

# What's Eating You? *Cheyletiella* Mites

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## PRACTICE POINTS

- *Cheyletiella* mites can cause a range of cutaneous and systemic symptoms in affected individuals.
- Diagnosis can be difficult and requires a high level of suspicion, with inquiries directed at animal exposures.
- Identification of the animal vector and treatment by a knowledgeable veterinarian is necessary to prevent recurrence in humans.

*Cheyletiella* are nonburrowing mites commonly found on rabbits, dogs, and cats. The mites have been known to cause disease in humans, ranging from mild dermatitis to more severe illness with systemic symptoms. Because these mites do not complete any part of their life cycle in humans, diagnosis can be challenging. Herein, we review various clinical presentations associated with *Cheyletiella* mites as well as diagnostic techniques and treatment options for both humans and animals.

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## Identifying Characteristics and Disease Transmission

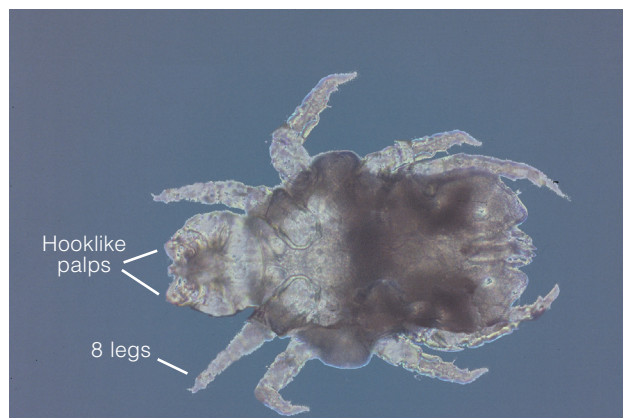
*Cheyletiella* are nonburrowing mites characterized by hooklike anterior palps (Figure 1) that have a worldwide distribution. Human dermatitis is the result of contact with an affected animal and may present as papular or bullous lesions. *Cheyletiella blakei* affects cats, *Cheyletiella parasitovorax* is found on rabbits, and *Cheyletiella yasguri* is found on dogs. The mites live in the outer layer of the epidermis of the host animal and feed on surface debris and tissue fluids.<sup>1</sup> They complete an entire 35-day life cycle on a single animal host. The larval, nymph, and adult male mites die within 48 hours of separation from a host. The female mite and possibly the eggs can live up to 10 days off the host, which makes environmental

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**Figure 1.** *Cheyletiella* mite with hooklike anterior palps.

decontamination a critical part of pest control.<sup>2</sup> In animals, the mite often produces a subtle dermatitis sometimes called walking dandruff (Figure 2).<sup>3</sup> Affected animals also can be asymptomatic, and up to 50% of rabbits in commercial colonies may harbor *Cheyletiella* or other mites.<sup>4</sup>

The typical human patient with *Cheyletiella*-associated dermatitis is a female 40 years or younger who presents with grouped pruritic papules.<sup>5</sup> Although papules usually are grouped on exposed areas, they also may be widespread.<sup>6,7</sup> Bullous eruptions caused by *Cheyletiella* mites may mimic those found in immunobullous diseases (Figure 3).<sup>8</sup> Children may experience widespread dermatitis after taking a nap where a dog has slept.<sup>9</sup> Pet owners, farmers, and veterinarians frequently present with zoonotic mite-induced dermatitis.<sup>10</sup> Arthralgia and peripheral eosinophilia caused by *Cheyletiella* infestation also has been reported.<sup>11</sup>



**Figure 2.** *Cheyletiella* dermatitis in a cat. Image reproduced courtesy of Brooke Army Medical Center (San Antonio, Texas).



**Figure 3.** Bullous reaction to *Cheyletiella* mites on a patient's trunk. Image courtesy of Joseph L. Cvancara, MD (Spokane Valley, Washington).

## Management of Affected Pets

In a case of human infestation resulting from an affected pet, the implicated pet should be evaluated by a qualified veterinarian. Various diagnostic techniques for animals have been used, including adhesive tape preparations.<sup>12</sup> A rapid knockdown insecticidal spray marketed for use on animals has been used to facilitate collection of mites, but some pets may be susceptible to toxicity from insecticides. The scaly area should be carefully brushed with a toothbrush or fine-tooth comb, and all scales, crust, and hair collected should be placed in a resealable plastic storage bag. When alcohol is added to the bag, most contents will sink, but the mites tend to float. Vacuum cleaners fitted with in-line filters also have been used to collect mites. The filter samples can be treated with hot potassium hydroxide, then floated in a concentrated sugar solution to collect the ectoparasites.<sup>13</sup> Often, a straightforward approach using a #10 blade to provide a skin scraping from the animal in question is effective.<sup>14</sup>

Various treatment modalities may be employed by the veterinarian, including dips or shampoos, as well as fipronil.<sup>15,16</sup> A single application of fipronil 10% has been shown to be highly effective in the elimination of mites after a single application in cats.<sup>17</sup> Oral ivermectin and topical amitraz also have been used.<sup>18,19</sup> A veterinarian should treat the animals, as some are more susceptible to toxicity from topical or systemic agents.

## Treatment in Humans

*Cheyletiella* infestations in humans usually are self-limited and resolve within a few weeks after treatment of the source animal. Symptomatic treatment with antipruritic medications and topical steroids may be of use while awaiting resolution. Identification and treatment of the vector is key to eliminating the infestation and preventing recurrence.

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