

A Broad Differential: The Importance of History, Clinical Findings, and Laboratory Investigation in Diagnosis of Neutrophilic Dermatositis of the Dorsal Hand

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Background

- Neutrophilic dermatosis of the dorsal hand (NDDH) is a rare, localized variant of Sweet Syndrome.
- NDDH presents with indurated, tender erythematous plaques of rapid onset, alongside systemic symptoms such as fever and leukocytosis.¹
- NDDH is often misdiagnosed as an infection, leading to unnecessary antibiotics or surgical debridement and delayed corticosteroid therapy.²
- This case illustrates the diagnostic challenges of NDDH and highlights key practice points for effective recognition and treatment.

Case Presentation

An 81-year-old male presented to the emergency department with a painful, necrotic wound on his right fifth finger following a two-day outpatient course of amoxicillin without improvement. Examination revealed indurated necrotic lesions on the right dorsal hand and right fifth digit.

Tissue samples were obtained for bacterial, fungal, and acid-fast cultures along with histopathologic analysis. Orthopedic surgery was consulted but debridement was deferred given concern for NDDH and risk of pathergy.

Clinical Images



Figure 1A and **Figure 1B** shows the dorsal aspect of the patient's right hand and right fifth digit. **1A (LEFT)** is taken prior to initiation of corticosteroid treatment, showing necrotic ulcers with violaceous borders. **1B (RIGHT)** is status-post oral prednisone therapy and shows marked improvement of right-hand lesions.

Histopathology

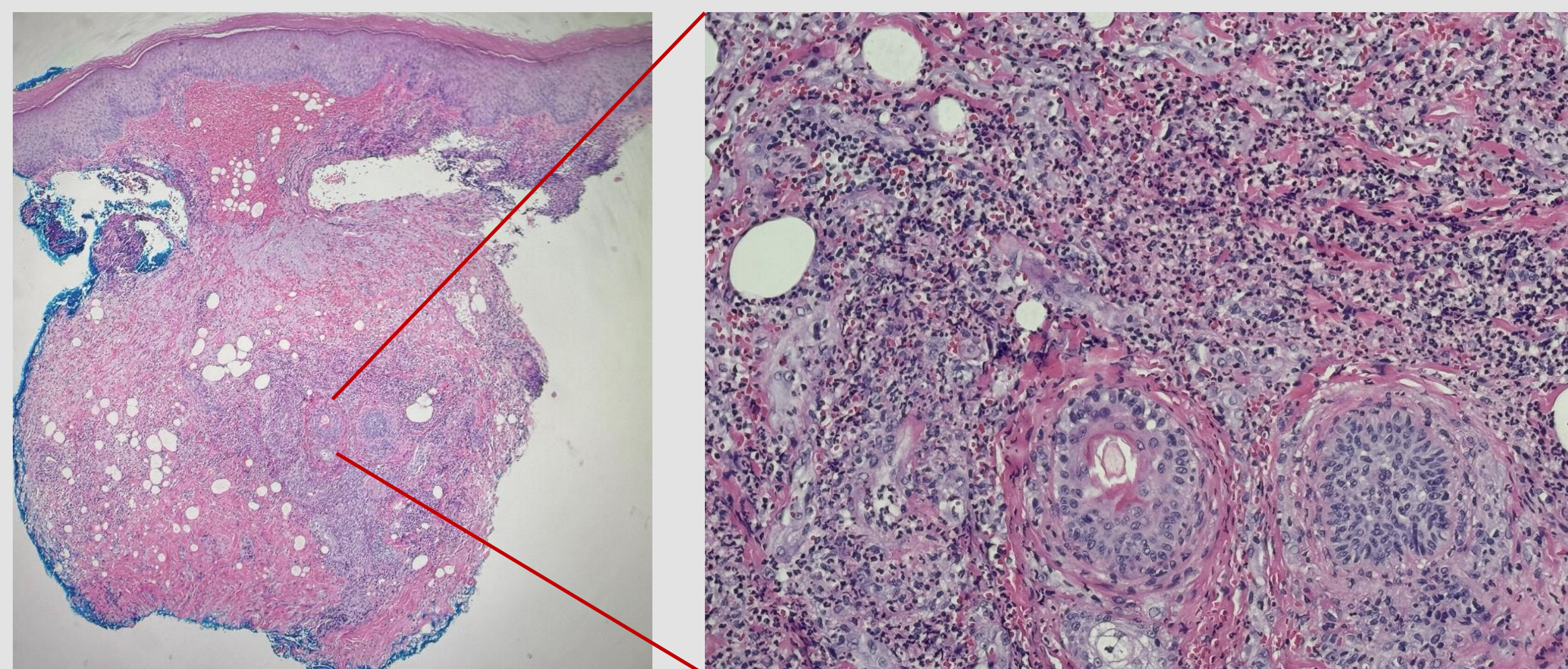


Figure 2A (H&E 10x) and **Figure 2B** (40x) histology show dense infiltrates of mature neutrophils with regions of hemorrhage and with sparing of the epidermis. Stains for microorganisms (Fite, PAS-D, and GMS) were negative (not shown).

Clinical Course

The patient was initiated on broad spectrum antibiotics (ceftriaxone and vancomycin) pending culture and biopsy results. Histopathology confirmed neutrophilic dermatosis of the dorsal hand, and antibiotics were discontinued. He was transitioned to an oral prednisone taper plus clobetasol 0.05% topical ointment with rapid improvement of the hand lesion.

Discussion

This case illustrates the diagnostic challenge of localized neutrophilic dermatoses (such as NDDH), which can present similarly to infection. Thus, diagnostic criteria require both clinical and histopathologic features. Recognition of its clinical features, combined with a thorough infectious workup, is critical for timely corticosteroid therapy and avoiding unnecessary antibiotics or surgical intervention.⁴ Effective management of complex cases also requires a multidisciplinary approach including dermatology, infectious disease, and surgical teams.

Clinical pearl: Once diagnosed with NDDH, providers should consider an age-appropriate and symptom-driven malignancy workup, as the dermatosis may be the presenting sign of malignancy. The most commonly associated malignancies are hematologic. Other reported etiologies include inflammatory bowel disease, gastrointestinal tract infection, or drugs (granulocyte colony-stimulating factor, all-trans retinoic acid, and some antibiotics like sulfamethoxazole-trimethoprim).^{5,6}

References

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