

CASE REPORT

Sensitization to cow's milk protein in a dairy worker

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Background	Repeated skin exposure and inhalation of milk proteins may lead to IgE-mediated sensitization, normally manifested at the site of contact. Although this is a phenomenon predominantly found in children, it has also been observed in adults.
Aims	To describe a case of a worker who, after being exposed to milk proteins for many years, eventually experienced episodes of anaphylaxis.
Case report	A 62-year-old worker experienced severe episodes of anaphylaxis following the intake of dairy products. He had worked in the dairy industry for 17 years, where he was exposed to dried milk every day.
Conclusions	This case report illustrates how continued exposure to milk proteins, either by skin contact or inhalation, may lead to sensitization which could result in severe manifestations of anaphylaxis.
Key words	Allergy; anaphylaxis; dairy products; occupational; sensitization.

Introduction

Sensitization by skin contact and the subsequent development of IgE-mediated food allergies has been demonstrated previously [1]. This is most commonly seen in children and in cases of atopic dermatitis. Occupational exposures in adults, however, through epicutaneous contact or inhalation may lead to sensitization. Such exposures may be found in the restaurant, cattle breeding or food industries for example. These may result in both local and systemic clinical manifestations [2].

The literature referring to occupational exposures mostly describes hypersensitivity phenomena like dermatitis [3], asthma and rhinitis [4,5], but not anaphylaxis. Such findings have instituted changes in occupational medicine practice such as a focus on workplace hygiene measures [6]. More recently cases of food sensitization have been reported occurring through mechanisms other than ingestion, such as inhalation and skin contact [7].

Case report

A 62-year-old male attended the Allergy Department after a severe episode of anaphylaxis following the consumption of dairy products. His occupational history showed that he had worked in the dairy industry for 17 years,

usually making cheese and butter. For the last 10 years he had been exposed to dairy both dermally and by inhalation of dried milk at low temperatures on a daily basis. He had never used any personal protective equipment.

Two years after the exposure to dried milk began, the patient started to develop eczema on his upper limbs and face, which improved out of work and on holiday. Consequently, the department of health and safety at his workplace offered to redeploy him to a different position within the same company which he rejected. The disease progressed and the patient presented with episodes of redness and itching on his face after the intake of dairy products. For this reason he stopped consuming dairy products altogether. After an accidental intake of milk, the patient experienced an anaphylactic shock requiring advanced life support.

Although the patient had a history of hypertension, there was no personal or family history of atopy. An allergy study was conducted including a skin prick test to inhaled environmental allergens which was positive for grass pollen, fungal spores and dog fur. His skin prick test to cow's milk proteins was positive for casein, lactalbumin and lactoglobulin. Serum-specific IgE tests were positive to cow's milk (0.47 kU/L) and for casein (0.63 kU/L) but negative (<0.35 kU/L) for lactalbumin and lactoglobulin. Spirometry was normal.

Discussion

Allergic reactions to dairy products are far less common in adults than in children. Previous studies have described numerous allergens responsible for IgE-mediated sensitization in exposed workers. Lactalbumin is the main trigger for milk allergy in children under 3 years, and casein is the main one in adults [8]. Casein is commonly found in industries such as bakery and confectionery, but the predominant clinical manifestations of allergy are occupational asthma, rhinitis and dermatitis [9,10]. This case suggests that the sensitization process, initially at skin and respiratory level, may lead to systemic manifestations. The absence of serological test results from when the patient initially had symptoms, however, prevents us from establishing causality. Nonetheless, the IgE results from later stages certainly suggest this to be work related.

Key points

- Exposure to dairy products in the workplace, either by skin contact or inhalation, may lead to sensitization to milk proteins.
- The usual clinical manifestations are occupational asthma, rhinitis and dermatitis. In this particular case, it was anaphylactic shock.
- Sensitization may be avoided through personal prevention measures, environmental controls and adequate scheduling of prevention processes.

Acknowledgements

The authors would like to thank the members of the Allergy Department at the San Cecilio Hospital in Granada (Spain).

Conflicts of interest

None declared.

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