

## Hamster-hair Hypersensitivity in Adults of Low Atopic Status

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The atopic or type 1 (Gell and Coombs, 1963) variety of allergy to animal hair and dander is well recognized as a cause of bronchial asthma and allergic rhinitis. Hypersensitivity to the hair of various animals probably follows that to house-dust mites and to grass pollen in order of frequency as a cause of extrinsic asthma in Britain, particularly in children.

This report presents four cases of asthma, one of them fatal, seen at this unit in recent years that were apparently due to hypersensitivity to the hair of hamsters kept as domestic pets. The patients were previously healthy adults in the fourth and fifth decades. The cases demonstrate the allergenic properties of the animal and draw attention to the possibility that asthma, even in adults having no previous history of atopy, may have an extrinsic cause.

### Case Reports

*Case 1.*—A housewife aged 41 presented in July 1967. She had previously been well, apart from minor episodes of winter bronchitis, until she developed severe bronchospasm four months before her attendance. Chest x-ray appearances were normal and the sputum was not infected but her symptoms persisted, only slightly improved by treatment. A hamster had been acquired by her children six months before the onset of her illness and was kept in a cage in the kitchen. These facts emerged only on direct questioning, as she had believed that the animal was too small to have any harmful effects. Skin testing with a 2% extract of hamster hair (Bencard) by the intradermal method produced a 15-mm weal and a 25-mm erythematous flare. Tests with all the common allergens were negative apart from an 8-mm weal to house-dust extract, also by the intradermal route. The hamster was given away and she was free from bronchospasm within one week. Four years later she remained well apart from occasional mild winter bronchitis.

*Case 2.*—A 39-year-old motor-works foreman attended in June 1969. He had no previous history of allergy or respiratory disease but in March 1969 he suddenly developed cough with mucoid sputum, followed by persistent bronchospasm unrelieved by treatment, including intermittent corticosteroids. His family had kept a pair of hamsters for two years. Young were produced and there were 15 hamsters in the house, a small maisonette, from the time of onset of his symptoms. The animals lived in a cage in the kitchen but were often allowed the freedom of the house. Physical examination confirmed moderate bronchospasm but was otherwise negative, and the chest x-ray picture was normal. Skin testing gave 20-mm weal and a 30-mm flare to hamster hair by the intradermal method but was negative to all common allergens. He was advised to give up the animals and did so the next day, but there was no obvious improvement. He began to use corticosteroids regularly, varying the dose on his own initiative, and probably over-used isoprenaline inhalers. On 11 August 1969 he died suddenly after a prolonged period of driving while on holiday. At necropsy the appearance was Cushingoid, with striking adrenal cortical atrophy

in addition to the changes of severe bronchial asthma. Drug misuse probably contributed to his death.

*Case 3.*—A housewife aged 41 presented in February 1970. She had been well, apart from an episode of pneumonia aged 18, until October 1969, when she developed dry cough and wheezing which continued despite treatment. A hamster had been kept in a cage in her kitchen for eight months. Intradermal testing with hamster hair gave an 18-mm weal and a larger flare. There was an equivocal 6-mm weal with house-dust extract but all other tests were negative. Chest x-ray appearances were normal. She was reluctant to part with the hamster and was advised that its cage should be moved to the garden and that she should avoid it. Symptomatic treatment and a course of house-dust hyposensitization gave her only partial relief, and in July 1970 intradermal testing produced a 28-mm weal to hamster hair and a negative response to house dust. Hamster hair on her children's clothing seemed a likely explanation and the family then gave up the animal. She later recovered completely.

*Case 4.*—A typewriter mechanic aged 42 presented in February 1971. His health had been good until July 1970, when he developed dry cough and severe asthma. The condition settled while he was away from home on holiday but recurred immediately he returned. Chest x-ray appearances were normal. He had kept a hamster in his living room for 18 months. Intradermal testing gave a 13-mm weal and a 20-mm flare with hamster hair but was otherwise negative. He gave the hamster away and improved dramatically within a few days.

### Comment

None of these patients had a previous history of atopy. Their ages and, in two cases, skin test results against the commoner respiratory allergens would have been compatible with the intrinsic type of asthma. All, however, gave strongly positive type 1 skin reactions to hamster hair, indicating the presence of reaginic antibody. There were no delayed skin reactions and no chest x-ray changes. Serum from Cases 1 and 4 was examined for precipitating antibody to hamster hair with negative results. The condition therefore appears to be a typical extrinsic atopic asthma rather than an immune-complex mediated "non-atopic" asthma, but occurring in subjects of low atopic status (Pepys, 1967).

Avoidance of the allergen remains the treatment of choice for animal-hair hypersensitivity (Brown and Wolfe, 1968), and the three survivors responded rapidly to removal of the hamster. In Case 3 it seems probable that the unusually heavy contamination of the environment with hamster hair was responsible for the persistence of the illness. Several months may be required to clear a house of animal hair and dander, and experience with cats and dogs suggests that young animals may be more allergenic than the adults.

Hamster hair is clearly a potent allergen, but the practice of keeping these animals in living rooms may be as important in the production of disease as are the antigenic properties of hamster protein. Though known to the allergist as an occasional cause of asthma (Sheldon, Lovell, and Mathews, 1967) the hamster is not generally considered a danger to health, and none of these patients had associated their symptoms with the family pet. Specific questioning in such cases will occasionally disclose an avoidable cause for asthma even when an extrinsic aetiology seems unlikely.

### References

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