UC Irvine
Journal of Education and Teaching in Emergency Medicine

Title
A Case Report of Dermatographia

Permalink
https://escholarship.org/uc/item/5dk72284

Journal
Journal of Education and Teaching in Emergency Medicine, 9(3)

Authors
Patlola, Mahika
Shah, Aanchal A
Stead, Thor
et al.

Publication Date
2024

Copyright Information
Copyright 2024 by the author(s).This work is made available under the terms of a Creative Commons Attribution License, available at https://creativecommons.org/licenses/by/4.0/

Peer reviewed

eScholarship.org Powered by the California Digital Library
University of California

VISUALem

A Case Report of Dermatographia

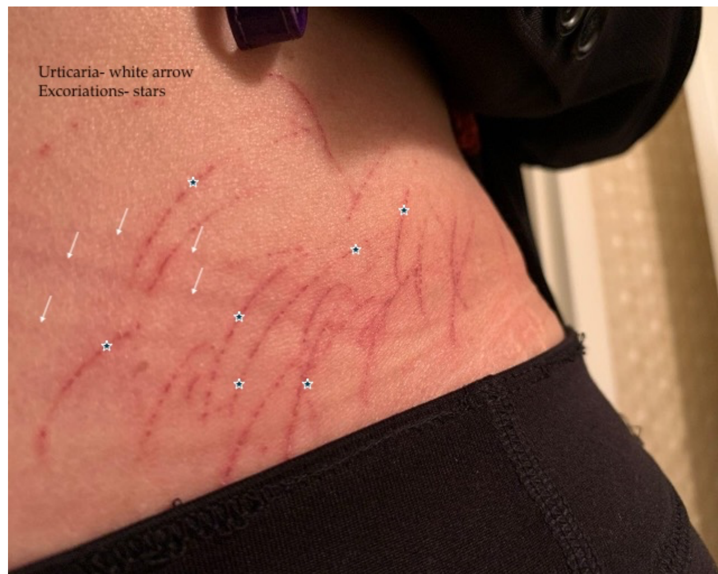
Mahika Patlola[*], Aanchal A Shah, BA[^], Thor S. Stead, ScB[†] and Latha Ganti, MD, MS, MBA[† **]

[*]Round Rock High School, Austin, TX
[^]Florida State University College of Medicine, Tallahassee, FL
[†]Warren Alpert Medical School of Brown University, Providence, RI
[**]Orlando College of Osteopathic Medicine, Winter Garden, FL

Correspondence should be addressed to Latha Ganti, MD, MS, MBA at latha_ganti@brown.edu
Submitted: November 22, 2023; Accepted: June 25, 2024; Electronically Published: July 31, 2024; https://doi.org/10.21980/J8P05P
Copyright: © 2024 Patola, et al. This is an open access article distributed in accordance with the terms of the Creative Commons Attribution (CC BY 4.0) License. See: http://creativecommons.org/licenses/by/4.0/

ABSTRACT:
The authors present a case of symptomatic dermatographia. Dermatographia is an inducible urticaria where the light pressure of scratching leaves a raised wheal in the pattern of the scratching. The presentation can be striking and is often very stressful for the patient; however, the etiology is benign and the key takeaway is to provide reassurance to the patient.

Topics: Dermatographia, urticaria, dermatology.



Brief introduction:
Dermatographia is a type of urticaria in which downward mechanical trauma to the skin causes erythema and inflammation where the force was applied.[1] When asymptomatic, it is referred to as simple dermatographia. It is found in about 1.5%-5% of healthy people and does not affect quality of life when asymptomatic.[2] Dermatographia comprises 10% of the chronic uriticarias.[3] When accompanied by pruritus, it is referred to as symptomatic dermatographia.

Dermatographia is also known as dermographism urticaria, or urticaria factitia because an urticarial eruption occurs within the skin wherever an external pressure is applied.[4] Although it causes inflammation, the external pressure does not need to be a massive force in patients with symptomatic dermatographia. Most patients experience dermatographia as a result of lightly scratching, or even simply rubbing up against clothing. This condition may decrease quality of life. The term “urticaria factitia” is Latin for “skin writing” because the skin is so sensitive to external force that one could literally write on the skin, and it would be legible.[5] The diagnosis is easy to make. The clinician will slide a tongue depressor or cotton swab across the forearm of the patient, and if a wheal appears within a couple minutes, the patient has dermatographia. The wheal typically appears within six to seven minutes and begins to fade within 15 to 30 minutes later.[6]

Presenting concerns and clinical findings:
This is a 47-year-old female that presented to the emergency department due to a rash on the right side of her abdomen where she scratched. She denies any medical history but states that she feel itchy often, and she will itch until she bleeds. She felt itchy so she scratched her abdomen over the last few days. She was alarmed to see the appearance of the scratch marks because they appeared to be in a perfectly linear formation. She was worried if these lines were due to worms or scabies. However, she did not have any pruritus or lesions anywhere else. She has no known allergies. She takes no daily medication. She has never had any surgeries. Family history was noncontributory, and she reported no occupational exposure to chemicals.

On review of systems, She denied any sensation of her throat closing or feeling flushed. She denied any fevers, chills, chest pain, shortness of breath, nausea, vomiting, diarrhea, abdominal pain, headache, focal weaknesses, or urinary symptoms. She also denied any recent travel or sick contacts.

Vital signs revealed a temperature of 98.6° F, blood pressure 110/60 mmHg, pulse of 64 beats per minute, respiratory rate of 17 breaths per minute, and saturating at 100% on room air.

Significant findings:
Physical examination was unremarkable except for the urticaria on the right aside of her abdomen (white arrow) with overlying excoriations (stars). Of note, there were no burrows, papules or vesicles in the typical locations including the webs of the fingers, wrists, axillae, areolae, or genitalia. Examination of the linear dermatographia clearly revealed superficial wheals, versus underlying serpiginous lesions.

Patient course:
The patient was given a dose cetirizine and famotidine in the emergency department and discharged with prescriptions for the same. She was reassured that this was neither scabies nor a worm infestation because it lacked typical features of those entities. The patient was asked about but denied any special stressors. She was discharged from the ED with primary care follow-up. Surprisingly, this was the first time she experienced the condition, even though she was 47 years old.

Discussion:
Simple dermatographia requires no treatment, although skin moisturizer can be helpful to prevent recurrence. However, our patient had symptomatic dermatographia, heralded by pruritus. The mainstay of treatment is second-generation antihistamines, with or without an H2 blocker. Education and reassurance is also paramount because anxiety and emotional stressors are recognized triggers. Immunosuppressants are sometimes used in refractory cases.[7]

The exact etiology of dermatographia is unknown. It has been associated with pre-existing infections, allergic reactions, and even anxiety.[8] Dermatographia can present on the extremities as in this case. It can also present in the oral cavity,[9] or in the vulva.[10] Dermatographia has also been reported in association with COVID-19 infection,[11] and with the vaccine against COVID-19.[12]

Symptomatic dermatographia, while pruritic, does not present with any of the other symptoms associated with anaphylaxis, such as hypotension, gastrointestinal distress, or airway compromise.[13] Managing dermatographia consists of trying to avoid any stimulus that may trigger the urticaria. Patients should be counseled on ways to avoid triggers [see infographic]. Dermatographia is an inducible urticaria that comprises 10% of chronic urticarias. While the presentation is often striking, it is mostly benign, except when the pruritus affects quality of life. Although the exact etiology has not yet been elucidated, management with second-generation antihistamines and avoidance of triggers are the mainstays of treatment.

Dermatograohia is valuable for the EM physician to recognize because it can be a great source of distress to the patient despite it being benign and only needing reassurance. Differential diagnoses are few; it is possible that the accompanying pruritus causes excoriations that can become infected, but otherwise dermatographia itself is benign. The key takeaway here is to reassure the patient and provide anticipatory guidance.

References:

1. Margolis CF, Estes SA: Symptomatic dermographism. *J Fam Pract*. 1981;13:993-5. At: https://pubmed.ncbi.nlm.nih.gov/6118390/
2. Taşkapan O , Harmanyeri Y: Evaluation of patients with symptomatic dermographism. *J Eur Acad Dermatol Venereol*. 2006;20:58-62. At: doi: 10.1111/j.1468-3083.2005.01372
3. Komarow HD , Arceo S , Young M , Nelson C , Metcalfe DD: Dissociation between history and challenge in patients with physical urticaria. *J Allergy Clin Immunol Pract*. 2014;6:786-90. At: doi: 10.1016/j.jaip.2014.07.008
4. Nobles T, Muse ME, Schmieder GJ. Dermatographism. StatPearls Publishing. 2022. At: https://www.ncbi.nlm.nih.gov/books/NBK531496/
5. Malcolm TR , Shah YB: Woman with pruritic rash and dermatographism. *JACEP Open*. 2022;3:e12709. At: doi: 10.1002/emp2.12709
6. Kirby JD, Matthews CN, James J, Duncan EH, Warin RP. The incidence and other aspects of factitious wealing (dermographism). *Br J Dermatol*. 1971;85(4):331.
7. Hon KL, Li JT, Leung AK, et al. Current and emerging pharmacotherapy for chronic spontaneous urticaria: a focus on non-biological therapeutics. *Expert Opin Pharmacother*. 2021;22(4):497-509.
8. Akcam NY, Özden G. Can Anxiety Affect Dermographism and Atopy Test Outcomes. *Cureus*. 2022, 14:e21994. At: doi: 10.7759/cureus.21994
9. Binmadi N, Almazrooa S. Dermographism in the Oral Cavity. *Am J Case Rep*. 2016, 17:421-4. At: doi: 10.12659/ajcr.898247
10. Rivera S, Mirowski GW. Dermatographism with vulvar symptoms. *Int J Womens Dermatol*. 2021, 7:454-457. At: doi: 10.1016/j.ijwd.2021.04.008

11. Valladares D, Kattan JN, Radhakrishnan N, Jones RG: Dermographism in COVID-19. *BMJ Case Rep*. 2021;14:e241052. At: doi: 10.1136/bcr-2020-241052
12. Malcolm TR, Shah YB. Woman with pruritic rash and dermatographism. *JACEP Open.* 2022 Mar 24;3(2):e12709. At: doi: 10.1002/emp2.12709
13. Manivannan V, Decker WW, Stead LG, Li JT, Campbell RL. Visual representation of National Institute of Allergy and Infectious Disease and Food Allergy and Anaphylaxis Network criteria for anaphylaxis. *Int J Emerg Med*. 2009;2(1):3-5. At: doi:10.1007/s12245-009-0093-z.