Case Report

Volar Involvement in Neutrophilic Dermatosis of the Hands: An Uncommon Presentation in a Young Adult

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Abstract

Neutrophilic dermatosis of the hands (NDH) is an uncommon inflammatory condition recognized as a localized variant of Sweet syndrome, seen in older adults with malignancy or systemic inflammatory disease. We present a rare case of NDH in a 23-year-old male in an unusual location, without the typical associated systemic illness or recent trauma. The patient presented with recurrent, painful erythematous nodules exclusively on the fingers and a violaceous bulla-like plaque on the volar surface of the left index finger. Laboratory tests showed leukocytosis with neutrophilia, elevated erythrocyte sedimentation rate, and normal C-reactive protein levels. Investigations for other underlying causes were unremarkable. Histopathologic examination was consistent with NDH. He was treated with dapsone 50 mg daily, with resolution in 3 weeks, and no recurrence was reported. This case expands the clinical spectrum of NDH. It highlights the importance of considering it in the differential diagnosis of painful hand lesions in younger patients, even in the absence of typical risk factors or systemic involvement.

Keywords: Dapsone, neutrophilic dermatosis of the hands, Sweet syndrome

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Introduction

Neutrophilic dermatosis of the hands (NDH) is a rare inflammatory condition regarded as a localized variant of Sweet syndrome.[1,2] It presents with fever, neutrophilia, and painful erythematous or violaceous papules, plaques, nodules, pustules, hemorrhagic bullae, and ulcers limited to the dorsa of hands, primarily affecting older patients with hematologic or solid organ malignancies or systemic inflammatory diseases.[3,4] Aberrant cytokine and chemokine regulation play a key role in its pathogenesis.[5]

A skin biopsy is crucial for diagnosis[3] as NDH mimics various infectious, autoimmune, and inflammatory skin conditions.[3,4] Histopathologic findings include a dense neutrophilic infiltrate in the dermis, with or without vasculitis.[3,6,7] NDH responds rapidly to systemic corticosteroids,[3,4,6,8] and dapsone[3,9] specifically by preventing chemotaxis of polymorphonuclear leukocytes.[2] This case emphasizes the importance of considering NDH in the differential diagnosis of painful hand lesions in younger patients, even in the absence of commonly associated systemic conditions.

Case Report

A 23-year-old male presented with a 3-month history of painful erythematous nodules on the dorsal fingers

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of his right hand. The lesions resolved spontaneously; however, they recurred on the left hand 2 weeks later. New lesions developed on the volar surface of the index finger, which evolved into a tender, violaceous bulla-like plaque with surrounding whitish halo and swelling of the entire digit [Figure 1a-c]. The patient remained afebrile throughout and had not sought prior medical consultation or taken any antibiotics.

His medical history included obesity (Class I), type 2 diabetes mellitus, hypertension, and dyslipidemia, for which he had been on maintenance medications for 2 years. There was no history of trauma, other systemic conditions, infections, or recent vaccinations aside from an influenza shot 2 years prior. He was a nonsmoker and nonalcoholic, and no family members or household contacts had similar lesions.

Laboratory workup revealed leukocytosis with neutrophilia and an elevated erythrocyte sedimentation rate, while C-reactive protein levels were normal. Blood and wound cultures showed no microbial growth. Investigations for infectious, hematologic, neoplastic, inflammatory, and autoimmune conditions were unremarkable.

A biopsy of the nodule on the left middle finger [Figure 1d] confirmed the diagnosis of NDH [Figure 2a and b], showing a dense neutrophilic infiltrate in the dermis with vasculitis. Cutaneous pathergy was not observed. The patient was started on dapsone 50 mg/day as a steroid-sparing agent, with noted improvement after 2 weeks [Figure 3] and complete resolution by 3 weeks, with no recurrences during follow-up.

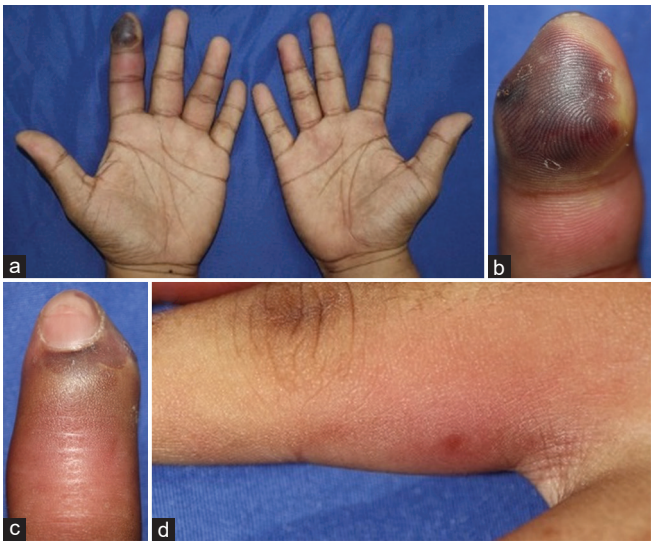

Figure 1: (a) Palmar surface of the hands showing a violaceous, hemorrhagic bulla-like plaque on the left index finger. (b) Violaceous plaque with whitish halo and fine surface scaling. (c) Swelling of the entire index finger is shown, with the extension of the lesion to the proximal nail fold. The cuticle remains intact. (d) Biopsy site corresponding to a tender, erythematous nodule on the lateral aspect of the third digit of the left hand

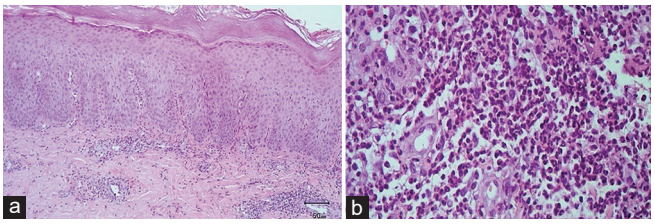

Figure 2: (a) Neutrophilic exocytosis, with numerous neutrophils surrounding and invading blood vessels, admixed with extravasated red blood cells in the superficial dermis. (b) Dense aggregates of neutrophils with lymphocytes and histiocytes

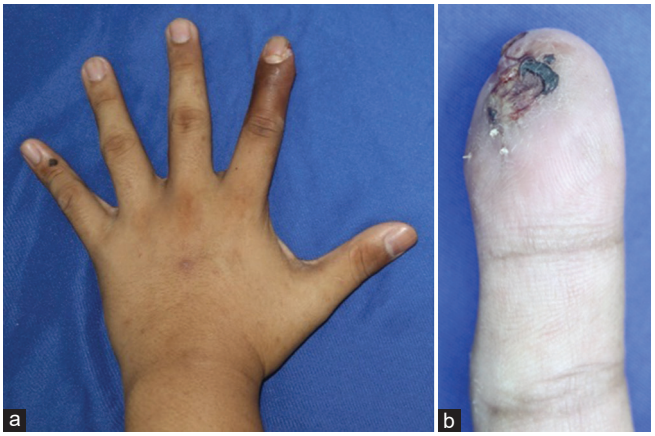

Figure 3: (a) Dorsal surface of left hand showing decreased swelling of the index finger with postinflammatory hyperpigmentation after 2 weeks of dapsone therapy. (b) Volar surface of the index finger with hemorrhagic crusting, scaling, and wrinkling of surrounding skin

Discussion

NDH in young adults without underlying malignancy or systemic inflammatory disease is uncommon. Previous reports [Table 1] have primarily described NDH in older individuals, particularly women, with a mean age of 62 years[6,9] and frequent associations with hematologic and solid organ malignancies-as many as 10%–27% of cases,[10,11] or inflammatory conditions.[1-4,6,8,9] In contrast, this case illustrates an atypical presentation in a young male patient lacking the common systemic disease associations. In a review of 123 cases by Micallef *et al.*, the age range was 3–89 years; however, details on the youngest patients, including lesion location, were not specified.

This case is notable not only for the patient's age but also for the lesion distribution. While the clinical features - symmetrically distributed, painful erythematous to violaceous nodules and plaques on the dorsal hands [Table 1]—align with typical presentations, this patient also

Table 1: Summary of published case reports and case series on neutrophilic dermatosis of the hands

Author (year)	Age	Sex	Associated conditions	Affected sites	Clinical presentation	Treatment	Outcome
Strutton *et al.*[8] (1995)	76	Female	Not provided	Dorsa of hands and fingers	Painful, plum-colored nodules and plaques; (+) fever	Prednisone	Resolution
	49	Female	Not provided	Dorsa of hands and fingers	Painful erythematous papules	Prednisone	Resolution
	69	Female	Breast carcinoma	Dorsa of hands	Erythematous to plum-colored papules and plaques with edema of the hands and forearms; (+) fever	Prednisone	Resolution
	79	Female	Ischemic heart disease	Dorsa of hands	Large ulcer; (+) fever	Prednisone	Resolution
	41	Female	Breast carcinoma	Dorsa of hands	Hemorrhagic bullous eruption; (+) fever	Local antiseptics and emollients, IV and oral penicillin, antihistamines	Resolution
	56	Female	Not provided	Dorsa of hands and fingers	Hemorrhagic pustules; lower lip ulceration, chest and abdominal pain; (+) fever	Prednisone	Resolution
Galaria *et al.*[2] (2000)	59	Male	None	Dorsa of hands	Pustular eruption	Prednisone	Resolution
	49	Female	Raynaud's disease, oligoarthritis	Dorsa of hands	Ulcer with raised pustular border, and purple-red base	Prednisone, dapsone	Recurrence
	47	Female	Chronic back pain, alcoholism, IV drug abuse, anemia	Dorsa of hands	Ulcers with hemorrhagic pustular border and surrounding edema; red nodules	Prednisone, dapsone	Recurrence
Concheiro *et al.*[10] (2010)	46	Female	Rheumatoid arthritis	Dorsa, thenar, and hypothenar eminences of hands	Erythematous-violaceous lesions with poorly-defined borders	Methotrexate, prednisone	Resolution
Goldsmith *et al.*[11] (2010)	42	Female	Myelodysplastic syndrome	Dorsa of hands	Violaceous plaques with central ulceration and pustular surface	Clobetasol	Lost to follow-up
Kaur *et al.*[5] (2015)	50	Male	Diabetes mellitus, hypertension	Dorsa of right hand and radial aspect of index finger	Erythematous nodules and plaques	Prednisolone, dapsone	Resolution
Costa-Silva *et al.*[1] (2016)	63	Male	Epidermoid carcinoma of the lung	Dorsal aspect of fingers, palms	Violaceous bullous plaques	Prednisolone, betamethasone valerate	Improved; expired after 5 months due to metastases
Ramos *et al.*[9] (2017)	64	Female	Diabetes mellitus, hypertension	Dorsum of the right hand	Erythematoviolaceous annular plaque with vegetative and ulcerated border	Dapsone	Resolution
Yang *et al.*[13] (2017)	67	Female	Myelodysplastic syndrome	Ulnar side of palms	Erythematous swollen patch with purulent material	Dexamethasone, methylprednisolone	Recurrence
Mobini *et al.*[4] (2019)	45	Female	Obesity	Dorsa of hands and fingers	Small ulcers with swelling	Prednisone, topical steroid	Resolution
Lechien *et al.*[15] (2021)	58	Male	Hypopharyngeal squamous cell carcinoma	Dorsa of hands	Petechial lesions that progressively evolved into pustules and ulcerations	Prednisolone	Resolution
Yumnam *et al.*[12] (2022)	Adult; age not specified	Male	Anaplastic large cell lymphoma	Dorsa of hands, palms, lower third of legs, dorsa of feet	Erythematous and edematous papules and plaques; (+) fever	Prednisolone	Resolution

IV: Intravenous

had lesions involving the volar surface of the index finger, which is an unusual finding. In a review by Micallef *et al*,[6] palmar involvement was reported in only 5 cases (4.1%), with none specifically localized to the volar surface of the fingers. Yumnam *et al*[12] also described palmar NDH as rare. Furthermore, Cheng *et al*,[3] in a review of 17 cases, identified the dorsal index finger as the most commonly affected site (41%). Similarly, in this case, the index finger

was involved; however, the largest and most developed lesion was located on the volar aspect, not the dorsal. To the authors' knowledge, this is one of the youngest reported NDH cases, with a unique volar digital involvement not previously described.

Although this patient had comorbidities – namely obesity, diabetes mellitus, and cardiovascular disease – these have typically been reported in older populations and may be overrepresented in previously published cases.[3,6] In addition, while antecedent trauma has been noted as a precipitating factor in some patients,[2,3,6,14] no such history was elicited in this case.

Initial differentials included digital gangrene, blistering dactylitis, and acute paronychia. However, the chronic course and lesion morphology helped distinguish NDH from infectious and ulcerative conditions. The absence of nail changes, sensory loss, or vascular compromise further supported NDH. This case broadens the clinical spectrum of NDH and highlights the need for diagnostic consideration in atypical presentations and younger patients.

In Sweet syndrome, the absence of true vasculitis is a key histopathologic feature.[4,7] However, in NDH, vasculitic changes have been inconsistently reported-present in some cases[1,5,6,8] and absent in others.[2,4,9] In this patient, histology revealed vasculitic features, believed to be secondary to intense neutrophilic infiltration rather than a primary immune-mediated process - an occurrence described as an epiphenomenon.[6,7] Nevertheless, skin biopsy remains essential for diagnosis, especially due to clinical overlap with infections and inflammatory dermatoses, and helps prevent misdiagnosis and unnecessary treatments.

With prompt diagnosis and treatment, the prognosis of NDH is generally favorable, with lesions often improving within days to weeks.[5,6] Recurrences may occur, especially when underlying systemic triggers are unaddressed. While long-term cutaneous sequelae are uncommon, severe or ulcerative cases may result in scarring or postinflammatory changes, as observed in this patient.

NDH continues to pose a diagnostic challenge due to its ability to mimic other dermatologic conditions. This case underscores the importance of recognizing atypical presentations, including those in younger patients without classic systemic risk factors. While NDH may occur in the absence of underlying disease, a thorough evaluation and extensive screening for systemic associations remains essential. Early recognition and accurate diagnosis are critical to initiating effective treatment and minimizing unnecessary interventions.

Declaration of patient consent

The authors certify that written informed consent was obtained from the patient for the publication of this case report and accompanying clinical images, and that the information will be exclusively used for scientific and educational purposes.

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Conflicts of interest

There are no conflicts of interest.

References

1. Costa-Silva M, Pedrosa A, Azevedo F, Mota A. Neutrophilic dermatosis of the dorsal hands: A restrictive designation for an acral entity. Acta Dermatovenerol Alp Pannonica Adriat 2016;25:85-6.
2. Galaria NA, Junkins-Hopkins JM, Kligman D, James WD. Neutrophilic dermatosis of the dorsal hands: Pustular vasculitis revisited. J Am Acad Dermatol 2000;43:870-4.
3. Cheng AM, Cheng HS, Smith BJ, Stewart DA. Neutrophilic dermatosis of the hands: A review of 17 cases. J Hand Surg Am 2018;43:185.e1-5.
4. Mobini N, Sadrolashrafi K, Michaels S. Neutrophilic dermatosis of the dorsal hands: Report of a case and review of the literature. Case Rep Dermatol Med 2019;2019:8301585. [doi: 10.1155/2019/8301585].
5. Kaur S, Gupta D, Garg B, Sood N. Neutrophilic dermatosis of dorsal hands. Indian Dermatol Online J 2015;6:42-5.
6. Micallef D, Bonnici M, Pisani D, Boffa MJ. Neutrophilic dermatosis of the dorsal hands: A review of 123 cases. J Am Acad Dermatol 2023;88:1338-44.
7. Malone JC, Slone SP, Wills-Frank LA, Fearneyhough PK, Lear SC, Goldsmith LJ, *et al*. Vascular inflammation (vasculitis) in sweet syndrome: A clinicopathologic study of 28 biopsy specimens from 21 patients. Arch Dermatol 2002;138:345-9.
8. Strutton G, Weedon D, Robertson I. Pustular vasculitis of the hands. J Am Acad Dermatol 1995;32:192-8.
9. Ramos FS, Ferreira FR, Rabay FM, Lira ML. Neutrophilic dermatosis of the dorsal hands: Response to dapsone monotherapy. An Bras Dermatol 2018;93:730-2.
10. Concheiro J, León A, Pardavila R, Cervantes R, Badiola A. Neutrophilic dermatosis of the hands in rheumatoid arthritis. Actas Dermosifiliogr 2010;101:280-1.
11. Goldsmith A, Cook E, Prusanowski J, Grekin S. Neutrophilic dermatosis of the dorsal hands. Pract Dermatol 2010;7:21-2.
12. Yumnam D, Melanda H, Batra A, Bhatia R. Unusual presentation of Sweet's syndrome involving palms and its dermoscopy. BMJ Case Rep 2022;15:e249352.
13. Yang MY, Kim JM, Kim GW, Song M, Kim HS, Ko HC, *et al*. Neutrophilic dermatosis of the palms in association with myelodysplastic syndrome. Ann Dermatol 2017;29:495-7.
14. King BJ, Montagnon CM, Brough K, Wetter DA, Tolkachjov SN. Neutrophilic dermatosis of the dorsal hands is commonly associated with underlying hematologic malignancy and pulmonary disease: A single-center retrospective case series study. J Am Acad Dermatol 2023;88:444-6.
15. Lechien JR, Delplace D, Khalife M, Saussez S. Neutrophilic dermatosis of hands as oncological finding: Importance of follow-up. ORL J Otorhinolaryngol Relat Spec 2021;83:206-8.