

Generalized pruritus in a patient sensitized to tobacco and cannabis

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Summary

Respiratory problems or urticaria are well known in patients sensitized to tobacco. This occurs mainly as an occupational disease in tobacco workers, but also occasionally in those who smoke tobacco or dip snuff. Similar respiratory problems and anaphylactoid reactions have been observed in patients sensitized to cannabis. This may occur in those allergic to cannabis pollen when the plants bloom, in those with agricultural exposure and rarely in the end consumer.

We describe a patient with generalized itching provoked by tobacco and cannabis smoking. Skin prick tests and specific IgE towards tobacco and cannabis were positive. Because of the close correlation of smoking tobacco or cannabis and the onset of symptoms, we put forward the diagnosis of a type I allergic reaction towards tobacco and cannabis.

Keywords

tobacco – cannabis – generalized itching – IgE-mediated sensitization

Introduction

Tobacco belongs to the Solanaceae family and is thus related to tomato, potato and eggplant. Originating from South America, it is grown worldwide in southerly regions (North, Middle and South America, southern Africa, Far East, southern and eastern Europe). Small tobacco plantations are also found in western Switzerland (Murten, Payerne) and in Tessin.

Cannabis or marihuana is produced from hemp with a high content of tetrahydrocannabinol (THC). Hemp belongs to the Cannabinaceae family, which is botanically closely related to Moraceae. Originally, the plant came from Asia, but also grows wild in North America and is cultivated for the production of textiles and cosmetics. We report on a patient with generalized pruritus in correlation with the consumption of cannabis and tobacco. Prick tests and specific IgE determination showed sensitization towards both substances.

History

A 26-year-old man reported itching without specific skin signs for two months. Symptoms appeared after smoking cannabis or tobacco (brand: Parliament®), in the case of cannabis after just one joint, in the case of tobacco only after 5 cigarettes. Symptoms disappeared immediately upon administration of one tablet levocetirizine (Xyzal®) daily.

There was a history of rhinoconjunctivitis with a non-seasonal course, regular nicotine consumption of 4 pack-years as

well as occasional cannabis consumption. Otherwise, the patient was healthy and the differential blood count showed no evidence of an underlying hematologic disorder.

Diagnostic approach

In prick testing (Allergopharma, ALK-Abello, Stallergènes) sensitization towards birch, alder, hazel, ash, copper beech, oak and sweet chestnut pollen was found but not against molds.

Prick-to-prick testing with a cigarette (brand: Parliament®) resulted in a weakly positive (wheal/erythema: 5 mm/10 mm), with the patient's own cannabis a strongly positive (15 mm/20 mm) result with a clear positive reaction to histamine (wheal/erythema: 10 mm/20 mm). Prick testing with Nicotinell® was negative (Figure 1).

Five controls from our own team were tested with the patient's own substances in prick-to-prick testing: one control had a questionably positive reaction to cannabis, all other tests were negative. *In vitro* tests revealed an elevated total serum IgE of 860 kU/l (Immulite 2000, DPC); specific IgE towards tobacco was 16 kU/l (class 3) (Unicap, Pharmacia) and IgE towards cannabis 15.3 kU/l (class 3) (Unicap, Pharmacia). Specific IgE towards mugwort was 0.65 kU/l (class 1) (Immulite 2000, DPC) and towards *Dermatophagoides pteronyssinus* 2.64 kU/l (class 2) (Immulite 2000, DPC). No IgE was found towards molds. Precipitating antibodies directed at molds were not determined due to the lack of pulmonary symptoms. As double-blind provocation was not feasible and a purely subjective response could be expected, it was not performed.

Therapy

We recommended avoidance of tobacco and cannabis. During follow-up, the patient reported that he was able to avoid cannabis but not tobacco. Therefore, symptoms only partly regressed without therapy with antihistamines.

Discussion

Immediate hypersensitivity towards tobacco with contact urticaria, rhinoconjunctivitis and asthma occurs in those occupationally exposed, such as tobacco farmers and workers in tobacco factories [1, 2, 3]. Urticarial reactions

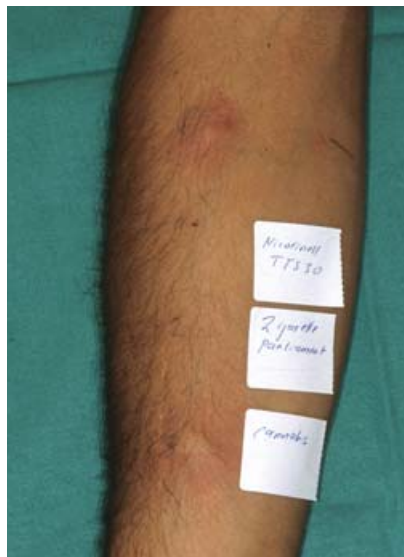


Figure 1: Prick-to-prick test with Nicotinell®, own cigarette and cannabis. Strong test reaction towards cannabis, weak reaction towards own cigarette.

have been described from smoking tobacco [4] as well as angioedema after taking snuff [5]. As more than 4000 chemical components are released during burning tobacco, the responsible allergen has not yet been identified. At least *in vitro* (CAP inhibition) cross-reactivity towards other Solanaceae and mugwort has been observed [3].

An allergic reaction towards smoked cannabis was first reported in 1971 [6] in a woman developing an anaphylactoid reaction. Allergy towards cannabis pollen can cause rhinoconjunctivitis or asthma during the bloom of cannabis from the end of July until mid September [7, 8]. Once, anaphylaxis

after oral ingestion of food containing cannabis was observed [9]. Cross-reactions are not known. Not every type I allergic reaction after consumption of cannabis is a real cannabis allergy. Often the reactions are caused by molds, especially *Aspergillus*, which contaminates the cannabis products [10].

Due to the suggestive history and the observed sensitizations towards tobacco and cannabis, we interpret the patient's pruritus as an allergic reaction towards allergens in both products. We are probably dealing with a co-sensitization, as cross-reactivity between tobacco and cannabis is not known. Prick testing and specific IgE rule out a sensitization towards molds as a possible further cause of the allergic reaction to smoking cannabis.

Conflict of interest

None.

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