

CMEARTICLE

Approach to hand dermatitis in primary care

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Ms Tan, a 32-year-old woman presents to your clinic with bilateral hand rash and itch that started four months ago. She has no previous history of atopy, and you are the fourth GP she has consulted for the rash. She laments that her new job as a skin therapist in a beauty salon for the past five months does not pay her enough to visit doctors so frequently. Physical examination shows an eczematous rash affecting mainly the palmar aspects of her fingers bilaterally. How should she be managed?

HOW RELEVANT IS HAND DERMATITIS TO MY PRACTICE?

Skin complaints account for 3%–21% of consultations in primary practice.^(1,2) Local findings from the Primary Care Survey 2010 ranked dermatological conditions as the 6th principal diagnosis for consultations in all clinics, including private general practice clinics and polyclinics, making up 5% of attendees.⁽³⁾

Dermatitis is the most common dermatological diagnosis made in primary care, accounting for 14%–22.5% of skin consults.^(1,2) The one-year prevalence of hand eczema in the general population is estimated to be nearly 10%, with lifetime prevalence approaching 15%. It results in medical consultations in an estimated 70% of sufferers, sick leave > 7 days in 20% and job change in 10%.^(4,5) Occupational contact dermatitis, although common, is underdiagnosed, with its prevalence underestimated by a factor of 10–50 times.⁽⁶⁾ Sick leave, lost productivity, dermatological treatment, vocational retraining and workers' compensation lead to high costs and severe socioeconomic burden in occupational contact dermatitis.⁽⁷⁾

WHAT CAUSES HAND DERMATITIS?

The development and course of hand eczema is a dynamic process, and its aetiology is often multifactorial, and includes both genetic and environmental factors. Common causes and differential diagnoses for hand dermatitis are shown in Box 1. Even if a patient has previous or current atopic dermatitis, it is important not to assume that the dermatitis is due to endogenous causes only, but to consider environmental exposures such as occupational exposures, as it is often not possible to distinguish among the various aetiologies via clinical examination.

Box 1: Common causes and differential diagnoses of hand eczema.^(8,9)

Common causes

Endogenous cause

- Atopic dermatitis
- Vesicular hand eczema (pompholyx)
- Hyperkeratotic eczema

Exogenous cause

- Irritant contact dermatitis (occupational or non-occupational)
- Allergic contact dermatitis (occupational or non-occupational)
- Contact urticaria

Combination of endogenous and exogenous causes

Differential diagnoses

- Psoriasis
- Fungal infection
- Scabies
- Granuloma annulare
- Herpes simplex
- Self-induced lesions
- Erythema multiforme, pityriasis rubra pilaris and dermatomyositis

The aetiology of contact dermatitis can be classified as irritant or allergic; however, a patient may have a combination of the two. Irritant contact dermatitis occurs when agents have a direct toxic effect on skin, and is most commonly due to irritant chemical agents and wet work. Allergic contact dermatitis involves a delayed or type IV hypersensitivity reaction as a result of a T-cell-mediated immune response to skin sensitisers. Common

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skin irritants and allergens are listed in Box 2. Any chemical in sufficient concentration can cause irritation; however, only certain agents are sensitisers and usually only a small proportion of persons are susceptible to these. Irritant occupational contact dermatitis is generally acknowledged to be more common than allergic occupational contact dermatitis, and found to be the primary or contributing cause in an estimated 73% of cases of hand eczema.⁽⁶⁾

Box 2: High risk occupations and common causes of contact dermatitis.^(10,11)

High risk occupations	Causal exposures
<ul style="list-style-type: none"> • Agricultural workers • Beauticians • Chemical workers • Cleaners • Construction workers • Cooks and caterers • Electronics workers • Healthcare workers • Machine operators • Mechanics • Metal workers 	<p><i>Irritants</i></p> <ul style="list-style-type: none"> • Alcohols • Cutting oils and coolants • Degreasers • Disinfectants • Petroleum products • Soaps and cleaners • Solvents • Wet work <p><i>Allergens</i></p> <ul style="list-style-type: none"> • Cobalt • Chromates • Cosmetics and fragrances • Epoxies • Nickel • Plants • Preservatives • Resins • Acrylics

Occupation is an important risk factor for contact dermatitis. Occupational contact dermatitis often has significant adverse effects on quality of life and daily function, and impact on employment. An estimated 5.6% of hand dermatitis cases are attributed to work,⁽⁵⁾ with the annual population incidence of contact dermatitis due to work estimated at 5.7–101 cases per 100,000 workers per year.⁽¹⁰⁾

HOW SHOULD I EVALUATE THIS PATIENT?

It is important to distinguish between endogenous and exogenous causes, especially occupational causes, and also to distinguish between irritant and allergic contact dermatitis, as the diagnosis affects patient management. When an adult of working age presents with clinical features of contact dermatitis, the following history should be obtained:

History of rash

Previous episodes of hand eczema, as well as history of atopic dermatitis and psoriasis should be sought. Previous allergic history may be useful, as there is known cross-reactivity between materials, e.g. some latex allergens are known to cross-react with

certain food allergens such as kiwi fruit.⁽¹²⁾ Contact sensitivity, especially nickel allergy, has also been shown to be a risk factor for hand eczema.⁽¹³⁾

Full exposure and occupational history

History should be taken, detailing the patient's work, work processes, materials and chemicals handled, use of personal protective equipment, hygiene practices at work and the temporal relationship of their rash with work. Check if the dermatitis improves away from exposure to the suspected agent, especially during periods of long leave. Sometimes, colleagues may suffer from similar skin rashes. Hand dermatitis that predates the current occupation does not rule out work-relatedness, as work may exacerbate pre-existing dermatitis. Non-work-related exposures such as housework and hobbies should also be considered.

Atopy

A personal or family history of atopy, including asthma, eczema or hay fever, should be elicited; however, a history of respiratory atopy has not been shown to predispose to contact dermatitis. A history of atopic dermatitis has been found to be associated with development of hand dermatitis, but this may not be helpful in the determination of aetiology of hand dermatitis.^(14,15)

Pattern of rash

The location, type of rash and other affected areas of the body should also be considered as clues to the aetiology. If there is exposure to potential irritants and allergens, it should be considered if the distribution of the rash is consistent with the skin contact in relation to the exposure process. Exposed areas such as the hands and forearms, which have the greatest potential for contact with irritants and allergens, are most commonly affected.⁽¹⁶⁾ Clothing may get contaminated, and rashes may also affect areas such as the thighs, upper back, armpits and feet. Dusts and other air-bound irritant or allergens may accumulate at the collar and belt area, at the tops of socks or shoes and in flexural areas. Mists may cause rash on all exposed body parts, e.g. face and anterior neck. Chemicals may also be transferred to remote parts of the body, such as the face, trunk or genitalia, by unwashed hands. All affected areas of the body should be examined, depending on the suspected aetiology and mechanism of spread.

WHAT SHOULD I DO NEXT?

Management of hand eczema involves: (a) teaching the patient good skincare habits; (b) educating the patient about the condition and its consequences; (c) informing the patient on allergen and irritant avoidance; and (d) the initiation of effective medical treatment.

General skin protection advice

Good skincare habits include the use of protective gloves, when

necessary, but for as short a time as possible. When these are used for more than ten minutes, cotton liners should be worn inside.⁽¹⁷⁾ Re-use of gloves should also be cautioned as repeated use without effective decontamination may result in secondary exposure.⁽¹⁸⁾ Patients should be advised to avoid frequent hand washing, unless necessary, and to use protective gloves when doing domestic tasks such as dishwashing.

Prognosis of hand dermatitis

Hand dermatitis is generally is a long-lasting disease that rarely completely clears over a short time span.⁽¹⁹⁾ The mean duration of disease is estimated to be 11.6 years. In a 15-year follow-up of hand eczema patients, 44% reported symptoms of hand eczema within the previous year, with 96% of this subgroup reporting impairment of their social life due to hand dermatitis. 3% reported change of occupation due to their hand dermatitis.⁽²⁰⁾

Avoidance of irritants and allergens

If environmental factors like occupational exposure to various chemicals are suspected to cause or exacerbate the patient's dermatitis, the patient should be alerted of the increased risk from these causative or exacerbating agents, and advised on preventive measures. While awaiting further investigation, avoidance of suspected agents or protection by wearing suitable personal protective equipment can be recommended. Personal protective equipment only protects the patient when they are correctly selected, properly used, safely removed and replaced or maintained regularly. Effective long-term preventive measures may require elimination or substitution of the offending agent, or engineering or other administrative controls to minimise skin contact.

For Ms Tan, the selection of gloves can be made after consideration of factors such as the tasks she is required to perform, chemicals encountered, nature of contact, grip requirement, thermal protection, abrasion and resistance requirements, size and comfort, and chemical resistance and physical properties of the glove material. She should be reminded to also wear suitable gloves for domestic exposures such as wet work and leisure-time activities such as gardening.

If the dermatitis is severe, you can consider engaging the employer or supervisor and advising temporary adjustments to the patients' duties in order to avoid exposure or giving medical leave to facilitate recovery. There has been no evidence that barrier creams are effective as a preventive measure, and the use of these should not be promoted.^(10,17)

Treatment

Emollients or moisturisers improve skin barrier function, and should

be applied before, during and after work. Topical corticosteroid preparations are the main treatment for hand dermatitis, but few studies about their efficacy and side effects when used long-term are available. When eczema does not improve despite corticosteroid treatment, the possibility of contact allergy to corticosteroids should be considered. Newer treatments for severe cases utilising phototherapy, topical tacrolimus and pimecrolimus, oral retinoids and immunosuppressants such as cyclosporine, azathioprine and methotrexate are available, but further studies on these agents are required.⁽²¹⁾

WHEN SHOULD I REFER TO A SPECIALIST?

Dermatologist opinion may be required especially for severe, steroid-resistant cases for consideration of second-line treatments.⁽¹¹⁾ A safety data sheet (SDS) can be obtained from the employer or supervisor to guide the appropriate investigations required. Skin patch tests may be required using standardised allergens and may include tests with dilutions of industrial contactants. Interpretation of skin patch tests may be complicated, as contact sensitisation may be the primary cause of hand eczema or a complication of irritant or atopic hand eczema. Skin prick tests or radioallergosorbent tests should be carried out if contact urticaria is suspected.

As a rule of thumb, patients with hand eczema lasting more than one month, especially cases suspected to be work-related, should be referred to a physician with expertise in occupational skin disease, e.g. a specialist contact dermatitis clinic such as the Joint Occupational Dermatoses Clinic in National Skin Centre, Singapore, or an occupational physician.⁽¹¹⁾ Input from an occupational physician is important, as the patients may require detailed exposure assessment, workplace adjustments and liaison with their employer.

WHEN DO I NEED TO NOTIFY THE AUTHORITIES?

Different countries have different legislation for registering occupational diseases, including occupational skin diseases. In Singapore, all registered medical practitioners are required to report any diagnosed occupational skin disease, including occupational dermatitis, within ten days from the diagnosis of the disease, under the Workplace Safety and Health (Incident Reporting) Regulations. All notifications should be made via the electronic notification system at www.mom.gov.sg/ireport or through the Health Professionals Portal (HPP) at www.hpp.moh.gov.sg.

Doctors in Singapore should also inform employers of the diagnosis to enable employers to comply with their statutory duty to notify occupational diseases to Ministry of Manpower. Non-compliance with the reporting requirements may result in a fine of up to S\$5,000 for first offence, and up to S\$10,000 and/or imprisonment for a second or subsequent offence. Further information can be found in the Workplace Safety and Health Guidelines on Diagnosis and Management of Occupational Diseases.⁽²²⁾

You suspect an occupational aetiology to Ms Tan's hand rashes based on the recent onset of symptoms after starting her new job, and refer her to the Joint Occupational Dermatoses Clinic at the National Skin Centre. Two months later, you get a reply from the dermatologist detailing that Ms Tan had been seen by the dermatologist and the occupational physician at the clinic where she was patch tested and found to be sensitised to a product she works with, and has been diagnosed with allergic contact dermatitis. She has been taken off the task that requires exposure to the product, and her rashes have improved dramatically. Her case has been notified to the Ministry of Manpower, and she is in the process of making a compensation claim for her medical bills.

TAKE HOME MESSAGES

1. Hand dermatitis is common yet underdiagnosed, and causes significant morbidity.
2. A previous diagnosis of endogenous eczema does not preclude environmental causation or exacerbation of hand dermatitis.
3. Hand dermatitis can be treated effectively using pharmacotherapy, and where relevant, prevention by minimising exposure to irritants and allergens.
4. Referral to the Dermatologist or Occupational Physician may be needed for patch or prick testing, second-line treatment in severe refractory cases, as well as for exposure assessment, workplace adjustments and liaison with the employer.
5. In Singapore, notification of diagnosed cases of occupational skin disease to Ministry of Manpower is mandatory.

ABSTRACT Hand dermatitis is commonly seen in primary care, although it is often underdiagnosed. Exogenous causes should always be considered and a detailed environmental and occupational history taken, especially in patients presenting in adulthood. Although not life-threatening, the condition may have significant impact on the patient's quality of life and employment. Refractory cases or those suspected to be due to exogenous workplace agents may need to be referred for further investigation. Hand dermatitis can be treated effectively using pharmacotherapy and prevented by minimising subsequent exposure to irritants and allergens. Occupational skin disorders, once diagnosed, should be notified to the relevant authorities, i.e. the Ministry of Manpower in Singapore.

Keywords: dermatitis, disease notification, occupational
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SINGAPORE MEDICAL COUNCIL CATEGORY 3B CME PROGRAMME

(Code SMJ 201211A)

	True	False
1. Skin complaints are uncommon in primary care practice.	<input type="checkbox"/>	<input type="checkbox"/>
2. Occupational contact dermatitis is common and easily diagnosed, as patients will volunteer the "link" when they see their doctor.	<input type="checkbox"/>	<input type="checkbox"/>
3. A patient with a strong history of atopy (asthma and allergic rhinitis) can still have contact dermatitis from environmental exposures.	<input type="checkbox"/>	<input type="checkbox"/>
4. Contact dermatitis can be classified as irritant or allergic.	<input type="checkbox"/>	<input type="checkbox"/>
5. Detailed clinical examination using the international classification checklist by a trained family physician will frequently identify the aetiology for hand dermatitis.	<input type="checkbox"/>	<input type="checkbox"/>
6. Alcohol, degreasers and petroleum products are examples of common allergens that cause contact dermatitis.	<input type="checkbox"/>	<input type="checkbox"/>
7. Nickel, cobalt, cosmetics and fragrances are examples of common allergens that cause contact dermatitis.	<input type="checkbox"/>	<input type="checkbox"/>
8. All chemicals in sufficient concentration can cause irritation to the skin.	<input type="checkbox"/>	<input type="checkbox"/>
9. Allergic contact dermatitis is more common than irritant contact dermatitis.	<input type="checkbox"/>	<input type="checkbox"/>
10. Irritant occupational contact dermatitis is found to be the primary or contributing cause in more than 70% of cases of hand eczema.	<input type="checkbox"/>	<input type="checkbox"/>
11. Occupational contact dermatitis often has adverse effects on quality of life, daily function, and impact on employment.	<input type="checkbox"/>	<input type="checkbox"/>
12. The temporal relationship between the patient's rash and suspected exposure or work is important for clinical evaluation of hand dermatitis.	<input type="checkbox"/>	<input type="checkbox"/>
13. Household wet work and hobbies, such as gardening or modelling involving chemicals and adhesives, are also important contributors to hand dermatitis.	<input type="checkbox"/>	<input type="checkbox"/>
14. Rashes involving the collar and belt area, at the tops of socks or shoes and in flexural areas suggest that the offending agent may be airborne.	<input type="checkbox"/>	<input type="checkbox"/>
15. Hand eczema with eye brows or genitalia involvement can be spread by common habits involving unwashed hands.	<input type="checkbox"/>	<input type="checkbox"/>
16. Examining all the affected areas of the body may help determine the possible mechanism of spread and narrow down the suspected aetiology or agent.	<input type="checkbox"/>	<input type="checkbox"/>
17. The concurrent use of cotton liners with protective gloves is for the comfort of the user, and should be used for as short a time as possible, preferably not more than ten minutes.	<input type="checkbox"/>	<input type="checkbox"/>
18. Topical corticosteroid preparations are the main treatment for hand dermatitis.	<input type="checkbox"/>	<input type="checkbox"/>
19. In Singapore, all registered medical practitioners are required to report any diagnosed occupational skin disease, including occupational dermatitis, within ten days from the diagnosis of the disease, under the Workplace Safety and Health (Incident Reporting) Regulations.	<input type="checkbox"/>	<input type="checkbox"/>
20. Failure to comply with statutory duty to notify occupational diseases to Ministry of Manpower may result in a fine of up to S\$5,000 for a first offence, and up to S\$10,000 or/and imprisonment for a second or subsequent offence.	<input type="checkbox"/>	<input type="checkbox"/>

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(1) Answers will be published in the SMJ January 2013 issue. (2) The MCR numbers of successful candidates will be posted online at the SMJ website by 28 December 2012. (3) Passing mark is 60%. No mark will be deducted for incorrect answers. (4) The SMJ editorial office will submit the list of successful candidates to the Singapore Medical Council. (5) One CME point is awarded for successful candidates.

Deadline for submission: (November 2012 SMJ 3B CME programme): 12 noon, 21 December 2012.