

# Management of Atopic Hand Dermatitis



Anne-Sofie Halling-Overgaard, MS<sup>a</sup>, Claus Zachariae, MD, DmSci<sup>a</sup>,  
Jacob P. Thyssen, MD, PhD, DmSci<sup>a,b,\*</sup>

## KEYWORDS

• Atopic dermatitis • Hand eczema • Irritant contact dermatitis • Allergic contact dermatitis

## KEY POINTS

- Atopic dermatitis in childhood is associated with occupational hand eczema in adulthood.
- Patients with filaggrin gene mutations have an increased risk of developing hand eczema but only in the context of atopic dermatitis.
- It is important to identify and prevent exposure to culprit irritants and allergens that may cause or worsen hand eczema.
- First-line therapy in patients with atopic dermatitis and hand eczema includes emollients and topical corticosteroids.

## INTRODUCTION

Atopic dermatitis (AD), a common chronic inflammatory skin disease characterized by pruritus and eczematous lesions, affects 10% to 20% of the population.<sup>1</sup> The condition often begins during early childhood; although some patients obtain full remission, AD persists or relapses in many patients during adolescence and adulthood.<sup>1</sup>

Hand eczema (HE) occurs often in children and adults with AD.<sup>2–4</sup> In this clinical review article, the authors provide an overview of the most important clinical aspects of HE in AD, with a special emphasis on management.

## CLASSIFICATION AND CLINICAL SUBTYPES OF HAND ECZEMA

HE is divided into various subtypes based on either cause or morphology (**Table 1**), and several proposals exist in the literature.<sup>5–7</sup> It can be difficult to clinically appreciate such complex

classification because there is often no apparent link between the etiologic and morphologic picture and because the morphology of lesions, and even the cause, often change over time in affected patients.<sup>5,7,8</sup> Interested readers may access a clinically meaningful guideline with photographs showing the different subtypes.<sup>5</sup>

Acute HE is characterized by erythema, edema, and vesicles, whereas chronic HE predominately displays hyperkeratosis, scaly skin, and fissures.<sup>2,5</sup> The location of HE depends to a certain degree on the different etiologic subtypes. Hence, HE, primarily located to the dorsal aspects of the fingers and hands, is a common anatomic predilection site of AD in children and adults<sup>2</sup> but importantly also a frequent comorbidity due to irritant contact dermatitis (ICD) and/or allergic contact dermatitis (ACD) to for example, rubber chemicals.<sup>9–11</sup>

The most frequent HE etiologic subtypes include ICD, ACD, protein contact dermatitis (PCD), and HE as a natural part of AD, so-called atopic HE (AHE).<sup>6–8</sup> According to a cross-sectional multicenter study

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<sup>a</sup> Department of Dermatology and Allergy, Herlev and Gentofte Hospital, University of Copenhagen, Kildegårdsvej 28, Hellerup DK-2900, Denmark; <sup>b</sup> National Allergy Research Centre, Herlev and Gentofte Hospital, University of Copenhagen, Kildegårdsvej 28, Hellerup DK-2900, Denmark

\* Corresponding author. Department of Dermatology and Allergy, Herlev and Gentofte Hospital, University of Copenhagen, Kildegårdsvej 28, Hellerup DK-2900, Denmark.

E-mail address: Jacob.p.thyssen@regionh.dk

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**Table 1**  
Subtypes of hand eczema

Morphologic Subtypes	Etiologic Subtypes
<ul style="list-style-type: none"> <li>• Chronic fissured HE</li> <li>• Recurrent vesicular HE</li> <li>• Hyperkeratotic palmar eczema</li> <li>• Pulpitis</li> <li>• Interdigital eczema</li> <li>• Nummular hand eczema</li> </ul>	<ul style="list-style-type: none"> <li>• Allergic contact dermatitis</li> <li>• Irritant contact dermatitis</li> <li>• Protein contact dermatitis</li> <li>• Atopic HE</li> </ul>

Data from Menne T, Johansen JD, Sommerlund M, et al. Hand eczema guidelines based on the Danish guidelines for the diagnosis and treatment of hand eczema. *Contact Dermatitis* 2011;65(1):3–12.

including 319 European patients with HE, the most frequent subtypes were ICD (21.5%), combined ACD and ICD (15.2%), ACD (15.2%), vesicular HE (9.3%), combined AHE and ICD (7.8%), AHE (5.8%), and hyperkeratotic eczema (5.3%).<sup>6</sup>

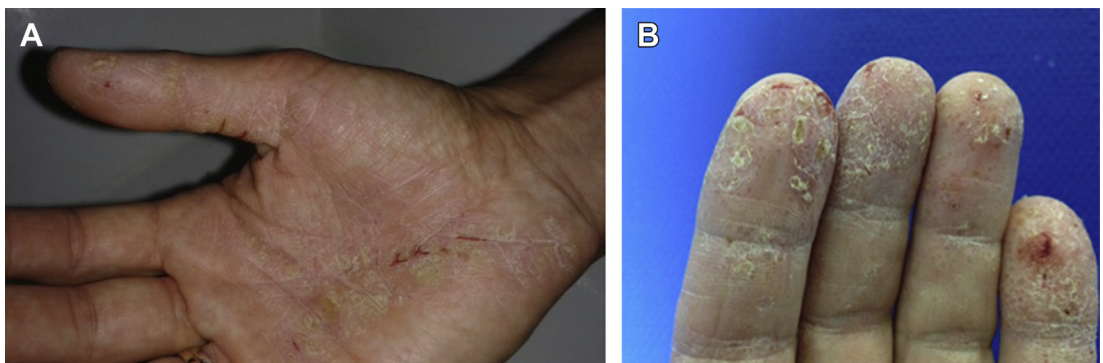
ACD is diagnosed by a positive patch test reaction and a concomitant history of exposure to the contact allergens. Acute inflammation due to ACD is often characterized by the presence of vesicles and erythema, particularly if allergen exposure is significant; but chronic ACD can be noncharacteristic with hyperkeratosis and fissures. The location of ACD normally begins at the site of skin contact (Fig. 1) but may spread to involve major parts of the hands, and even body, if exposure persists.<sup>8</sup> Traditional clinical examples of ACD include glove-related ACD on the wrists and dorsal aspects of the hands, nickel-related ACD on finger tips (pulpitis), and chromium-related ACD from cement on the palms.

ICD is diagnosed by a history of significant exposure to an irritant as well as a temporal relationship between irritant exposure and onset of HE. ICD can be located on both the palmar

and dorsal aspects of the hands, the distal dorsal aspects of the fingers, as well as in the interdigital space (Figs. 2–4). From a clinical experience, wet workers often experience their first onset of ICD on the knuckles and interdigital space and then experience a gradual spread to the hands; but, as opposed to ACD, generalization is less pronounced. Although the risk of ICD is clearly increased in adult patients with AD, particularly those who are engaged in risk occupations,<sup>9–11</sup> ICD may also develop in young children who play with their hands in wet sandboxes or frequently suck on their hands to seek comfort. Notably, ICD is mostly limited to the sites of skin exposure.<sup>8</sup>

PCD is diagnosed by a positive skin-prick test and a history of exposure to protein-containing material, such as food that results in instant urticarial eruptions, pruritus, or erythema. Following repeated exposure to the allergenic proteins, there is a gradual development of eczema.<sup>8</sup> PCD is particularly common among patients who handle food professionally. The presence of PCD is often overlooked, if patch testing is not supplemented by skin-prick testing with the suspected allergens. A retrospective study found a high prevalence of AD (48.6%) in patients with PCD and in patients with other food-related hand dermatoses, indicating that patients with AD are more susceptible to cutaneous food allergen exposure.<sup>12</sup>

Traditional AHE is located on the wrists and dorsal aspects of the hands (Figs. 5 and 6),<sup>5</sup> where patients are exposed to cold temperatures, dry air, solar irradiation, and air pollution, all factors that may negatively affect the skin barrier and cause dermatitis.<sup>13–15</sup> Notably, the different subtypes often co-occur, because AHE may be complicated by ICD, ACD, and even PCD.<sup>5</sup> In these multifactorial cases, there is often vesicular dermatitis in the palms or interdigital space as well.



**Fig. 1.** (A) Chronic allergic contact dermatitis of the palms with hyperkeratosis and fissures caused by nickel allergy. (B) Acute and chronic allergic contact dermatitis on the fingers due to methylisothiazolinone exposure with erythema and vesicles as well as scales, hyperkeratosis, and fissures.

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