloves; IL: patient not wearing gloves (no direct latex contact), but latex gloves rubbed together in patient's presence as test for aeroallergen.

fell by 20% at 30 min, although she did not develop urticaria or conjunctivitis. Vinyl gloves had no effect on the FEV₁ after being worn for 10 min.

Discussion

The pathogenetic effect of latex in the long history of allergic manifestations we report is clear. The absence of direct skin contact limited the effect on the airways in the case. When there was direct skin contact, ocular and cutaneous manifestations appeared. In addition, the association with allergic reactions after the ingestion of banana and avocado is significant. Sensitivity to latex was clearly shown by the positive prick test at a dilution of 1/100. RAST was also positive despite a low level of total IgE in the serum.

Nurses working in hemodialysis units are frequently exposed to latex, because the gloves are changed each time a new patient is treated. It is not unusual for a nurse to change gloves 25 times a day, and this would cause significant dispersal of latex glycoproteins into the atmosphere. In the case we report, the symptoms disappeared when all the pa-

tients and personnel wore gloves made of material other than latex. The problem was finally resolved when the patient started working with patients undergoing dialysis at home, because it is the patient's spouse who intervenes at the beginning and end of the session, and when incidents arise, on the advice of the supervising nurse.

In addition to the contact urticaria initially described by Nutter (4), respiratory reactions to airborne latex particles should be borne in mind and tested for, particularly in medical personnel.

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