

# Airborne Dermatoses

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**SUMMARY** Dermatologists and occupational physicians are those who have to deal with airborne allergens and irritants most often, and the awareness of these substances has grown over the years. In this report, skin symptoms of airborne dermatosis, the nature of airborne contactants, and the localization of lesions are presented, along with the differential diagnoses. Recognizing the characteristic nature of these reactions can greatly facilitate the diagnosis.

**KEY WORDS:** airborne dermatosis; airborne irritants and allergens

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## INTRODUCTION

Acute and chronic dermatoses of the exposed parts of the body, and especially the face are sometimes caused by substances that are first released into the atmosphere and then settle on the exposed skin. This can occur in both professional and non-professional contexts. Such allergens may be present in the air as vapors, gases, droplets, or solid particles (1-5).

## SKIN SYMPTOMS

Skin reactions caused by an airborne agent are multiple (1-4): airborne irritant and allergic contact dermatitis, phototoxic and photoallergic reactions, (photo)contact urticaria, acne, exfoliative dermatitis, fixed drug eruption, hyper- and depigmentation, lichenoid eruptions, lymphomatoid contact dermatitis, paresthesia, pellagra-like dermatitis, purpura, pustular reactions, telangiectasias, and erythema multiforme-like eruptions. A particular

product can also cause several different reactions. This article is primarily concerned with allergic reactions to airborne agents.

## THE NATURE OF AIRBORNE CONTACTANTS

Harmful substances can occur in both professional and non-professional contexts, and the ways they enter the environment can vary considerably, e.g., as vapors (volatile substances), droplets, or solid particles (1).

## THE LOCATION OF LESIONS

The most common sites of contact dermatitis caused by an airborne agent are the parts of the body that are directly exposed to the air: the face, neck, upper part of the chest, hands, wrist, and forearms. Differentiating an airborne derma-

titis from a photodermatitis may pose problems. However, allergic reactions on the following sites strongly suggest an airborne dermatitis as opposed to photodermatitis, even though the latter may extend to covered areas:

- covered parts of the body, such as the major body folds, genital region, and lower legs in men, as materials may be trapped under clothing;
- anatomically hidden regions of the body:
  - eyelids,
  - the area behind the ears,
  - scalp covered by hair, and
  - the area under the chin.

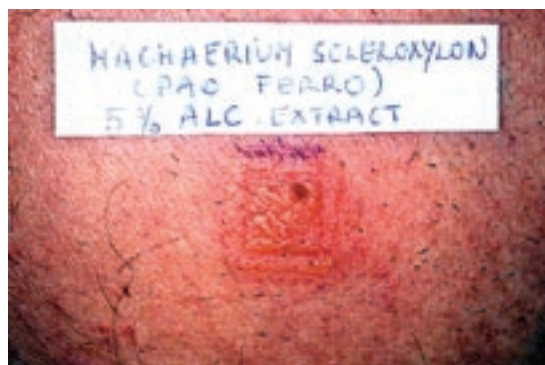
Upper eyelids are particularly susceptible to airborne allergens and irritants, and sometimes they are the only site affected, and conjunctivitis may also occur. Occasionally, the lesions may take a more generalized form (1).

## DIAGNOSIS AND DIFFERENTIAL DIAGNOSIS

Airborne allergens or irritants are suggested if symptomatic complaints occur on particular parts of the body as specified above, and when the symptoms clear when the patient changes the environment. Patch testing should be performed with the suspected chemicals. Light tests and photopatch tests can be useful to exclude the light factor in the pathogenesis of the lesions. The situation is, of course, more difficult in case of airborne irritants.



**Figure 1.** Airborne allergic contact dermatitis from tropical wood dust trapped under clothing.



**Figure 2.** Positive patch test reaction to Machaerium Scleroxylon (Pao Ferro) (5% ethanol) in the same patient.

Differential diagnoses of airborne contact dermatitis should include contact allergic reactions caused by directly applied agents, by occasional contacts with allergens, by transfer of the allergens ("ectopic") dermatitis, connubial or consort dermatitis, an id like spread of a dermatitis elsewhere on the body, systemic eczematous contact dermatitis-type reactions, and photo-induced dermatoses. Other eczematous skin conditions, particularly atopic dermatitis, but also seborrheic dermatitis must be considered.

## AIRBORNE IRRITANTS AND ALLERGENS

The nature of airborne allergens vary and may concern:

- vegetable and wood allergens,
- plastics, rubber and glues,
- metals,
- industrial, household, laboratory and pharmaceutical chemicals,
- agricultural chemicals (insecticides, pesticides, animal feed additives),
- cosmetics, and
- solvents.

An extensive list of causal agents has been published in the literature (1-5).

## CONCLUSION

Dermatologists and occupational physicians (since occupationally-induced reactions are still by far the most common) have to deal more often with airborne allergens and irritants than the literature would seem to indicate, but the awareness has grown over the years (3,4). Airborne irritants are certainly more common than allergic reactions, although they are more difficult to



**Figure 3.** Airborne allergic contact dermatitis from ethylenediamine (manufacture of mirrors).

demonstrate. Recognizing the characteristic nature of the reactions can greatly facilitate the diagnosis. Such reactions could be strongly suspected when symmetric lesions occur on the exposed

parts of the body (sometimes even in occluded areas), and especially the eyes and the face in general, when the patient denies having applied any topical agents and when the symptoms clear when the patient changes the environment.

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Elida cream, for the use every hour; year 1935.  
(from the collection of Mr. Zlatko Puntijar)