

# What's Eating You? Pigeon Mite (*Dermanyssus gallinae*)

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## Case Report

A senior dermatology resident and his wife awoke on several occasions during the early morning of June 2005 with the distinct sensation of what they described as “bugs crawling all over their skin.” Three days after the initial attack, the woman noted an extremely pruritic, diffuse, discrete, papular eruption on all skin surfaces, except the face and genitals. The man only developed a few scattered, slightly erythematous, 2- to 3-mm papules on the right forearm (Figure 1). During the first 2 episodes, no bugs were noted.

Two days later, the man awoke again with a similar sensation. Careful inspection revealed barely perceptible, tiny, black dots moving along the surface of the bed sheet. Thousands of similar black dots were discovered all along the bed linen, nearby wall, and window sills. One of these “black dots” was sent to the New York State Department of Health for examination where it was identified by an entomologist as a pigeon mite (*Dermanyssus gallinae*). The couple remembered seeing several pigeons near their bedroom window 3 or 4 weeks prior to the initial attack.

As a result, the room was fumigated and all the windows were closed. No further attacks occurred. The patients' lesions were treated symptomatically with oral diphenhydramine hydrochloride and resolved within 2 to 3 weeks without residual sequelae.

## Identifying Characteristics

*D. gallinae*, also known as the chicken mite, red hen-mite, and pigeon mite, is found in temperate regions around the globe but is particularly well-known in North America and Europe (Figure 2).<sup>1</sup> The mite most commonly is found on chickens and migratory birds, including the pigeon and house sparrow. Identifying characteristics include 8 legs in the adult and nymph stages; a single dorsal shield; long, whiplike, apically tapered chelicerae (mouthparts); and highly reduced chelae (pincers).<sup>2</sup> The body of the mite may be yellow, brown, or black, but turns red after feeding on a host.<sup>3</sup> Adult female mites measure 0.7×0.4 mm in size, whereas adult males measure 0.6×0.3 mm in size.<sup>4</sup>

## Adverse Reactions

Avian mite infestation in humans also has been referred to as gamasoidosis, acarriasis, and bird mite dermatitis. *D. gallinae* bites commonly induce a non-specific dermatitis usually consisting of macules, papules, and urticaria.<sup>3</sup> The area involved is dependent on the location of the infestation but generally is diffuse because most cases reported involve mites infesting bedding areas.<sup>3,5</sup> *D. gallinae* mites commonly infest pigeons, chickens, wild birds, and even domestic canaries.<sup>6</sup> Human exposure occurs when pigeons nest near houses and abandon their nests, leaving mites behind to crawl through nearby windows in search of a new host.<sup>1</sup> Humans are accidental hosts and the mites cannot replicate on a nonavian host. The mites spend most of their lives off the host, attaching only at night to feed and then returning to the nest.<sup>3</sup> In keeping with this pattern, most bites in humans occur at night and the mites rarely are found on the body.

## Treatment

Patients should be treated symptomatically with topical corticosteroids. Oral antihistamines may be useful for pruritis, particularly at night. Definitive treatment involves removal of the mite source. Mites have the ability to survive off the host for 6 months or longer.<sup>1</sup>

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**Figure 1.** Right forearm with scattered, slightly erythematous, 2- to 3-mm papules.

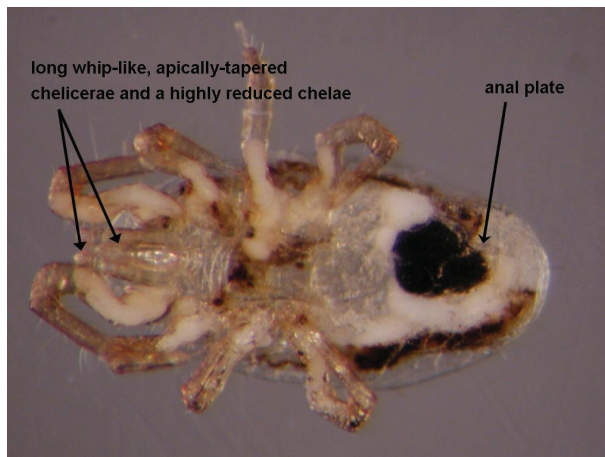
For this reason, removal of all bird nests is crucial and steps should be taken to exterminate mites from infested areas. To reduce the number of bird mites that may migrate indoors, insecticide sprays such as bifenthrin may be applied outside windows, doors, and other possible points of entry.<sup>7</sup> Double-sided tape may be placed around the inside of possible points of entry to prevent further mite migration. Finally, a hot water bottle or similar warm object covered with a slightly moist cloth can be used to attract mites already located inside the house to a place where they can be wiped up and removed.<sup>1</sup>

### Other Considerations

*D gallinae* is reported to be the most common mite of its genus to bite humans<sup>6</sup>; therefore, there is a theoretical concern for disease transmission to humans. Eastern equine encephalomyelitis, western equine encephalomyelitis, St. Louis encephalitis virus, West Nile virus, *Salmonella* species, *Pasteurella multocida*, and *Listeria monocytogenes* have been isolated from *D gallinae*. In some cases, transmission of the organism from mite to bird has been demonstrated. Conversely, there is no definitive proof that any of these diseases have been transmitted from the pigeon mite to humans.<sup>8</sup>

A thorough search of the literature did not yield any proven cases of patients misdiagnosed with delusions of parasitosis when, in fact, they were later found to have a true mite infestation, though healthcare providers should be aware of the possibility of misdiagnosis.

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**Figure 2.** *Dermanyssus gallinae*. Photograph courtesy of Sarah Kogut, BA, research scientist, New York State Department of Health Arthropod-Borne Disease Program, Hudson Valley Community College, Troy.

(Buffalo, Rochester), New York State Department of Health, for the mite identification.

### REFERENCES

1. Regan AM, Metersky ML, Craven DE. Nosocomial dermatitis and pruritis caused by pigeon mite infestation. *Arch Intern Med.* 1987;147: 2185-2187.
2. Lucky AW, Sayers C, Argus JD, et al. Avian mite bites acquired from a new source—pet gerbils: report of 2 cases and review of the literature. *Arch Dermatol.* 2001;137: 167-170.
3. Nielsen GR. Bird mites [University of Vermont Extension Web site]. March 1997. Available at: <http://www.uvm.edu/extension/publications/el/el250.htm>. Accessed September 28, 2005.
4. Auger P, Nantel J, Meunier N, et al. Skin acariasis caused by *Dermanyssus gallinae* (de Geer) an in-hospital outbreak. *Can Med Assoc J.* 1979;120: 700-703.
5. Vargo JA, Ginsberg MM, Mizrahi M. Human infestation by the pigeon mite: a case report. *Am J Infect Control.* 1983;11:24-25.
6. Krinsky WL. Dermatoses associated with the bites of mites and ticks (arthropoda: acari). *Int J Dermatol.* 1983;22: 75-91.
7. Orton DI, Warren LJ, Wilkinson JD. Avian mite dermatitis. *Clin Exp Dermatol.* 2000;25:129-131.
8. Valiente Moro C, Chauve C, Zenner L. Vectorial role of some dermanysoid mites (Acari, Mesostigmata, Dermanyssoidea). *Parasite.* 2005;12:99-109.