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CASE REPORT

***Dermanyssus gallinae* infestation: An unusual cause of scalp pruritus treated with permethrin shampoo**

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Abstract

Dermanyssus gallinae is a blood parasite of wild birds, but it is also a pest in the poultry industry. It occasionally bites mammals and thus rarely creates skin problems such as itching, papules, vesicles, and dermatitis. A 92-year-old man presented with severe itch on his head, particularly at night. He had been misdiagnosed with senile pruritus and treated with antihistamines and topical corticosteroids with temporary relief of the symptoms. On the basis of clinical and parasitological findings, *D. gallinae* dermatitis was diagnosed. Decontamination of the patient's immediate environment was not helpful. The patient was successfully treated using a 1% permethrin shampoo once a week for 2 weeks. During 3 months of follow-up he was free of symptoms. The case is of significance because most dermatologists have difficulty identifying ectoparasitoses, such as those that arise within new or atypical conditions.

Key words: *Dermanyssus gallinae*, dermatitis, permethrin, pruritus

Introduction

Dermanyssus gallinae (De Geer, 1778), also known as the poultry red mite or chicken mite, has worldwide distribution and is an economically important parasitic pest of domestic chickens (1,2). It stays on the host only during the night when they feed; in the day time they hide in cracks and crevices in the poultry house where they digest blood and multiply. It has been considered as a potential vector of pathogens causing fowl spirochetosis, chicken pox, encephalitis and fowl cholera (3). Recently, other pathogens were discovered to be present in *D. gallinae* and the vector capacity for salmonellosis has been demonstrated (4). The zoonotic potential of these pathogens should also be considered as additional concerns associated with the parasite, as *D. gallinae*, in the absence of its definitive host, occasionally attacks dogs, cats, rodents, horses and humans, causing dermatitis and intense pruritus (3–5). Most dermatologists have difficulty identifying ectoparasitoses, such as those

that arise within new or atypical conditions. Herein, we describe a case of intractable scalp pruritus caused by *D. gallinae*.

Case report

A 92-year-old male patient presented with severe itch on his scalp, specifically at night. We were told that symptoms started 4 months earlier (in June 2008). He had been misdiagnosed with senile pruritus and symptomatically treated with antihistamines and topical corticosteroids. After this therapy, the patient's itch temporarily disappeared but 2 days later it recurred and then he was referred to our hospital.

In his history we learned that he was a farmer and he raised chickens on his farm. Upon dermatological examination, some excoriations on his scalp were found. Additionally, many insects were found stuck on his head and a few of them were on his eyebrows as well. No other part of the body was affected. Mites



Figure 1. Adult *Dermanyssus gallinae* found on the patient's head ($\times 100$ magnification).

were collected directly into small vials containing 70% ethanol, prior to further examination. Then, the ectoparasites were mounted on slides in lactophenol and identified microscopically as *D. gallinae* (Figure 1). His hematological and biochemical parameters were normal. The other members of the patient's family were not affected during the entire observation period.

After diagnosis, the patient's immediate environment was decontaminated and he was prohibited from wearing the same hat. However, his symptoms did not disappear. The patient was successfully treated using a 1% permethrin shampoo once a week for 2 weeks. During 3 months of follow-up he was free of symptoms.

Discussion

D. gallinae currently is the most important ectoparasite affecting egg-layers in several countries (2,4). It occasionally bites mammals and thus rarely causes problems such as itching, papules, vesicles, and dermatitis all over the body in personnel working in affected poultry premises. Humans are usually bitten at night because this mite is nocturnal in its habits.

Our most striking observation in this case was the localization of the disease. The patient had only scalp dermatitis and *D. gallinae* was found only on this part of the body. In most cases, the symptoms disappeared without any specific therapy after a few days of avoiding contact with mites. Despite decontamination of the patient's immediate environment, including not wearing the same hat, our patient's symptoms did not disappear. Soon after using permethrin shampoo he became free of symptoms. An explanation for these findings may be a putative defect in the cutaneous immune system related to the patient's age.

In the literature, only a few cases about dermatitis due to *D. gallinae* are described (6–8). Cafiero et al. described seven patients in Italian cities from 2001 to 2007 (6). This article outlines the importance of a diagnosis of the red mite-associated disease. In 2008, Bellanger et al. also reported nosocomial dermatitis caused by *D. gallinae* (7).

Utilization of a variety of compounds has been mentioned for control of *D. gallinae* (organochlorines, organophosphates, pyrethroids, carbamates, amitraz and endectocides). Although a number of them are efficient, most of them are unsuitable for human usage (9). Permethrin is an effective, quick and secure synthetic pyrethroid widely used in flea control products for small animals and humans (10). Indeed, our patient became symptom-free after using 1% permethrin shampoo.

The rare occurrence of *D. gallinae* dermatitis may complicate the recognition of mite infestations, especially when faced with dermatitis of obscure origin. This kind of infestation is often misdiagnosed and inevitably leads to failures in treatment. In fact, our patient had been misdiagnosed and his quality of life was negatively affected because of sleeping disturbance due to severe pruritus.

In conclusion, mites should be kept in mind in the differential diagnosis of any resistant pruritus of the scalp. To the best of our knowledge, this is the first documented case of *D. gallinae* dermatitis from Turkey. We conclude that permethrin therapy in conjunction with decontamination of the area where mites can live helps to treat this rare dermatosis.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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