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Contact and Occupational Dermatitis

Contact dermatitis is an inflammatory skin reaction in response to an external stimulus, acting either as an allergen or an irritant.

Occupational dermatitis is the most common of a number of skin diseases caused by exposure to a physical, chemical or biological agent in the workplace. Occupational skin disease is a disorder wholly or partially due to a person's occupation. Health and safety regulations have reduced the risk of acquiring such conditions and, if they occur and are disabling, the employee may be entitled to claim for compensation as for industrial injury.

Epidemiology^[1]

- 4-7% of all dermatological consultations are for contact dermatitis.
- Women are more commonly affected than men.
- The hands are most commonly affected (75% of all cases and as much as 90% of cases of occupational contact dermatitis).
- Prevalence in children is lower, but is increasing. ^[2] ^[3]

For occupational contact dermatitis, Health and Safety Executive (HSE) statistics for 2012/13 show:^[4]

- During 2010-2012 there may have been as many as 35,000 new episodes of work-related skin disease in Great Britain. Most (77%) of these are contact dermatitis.
- This equates to 122 new GP diagnoses per 100,000 workers.
- Self-reported incidence of work-related skin disease is much lower (7,000 in 2010-2012).
- There may be a lack of statistical accuracy, as relatively few GPs are involved in the reporting scheme, and overall figures are estimates extrapolated from existing data.
- Incidence has decreased over the past two decades, but has been fairly stable since 2005.
- Working with wet hands, and soaps and cleaning materials continue to be the most common causes of occupational contact dermatitis.
- The annual number of workers with occupational dermatitis assessed as having some degree of disablement under the Industrial Injuries Scheme has fallen from just over 400 in the early 1990s to just 40 in 2012.
- Occupational skin disease accounted for only 3% of sick days for occupational illnesses.
- The occupations at highest risk were:
 - Florists.
 - Hairdressers and barbers.
 - Cooks.
 - Beauticians and related occupations.
 - Metal working machine operatives.
 - Chemical, rubber, glass and ceramic process operatives.
 - Dental practitioners and dental nurses.

Aetiology^[1]

Broadly there are two types of contact dermatitis, which may co-exist:

- Allergic contact dermatitis - a type IV delayed hypersensitivity reaction. It occurs after sensitisation and subsequent re-exposure to an allergen.
- Irritant contact dermatitis - an inflammatory response that occurs after damage to the skin, usually by chemicals. This is not an allergy and can occur in any individual significantly exposed to an irritant. This may be acute or chronic/cumulative.

Causes

Most insults can be classified as chemical, biological or physical in origin. Contact with allergens can arise from immersion of usually the hands but sometimes the legs. It may arise from direct handling of contaminated substances or from workbenches, tools or clothing. Splashing may occur or dust in the air, such as cement dust.

Common irritants:

- Water - especially if hard, chalky or heavily chlorinated.
- Detergents and soaps.
- Solvents and abrasives.
- Machining oils.
- Acids and alkalis, including cement.
- Reducing agents and oxidising agents, including sodium hypochlorite.
- Powders, dust, and soil.
- Plants - for example, ranunculus, spurge, boraginaceae, mustards.

Common allergens:

- Cosmetics - particularly fragrances, hair dyes, preservatives, and nail varnish resins.
- Metals - particularly nickel and cobalt in jewellery, chromate in cement.
- Topical medications, including rare allergy to topical corticosteroids.
- Rubber additives.
- Textiles- particularly from dyes and formaldehyde resins.
- Epoxy resin adhesives.
- Acrylic or acrylates and formaldehyde present in adhesives and plastic resins.
- Plants - chrysanthemum, sunflowers, daffodils, tulips, and primula are the most common.

Many other agents have been found to produce contact dermatitis, including animals, fungi, bacteria, insects, foods and preservatives, heat, cold, variations in humidity, as well as various wavelengths of light and ionising radiation.

Presentation

The presentation and pattern of skin change may give some indication of the likely irritant. Hands are the most frequently affected with direct contact. Chemicals on clothing may produce changes in axillae, groins and feet. Dust irritants are most likely to cause problems in areas where the dust might collect such as the collar line, belt line and sock line or in flexural areas. Irritants in vapour or mist form are most likely to affect the face and neck. Irritant contact dermatitis and allergic dermatitis can produce similar changes in the skin and may present with:

- Redness of skin.
- Vesicles or papules on an affected area.
- Crusting and scaling of skin.
- Itching of an affected area.
- Fissures (chronic exposure).
- Hyperpigmentation (chronic exposure).
- Pain or burning sensation from an affected area

Contact and allergic dermatitis may, however, have some differences in presentation:^[1]

| Typical features of irritant contact dermatitis | Typical features of allergic contact dermatitis |
|---|--|
| Burning, stinging and soreness are predominant | Redness, itch and scaling are predominant |
| Usual onset within 48 hours; may be immediate | Delayed onset |
| Rash only in areas of skin exposed to the irritant | Rash may be in areas which have not been in contact with an allergen. However, the distribution of the rash is still helpful in ascertaining the likely allergen |
| Resolution occurs quickly after removal of the irritant - typically, within four days | Resolution may take longer than irritant contact dermatitis, with or without treatment |
| Commonly associated with atopic eczema, which increases the risk | Less strong association with atopic eczema |
| Exposure to friction, soap, detergents, solvents, or wet work make diagnosis likely | |

Assessment should include a full occupational history:^[5]

- Job.
- Materials involved (with particular regard to the more common causes mentioned above).
- Amount of exposure, duration and frequency of contact.
- Location of rash, anatomical distribution.
- Timing of rash with relation to work - time from contact to first presentation, whether skin clears between exposure times.

Investigations

In many cases, no investigations will be required and the diagnosis is made on the clinical findings and history.

Some patients need to be referred to a specialist clinic for patch testing, which is the gold standard investigation for this condition. Combined guidelines from the British Association of Dermatologists, Occupational Health Clinical Effectiveness Unit and the British Occupational Health Research Foundation advise that all those with occupational contact dermatitis be referred to a specialist clinic for patch and/or prick testing.^{[5] [6]}

Other indications for patch tests include severe or recurring distressing symptoms despite adequate treatment with topical corticosteroids and suspicion of contact dermatitis without clear history of exposure.

Occasionally skin biopsy may be required to distinguish from other skin disorders such as psoriasis.

Differential diagnosis

- **Atopic eczema** - contact dermatitis can be very similar in appearance to endogenous eczema, and it is important to assess the distribution of the skin lesions when arriving at a diagnosis.
- **Seborrhoeic dermatitis**.
- **Ringworm**.
- **Urticaria**.
- **Psoriasis**.
- **Fixed drug eruption**.
- **Polymorphic light eruption**.
- **Lichen planus**.
- **Scabies**.
- Acute infections such as **cellulitis**, **impetigo**, **shingles**, **chickenpox**.

Associated diseases^[4]

Other conditions which may result from contact with chemicals include:

- Contact **urticaria**.
- **Acne**, especially with oils, and **folliculitis**.
- Skin infections with bacteria, fungi and viruses.
- Pigmentary disorders.
- Mechanical skin disease- damage from acute or repetitive trauma.
- Skin cancer (mainly **squamous cell carcinoma** or **basal cell carcinoma**) may be more common than usually recognised. This can be due to UV radiation due to outside working, ionising radiation such as X-rays, lesions arising in scars following industrial burns or chemical carcinogens.^{[7] [8]}

Management^{[1] [6]}

General

The most effective form of management is to avoid the irritant producing the dermatitis, when this has been identified. The use of protective gloves with cotton liners or protective clothing may be helpful depending on the irritant and the environment. Patients should be advised to wash their hands using products without perfume, and dry thoroughly afterwards. Rings should be removed, thoroughly cleaned and not worn again until the condition has resolved. Avoidance of the irritant may be the only treatment required in milder cases of recent origin; the dermatitis will then resolve in a period of approximately three weeks. Simple emollients may be used if the skin barrier has not been breached. Barrier creams are not thought to be helpful. Soap substitutes such as aqueous cream should be used.

Occupational dermatitis is notifiable to the HSE under the Reporting of Incidents, Diseases, and Dangerous Occurrences Regulations (RIDDOR). The employer has the responsibility for this, but the doctor treating has a responsibility to confirm the diagnosis and alert the employer. Those with significant disability from their condition should be directed to the Department for Work and Pensions (DWP) for assessment for industrial injuries disablement benefit.

Medication

More severe or chronic forms of dermatitis will benefit from the use of topical corticosteroid cream, the strength and period of use of the steroid being adjusted according to the severity of the condition. Occasionally a short course of an oral corticosteroid may be used for acute severe episodes. The use of antihistamines for itching is not advised by the National Institute for Health and Care Excellence (NICE).

Second-line agents (eg, **psoralen combined with ultraviolet A (PUVA)** treatment, ciclosporin and azathioprine) may be initiated in a specialist setting for the treatment of chronic, steroid-resistant dermatitis.

Complications

Secondary bacterial infection may occur, presenting either as worsening of the skin condition, or as typical impetigo.

Occupational skin disorders may have a considerable adverse impact on the quality of life.^[9] They may also necessitate a change of occupation.

Prognosis^[1]

Usually, the condition will go with avoidance of the allergen but this may require giving up the job. A notable exception is cement dermatitis that is due to the chromium content. Even ceasing all contact with cement may not be enough and a severe dermatitis may persist. Other factors associated with a poor prognosis are:

- Nickel as the causative agent.
- Chronic cumulative skin disease.
- Delay in starting treatment.

- History of atopy.

Prevention

Employers have a duty to make the workplace as safe as possible. They may work in conjunction with trade union representatives to do so. They may seek help from the HSE or Control of Substances Hazardous to Health (COSHH). The HSE has a wealth of information on its website about prevention of occupational skin disease, including specific advice for specific occupations. General advice includes:^[10]

- Avoid direct contact between hands and substances. Stop wet work and use of irritant chemicals where possible. Introduce tools or equipment where possible to keep a barrier between skin and wet work/substances.
- Protect skin where it is not possible to avoid contact:
 - Provide gloves and protective equipment (more specific advice on the gloves is available on the website).
 - Provide washing facilities - hot and cold water, cleaning creams, and suitable drying materials.
 - Advise workers on washing hands before and after eating, and before putting on gloves.
 - Wash off contamination promptly.
 - Advise workers to moisturise skin frequently.
- Check hands regularly and seek advice early if problems are noted.
- Educate employees.
- Be aware of the health and safety hazards associated with each substance or product. There may be product labels or Safety Data Sheets.

Further reading & references

1. [Dermatitis - contact](#); NICE CKS, March 2013 (UK access only)
2. [Simonsen AB, Deleuran M, Johansen JD, et al](#); Contact allergy and allergic contact dermatitis in children - a review of current data. *Contact Dermatitis*. 2011 Nov;65(5):254-65. doi: 10.1111/j.1600-0536.2011.01963.x. Epub 2011 Aug 18.
3. [Militello G, Jacob SE, Crawford GH](#); Allergic contact dermatitis in children. *Curr Opin Pediatr*. 2006 Aug;18(4):385-90.
4. [Work-related skin disease](#); Health and Safety Executive (HSE)
5. [Smedley J](#); Concise guidance: diagnosis, management and prevention of occupational contact dermatitis. *Clin Med*. 2010 Oct;10(5):487-90.
6. [Diagnosis, management and prevention of occupational contact dermatitis](#); British Association of Dermatologists (BAD) (2011)
7. [Gawkrodger DJ](#); Occupational skin cancers. *Occup Med (Lond)*. 2004 Oct;54(7):458-63.
8. [Caroe TK, Ebbehøj NE, Wulf HC, et al](#); Occupational skin cancer may be underreported. *Dan Med J*. 2013 May;60(5):A4624.
9. [Lau MY, Matheson MC, Burgess JA, et al](#); Disease severity and quality of life in a follow-up study of patients with occupational contact dermatitis. *Contact Dermatitis*. 2011 Sep;65(3):138-45. doi: 10.1111/j.1600-0536.2011.01896.x. Epub 2011 Jul 3.
10. [Skin at work - guidance](#); Health and Safety Executive (HSE)

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