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3.4 Contact dermatitis[1]

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Definition

Contact dermatitis, also referred to as contact eczema, is a common itchy reaction of the skin due to the contact with a number of chemical agents.

Clinical features

Contact dermatitis can be variable in its presentation. At one extreme end of its spectrum there is intense redness of the skin, with oozing and small blisters. At the other end, the skin is dry, scaly, occasionally thickened and fissured. Troublesome itch is a unifying feature and scratching may lead to bacterial infection.

Contact dermatitis can appear at any site of the body, but the hands and the face are most often involved. Facial involvement is embarrassing, while hand lesions may lead to lost working days and considerable social costs.

Etiology

Contact dermatitis has two forms: toxic or irritant and allergic. The clinical changes are virtually identical, no matter what the cause. Irritant contact dermatitis is caused by repeated insults from chemical substances such as soaps, detergents, metalworking fluids or solvents. This kind of contact dermatitis is prevalent in certain occupations such as cleaning work, as well as among housewives.

Table 1: Common allergens causing allergic contact dermatitis

Rubber additives in gloves, boots, shoes: – thiuram compounds – benzothiazoles
Anti-microbial/anti-mould agents in paints, cosmetics, bath products: – formaldehyde releasers – isothiazolinones – mercury compounds (thimerosal) – quaternary ammonium compounds
Metals released from jewelry, or in cement: – nickel – chromate
Dyes in hair dyes or textiles: – azo-dyes – p-phenylenediamine (PPD)
Substances from plants or woods: – sesquiterpene lactones (chrysanthemum) – colophony (rosin)
Unfinished plastics: – acrylates (in artificial nails) – epoxy resins (in glues)

Allergic contact dermatitis occurs when the individual, after a repeated number of contacts, develops a specific immune response to a chemical. Such allergenic substances can be found at work (e.g. epoxy resins in the plastic industry or chromate in construction workers) or at home (e.g. perfumes, hair dyes,

1 see also Chapters 2.2 and 2.4

plants and topical drugs). Once individuals become allergic, they are likely to remain reactive to the substance for the rest of the life, therefore limiting personal or professional activities.

To complicate things, combinations of allergic and irritant factors may play a role. For example, skin damaged by irritant contact dermatitis may be more easily sensitized to contact allergens.

The etiology of allergic contact dermatitis should be confirmed by epicutaneous patch testing. The European Standard Series of allergens detects most cases of allergic contact dermatitis, but often additional series of allergens, tested according to the patient's history and occupational exposure, are necessary for a more accurate diagnosis.

Table 2: Examples of occupations where contact dermatitis is frequent

Building industry: Irritant contact dermatitis from alkaline cement, and allergic contact dermatitis from allergy to chromate in cement
Nurses and other health care workers: Irritant contact dermatitis from soaps, disinfectants, occlusive gloves. Contact allergy to rubber gloves, with reactions to latex
Metal industry: Irritant contact dermatitis from metalworking fluids. Contact allergy to components of these metalworking fluids
Construction and repair of "plastic" objects, such as boats, windmills or others: Contact allergy to epoxy resins and to acrylates
Dental technicians: Allergic contact dermatitis caused by unfinished glass ionomers, fillers and glues
Hairdressers: Contact allergy to components of hair dyes and some permanent-wave fluids. Irritant contact dermatitis from shampoos

Treatment

The immediate symptoms can be alleviated by topical creams or ointments containing corticosteroids. In addition, neutral emollients are often prescribed. The only cure for the problem is to avoid the causative factors.

In the case of contact allergy this means a strict avoidance of skin contact with the allergen and chemically related compounds: even very small amounts may cause an aggravation or relapse of the dermatitis. The patient must receive detailed information about those allergens identified by patch testing which are determined to be clinically relevant.

In irritant contact dermatitis, instruction on avoidance of skin exposure to all agents that damage or irritate the skin is mandatory. This can be difficult, because the patient may have to adapt his work habits, change his washing habits, avoid soaps and detergents at home (e.g. no dishwashing or washing his car), and he must continuously think about the possible consequences when performing any manual task.

Significance

Contact dermatitis is a significant public health issue because it affects many persons.

1. Because of everyday exposure to a variety of products, a significant number of persons may develop a troublesome contact allergy. For example, about 15–20% of young women are allergic to nickel because of exposure to costume jewelry, especially earrings for pierced ears; this has prompted the European Commission to establish legislation in order to restrict exposure.
2. Occupational skin disease ranks among the top three work-related diseases; in almost all instances the diagnosis is allergic or irritant contact dermatitis, or a combination of both. Contact dermatitis is responsible for many working days lost, and often obliges a change of occupation which is costly for the individual and the employer.

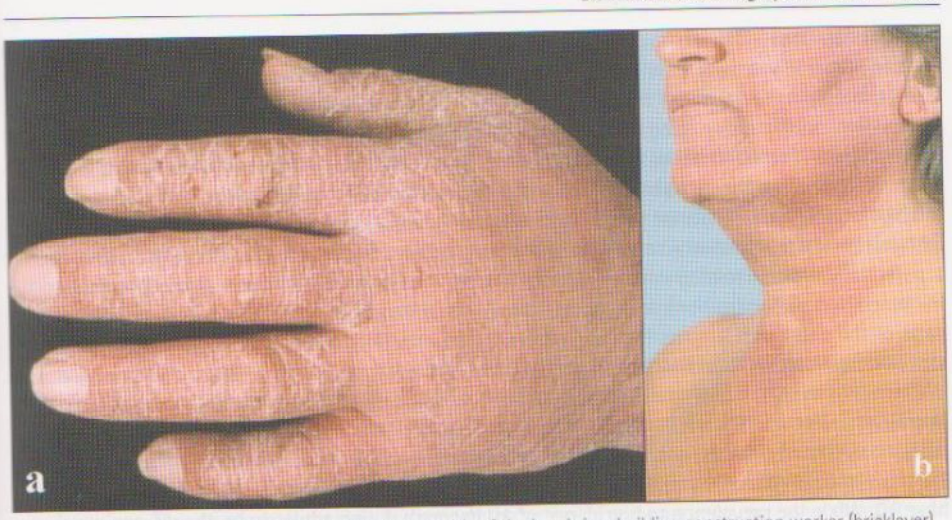

Figure 1 Contact dermatitis. Irritant contact dermatitis of the hands in a building construction worker (bricklayer) (1a). Acute allergic contact dermatitis caused by a component of a liquid soap (1b) (contributed by P.-J. Coenraads).

3. New products with new chemical components are continuously put on the market, exposing workers and consumers. Expertise in risk assessment, surveillance and adequate diagnosis in individual patients must be maintained and updated.
4. Contact dermatitis is troublesome for the individual, not only because of the restrictions in daily life and the loss of sleep (and subsequent dangerous drowsiness) because of itch, but also because of the potential loss of income and treatment costs.
5. Detecting the cause of an individual's contact dermatitis requires considerable dermatological expertise. Diagnosing and treating dermatitis/eczema (which includes confirming or excluding contact dermatitis) is a substantial part of the workload of an average dermatologist.
6. The European Society of Contact Dermatitis (website: orgs.dermis.net/escd) is a non-profit organization concerned with research, teaching, diagnosis and treatment of this significant skin problem.