

## Occupational Contact Dermatitis- A Mini Review

Yanamala Ganga Bhavani

Department of Dermatology, CMC, Vellore, Tamil Nadu, India.

### Abstract

Occupational contact dermatitis accounts for 90% of all cases of work-related cutaneous disorders. It can be divided into irritant contact dermatitis, which occurs in 80% of cases, and allergic contact dermatitis. In most cases, both types will present as eczematous lesions on exposed parts of the body, notably the hands. Accurate diagnosis relies on meticulous history taking, thorough physical examination, careful reading of Material Safety Data Sheets to distinguish between irritants and allergens, and comprehensive patch testing to confirm or rule out allergic sensitization..

**Key Words:** Allergic Contact Dermatitis, Irritant Contact Dermatitis, Occupational, Work Related

The skin is our primary interface with the external environment and, in general, performs quite efficiently as a barrier against noxious chemicals or living organisms. The range of human activities is extremely diversified, and numerous occupations can lead to breakdown of the epidermal barrier, with subsequent development of work-related dermatoses.

Exposure in the workplace is responsible for a wide range of cutaneous problems, Contact dermatitis, however, accounts for 90% of all cases of occupational dermatoses [1,2]. The true prevalence of occupational contact dermatitis is unknown as many workers never report minor ailments. Those with more severe conditions are initially managed, and sometimes mismanaged, by primary care physicians, and some end up referred to dermatologists and allergists. It is important that the physician who takes charge of these patients knows how to recognize, investigate, and treat this disabling condition. The present article reviews the types, etiology, and clinical presentation of occupational contact dermatitis and provides the reader with a rational approach to this often vexing problem

### Irritant Contact Dermatitis

Irritant contact dermatitis (ICD) is the most common type of occupational skin disorder, traditionally held accountable for approximately 80% of all cases. It is caused by the direct cytotoxic action of the offending agent on the cells of the epidermis and dermis. Visible skin changes are the result of alterations in the epidermal barrier, cellular destruction, trans epidermal water loss, and inflammation secondary to non-immunologic release of vasoactive peptides and pro inflammatory cytokines.

Irritants are mostly chemicals, in solid, liquid, or gaseous phase, but also include mineral or vegetal particles that abrade or get imbedded in the skin. Immediate irritants are corrosive substances that produce chemical burns within minutes to hours of a single exposure. Cumulative irritants are weaker substances such as detergents or solvents that require repeated application to exert their noxious effects. The threshold for irritation varies from one individual to another, and a single individual may experience, over a period of time, hardening or loss of tolerance. However, with sufficient exposure and high enough concentration of the irritant, everyone is prone to the development of ICD. Although itch is a frequent complaint, the main symptoms are pain or a burning sensation, and the dermatitis presents as subacute to chronic eczema [3].

### Allergic Contact Dermatitis

A prototype of cell-mediated immune reaction, allergic contact

dermatitis (ACD) is responsible for 20% of cases of occupational dermatitis [4]. It occurs in a minority of individuals and is caused by chemical or biological agents that are otherwise innocuous to the vast majority of people. The sequence of events that generate visible dermatitis is a biphasic process.

### Diagnosis and Management

A diagnosis of occupational contact dermatitis can usually be suspected after a careful history and a thorough physical examination. Complementary testing will be required in most cases, and a visit to the workplace may occasionally be necessary, especially in the face of unexplained epidemics of contact dermatitis. Because it is easy to overlook important information during the initial consultation, Mathias proposed a series of seven objective criteria that form a framework for the correct identification of occupational contact dermatitis [5]. If four of these criteria are present, the clinician can conclude that the dermatitis is probably of occupational origin.

### Physical Examination

When examining the affected areas, the physician will note the severity of the dermatitis, its distribution, and its degree of interference with function. He or she will also examine the entire integument as distant sites of involvement may harbour the tell-tale signs of atopic dermatitis, psoriasis, lichen planus, or another non-occupational, personal condition [6].

### Patch Testing

A careful scrutiny of MSDSs will reveal exposure to irritants or allergens. The information that they contain is sometimes incomplete, but if the physician is confident that the affected worker has been exposed to irritants only, no further testing is necessary [7].

**\*Corresponding author:** Department of Dermatology, CMC, Vellore, Tamil Nadu, India., Tel:+9234142879; E-mail: [gangayb@gmail.com](mailto:gangayb@gmail.com)

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If there is suspicion that the patient has been exposed to potential allergens, patch testing should be performed to confirm or rule out allergic sensitization. This *in vivo* bioassay is of undisputable value in the identification of the causative agents of ACD. It is easy to perform, but its difficulty lies in the interpretation of the results and the determination of their relevance to the worker's condition. Therefore, patch testing should be carried out by a physician who possesses a sound expertise in occupational problems and has access to a wide range of allergens.

Close to 400 standardized allergens are currently available from different suppliers. Most are mixed in petrolatum or water and sold in individual syringes or vials. They are grouped by allergens in series, such as the rubber, metals, and glues and adhesives series, or by profession, such as the dental, hairdressers', or bakers' series. The TRUE Test is a pre-packaged, ready to apply kit consisting of two adhesive panels in which the 23 allergens of the European standard series are embedded. Quick and easy to use, it must, however, often be supplemented by additional allergens as even the North American standard series, with 50 allergens, is insufficient to pick up all cases of occupational ACD [8].

## Treatment

Acute, oozy lesions are best treated with saline or Burow solution thin wet dressings that dry up the exudate, followed by application of potent corticosteroid creams or lotions [9]. Extensive dermatitis will benefit from a short course of systemic corticosteroids, and sedative

antihistamines will be used to quell pruritus. Chronic, fissured, and scaly dermatitis is treated with liberal use of emollients and midstrength to potent topical corticosteroids.

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