HUMAN INFESTATION BY PIGEON FLEAS (CERATOPHYLLUS COLUMBAE) FROM FERAL PIGEONS

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Abstract: The report concerns a married couple who were repeatedly invaded by pigeon fleas (Ceratophyllus columbae) over a period of 2 months. The source of the fleas was a pair of breeding feral pigeons (Columba livia). The birds’ nest was located in the attic immediately above the couple’s apartment, and the fleas found their way along an unsealed heating pipe. The people encountered up to 40 bites per night. With invasions repeated almost every night, the man gradually developed an allergic urticarial reaction. The most traumatic experience for the couple, however, was to learn that they were invaded by fleas (initially, they had presumed they were bothered by mosquitoes). This information resulted in severe psychological distress with phobic reactions and insomnia. Despite the successful removal of the fleas and the pigeons that were source of the pest, parasitophobia of the man persisted over the following 4 months. This case is discussed from the broader aspect of health risks related to feral pigeons and animal fleas. Also summarised are previous observations on people invaded by pigeon fleas.

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Feral pigeons (street pigeons) pose a considerable health risk to the population. They are vectors of infectious diseases and a source of antigens causing allergic diseases. Breeding sites of the birds harbour parasites that may attack humans. The present article deals with the invasion of 2 persons by pigeon fleas (Ceratophyllus columbae) from a nest of feral pigeons.

CASE DESCRIPTION

Patients’ history. A 34-year-old Swiss male (described here as Mr X) and his 30-year-old Ecuadorian wife (Mrs X) have lived for several years in the fourth floor of an old house in the centre of Lucerne (Switzerland). At the end of February 2004, Mr X noted on his hip two vesicular skin lesions of 1 mm diameter, surrounded by erythematous patches of approximately 1.5 cm diameter, which were apparently due to bites of an insect. Since then, almost every morning, he found 8–10 new bite marks on each leg, typically ordered in lines each of 3–4 marks. At the bite sites, red indurated itching papules developed, surrounded by erythema that would persist for up to 2 weeks. Gradually, urticarial reactions to the bites developed in the form of wheals of approximately 1 cm
diameter, surrounded by erythema. The itching of the lesions became very distressing to the patient. Roughly a month after the first bites, a systemic urticarial reaction developed: the patient suffered from generalised pruritus, on his arms and legs urticarial wheals appeared, which were not preceded by flea bites in these areas. Additionally, the patient experienced intense itching at the sites of previous bites.

The medical history of Mrs X was very similar to that of her husband. The difference was that she suffered from more bites (up to 20 per night per leg), and larger vesicles (diameter 2–3 mm) emerged in reaction to the bites. Mrs X complained of intense itching that was triggered even by minor stimuli, like contact with clothes. The pruritus forced her to scratch vigorously, which finally led to widespread abrasions of the epidermis (excoriation).

Initially, the couple presumed that they were bothered by mosquitoes. At the end of March 2004, Mr X caught some small insects that were subsequently classified by Dr Peter Herger of the Naturmuseum in Lucerne as pigeon fleas (*Ceratophyllus columbae*). The specimen was then sent for verification to the first author of this report, who confirmed the classification (Fig. 1). When the couple realised that they had been invaded by fleas, they became heavily stressed. They installed hammocks, hoping in this way to keep out of reach of the fleas. Despite this, they still could not sleep for days because they were too afraid of the flea bites. Mrs X developed a severe psychological distress and strongly insisted on changing their apartment.

**On-site intervention** was undertaken in order to help the couple to cope with their problem. They were living in a mansard apartment in a 200-year-old house. In the attic above their apartment, a pair of feral pigeons had been breeding for years. The pigeons’ nest was located on the attic’s floor that formed the mansard’s ceiling (Fig. 2). A non-sealed heating tube led from the attic into the apartment; there were also several cracks in the masonry that would allow the passage of the fleas. We recommended Mr X to remove the pigeon nest, spray the site with an insecticide, and obstruct the birds’ access to the attic. Additionally, we recommended the extermination of the fleas in the apartment by a pest control professional.

**Follow-up.** Four months after the first symptoms, we contacted Mr X again to learn about the outcome of the intervention. The roof had been repaired and sealed to prevent the feral pigeons from returning, and pest control had also been carried out. The couple had not sought medical advice in the meantime. Skin changes of Mrs X had been resolved completely; she also was rid of the anxiety caused by the flea invasion. Mr X, however, complained of still persisting skin problems: These were reddish spots of 4–5 mm in diameter at the sites of previous bites, which were slightly painful when rubbed. In contrast to the rather minor skin symptoms, he was still suffering from a strong phobic reaction. He complained of continuous anxiety and the feeling of living under a serious threat. We encouraged him to seek psychological help for his phobia.

**DISCUSSION**

Feral pigeons are distributed worldwide and live close to the human population, causing serious health problems. They may carry as many as 60 human pathogens - viruses, bacteria, fungi and protozoa [20, 38, 42]. Antigens of pigeon feathers and droppings may cause allergic respiratory diseases. Allergic alveolitis (syn. hypersensitivity pneumonitis, “pigeon breeder’s lung”) can be found in 1–10% of pigeon breeders [8, 12]. The prevalence of the disease in the general population remains unknown; however, pigeon allergens were detected in human dwellings, schools and hospitals [3, 10]. Nine cases of allergic alveolitis related undoubtedly to feral pigeons were reported in recent years (reviewed in [19]), one of which was deadly [34]. More are to be expected as the awareness of the problem increases.

In addition to the above-mentioned health risks, feral pigeons host numerous parasites. These parasites can attack humans, causing distress and occasionally transmitting infectious diseases. There are many reports on human invasions by the pigeon tick *Argas reflexus* [26,
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people include hen flea (*Ceratophyllus fringillae*), hedgehog flea (*Archaeopsylla erinacei*), and European rat flea (*Ochsenbein*, Basle) for their kind assistance at various stages of preparing this paper.

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REFERENCES


