



Case Report

Anaphylactic reaction after a laboratory rat bite

A 50-year-old laboratory technician developed an anaphylactic reaction after a bite from a rat involved in pharmaceutical testing. A severe reaction to laboratory rat bite has only been reported once, but never in an individual with previous rat allergy.

A 50-year-old man without any past medical history or significant family history developed a marked local wound reaction when he was bitten on the hand by a rat in a pharmaceutical research laboratory. The patient had no history of allergic reactions to contact with rat dander or that of any other mammal. The animal was involved in testing a pharmacologically active compound for which all hazards were not yet known.

Three months later, while working with a rat in the same experiment, he was bitten on his right hand. Within 5 minutes he developed severe swelling at the site and a foreign body sensation in his throat. He contacted the on-site occupational health physician assistant about the bite, and while being assessed developed a sensation of chest tightness. The patient was given 50 mg of diphenhydramine orally, and Emergency Medical Services (EMS) was contacted. Paramedics found the patient to be dyspneic, pallid, diaphoretic, and audibly wheezing. Vital sign assessment did not reveal hemodynamic instability. The patient had marked facial and periorbital edema, as well as an urticarial rash on his right arm and chest. Diphenhydramine (25 mg) was given intramuscularly, intravenous access was obtained, and then albuterol (2.5 mg) nebulized was administered. Paramedics contacted medical control for approval to administer epinephrine. The order was given to administer 0.3 mg of epinephrine intramuscularly, and 125 mg of intravenous methylprednisolone before arrival.

In the emergency department (ED), the patient was examined and found to be hemodynamically stable and in no respiratory distress. He stated that his breathing felt significantly better but was not yet at baseline and complained of a mild, but improved, foreign body sensation in his throat. His conjunctiva demonstrated significant chemosis associated with moderate facial edema. The oropharynx was remarkable for uvular and soft palate edema, although he was able to handle secretions with minimal difficulty. Mild inspiratory and expiratory wheezing was noted on auscultation of the chest, with good air

movement and no retractions. The dorsum of the right hand displayed significant soft tissue edema, erythema, and warmth, although was only painful at the location of the bite. He was monitored in the ED for 4 hours, demonstrated no signs of respiratory difficulty, and the airway swelling subsided. He was discharged home in good condition with a prescription for an epinephrine autoinjector, prednisone, diphenhydramine, and amoxicillin/clavulanate for his bite wound.

English language medical literature contains a handful of cases of anaphylactic reactions to mammalian bites, including horses, gerbils, prairie dogs, and rabbits [1–6]. Only one previous case of anaphylaxis due to a laboratory rat bite was found, but this is the only case without prior rat allergy. The incidence of allergic symptoms in workers in animal testing laboratories has been estimated at 11% to 30% [2], often with sensitization occurring within the first 3 years. In the case of rats, these are often due to rat urinary antigen. The one report of anaphylaxis due to laboratory rat bite was in an individual who had previously developed allergies to laboratory rats [7].

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