

Case Presentation: Trick or Treat?

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KEY WORDS

Contact dermatitis, allergic contact dermatitis, pediatric dermatology case study

CASE PRESENTATION

The Monday morning staff meeting was beginning when a school-aged child and his mother walked up to the glass door. Although the clinic had not opened, upon seeing the child's startling appearance, the four

nurse practitioners (NPs) sprang into action. His face was red and severely swollen, his lips were twice normal size, and his eyes were nearly swollen shut (Figure). One NP retrieved the oxygen tank, another reached for the EpiPen, and the third readied the diphenhydramine. The NP at the door talked to the child and assessed his breath sounds.

Three days ago (which happened to be Halloween), the patient had presented with a facial scratch from a bicycle accident. The scratch had been cleaned with soap and water and covered with an adhesive bandage. The mother had been instructed to apply antibiotic ointment to the cut twice a day until it healed; however, she admitted she had not applied the ointment, because she believed his laceration looked fine. The morning prior to his current visit, the child awoke with his eyes completely swollen shut. The morning of his current visit, he awoke from an undisturbed night of sleep with swelling that, while severe, was somewhat improved compared with the previous day. His mother expressed concern that his present condition was related to her not applying the prescribed antibiotic ointment.

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MEDICAL, PERSONAL, SOCIAL, AND DEVELOPMENTAL HISTORY

The patient's physical examination for kindergarten the previous month revealed an engaging, happy 5-year-old child with no previous history of allergies to medications, foods, or environmental exposures. His immunizations were up to date, as he had received his recommended 4- and 6-year vaccines. His mother reported no history of previous surgeries, hospitalizations, or dermatologic concerns. He was not taking any prescribed or over-the-counter medications or supplements. He could write his name, knew his address, and recited his telephone number. The mother reported no concerns on the Pediatric Symptom Checklist (Jellinek & Murphy, 1988) evaluation form. No history of atopic disease was noted in the family history except for an older sister with seasonal allergic disease in the spring months.

FIGURE. Facial swelling. Rash isolated to the patient's face.



PHYSICAL EXAMINATION FINDINGS

Vital signs were obtained and included a temperature of 36.5°C, a heart rate of 78 beats per minute, a respiratory rate of 18 breaths per minute, and blood pressure of 96/54 mmHg. He was in the 50th percentile for height, weight, body mass index, and blood pressure. Our initial serious concern of systemic anaphylaxis was allayed when we realized the child was talking, had excellent air exchange, and did not exhibit rhonchi, wheezing, or cough. The erythematous rash was limited to his face (Figure), and no other rash was noted on his neck, trunk, or extremities. The small laceration evaluated 3 days earlier was well healed without signs of infection. His cardiovascular and abdominal examinations were unremarkable.

REVIEW OF SYSTEMS

The mother reported that her son had never experienced such symptoms before. For the few days before and after the rash began, he experienced no itching, watery eyes, headache, sore throat, or other cold symptoms. Despite acquiring two pillowcases full of candy and eating some of it while trick-or-treating, the child reported no abdominal discomfort, vomiting, or diarrhea.

A review of our patient's exposures revealed no new lotions or facial cleansers, laundry detergents, foods, insect bites, or oral or topical medications. His only new exposure was his newly purchased Halloween mask. Upon further questioning, the child proudly described his Power Ranger costume in detail, including the rubber facial mask with holes for his mouth and nose. He had not worn the mask prior to Halloween and wore it on Halloween night for 6 hours.

DIFFERENTIAL DIAGNOSES

Allergic reactions can be caused by a variety of substances that, for some reason in certain persons, stimulate the immune cascade. The most common substances that cause both local and systemic allergic reactions are foods, medications, and stings from insects in the class *hymenoptera*. The National Center for Health Statistics (Jackson, Howie, & Akinbami, 2013) reported that there is increasing prevalence of food and skin allergies in children ages 0 to 17 years and that younger children are more likely to have skin allergies.

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The release of histamines causes mild symptoms such as itching, runny eyes, rash, or hives. Moderate to severe systemic reactions generally produce symptoms involving the respiratory (coughing, chest tightness, and wheezing), gastrointestinal (nausea, vomiting, and diarrhea), and neurological (light-headedness, fainting, and hypotension) systems. However, milder cases of systemic allergic reactions also can occur. Anaphylaxis is a severe allergic reaction and an immunoglobulin E (IgE)-mediated response to an allergen. Acute, severe anaphylaxis was ruled out in this case by examination.

ALLERGIC CONTACT DERMATITIS

Contact dermatitis falls into two categories: allergic and irritant. Allergic contact dermatitis (ACD) was once thought to be an unusual finding in children, but the prevalence has risen greatly in the past three decades (Simonsen, Deleuran, Johansen, & Sommerlund, 2011). Silverberg, Elston, and Crowe (2014) reported that ACD may affect as many as 20% of the U.S. pediatric population, with the most common chemical causes being nickel, topical antibiotics, preservatives, fragrances, and rubber accelerators. Among adolescents, females have significantly higher rates of facial ACD as a result of increased exposure to preservative and fragrance chemicals in cosmetic products and nickel found in jewelry worn in piercings. These clinicians contended that the documented rates of ACD in children are increasing because of their increased exposure to chemicals and better recognition of the condition by health care providers.

ACD is typically an IgE-mediated response. It is important to note that these responses are cell-mediated responses, not antibody-mediated

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