Nodular scabies: a persistent nodular eruption

Daniel A Yanes MD, Esteban Fernandez Faith MD

Affiliations: Division of Dermatology, Department of Pediatrics, Nationwide Children's Hospital and The Ohio State University College of Medicine, Columbus, OH, USA.

Corresponding Author: Esteban Fernandez Faith, 555 South 18th Street, Columbus, OH 43205, Email: Esteban.FernandezFaith@nationwidechildrens.org

Abstract

Nodular scabies is a hypersensitivity reaction to scabietic infestation characterized by persistent pruritic nodules that can remain even after treatment of the initial infestation. We present a demonstrative case of an infant who presented with nodular scabies.

Keywords: infestation, scabies, pediatrics

Introduction

The manifestation of nodular scabies results from a hypersensitivity reaction to scabies mites and other products of the infestation. It is characterized by persistent pruritic nodules that can remain even after treatment of the initial infestation. It can act as a mimic of several other conditions, and often requires a protracted course of treatment.

Case Synopsis

An otherwise healthy 7-month-old girl presented with a pruritic eruption of two months' duration. The eruption began as small papules that quickly enlarged on the abdomen, thighs, and axillae. Her parents noticed that friction with her diaper made the lesions more pronounced, erythematous, and pruritic. She was previously treated with permethrin 5% cream for presumed scabies infestation. Owing to lack of initial improvement and concerns for the young age of the patient, the family did not administer the second permethrin dose. The family members were treated with permethrin cream followed by a second application one week later. Physical examination revealed multiple erythematous to brown smooth nodules on the lower abdomen, left axilla, and left proximal medial thigh (**Figure 1**). The rest of her physical exam was normal except for small scaly papules on her medial feet bilaterally (**Figure 2**). A mineral oil preparation from a skin scraping of the scaly papules on the feet revealed scabies mites and feces (**Figure 3**). The patient was diagnosed with nodular scabies and she and her family members were treated with two applications of permethrin 5% cream one week apart. The nodular eruption was treated with twice-daily triamcinolone 0.1% ointment and oral antihistamines were also started for symptomatic relief. The eruption on her feet completely resolved after the appropriate application of permethrin. In contrast, the nodules slowly improved with intermittent flares. After 5 months, resolution of the nodules was noted with only residual post-inflammatory hyperpigmentation.

Figure 1. *Scabietic nodules. Diffuse, pruritic, erythematous to brown, smooth nodules.*

Figure 2. *Scabietic infestation. Small scaly papules on the medial feet.*

Case Discussion

Nodular scabies is an uncommon, yet well-described manifestation of scabietic infestation characterized by pruritic nodules that can persist even after adequate treatment of scabies [1]. The development of nodular scabies is typically viewed as a robust delayed hypersensitivity reaction to the mite, its eggs, and its scybala, rather than an insult caused by an active infestation [2]. However, a contesting theory has been proposed, which suggests that it is the deeper penetration of the mite from the epidermis into the dermis that leads to the more vigorous inflammatory response [3]. Although the exact pathophysiology remains uncertain, it is important to recognize scabies as a cause of pruritic nodules in a patient with risk factors for scabietic infestation to prevent misdiagnosis and allow for adequate management. Treatment for nodular scabies consists of eradication of the active infestation with scabicidal medications such as permethrin or ivermectin. The application of topical corticosteroids or calcineurin inhibitors are often required to the affected areas [2, 4].

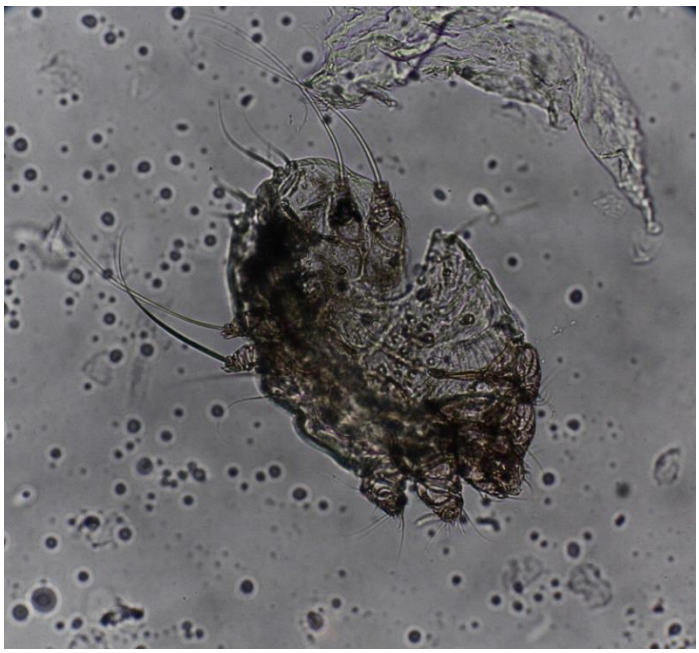

Figure 3. *Mineral oil preparation from a scraping of the patient's foot that demonstrated the Sarcoptes scabiei mite.*

Nodular scabies can persist long after the initial infestation is treated and can be difficult to eradicate. Atypical scabietic infestations can present as mimics of numerous other cutaneous conditions, including but not limited to Langerhans cell histiocytosis [6], pityriasis rosea [7], or bullous pemphigoid [8]. Nodular scabies in particular has been well described as a mimic of cutaneous mastocytosis, as it can commonly present with a positive Darier sign [9]. It follows that a thorough examination and high index of suspicion is needed to make the diagnosis of nodular scabies.

In our case, the nodular hypersensitivity reaction was the most prominent finding in this patient. This atypical presentation and the single application of permethrin cream without a second course lead to the persistence of the scabies infestation. Permethrin 5% cream is approved for treatment of scabies in patients 3 months and older. Two once-weekly applications of permethrin to the patient and close contacts are recommended to eradicate all mites. Given that the hypersensitivity reaction may persist for several weeks to months after eradication of the mites, close follow up with thorough examinations are recommended to ensure lack of relapse of this recalcitrant infestation.

Conclusion

Nodular scabies must be considered in the differential diagnosis of a patient with a persistent nodular eruption. A thorough physical examination to identify the scabietic infestation and subsequent mineral oil microscopic preparation can confirm the diagnosis without the need for a skin biopsy. As it can

mimic several other cutaneous eruptions, a high index of suspicion is needed to ensure swift diagnosis and treatment of the infestation in the patient and close contacts.

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