



EUROPEAN ACADEMY OF
DERMATOLOGY AND VENEREOLOGY

Information Leaflet for Patients

CONTACT DERMATITIS

The aim of this leaflet

This leaflet is designed to help you understand more about contact dermatitis. It tells you what this condition is, how to recognize it, and what can be done for treatment.

CONTACT DERMATITIS

What is contact dermatitis?

Contact dermatitis is an inflammatory skin reaction to direct contact with toxic agents in the environment. Skin inflammation can develop immediately after contact with the protein content of foods, plants, animals, or chemicals. Sometimes, the cutaneous reaction appears even days after exposure to very common substances that we use daily. These chemicals have a very low molecular weight or mass which allows them to penetrate in the skin. Immediate and delayed cutaneous reactions against environmental agents can be driven by immunological (involving the immune system) and non-immunological mechanisms. Contact dermatitis does not necessarily indicate an allergy.

Is it a new type of skin disease?

No, this was already recognised as a disease in ancient times. Early recorded reports include Pliny the Younger who, in the first century B.C., noticed individuals with severe itch when cutting pine trees. However, the history of contact dermatitis in the twentieth century is indistinguishable from the history of patch testing, which is considered the main tool for discovering the cause (a chemical or protein).

Is contact dermatitis a common skin disease?

Yes, it is a common disease, but it is difficult to know exactly how common. This is because the symptoms may vary in presentation and severity over time, so the epidemiological data in terms of *prevalence* (or the proportion of the population affected) is limited to defined populations at a certain point in time. Moreover, the data of patients studied in dermatology clinics cannot be generalised to the entire population, but we can assume that contact dermatitis occurs frequently (e.g. the lifetime prevalence in the Danish adult population for hair dye reaction is 5.3%).

Who is affected by contact dermatitis?

Anyone can suffer from different types of contact dermatitis throughout one's lifetime. Age and gender are not risk factors for contact dermatitis themselves. What is important is the source of exposure. Irritant substances or sensitising factors are considered to be the major risk factors for contact dermatitis, and both of these can

be present in household activities, daily activities, and certain occupations. A simple example is how exposure to water and the permanent use of dissolvent and detergents can promote irritant contact dermatitis in a housewife, as well as hairdressers, nurses, and cooks.

How is contact dermatitis diagnosed?

It can easily be diagnosed when an itchy and inflammatory reaction is developed over the skin. Contact dermatitis can be present on any part of the body. An environmental agent can induce red skin, small bubbles, hives, thick skin, dry skin, and even cracks in the skin (Figure 1). Depending on the type of signs and symptoms, the doctor will identify the kind of contact dermatitis.

A new substance can be responsible for contact dermatitis, but also a well-known substance that has been used repeatedly can become toxic. This "sensitisation" process may mean that the substance is initially well tolerated. To become allergic to certain substances, previous exposure is necessary.

Which is the most common type of contact dermatitis?

The most common type of clinical manifestation of contact dermatitis is eczema. This word means "to boil over" in Greek. The main characteristic that defines eczema is the *vesicle* or blister. These lesions are preceded by an itchy red rash. The itch induces scratching, the serum content of the blisters became crusts, and the skin thickens. When acute eczema (Figure 2) becomes chronic, the skin shows



Fig. 1 Severe hand contact dermatitis



Fig. 2 Bullous (blistering) acute contact dermatitis



Fig. 3 Desquamative (causing peeling) chronic contact dermatitis

scales (Figure 3) and often-painful cracks. Typically, the *epidermis* (the outer layer of skin) is broken, due to detachment of the *keratinocytes* (the main epidermal cells) and an inflammatory fluid. The skin will need more than 28 days to recover.

How can I recognize eczema?

Look your skin, and if eczema is present, it will be broken. Eczema typically lasts several days, even weeks, and can spread over the skin. Itch is commonly present. When eczema is due to an environmental agent, it appears in the area of contact. Contact dermatitis is commonly well-defined, with sharp borders and following the area of contact with the external agent. An example are the blistering lines in exposed areas after contact with plants (e.g. poison ivy) combined with sun exposure, the most typical consequence of the combined toxic effect of plants with sun.

Can contact dermatitis manifest in a different form than eczema?

Yes, contact dermatitis can manifest in several different ways. The most common clinical manifestation is eczema (commonly the term “dermatitis” is synonymous). Contact substances capable of inducing contact allergy or irritancy can manifest similarly to *urticaria* (hives), *erythema multiforme* (a reddened, sometimes blistering rash), *purpura* (purplish discolorations), *lichenoid* eruption (an itching rash resembling *lichen planus*), *exanthems* (an eruptive rash), *erythroderma* (reddened skin), *lymphocytoma*, pigmented

contact dermatitis, *photosensitivity* reactions (increased sensitivity to light), *sarcoid* reactions (*sarcoidosis* being a nodular skin disease with variable skin manifestations), or even *contact leukoderma* (depigmentation after exposure to chemicals). The suspicion of contact dermatitis must be addressed by a specialist in dermatology as choosing the correct diagnosis is crucial.

Can we all develop contact dermatitis?

Yes, exposure to environmental, biological, and chemical agents (which we all have had to some extent) can induce skin inflammation. As mentioned above, *phototoxicity* can be induced by plants (or fragrances, e.g. containing bergamote oil). We can all suffer episodes of acute or chronic skin irritation, especially if we are in permanent contact with substances that impair the skin barrier (e.g. detergents or dissolvents). It is a phenomena of dose *dependency*, meaning that the greater the exposure, the more toxic the effects. Irritant contact dermatitis is by far the most common problem regardless if it is occupational.

Can we all develop contact allergy?

No, contact allergy is developed by a minority of patients. It is a delayed hypersensitivity reaction that involves memory *T-cells* (that participate in the immune response) every time the skin is exposed to the sensitising contact allergen, even if the concentration is very low.

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After the initiation period, when someone becomes sensitized, new exposure in different areas of the body through different sources of exposure can induce contact dermatitis. Still, there is not a clear genetic factor that predicts if you will develop contact allergy.

How can I recognize if I have a contact allergy?

Your dermatologist knows how to identify the responsible agent of your contact dermatitis. Well-standardised skin tests (called “patch tests”) can help to identify contact allergens responsible for the delayed hypersensitivity reaction or allergic contact dermatitis. Your dermatologist can refer you to the best dermatologist-led contact dermatitis clinic in your local area.

What are the main agents responsible for contact allergy?

Different chemicals can be responsible for contact allergy. These agents are widespread in common products that we use daily. The most common contact allergens include metals (e.g. nickel sulphate or chromium sulphate), fragrances (e.g. eugenol or citral), preservatives (e.g. methylisothiazolinone or formaldehyde), and also rubber components, hair dyes, or acrylates, among others. The list of contact allergens is long and its study requires specialised care. Once the diagnosis is made, you should learn as much about it as possible because the best management includes the avoidance of the contact allergen.

What are the main agents responsible for contact urticaria?

Proteins such as latex commonly induce contact urticaria, although some low molecular weight can be responsible too (e.g. fragrances or hair dyes). The type of skin reaction is an immediate welt which is short-lived and itchy in character. These abrupt contact reactions are due to a specific IgE (antibody), and the reaction

can also be systemic (including the risk of anaphylaxis). A “patch test” test should be addressed in specialised centres, following strict, safe diagnostic protocols.

What is the most common treatment for irritant contact dermatitis?

Preventive measures are crucial. Restoring the skin barrier function usually requires treatment with topical *corticosteroids* or *calcineurin inhibitors*, followed by the constant use of emollients and to the avoidance of irritants. The correct use of the best gloves is important. After ensuring good glove tolerance, any use should be for short periods of time. Preventive education is helpful in certain occupations where exposure to water is common.

What is the most common treatment for allergic contact dermatitis?

The most common treatment of allergic contact dermatitis is topical potent *corticosteroids*. Phototherapy and systemic treatment (oral *corticosteroids*, cyclosporine, or alitretinoin) can occasionally be necessary. However, any chronic eczema that lasts over 3 months or continues to come back should be studied with a “patch test.” The best treatment includes the identification of the responsible chemical substance in order to identify the products that are commonly used on the skin.

How can contact dermatitis be prevented?

The best way to prevent contact dermatitis is based on the knowledge of these skin diseases. A dermatologist should identify the correct diagnosis and order the study to find out the cause when necessary. Using this knowledge can help prevent this disease, and can improve your quality of life. ■

While every effort has been made to ensure that the information given in this leaflet is accurate, not every treatment will be suitable or effective for every person. Your own clinician will be able to advise in greater detail.

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