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Case Report: *Dermanyssus gallinae* in a Patient with Pruritus and Skin Lesions

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SUMMARY: A 40-year old woman patient who presented at the Dumlupınar University Faculty of Medicine Hospital reported intensified itching on her body during evening hours. During her physical examination, puritic dermatitis lesions were found on the patient's shoulders, neck and arms in particular, and systemic examination and labaratory tests were found to be normal. The patient's story showed that similar signs had been seen in other members of the household. They reside on the top floor of a building and pigeons are occasionally seen in the ventilation shaft. Examination of the house was made. The walls of the house, door architraves and finally beds, sheets and blankets and the windows opening to the outside were examined. During the examination, arthropoda smaller than 1 mm were detected. Following preparation of the collected samples, these were found to be *Dermanyssus gallinae*. Together with this presentation of this event, it is believed cutaneus reactions stemming from birds could be missed and that whether or not of pets or wild birds exist in or around the homes should be investigated.

Key Words: Pruritus, itching, dermatitis, skin lesions, *Dermanyssus gallinae*

Olgu Sunumu: Prüritus ve Deri Lezyonlu Bir Hastada *Dermanyssus gallinae*

ÖZET: Dumlupınar Üniversitesi Tıp Fakültesi Hastanesine müracaat eden 40 yaşındaki kadın hasta, vücudunda akşam saatlerinde yoğunlaşan kaşıntı şikayetlerini bildirmiştir. Hastanın yapılan fizik muayenesinde özellikle boyun, omuz ve kollarında püritik dermatit lezyonları gözlenmiş, sistem muayeneleri ve laboratuvar tetkikleri normal olarak bulunmuştur. Hastanın alınan hikayesinde benzer belirtilerin evin diğer üyelerinde de olduğunu bildirmesi, ikamet edilen evin binanın son katı olması ve havalandırmada zaman zaman güvercin olduğunun anlaşılmasının ardından evinde bir inceleme yapılmıştır. Öncelikle güvercinlerin tünedikleri aydınlığa açılan pencereler olmak üzere evin duvarları kapı pervazları ve son olarak yatak çarşaf ve yorganların içleri dikkatli bir şekilde incelenmiştir. Yapılan incelemede büyüklüğü 1mm'nin altında eklembacaklılar tespit edilmiştir. Toplanan numunelerin preparasyonlarının ardından *Dermanyssus gallinae* olduğu anlaşılmıştır. Bu olgu sunumuyla kuş akarlarından kaynaklanan kütanöz reaksiyonların gözden kaçabileceği ve benzer semptomlarla sağlık merkezlerine yapılan müracaatlarda ayrıntılı anamnez almak süretiyle insanların yaşam alanlarının içinde veya yakınında evcil veya yabani kuşların da sorgulanması gerektiği düşünülmektedir.

Anahtar Sözcükler: Prüritus, kaşıntı, dermatit, deri lezyonu, *Dermanyssus gallinae*

INTRODUCTION

A great majority of mites belonging to Acarina order and Arachnida class live roaming freely in nature, while some others attach themselves to animals or plants and thus constituting an indispensable part of natural life (4).

Dermanyssus gallinae, a part of Mesostigmata superfamily, was first identified by De Geer in 1778, and first report of human infestation was reported by Willian in 1809. In 1828, Saint-Vincent spotted this parasite on the skin of a human, but first observation of its feeding on human blood was published by Williams in 1958 (1). This disease is named gamasoidosis, psoradermanyssica, pseudogale, or fowl mite dermatitis; and the agent is called as chicken mite, poultry red mite or roost mite (1, 6, 7, 9).

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D.gallinae turns yellow-brown when hungry and turns red-black when full. It prefers pigeons, hens, starlings, and lovebirds as hosts. When these normal hosts are unavailable, various mammals including humans serve as parasitic objects. D.gallinae may be found almost all over the globe throughout all seasons; however human infestation cases are generally reported in late spring and summer months (15).

Mature ones measure about 0.5-0.7 mm with oval, flattened dorso-ventral forms. Their life cycles consist of egg, nymph (proto, deuto) and mature periods, with blood sucking at all

times except the larvae phase. They go under optimal development at 20-25 ºC temperature and 70% humidity and complete a biological cycle in about one week (3, 6, 7, 9). It is reported that these ectoparasites can live up to 8 months without feeding, under right conditions, with resistance to dry weather and no tolerance against high humidity (3). These mites reside in obscure nooks and crannies of columbaries, coops, and cages during day time and become active at night time infesting winged animals in general but also attacking mammals including humans for blood sucking (6, 7, 9).

CASE REPORT

A female patient, aged 40, applied to Dumlupinar University Faculty of Medicine Hospital and reported itching all over her body intensifying particularly at evening hours. In her physical diagnosis, pruritic dermatitis lesions were observed on her neck, shoulders, and arms; with her body temperature at 37 ºC, arterial blood pressure at 118/79 mm Hg, heart rate at 80 beats/min, and respiratory rate at 16 breaths/min which were considered normal system values. At laboratory tests of the patient, white blood corpuscle count was found to be within normal range and erytrocite sedimentation rate at 100 mm/hour; and no abnormalities were detected in routine biochemical parameters, total IgE, urine and stool examinations. Her medical history and records showed no chronic condition.

As the patient reported similar complaints by other family members in her home, and stated her apartment to be at the top floor of the building with a few pigeons using the roof of air ventilation hole as their nest, an investigation of the house was planned. Since the symptoms intensified at evening hours, the visit was made at these hours and primarily the windows opening to the hole on top of which pigeons perch, and the walls of the house, door frames, and bedclothes were examined carefully. The observations revealed the existence of white, yellow, brown, and black colored arthropods in a variety of sizes smaller than 1 mm, some moving, some at rest, in window and door frames of the bathroom and the restroom that have air ventilation windows opening to the hole, and all over the walls of the house, while bedclothes contained very few organisms. Some arthropods were collected with the help of a soft watercolor brush into 10 cc glass bottles containing a mixture of alcohol and glycerine. A total of 95 mites were collected.

The specimens were identified through microscopic examination in the Parasitology Laboratory of the hospital as *D.gallinae*. The patient and family members were informed of the findings and further contacts were made with the rest of the apartments in the same building to determine the spread of the infestation. After the examinations it was found out that mites reached as far as three stories lower through air ventilation windows. The residents of infested apartments stated some itching in recent days, but mites were found in these apartments in much less amount than the first house. Immediately after these findings were told to the residents of the building, pigeons were blocked from the entry to the premises and the area was disinfected with pulverized dichlorvos (10ml/lt) accompanied by bathroom and restroom disuse for a while. The disinfection procedure was repeated after one week, and in the aftermath, no *D.gallinae* were detected in inspections.

Figure 1. *Dermanyssus gallinae* male, **2.** *D. gallinae* female (with egg)

DISCUSSION

In general, pin's head size papules and vesicles accompanied by intense itching would emerge on people after 1-3 days of contact with infested organisms; and while some infection cases stay limited with navel area, armpits, and forearms, in many other cases the infection starts from the nape, the neck, and the arms and spread to other body surfaces. Papules can also be covered with a bloody crust due to violent itching (9, 14). It is reported that *D.gallinae* function as vectors for some bacteria such as *Salmonella, Spirocheta, Ricketsia, Pasteurella*

in addition to being ectoparasitic activities (13). Winged mites stay inactive within bird nests or nearby nooks and crannies during daytime, and suck blood from natural host birds during night time. If they cannot reach these natural hosts or host population is in a low level in the vicinity, they may attack humans. In such cases, pruritic dermatitis which sometimes is mistaken for scabies or pediculosis, erythematous maculopapular, or bites forming urticaria and pruritic papulovesicles would emerge (10). Additionally, otitis externa is also reported under similar conditions (12).

Lucky *et al.* (5) report a long-lasting condition in two children with pruritic papules, non-responsive to treatment, that was discovered to be originating from *Ornithonyssu sylvarium* and *D.gallinae* found on pet gerbils kept at their home; and natural recovery from the condition by expulsion of the gerbils out of that home.

Mites can be demonstrated on patients not only by microscopic means but also by Punch biopsies. *D.gallinae* could be demostrated in specimens taken from patients by hematoxylin-eosin and immunofluoroscent staining method (16).

Prins *et al*. (10) found *D.gallinae* infestation at birds in coops nearby homes of people with persistent pruritus condition and pointed to longevity of the conditions resulting from attacks from those places.

Studies report dermatitis outbreaks with painful bites in hospitals and schools with *D.gallinae* infestation, rapid reproduction, and leeched people (2, 8, 11). One of these studies report observation of pruritic erythematous maculopapular rash on both patients and employees of the hospital with mites spotted in bedclothes and pillows (11). Researchers (2, 8, 11) report end of infestations with removal of birds nesting in the related buildings.

D.gallinae infestation is rarely mentioned among infection diseases since it is relatively infrequent, and parasitology manuals describe this parasite and its infestation smatteringly (1). Pruritic dermatitis visible with papules and vesicles which sometimes is mistaken for scabies or pediculosis, may be chronic or recurrent with erythematous maculopapular or papulovesicular lesions (11).

As a result, it is concluded that pruritic dermatitis cases would be more frequent than the reports made to medical centers as in this case; and cutaneous reactions resulting from avian mites are generally gone unnoticed. It may be necessary to require a detailed anamnesis in applications to hospitals upon such symptoms. It is also concluded that existence of birds inside or nearby human inhabited places should be questioned.

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