

Case reports

Raccoon epithelium – a new allergen source

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We report the case of a 39-year-old asthmatic patient who developed acute rhinoconjunctivitis, Quincke's edema, and asthma after repeated exposure to a raccoon (*Procyon lotor*) which a friend kept at home. Skin prick and scratch tests with native raccoon hair and epithelium, as well as RAST, were clearly positive. Elimination of contact with the raccoon and avoiding the home of his friend led to a cessation of the patient's acute exacerbations.

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Allergies to the epithelia and excrement of animals such as cats, dogs, and other pets are very common (3, 4). There are also case reports on allergies to "rarities" such as fallow deer (2), lions (6), elephants (5), and lizards (7). So far, however, sensitization to the raccoon has not been described.

The raccoon (*procyon lotor*) is native to the forests of North America; occasionally, it is kept as a pet. It belongs to the bear family (Ursidae), which is included in the superfamily of doglike carnivores (Canoidea), although the raccoon is omnivorous. Zoologically, these doglike species usually differ from the catlike species (Feloidea superfamily) in having additional molar teeth (1).

Case report

For 3 years, a 39-year-old, nonsmoking patient had suffered from increasing seasonal attacks of allergic cough, rhinoconjunctivitis, and asthma, which were known to be due to a strong sensitization to pollen of mugwort and other Compositae species. For 1 year, he had also suffered from perennially recurring attacks of rhinoconjunctivitis, Quincke's edema, and asthma that always occurred when he visited a friend who kept a raccoon at home. The patient had never suffered allergic reactions to animals before. In

the following period, he also noticed an increasing intolerance of the cat of his parents-in-law, suffering slight dyspnea.

Material and methods

Skin prick tests (SPT) and intradermal tests were performed according to the routine protocol with allergen extracts of several animal epithelia, molds, and house-dust and storage mites (Alyostal®, Stallergènes Lab). For prick and scratch test for raccoon, native hair and epithelia were mixed with 1/10 w/v phosphate buffer. Results were read after 15 min. The negative control was glycerol diluent or phosphate buffer and positive histamine 10 mg/ml. Total IgE was measured by PRIST® (Pharmacia). Specific IgE against domestic allergens (cat epithelium e₁, horse epithelium e₃, dog epithelium e₅, *Dermatophagoides farinae* d₂, and *Alternaria tenuis* m₆) was measured by commercial Phadebas-RAST® disks (Pharmacia). The RAST-disks for raccoon were specially prepared by coupling 10 µl of an extract 1/10 w/v in 0.15 M NaCl per CnBr-activated filter paper disk (8). Bronchial hyper-responsiveness was defined by a decrease of more than 20% of the initial FEV₁ (PD₂₀) as determined by the methacholine provocation test.

Results

Prick and scratch tests to raccoon epithelium produced a large local urticarial reaction in the patient, whereas three control persons were completely negative. RAST was positive (0.7 PRU/ml). A questionable sensitization to cat epithelium could be seen only as a slightly positive intracutaneous reaction, whereas SPT and RAST were negative. Tests for the other perennial allergens were negative. There was marked bronchial hyperresponsiveness (PD_{20} at 300 µg methacholine) at the time of diagnosis. After contact with the raccoon was avoided, the acute allergic exacerbations, as well as the bronchial hyperresponsiveness, had vanished by a control date 3 months later.

Discussion

To our knowledge, this is the first report of allergy to raccoon epithelium. It was proved by skin tests, RAST, and clinical improvement after avoidance of the allergen. Because sensitization took place in spite of rare exposure to the raccoon, it has to be assumed that the allergen is aggressive for atopic people.

A questionable sensitization to cat dander oc-

curred after the allergic reaction to raccoon and was far less obvious clinically. Because skin prick tests and RAST for cat were negative, and because the raccoon species do not belong to the superfamily of catlike carnivores, we regarded the intracutaneous reaction to cat as independent.

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