

The tale of the allergist's life: A series of interesting case reports

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ABSTRACT

The practicing allergist has the unique opportunity to see an extraordinary variety of fascinating patients. Identifying the precise cause of the patient's complaints makes for a satisfying intellectual endeavor. This is exemplified by the description of nine cases seen in a university allergy clinic. The cases include uncommon pets such as monkey, hedgehog, and iguana; occupational allergens such as slime mold and nematodes; household exposure to spider and lady bugs; and recreational exposure to earthworms and algae. Instituting environmental control measures results in a gratifying response in the patient.

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The practicing allergist is in a truly unique position. I don't believe there is any specialty in which a wider and more fascinating variety of patient presentations is seen. Nine cases are reviewed in a university clinic that exemplifies this.

PATIENT 1

Chief Complaint

"Doctor, I have breathing problems when I'm in my lab."¹

History

A 42-year old Ph.D. microbiologist with previous seasonal allergic rhinitis was now having upper and lower respiratory symptoms in the winter. On additional questioning, rhinoconjunctivitis and wheezing occurred after removing experimental contents from a pressurized container. Physical examination was negative.

Pulmonary Function Testing

Monday morning before arrival in lab, forced expiratory volume in 1 second (FEV₁) and forced expiratory flow at 25–75% (FEF_{25–75}) were normal. Fifteen minutes after venting the pressure chamber, FEV₁ decreased 13% and FEF_{25–75} decreased 30.7%. No symptoms.

The Proposed Culprit

The patient was working with *Dictyostelium discoideum*, a primitive slime mold, a unicellular amoeba. It has a unique developmental cycle and is an excellent organism to study cell–cell signaling systems largely through its lysosomal enzyme. The patient had worked with the organism for 18 months.

Laboratory Evaluation and Results

Three preparations of the organism were made: (1) whole organism maintained in growth medium, (2) lysed organisms after the whole stock was placed in the pressure canister, and (3) lysosomal enzyme.

Skin Tests

The patient was strongly positive on skin-prick testing to 1:100 w/v whole and lysed preparations. A control subject was negative to 1:10 w/v of both preparations.

ELISA

Whole organism 3.7 > outside diameter (OD) than control. Lysed organism 5.8 > OD than control. Lysosomal enzyme 7.57 > OD than control.

Outcome

By handling all materials under a laminar flow hood and use of a respiratory mask, the patient was able to continue his work with no symptoms.

PATIENT 2

Chief Complaint

"I got bit by a spider."²

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History

A 21-year-old female secretary was bitten on the right hand by a brown recluse spider. Within a few minutes, she developed generalized urticaria, dyspnea, abdominal cramps, and dizziness. Although she had no previous history of spider bites, there were significant infestations of spiders both at home and at work.

The Proposed Culprit

The brown recluse spider (*Loxosceles reclusa*) is endemic to the Midwest and southeast United States. It is most notable for causing marked tissue necrosis at the bite site. A systemic reaction may occur including hemolysis, macular rash, chills, and myalgia. There were no reports of IgE-mediated reactions.

Laboratory Evaluations and Results

Brown recluse venom was obtained from an Arizona spider farm. An IgE ELISA was developed against spider venom. Patient serum was twofold > OD than control.

Outcome

The patient was given an Epi-Pen and advised to totally avoid brown recluse spiders. Because the systemic reaction happened after the first bite, it was suggested that sensitization could have occurred through the inhalant route.

PATIENT 3

Chief Complaint

"I get a stuffy nose when I go fishing."³

History

The patient was a 33-year-old man with a history of perennial allergic rhinitis. He experienced severe rhinoconjunctivitis when he fished on inland lakes in the Midwest. It never happened when he used artificial lures, only with earthworms. He also developed urticaria of the hands and face within an hour of baiting his hook with earthworms.

The Proposed Culprit

Earthworms (*Lumbrivertis terrestris*) also known as "night crawlers" are commonly used as fishing bait.

Laboratory Evaluation and Results

An aqueous solution of a lyophilized extract of earthworm was prepared for skin testing. Skin-prick test 1:20 w/v resulted in a large local reaction with sneezing and lacrimation. Control subject was negative.

Outcome

Patient continues to fish but no longer baits hook with earthworms. Despite antihistamines, he still develops rhinoconjunctivitis when earthworms are baited by others on the same boat.

PATIENT 4

Chief Complaint

"Something is bothering me in my house."⁴

History

The patient was a 46-year-old man with a history of seasonal allergic rhinitis. He recently developed symptoms of asthma at home and was totally asymptomatic on a cruise. The only recent development at home was an infestation of ladybugs.

The Proposed Culprit

Ladybugs (*Coccinella septempunctata*) are being increasingly used as a natural means of control of insect pests, particularly aphids. One ladybug can consume 50–60 aphids per day.

Laboratory Evaluation and Results

Skin Tests. An aqueous extract of ladybugs was prepared. Control subject—negative on skin-prick test to 1:20. Patient strongly positive to 1:2000. Wife with rhinitis symptoms—positive to 1:200.

Peak flows. In office—550 mL. Thirty minutes in home—8% ↓. Sixty minutes in home—11% ↓. Ninety minutes in home—30% ↓.

Outcome

With onset of cold weather and exodus of ladybugs, the patient caulked the home extensively resulting in no return of ladybugs.

PATIENT 5

Chief Complaint

"I took my pet to the vet and had big problems."⁵

History

A 49-year-old man with a 20-year history of upper and lower allergic airway disease. Previously, skin tested positive to dogs, cats, and house-dust mites. While married to a woman with two cats, he required nasal steroids, antihistamines, inhaled corticosteroids, and β -agonists. After a divorce and removal of cats, symptoms improved. Several years later he married a woman with two macaque monkeys and developed perennial nasal and chest symptoms. One monkey was removed and symptoms improved. On a cold day, the

patient took the monkey to the vet. The windows were rolled up, the monkey sat on his shoulder, and by the time they reached the vet, the patient had marked conjunctival swelling and shortness of breath.

Laboratory Evaluation and Results

Forty-five grams of monkey hair and skin were obtained commercially. An IgE ELISA was prepared instead of skin testing because of the fear of Simian virus. Patient OD to monkey extract was $2.1\times$ control.

Outcome

The patient has limited his exposure to the monkey and is doing well on symptomatic medications.

PATIENT 6

Chief Complaint

"My daughter is allergic to the lake."⁶

History

A 7-year-old girl with no personal or family history of allergy experienced urticaria of the legs on 3 successive weeks while swimming in a nearby lake. On the 4th week, she swallowed a small amount of lake water after getting water up her nose. Within minutes she developed generalized urticaria, laryngeal edema, and asthma.

The Proposed Culprit

The lake was highly infested with algae.

Laboratory Evaluation and Results

An aqueous extract of algae was prepared. Control subject—negative on skin-prick test to 1:20 w/v. Patient—strongly positive to 1:20 w/v.

Outcome

The patient has avoided the lake and continues to do well.

PATIENT 7

Chief Complaint

"My nose gets stuffy when I work in my lab."⁷

History

A 20-year-old Ph.D. postdoctoral research fellow presents with new complaints of perennial rhinoconjunctivitis. She is in her lab 7 days a week and symptoms totally resolve away from St. Louis. Skin tests to seasonal and nonseasonal inhalants were negative.

Physical Examination

Swollen, pale nasal turbinates.

The Proposed Culprit

The patient's work involved developing a soybean plant resistant to *Heterodera glycines*, a parasitic nematode. She had daily exposure to soybean plants, nematode eggs, and cysts.

Laboratory Evaluation and Results

A commercial soy extract was obtained. Aqueous extracts of nematode cysts and extracts were prepared. Skin-prick testing to soy was negative. Skin-prick test to 1:10 W/V extract of nematode cysts and eggs were positive. Control subject was negative.

Outcome

Daily nonsedating antihistamines completely controlled her symptoms.

PATIENT 8

Chief Complaint

"My asthma is getting worse."

History

The patient is a 54-year-old Ph.D. researcher with a history of occupational asthma due to rats and guinea pigs. He did well with environmental control measures until the past month when his asthma became worse on a daily basis with nocturnal awakening.

Physical Examination

Negative except for generalized wheezes in the chest.

The Proposed Culprit

The patient recalled one exacerbation of asthma 2 years ago after close contact with the bedding of a new family pet, *Atelerax albiventris*, the hedgehog. The hedgehog is a quilled mammalian insectivore that uses spines for protection from predators. Despite transferring care of the hedgehog to the children and moving the hedgehog to the garage, symptoms continued to worsen.

Laboratory Evaluation and Results

Aqueous extracts were prepared from hedgehog spines and dander. The patient was strongly skin-prick test positive to a 1:10 w/v dander extract and negative to spine extract. A control subject was negative to both.

Outcome

On removal of the hedgehog from the home, the patient markedly improved.

PATIENT 9

Chief Complaint

"I think I'm allergic to Iggy."

History

A 24-year-old senior medical student had taken an allergy elective. He developed classic allergic rhinitis for the first time. On a 1-month elective in New York, he was asymptomatic. On his return to St. Louis, his symptoms returned.

Physical Exam

Swollen pale nasal turbinates.

The Proposed Culprit

The only environmental difference between St. Louis and New York was his pet iguana.

Laboratory Evaluation and Results

Skin tests to seasonal and nonseasonal inhalants were negative. An extract was made from iguana skin scales. The patient showed a marked positive skin-prick test to 1:20 w/v iguana extract. Control subject was negative.

Outcome

The iguana was removed and symptoms disappeared.

DISCUSSION

In this manuscript, I describe 9 cases seen in a university allergy clinic that typify, I believe, the breadth of patients seen by most clinical allergists. This is one of the many positive aspects of our medical life that makes our profession so fascinating and satisfying. To get to the heart of the matter, rather than simply starting a new drug or increasing the dose of the present medications, makes for an intensely gratifying intellectual experience and one that also benefits the patient. What a great way to make a living!

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