



Contact Dermatitis

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As the shock-absorbing organ, the skin is the first line of defense against the various aggressive exogenous agents in the environment, including chemical substances. Interactions between the latter and the skin are often a cause of onset of contact dermatitis (CD), a multifactorial inflammatory complaint triggered by different pathogenic mechanisms and characterized by many different clinical-morphological pictures, as well as a variable evolution.

Among the various forms of eczema (exogenous and endogenous) (Table 1.1), CD is one of the most common clinical pictures and, indeed, one of the diseases most frequently observed in daily dermatological practice. The prevalence of CD in the general population ranges from 1.7% to 6.3% in the short term and from 6.2% to 10.6%, for longer-term disorders (1–3 years). The incidence of CD in the worker population accounts for 85–98% of all occupational skin disorders, which, in turn, occupy the first place among occupational diseases, or may follow immediately after musculoskeletal complaints and/or hearing damage, depending on the type of occupation.

Among the various clinical-pathogenic pictures of CD (Table 1.2), irritant contact dermatitis (ICD) is the one most commonly observed, especially in the occupational context. In fact, even a mild but chronic contact-induced irritation of the hands can affect nearly all subjects exposed to conditions in particular jobs, such as builders, hairdressers, fishermen and all those working with foodstuffs, as well as health-care staff, not to mention anyone doing housework.

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Table 1.1 Classification of types of eczema

<i>Endogenous eczema</i>
Atopic dermatitis
Seborrheic dermatitis
Nummular (discoïd) eczema (also exogenous)
Pompholyx (dyshidrotic eczema) (also exogenous)
Asteatotic eczema (or hiemalis or craquelé)
Stasis eczema
<i>Exogenous eczema</i>
Irritant contact dermatitis
Allergic contact dermatitis
Microbial eczema

Table 1.2 Clinical forms of contact dermatitis

Irritant contact dermatitis
Allergic contact dermatitis
Irritant photocontact dermatitis
Allergic photocontact dermatitis
Airborne irritant contact dermatitis
Airborne allergic contact dermatitis
Non-eczematous contact dermatitis
Systemic contact dermatitis
Contact urticaria
Protein contact dermatitis

The interval between the harmful contact and the onset of CD (induction time) is not known because it depends on various exogenous environmental factors and endogenous human factors. In any case it is highly variable, ranging from hours or days (ICD due to strongly acidic or alkaline agents) to months or years (ICD due to toxic damage accumulating over time).

The different clinical appearances observed in the context of CD are attributable to factors such as the type of contact, chemical characteristics of the causal agents, and pathogenic mechanism involved. The point of evolution of the disease also contributes to the clinical-morphological variety of the disease, depending on whether it is observed during the acute, subacute, or chronic phase.

As regards the type of contact, a harmful chemical agent can reach the skin through two different routes, either exogenous or endogenous (Table 1.3). Exogenous contact can be “direct” (when a substance comes in direct contact with the skin, this being the most common form) or “airborne” (when it is diffuse in the environment and transported through the air, thereby coming in contact with the skin). This second type of exogenous contact occurs mainly in occupational fields. Direct and airborne exogenous contact can frequently occur together. Endogenous contact occurs in subjects whose skin is already sensitized, when they come in contact with substances that, besides acting topically, can also be administered systemically (drugs, foods, metals). There are various endogenous routes through which the allergen can reach the circulation system (Table 1.3).

Table 1.3 Types of skin contact

<i>Exogenous route</i>
Direct contact
Airborne contact
<i>Endogenous route</i>
Oral
Intravenous
Intramuscular
Rectal
Inhalation
Vesical
Reconstructive surgery

1.1 Irritant Contact Dermatitis

This form of dermatitis is a non-immunological, toxic inflammatory reaction to external agents, prevalently of chemical type (irritants); important co-factors such as physical (mechanical, thermal, climatic) noxae also play a role, as well as endogenous factors. Among the latter, atopic dermatitis, previous or in course, is a risk factor for ICD of the hands in those who do wet work; furthermore, the dry skin of atopic subjects is itself very easily subject to irritant actions.

The innumerable irritant chemical agents present in the environment exert their harmful action through various different mechanisms, also depending on the substances present. They interfere with the different epidermic and dermic structures, activating all the cellular and chemical mediators of inflammation.

From the clinical standpoint, depending on the resistance of the various exposure sites and the intensity of action of the agent in question, an ample spectrum of lesions can be observed, ranging from simple dry skin through erythema, edema, vesico-bullous lesions, and desquamation up to necrosis. ICD can affect any skin site, generally remaining confined to the site of contact. In general, all subjects exposed to the harmful agent show some skin alterations, but of variable severity. The prognosis is normally good, featuring a fairly rapid damage repair response within a few days.

1.2 Allergic Contact Dermatitis

Allergic contact dermatitis (ACD) is a disease of both occupational and non-occupational concern; it develops due to a delayed-type cell-mediated sensitization following contact with various chemical substances.

The subjective symptoms of ACD are characterized by variable degrees of pruritus and objective symptoms by lesions that differ according to the disease phases: erythematous-edematous-vesicular areas with blurred margins in the acute phase; crusty, desquamative lesions with small dandruff strips in the subacute phase; and infiltrative lesions in the chronic phase.

Apart from the above classic eczematous clinical picture, ACD can manifest with non-classically eczematous pictures (polymorphous-like contact dermatitis, purpuric contact dermatitis, lichenoid contact dermatitis, lymphomatoid contact dermatitis, dyschromic contact dermatitis). Apart from sites of direct contact, ACD can present with clinical lesions at a distance from the primary focus. A possible severe complication, nowadays very rarely observed, is spread of the eczema to the entire skin (erythroderma). Although the complaint is subject to recurrence, the prognosis of ACD is good.

The diagnosis of ACD is based on two criteria, namely, the clinical findings and medical history and allergological aspects. The latter rely on various skin tests that include patch tests and photopatch tests.