

Sensitization to a weed pollen in a non-atopic subject during a clinical study. A case report

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Summary

The case of a non-atopic subject developing occupational sensitization and allergic rhinitis to *Mercurialis annua* pollen after intense exposure is described. The subject was involved in a clinical study by handling flowering plants daily. Preventive measures should be taken even in non-atopic subjects exposed temporarily to proteins or potentially allergenic material.

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Introduction

High exposure to indoor allergenic particles in an occupational setting can induce both sensitization and allergic disease, particularly asthma and rhinitis [1]. Atopic patients seem to be more prone to develop occupational sensitization than those who are non-atopic, at least when macromolecular proteins are involved [2]. Platinum salts, grain dust, flours, diisocyanates, epoxy-resins, animal danders, enzymes, wood dusts and drugs are the agents most frequently implicated in occupational allergic disease [2]. Nevertheless, a few cases of occupational sensitization to pollen, mainly in gardeners and floriculturists have been described [3,4]. *Mercurialis annua* is a long-lasting flowering weed, widespread in Europe and North America [5]. Recently, pollen of *M. annua* has been found to cause sensitization and allergic disease (asthma and rhinitis) in atopic patients [6].

We report here the case of a non-atopic subject who developed sensitization and allergic rhinitis to *M. annua* pollen after intense exposure in an occupational setting during the course of a clinical study.

Case report

A 37-year-old healthy non-atopic woman, maintained close contact with flowering weeds of *M. annua* for 4 months. She had no atopic family history and smoked less

than three cigarettes a day. A previous prick test with a battery of common aeroallergens, including mites, dog and cat dander, four common moulds (*Alternaria*, *Cladosporium*, *Penicillium* and *Aspergillus*) and grass, parietaria, artemisia, olive and mixed tree pollen pollens proved negative and total serum IgE was 65 kU/l. Her activities consisted of collecting flowering plants weekly and hand-brushing their flowers daily in the workplace to obtain pollen for research purposes. After 2 months of daily exposure to the pollen she complained of nasal itching, sneezes and watery discharge, followed 2 weeks later by nocturnal nasal obstruction and post-nasal discharge. At that time, a prick test with crude extract of *M. annua* pollen proved positive, while other common aero-inhalants remained negative. After exposure to *M. annua* was suspended, symptoms disappeared within 1 week. RAST performed at that time with a purified extract of *M. annua* pollen was positive (0.71 PRU/ml). SDS-PAGE immunoblotting showed four IgE binding protein fractions with MW 64.1, 49.3, 23.1 and 16.9 kD (Fig. 1).

In May 1991, 3 months after the withdrawal of the offending pollen and 1 month after the end of the *M. annua* flowering season, a prick test with a purified extract of *M. annua* pollen at a concentration of 2 mg/ml was performed and a strong positive response was recorded after 15 min. A late skin response occurred with local inflammation and itching lasting for more than 48 hr.

In December 1991, 10 months after occupational exposure ended, a prick test with the purified extract was

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due to her non-atopic condition or perhaps to the high concentration of allergen to which she was exposed.

Preventive measures should be taken even in the non-atopic subjects during the performance of clinical trials involving temporal exposure to proteins or potentially allergenic material.

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