

ALLERGIC CONTACT URTICARIA AND RHINITIS TO ROE DEER (*CAPREOLUS CAPREOLUS*) IN A HUNTER

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Abstract: Roe deer (*Capreolus capreolus*) is one of the most common game mammals in Europe, where hundreds of thousands people are exposed to this animal. Despite this fact, we are aware of only two cases of allergy to roe deer published until recently, one case of allergic rhinoconjunctivitis and asthma and the second of contact urticaria. We describe another case with co-existing allergic contact urticaria and rhinitis in a 55-year old male professional hunter. The symptoms were provoked only by exposure to roe deer, and there were no other past or present allergic diseases. Specific IgE was found to following animal allergens: cow dander (CAP class 5), goat epithelium and horse dander (each CAP class 4), dog epithelium, dog dander and swine epithelium (each CAP class 2). Skin prick tests have shown positive reaction only to cow epithelium (+). Because of lack of deer dander allergen for specific IgE and skin tests, we have confirmed the causal relationship between exposure to roe deer and allergy using the rub test with roe deer's fur. There was a clearly positive urticarial reaction on the patient's skin accompanied by nasal itch, sneezing and rhinorrhea. No reaction was seen in a control person. We surmise that the positive tests with cow epithelium seen in this patient may result from a cross-reactivity to deer allergens. We conclude that although occupational allergies to roe deer seem to be rare, such possibility should be always considered among people having contact with these animals.

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Key words: occupational allergy, contact urticaria, allergic rhinitis, roe deer (*Capreolus capreolus*), hunter.

INTRODUCTION

Allergy to hair and dander of deer (*Cervidae*) has been described in various countries as a result of occupational exposure in hunters [2, 6, 10], hunting guides [3], foresters [10], deer farmers [5, 7], reindeer herders [9], zookeepers [8], and workers processing meat [10]. It may occur also in amateur hunters [3] or in persons having casual contacts with deer or deer dander [1, 3, 4, 10]. Symptoms may include asthma [4, 5, 6, 7, 10], rhinitis [3, 4, 5, 6, 7, 8, 10], urticaria [3, 6, 8, 10], conjunctivitis [3, 6, 8, 10], angioedema [3], laryngeal edema [3], or even anaphylaxis [1].

In this paper we describe a case of occupational skin and respiratory allergy to roe deer (*Capreolus capreolus*),

a small deer common in Europe and Asia. To our knowledge, this is the third published case of roe deer allergy and the first where skin and respiratory symptoms co-existed.

CASE DESCRIPTION

Patient's history. A 55-year old male professional hunter with 26 years of job duration was referred to our department with a history of urticaria and rhinitis after having contact with roe deer (*Capreolus capreolus*). Previously, for as long as 21 years, he has had regular contact with roe deer without any health problems. During the last 5 years, the patient had suffered from itching and wheals on hands, which developed within

15-30 min after handling the killed animals. Two years later he also started to suffer from sneezing and rhinorrhoea in the same conditions. According to the patient's description, he used to sneeze "a hundred times" in such circumstances. Similar symptoms also appeared immediately after entering a refrigerator room where the dead animals were stored before being skinned. Occasionally, on nights following the exposure, chest tightness with cough and sometimes wheezing also appeared.

The patient did not notice any symptoms when in contact with other wild animals including red deer (*Cervus elaphus*) – a species related to roe deer. He also had no symptoms while exposed to dogs and cats. Contact with any further domestic or farm animals was denied. There were no other allergic diseases in either the past and present history.

Routine examinations. Routine laboratory tests were within normal range with the exception of a high eosinophilia (15%) on blood smear and a high total IgE (707 IU/ml, normal values up to 120 IU/ml). IgE specific to animal allergens were determined using Pharmacia UniCAP 100 system with the following results: cat dander (e1) – CAP class 0, dog epithelium (e2) – CAP class 2, horse dander (e3) – CAP class 4, cow dander (e5) – CAP class 5, dog dander (e5) – CAP class 2, goat epithelium (e80) – CAP class 4, sheep epithelium (e81) – CAP class 0, rabbit epithelium (e82) – CAP class 0, swine epithelium (e83) – CAP class 2. The skin prick tests with animal epithelia (Allergopharma Reinbek, Germany) have shown only a positive reaction to cow epithelium (+).

Rub test with roe deer's hair was carried out by rubbing the skin on the volar site of the forearm with a fragment of roe deer's ear cut from an animal killed the previous day. The rubbing was carried out over 60 seconds, under medium pressure. 15 minutes later, an increasing erythema and itching was noted on the test site, and subsequently 3 wheals appeared, each of 5–10 mm diameter. At the same time, the patient complained of intense itching of the nose and slight watery rhinorrhoea. He also sneezed several times. These skin and nasal symptoms disappeared without treatment during following 2 hours. On the following evening and night, no further skin or respiratory symptoms were noted. The same test carried out on the control person without history of exposure to deer gave a negative result.

DISCUSSION

To our knowledge, only 2 cases of allergy to roe deer (*Capreolus capreolus*) have been described until recently [2, 6]. In 1963, Munro-Ashman and Frankland described a case of allergic rhinoconjunctivitis and asthma to roe deer. More recently, Geyer *et al.* [2] reported a case of a

hunter with occupational contact urticaria, but no respiratory symptoms to roe deer. In the case presented in our paper, there was a co-existence of skin and respiratory allergy. It is noteworthy that these two forms of allergy developed slowly, and the symptoms appeared respectively after 21 and 23 years of occupational exposure.

The causal relationship between exposure to roe deer and allergy in the examined patient was confirmed by a rub test with roe deer's hair. Though we were not able to perform a test for detection of specific IgE antibodies against roe deer dander, the results of other tests (high total IgE, strongly positive IgE response to cow and goat dander) suggest that the disease was IgE-mediated. It was demonstrated by earlier authors [1, 3, 4, 7, 10] that IgE antibodies to deer dander allergens show a cross-reactivity with allergens of other ungulates, mostly with cow protein allergens with molecular mass of 22 and 25 kD [10].

Roe deer is the most common game mammal in Poland with 144,000–166,000 shot annually between 1990–2000 [11]. It is estimated that every year more than one hundred thousand people in this country are exposed to roe deer, including amateur and professional hunters, foresters, storekeepers, and workers processing skin and meat of animals. Though occupational allergies to roe deer seem to be rare, the presented case shows that such possibility must be always considered at the differential diagnosis of skin and respiratory disease among people having contact with these animals.

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