BRIEF ARTICLE

Bird Mite Battle: An 80-Year-Old's Struggle with Gamasoidosis

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ABSTRACT

The differential diagnosis for a pruritic, erythematous rash caused by insect bites can be very long. One etiology that should be kept in mind is gamasoidosis caused by avian mites. While birds are the primary host of these mites, reports of gamasoidosis have increased in frequency over recent years. We present a case of an 80-year-old female who developed an unexplained pruritic, erythematous papular eruption with discussion of avian-mite dermatitis etiology and treatment.

INTRODUCTION

There are numerous insects that are known to cause pruritic dermatoses such as scabies, lice, bed bugs, mites, and more. Coming up with a differential diagnosis on clinical presentation alone can be difficult. Lesser-known avian mites may be the culprit of such dermatological complaints. These mites are obligate hematophagous ectoparasites that complete their entire life cycle on birds[1]. Humans can be accidentally infested when bird nests are built in homes and other artificial structures.[1] This may result in an intensely pruritic rash that can last months if left untreated.

CASE REPORT

An 80-year-old female presented for evaluation of erythematous papules with central punctum distributed on the mons pubis, inguinal creases, chest, and bilateral axillary vaults (**Figure 1**). During this initial presentation, a very small dark insect was seen and thought to be lice nymph. Accordingly, permethrin 5% topical cream was prescribed.

Later the patient revealed that the grass in her yard had not been mowed in weeks and was very long. It was thought that her dog may be bringing in straw itch mites. At this point, it was decided to send a specimen to a medical entomologist.

Within the following week, Intramuscular Kenalog was administered as well as a topical corticosteroid cream to help control her symptoms while awaiting results.

The entomologist report identified an adult female northern fowl mite, *Ornithonyssus sylviarum*. The patient was given contact information for an exterminator and a bird nest was found in the patient's bathroom vent which was the likely source of the avian mites.

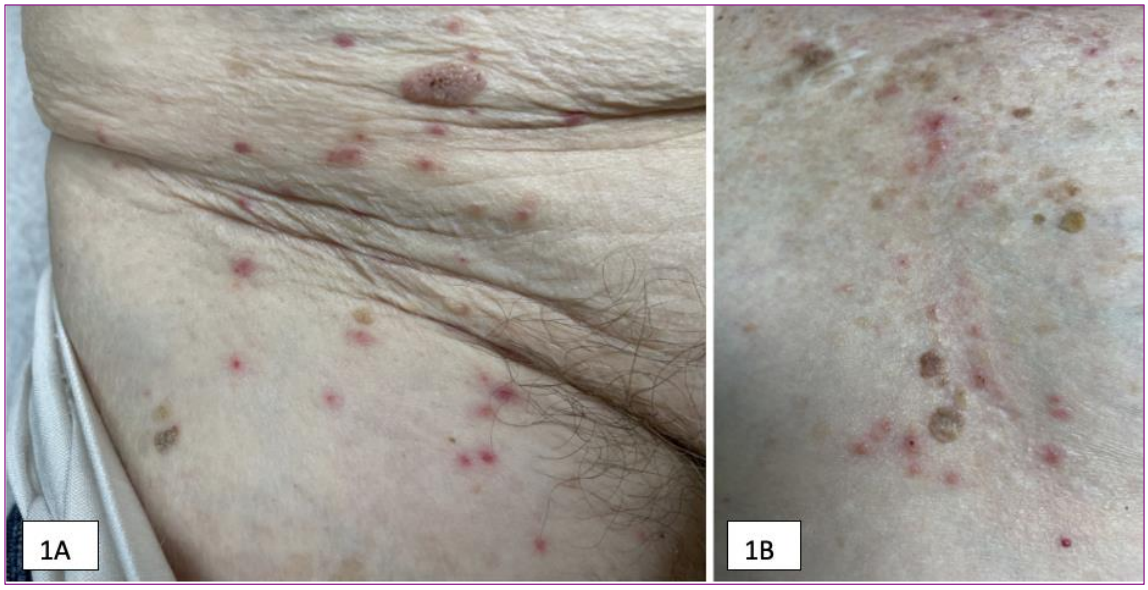

Figure 1. Erythematous papules with central punctum distributed on the mons pubis, inguinal creases **(A)**, chest **(B)**, and bilateral axillary vaults.

Given the clinical presentation and entomologist report the diagnosis of avian-mite dermatitis was made. The skin lesions resolved after removal of the nest in the patient's home.

DISCUSSION

Gamasoidosis, also known as avian-mite dermatitis, is a difficult diagnosis to make and is often overlooked.[2] Despite its obscurity in clinical practice, the incidence of avian-mite human attacks has increased over recent years and therefore deserves more awareness.[3]

While comprehensive epidemiologic data on prevalence and incidence of gamasoidosis is currently limited, case reports of gamasoidosis in urban and nosocomial settings may contribute to increased incidence of the disease overall.[3] One proposed factor for this increase is the use of window air conditioners.[8] Despite these observations, the incidence of gamasoidosis remains quite rare.

Gamasoidosis can be caused by various mites including *Ornithonyssus sylviarum* (northern fowl mite), *Ornithonyssus bursa* (tropical fowl mite), *Dermanyssus gallinae* (red mite), and *Dermanyssus avium.*[2] *O. sylviarum* and *D. gallinae* may resemble one another to an untrained eye although they have distinct morphological differences. For example, *O. sylviarum* has a teardrop-shaped anal plate and sternal shield while *D. gallinae* has a keystone-shaped anal plate and retracted whip-like chelicerae.[4] To be certain, a specimen should be sent to a medical entomologist for identification if available. When an avian mite is identified, it strongly suggests the presence of a bird nest within or on the patient's home.

While *O.sylviarum* can be found around the globe including Brazil, China, Australia, and Europe, it is one of the most widespread poultry mite species in the United States and is a threat to public health.[4,5,6] Avian-mite attacks occur most often in those living or working in close proximity to poultry, such as poultry farm workers and veterinarians.[3,7]

Consequently, avian mite dermatitis is frequently observed in regions near poultry farms, which are geographically widespread.[7]

Cutaneous reactions to these mites and subsequent morphology of the rash vary ranging from papules, as seen in this case, to a grouped papular urticarial or papulovesicular eruption.[8] Of note, there is typically sparing of interdigital webs and genitalia while burrows are never seen which differentiates it from scabies.[8]

Many studies have suggested that warm, most environments are most conducive to avian mite survival.[9] One study found that 75% humidity was most beneficial to avian mites when temperatures ranged from 33-38 Celsius which is consistent with skin temperature.[9] The dermatitis can be found affecting various parts of the body although it would be reasonable to assume that avian mites would prefer intertriginous areas due to their predilection for warm, moist environments.[7,8,9]

In some cases, antihistamines and corticosteroids were found to be minimally effective in treating symptoms but are not curative.[10,11] Treatment with permethrin 5% has been suggested yet, a comparative in vitro evaluation found *O. sylviarum* resistance to permethrin.[12]

While this mite completes its entire life cycle on its usual bird host, it can move off-host and survive for several weeks without a blood meal.[6] This is what allows the mite to venture from bird nests and infest nearby humans, however, it cannot live and reproduce on the human host. For this reason, the only definitive treatment is removal of the source of the mites from the patient's home.[8] Common sites for nesting include air conditioners, soffits, attics, and vents, such as in this case.[6,8,10]

CONCLUSION

Gamasoidosis clinically presents as a very nonspecific dermatitis. Without a high degree of clinical suspicion, this diagnosis can be easily missed. It's essential to increase awareness of avian-mite dermatitis within the medical community, as this can help prevent unnecessary medical testing and financial burdens on patients.

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