

Dermatitis caused by the tropical fowl mite *Ornithonyssus bursa* (Berlese) (Acari: Macronyssidae): a case report in humans

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ABSTRACT

We herein report human dermatitis caused by the tropical fowl mite *Ornithonyssus bursa* (Berlese). The cases occurred in an apartment in a residential district of Porto Alegre City, State of Rio Grande do Sul, Brazil, where three members of the same family presented with pruritic lesions on the arms and legs. On inspecting the bathroom, several mites measuring approximately 1.0mm in length were observed coming from a nest of Rufous Hornero, *Furnarius rufus* (Gmelin). This is the first report of *O. bursa* in the urban area of Porto Alegre City, from a nest of *F. rufus* that bites humans.

Keywords: *Ornithonyssus bursa*. Hematophagous mites. Human dermatitis.

INTRODUCTION

The hematophagous mite *Ornithonyssus bursa*, known as the tropical fowl mite or chicken louse, is an ectoparasite of hens, pigeons, sparrows, and other wild birds that occasionally bite humans⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾. In birds, the mites cause discomfort and can lead to the death of chicks and even adult birds⁽⁵⁾⁽⁶⁾⁽⁷⁾⁽⁸⁾. Cases of human parasites causing dermatitis have been reported, and most of them are owing to the presence of nests of synanthropic birds near the residences. After the birds leave their nests, the mites move into dwellings through windows, doors, and vents to search for a new host, favoring human parasitism⁽²⁾⁽⁴⁾⁽⁹⁾. Their bite is annoying to humans, and some people have prolonged itching, welts, and painful dermatitis⁽³⁾⁽⁴⁾⁽¹⁰⁾.

CASE REPORT

The reported cases occurred in an apartment located in a residential district of Porto Alegre City, State of Rio Grande do Sul, where three members of the same family presented with erythematous skin lesions on the arms and legs (Figure 1). At first, the lesions were suspected to be caused by mosquitoes, and so, electrical repellents and steaming devices were used, but

without result. The pruritus increased progressively, and three days after noticing the increasing presence of papulovesicular erythematous lesions, the occupants felt that the situation was out of control. The symptoms included pinprick bites; intense itching with lesions; small, reddened bumps; and a vague sensation of crawling on the skin. Two days later, they noticed that the itching increased after bathing. On examining the bath towels used, the patients observed small organisms moving quickly. When the case was reported, they were asked if there was a bird's nest nearby. The residents related the presence of an abandoned nest of Rufous Hornero (*Furnarius rufus*) built outside the bathroom window. The biological material was collected and sent to the Laboratory of Parasitology of Departamento de Microbiologia, Imunologia e Parasitologia/ Instituto de Ciências Básicas da Saúde/Universidade Federal do Rio Grande do Sul (DEMIP/ICBS/UFRGS). The mites were observed under a binocular microscope and identified as belonging to *Ornithonyssus bursa* species⁽¹⁾ (Figure 2). The residents were cured after treatment for acute prurigo. After identifying the mites, a pest control company was called and the problem was resolved.

DISCUSSION

Gamasoidosis is a global disease. Currently, the problem is aggravated in urban areas owing to the increase in the number of bird nests built on the roofs or in the external parts of air-conditioners⁽⁴⁾⁽⁹⁾⁽¹⁰⁾. The main causative agents are the mites *Dermanyssus gallinae*, *Ornithonyssus sylviarum*, and *Ornithonyssus bursa*⁽¹⁾⁽²⁾⁽¹⁰⁾. They are temporary hematophagous ectoparasites of domestic and wild birds, but can also feed on humans⁽²⁾⁽⁴⁾⁽⁵⁾⁽¹⁰⁾. In humans, only cutaneous manifestations have been observed, without any report of transmission of

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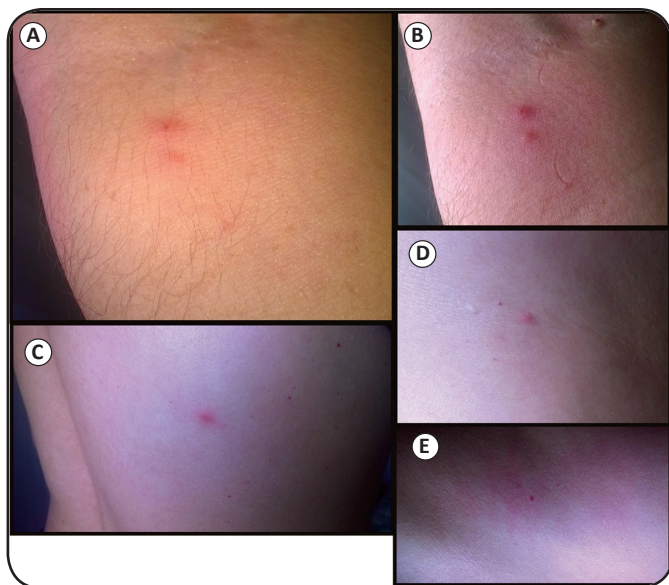


FIGURE 1 - A-E. Dermatitis caused by *Ornithonyssus bursa* bites in humans from Porto Alegre City, State of Rio Grande do Sul, Brazil.

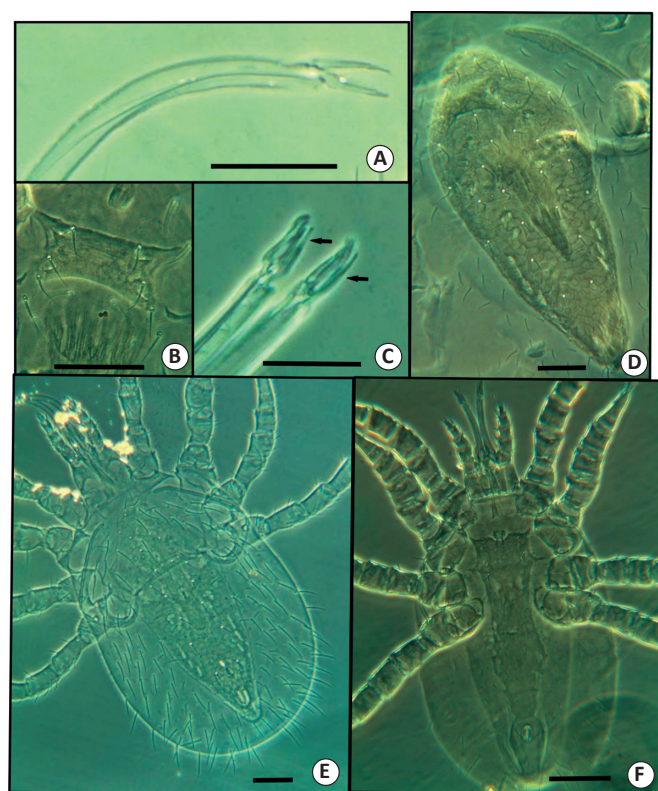


FIGURE 2 - Overview of the body of adult *Ornithonyssus bursa*. Female: A. Chelicerae. B. Sternal shield. Male: C. Chelicerae and spermatodactyl (arrows). Female: D, E. Dorsal shield. Male: F. Ventral view. Scale bars: A, E = 50µm; B, C, D, F = 100µm.

infectious diseases or severe cases of infection by *O. bursa*⁽⁹⁾⁽¹⁰⁾. In 1992, the first case of human dermatitis caused by mites of the species *O. bursa* was reported in the countryside of Viamão City, State of Rio Grande do Sul, Brazil. In 2012, Oliveira et al.⁽⁹⁾ reported another infection by *O. bursa* in human beings in the urban area of Santa Maria City, State of Rio Grande do Sul, Brazil. In both cases, the humans presented with erythematous lesions on the arms and legs, with intense itching; the diagnosis was made after isolating and identifying the mite. In this report, mites were detected in people living in the urban area of Porto Alegre City, State of Rio Grande do Sul, Brazil. They had skin lesions similar to those described in the literature⁽⁴⁾⁽⁹⁾⁽¹⁰⁾. Here, the diagnosis was also made by identifying the mite, according to the criteria given by Krinsky⁽¹⁰⁾.

In general, the disease triggered by *O. bursa* in humans tends to be temporary and self-limiting, because the mite cannot survive off the host bird⁽¹¹⁾. However, if the presence of the mites is not identified in the environment of the patient, there may be recurrence and exacerbation of the lesions⁽¹⁰⁾. In addition, many diagnostic errors can occur because the lesions produced by avian mites resemble injuries observed in other clinical cases such as scabies and pediculosis. Thus, clinical cases associated with bites by arthropods can be precisely diagnosed only if the involved insects or mites are isolated and identified⁽¹⁰⁾. The intense itching and irritation are due to the saliva that mites secrete when attached to the skin, and it may last for days after the mite is no longer attached, even when the skin does not show any visible signs⁽²⁾⁽⁴⁾⁽¹⁰⁾.

The hematophagous mite infection is not restricted to rural or urban environments, being increasingly common in urban areas due to birds nesting in buildings, because these places provide heat and shelter, close to heaters, furnaces, roofs, and hot water pipes⁽²⁾⁽⁴⁾⁽⁹⁾.

Our study is the first report of *O. bursa* biting humans in the urban area of Porto Alegre City, and the source of the infection was an abandoned nest of *F. rufus*. This bird species is rarely seen in urban areas; it usually resides in open areas with scattered trees and short grassy vegetation⁽⁵⁾. Currently, *F. rufus* is a wild and native bird of the neotropical region, very well suited to live in an urban environment, thereby being considered a synanthropic bird⁽¹²⁾.

O. bursa can be controlled in houses by removing the nests that are close to vents, rooftops, air conditioners, chimneys, and windows. Thus, it is important that not only dermatologists but also general practitioners recognize these mites and take appropriate remedial measures.

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