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REVIEW ARTICLE ON DERMATOGRAPHISM DISEASE.

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ABSTRACT

Urticaria is one of the more common skin conditions seen by physicians. Physical agents are an important cause of urticaria, with pressure or shearing forces being the most common. Dermographism is due to a combination of pressure and shearing forces and is present in a large number of healthy individuals. The purpose of this article is to provide a review of dermatographism and its clinical variants. Dermatographism is the most common type of inducible/physical urticaria, occurring in approximately 2% to 5% of the population. Downward pressure on the skin produces linear erythematous wheals in the dermis in the shape of the external force applied, earning the name dermatographism, which literally means "writing on the skin." A small subset of people with dermatographism becomes symptomatic with pruritus, stinging, prickling sensations that can be bothersome for the patient.

KEYWORDS

Dermographism, urticaria, sensation, rashes.

DERMATOGRAPHISM

continuing education activity :

Dermatographism, also known as dermographism urticaria, or urticaria factitial, is an urticarial eruption upon pressure or trauma to the skin. The literal meaning is "to write on the skin." Although skin writing may sound exotic, downward pressure on the skin produces a linear wheal in the shape of the applied external force. Dermographism is the most common type of inducible/physical urticaria, occurring in approximately 2% to 5% of the population. A small subset of those with dermographism becomes symptomatic with pruritus along with the erythematous wheals. This activity reviews the evaluation and management of dermatographism and the role of interprofessional team members in collaborating to provide well-coordinated care and enhance patient outcomes.

Introduction :

Dermatographism, also known as Dermographism urticaria, or urticaria factitial, is an urticarial eruption upon pressure or trauma to the skin. Urticarial skin reactions present as erythematous wheals in the dermis and can have innumerable causes. Dermographism is the most common type of inducible/physical urticaria, occurring in approximately 2% to 5% of the population. Downward pressure on the skin produces linear erythematous wheals in the dermis in the shape of the external force applied, earning the name dermographism, which literally means "writing on the skin." A small subset of people with dermographism becomes symptomatic with pruritus, stinging, prickling sensations that can be bothersome for the patient. Dermatographia is a condition in which lightly scratching your skin causes raised, red lines where you've scratched.

Etiology :

The exact cause of dermographism is unknown. but it can be triggered in some people by infections, emotional upset or medications such as penicillin. However, the release of histamine from mast cells is thought to play a role. Dermographism has been seen in people with diabetes, hyperthyroid, hypothyroid, menopause, pregnancy, or medication-related.

Epidemiology :

Dermatographism is the most common type of urticaria, frequently presenting in young adults with the peak incidence in the second and third decades. Dermographism is the most common type of inducible/physical urticaria, occurring in approximately 2% to 5% of the population. There has not been shown a relationship between race and dermatographism. One study of paediatric patients showed a female predominance. One report cited a case of familial dermatographism.

Symptomatic dermatographism is thought to be generally idiopathic, but various explanations have been considered. The higher consensus revolves around *Helicobacter pylori*, antibiotics such as penicillin, bites, or scabies as the more common presentations to suggest this correlation. Lastly, congenital symptomatic dermatographism is the presenting sign in systemic Masto cytosis.

Hyper eosinophilic syndrome is associated with atopic children and increases dermographism; these are associated with atopic children and an increased number of eosinophils in the blood. One-third of patients that experience traumatic life events, along with psychological co-morbidities, experience dermographism. Furthermore, stressful events like pregnancy (commonly in the second trimester) and the onset of menopause have seen a higher incidence of the condition. Bechet disease, a condition marked by oral and genital ulcers, is another disease where dermographism is a common integumentary finding.

Pathophysiology

Trauma may release an antigen that interacts with the membrane-bound immunoglobulin E (Ige) of mast cells, which release inflammatory mediators, particularly histamine, into the tissues. This process causes small blood vessels to leak, allowing fluid to accumulate in the skin.

This is thought to cause an exaggerated biological response known as the "triple response of Lewis." Initially, the capillaries become dilated, producing a superficial erythematous phase. Next, an axon-reflex flare and communication to sensory nerve fibres cause an expansion of erythema, secondary to arteriolar dilation. Lastly, the linear wheal is formed through fluid transudation. This entire response takes, on average, up to 5 minutes after an external stimulus stroking of the skin. The wheal can persist anywhere from 15 to 30 minutes, unlike the normal triple response of Lewis that subsides in under 10 minutes.

Mediators such as histamine, leukotrienes, bradykinin, heparin, kallikrein, and peptides such as substance P are all considered to play a role in this process.

Histopathology :

The histopathology of dermographism demonstrates dermal edema with few perivascular mononuclear cells similar to acute urticaria histology. **History**

and Physical :

Dermatographism lesions appear following mechanical trauma to the skin, most consistently stroking of the skin. A wheal forms and develops in approximately 5 to 10 minutes. The wheal will persist for about 15 to 30 minutes. The deeper the edema into the dermis, the larger the wheal will appear. In symptomatic dermatographism, pruritus accompanies the wheal. The pruritus worsens at night (thought to be related to the pressure of the bedding and sheets contacting the skin) and friction to the area from external stimuli, heat, stress, emotion, and exercise.

Dermatographism most commonly involves the trunk and extremities, and other body surfaces. The least common areas reported are the scalp and genital area; however, symptomatic dermographism has been correlated in the literature with dyspareunia and vulvodynia. [7] There are several rare subtypes of dermographism:

- Red dermographism (small punctate wheals, predominantly on the trunk)

- Follicular dermographism (isolated urticarial papules)

(The transitory, discrete, follicular, urticarial papules so elicited have been labelled by us as follicular dermographia frictional force of scratching or the tongue blade test releases antigen from the blood stream to trigger focal urticaria at sites of high-density mast cells, namely around the hair follicle.

Hydroxyzine is an effective therapy.)

- Cholinergic dermographism (similar to cholinergic urticaria – large erythematous line marked by punctate wheals)

(i.e., wheals smaller than those of classic urticaria and surrounded by large areas of macular erythema)

- Delayed dermographism (tender urticarial lesion reappears 3 to 8 hours after the initial injury that persist up to 48 hours)

(i.e., wheals smaller than those of classic urticaria and surrounded by large areas of macular erythema)

- Cold-precipitated

- Exercise-induced

(Exercise induced urticaria is a rare clinical condition, which, as the name suggests, manifests as flushing, pruritus, and hives following physical exercise.)

- Familial

Symptoms of dermatographia :



Signs of dermatographia occur when your skin gets scratched. Symptoms don't appear on their own. Instead, these are reactions to scratches themselves. These symptoms can appear for the first time without warning.

The symptoms of dermatographia may include:

- redness
- raised marks on the skin that look like writing
- deep wounds
- welts that look like hives
- itchiness
- swelling, or inflammation

Symptoms usually last for about 30 minutes at a time. In rare cases, symptoms last for a day or longer. However, the condition of dermatographism itself can last for months or years.

Symptoms may worsen in extreme temperatures. Dry weather can also increase the incidence of dermatographism. Warm water from hot showers, baths, and saunas can aggravate symptoms.

Cause of dermatographia :

The exact causes of dermatographia aren't known. The condition is thought to be triggered by:

- Stress
- a history of allergies
- excessive rubbing from clothing or bedding
- infections
- certain medications, including penicillin
- exercises that cause excessive skin rubbing (such as wrestling)

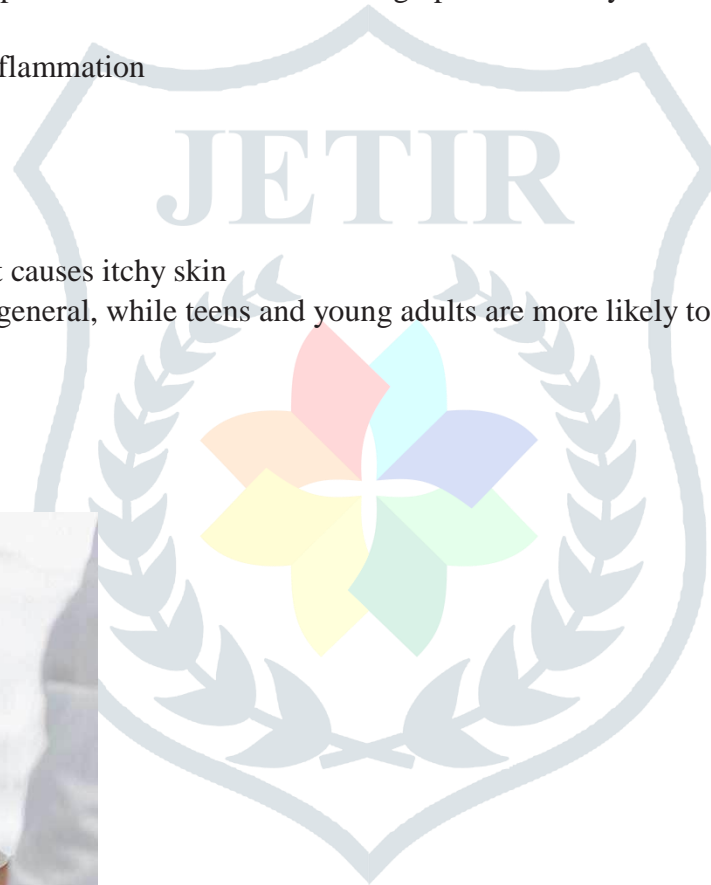
Though its causes are not known, there are suspected risk factors for dermatographia. You may be at an increased risk if you:

- have dry skin
- have a history of dermatitis which is a skin inflammation
- are a young adult
- experience frequent scratches of the skin
- have thyroid disease.

have a nerve disorder or an internal illness that causes itchy skin

Children are more susceptible to dermatitis in general, while teens and young adults are more likely to develop dermatographia

Diagnosis of dermatographia :



Dermatographia is diagnosed with a skin test. Your doctor will likely use a tongue depressor and lightly drag it across a portion of your skin to see if any adverse reactions occur. This test is done at the doctor's office, and the condition is typically diagnosed within one visit. Your doctor may also check other areas of your skin for marks.

No blood tests or X-rays are required to diagnose this condition.

Treatment of dermatographia :

Symptoms of dermatographia usually go away on their own, and treatment for dermatographia generally isn't necessary. However, if the condition is severe or bothersome, your doctor may recommend antihistamine medications such as **diphenhydramine (Benadryl)**, **fexofenadine (Allegra)** or **cetirizine (Zyrtec)**.

For example :



Prevention and avoidance of precipitating factors such as physical stimuli and decreasing stressors are important factors in controlling dermatographism. Most patients are asymptomatic, and therapy should be restricted to symptomatic patients. Choice therapy includes treatment with H1 antihistamines such as cetirizine or loratadine.

Over-the-counter, nonsedating antihistamines are commonly the first step in treating dermatographia.

The prescription drug known as cromolyn has also been effective in treating some cases.

Antihistamines do not work for all individuals with skin writing, but there are alternative treatments that may help with the symptoms.

Advocates of alternative treatments for dermatographia recommend:

- following a healthy diet, emphasizing fresh fruits and vegetables and low in high fat, processed foods
 - staying hydrated by drinking water and avoiding alcohol and beverages with added sugar
 - moisturizing skin with natural products, such as coconut oil or shea butter
 - practicing self-care by getting enough rest and nurturing the body and mind
 - cooling the itching with cold compresses, chilled aloe vera gel, apple cider vinegar, or cold running water
- People with the condition are often advised

to avoid foods that may promote tenderness including:

- red meat
- processed meat
- fried foods
- refined carbohydrates
- beverages sweetened with sugar

H2 antihistamines can be combined for more complete therapy if H1 blockers are insufficient to control the pruritus. Hydroxyzine, a sedating antihistamine, is a valid option and can be taken before sleep.

Omalizumab is under construction in research trials focusing on treating dermatographism with 72% efficacy on 150 mg and 58% efficacy on 300 mg. Notably, patients' Dermatology Life Quality Index (DLQI) scale improved by at least 4 points, showing a statistically significant clinical difference.

Light therapy has shown some efficacy in treating dermatographism, yet most patients relapse within 2 to 3 months of completing therapy.

Adjunctive treatment with over-the-counter vitamin C 1000 mg daily is thought to help degrade histamine and increase removal, diminishing the triple response of Lewis

Prevention :

One of the most important things that people with dermatographia can do is identify the triggers that worsen their condition.

Triggers can include heat, activity, and emotional circumstances. For example, [44 percent Trusted Source](#) of participants in one study said stress could cause acute episodes of skin writing.

The following recommendations may help reduce the severity of episodes of dermatographia:

- practicing good skin care and avoiding using soaps, lotions, or other products that may dry or irritate the skin
- avoiding wearing itchy fabrics, such as wool
- using moisturizer frequently
- making sure clothing is loose and not constricting
- avoiding taking very hot or very cold showers or baths
- being gentle when towel-drying after swimming or bathing
- wearing sunscreen and avoiding overexposure to sunlight
- eating lots of noninflammatory foods, such as seafood rich in [omega-3](#) fatty acids, leafy greens, including [kale](#) and spinach, tomatoes, fruits, and olive oil

Complications :

Dermographism has no direct complications. However, if the patient uses sedating antihistamines for treatment, they may need to exercise caution before engaging in certain activities such as driving or operating machinery.

Deterrence and Patient Education :

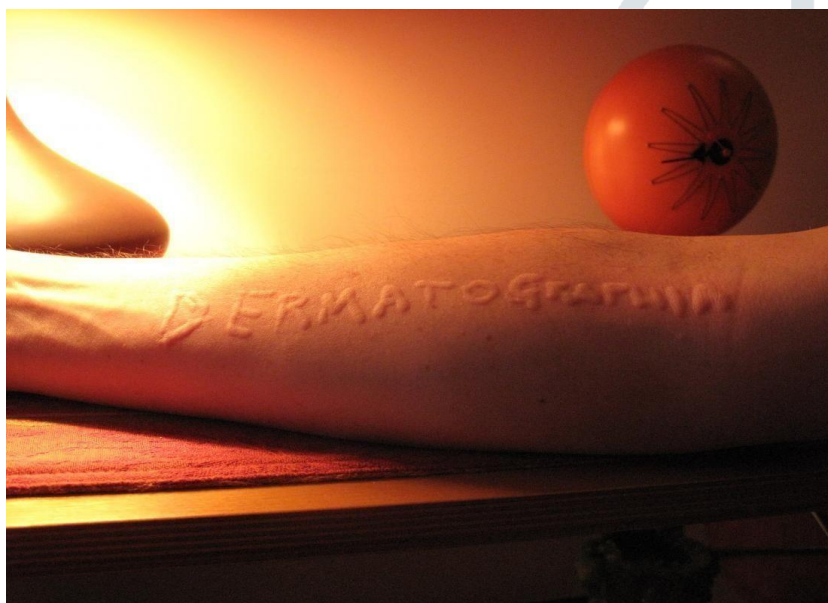
Dermographism can be unsettling in its laborious course without resolve. However, the condition is benign, and patients must be aware of this. The treatment involved, antihistamines, can result in drowsiness; therefore, it is best to advise the patient not to take the medication before operating a vehicle.

Enhancing Healthcare Team Outcomes :

Dermographism is a benign yet startling lesion to most patients and their parents. Thus, it is imperative to educate the patient and their parents properly on the risk factors associated with the onset of dermographism to avoid such stressors.

To properly educate, it is ideal to target the audience in a team-based approach.

- Evaluation by the primary care physician
- Consult the dermatologist when the diagnosis is in question
- Encourage reduction of external stimuli, effective management, and treatment options.



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