Human infestation with bird mites in Wollongong

Charles R Watson

Abstract

This is a report of a case of bird mite infestation which occurred in Wollongong in mid-December 1996. The individual suffered hundreds of bites, most of which were marked by itchy red papules 3–4 mm in diameter. Tiny mobile parasites (< 1 mm) collected from the skin and adjacent bedroom wall were identified as bird mites from the family *Gamasidae*, most probably from the genus *Ornithonyssus*. The source of the infestation was a starling nest under the eaves adjacent to the bedroom. The report summarises the ways bird mite bites can be distinguished from other insect and arachnid bites. If bird mite infestation is not correctly diagnosed, families who attempt to repeatedly treat it as if it were lice or scabies may incur considerable expense until the source of infestation is eliminated. *Commun Dis Intell* 2003;27:259–261.

Keywords: bird mites, rickettsia

Introduction

Bites from insects and mites can cause individuals considerable discomfort, and if the infestation is not accurately identified and treated, the episode may prove very disruptive and expensive for a family. A case of bird mite infestation is presented in order to highlight the diagnostic issues surrounding this relatively uncommon cause of bites in humans. Bird mites are arachnids, and like spiders they have eight legs and a combined abdomen and thorax. They can easily be distinguished from spiders because the head and thorax-abdomen are fused to form an oval body, whereas in spiders the head is clearly separated from the thorax-abdomen. The most common bird mites found in Australia are the red poultry mite (*Dermanyssus*) and the northern fowl mite (*Ornithonyssus*).

Correspondence: Professor Charles R Watson, Executive Dean, Health Sciences, Curtin University of Technology, PO Box U1987, Perth WA 6845. Telephone: +61 8 9266 7466. Facsimile: +61 8 9266 2608. Email: c.watson@curtin.edu.au

Case report

The infestation was experienced by the author, who was at the time a resident of East Corrimal, a suburb of Wollongong in New South Wales. On two successive nights in mid-December 1996, the author was repeatedly woken by very itchy bites around the axilla, trunk and groin, as well as formication (the sensation of ants crawling over the skin) on the face. An initial search did not reveal any visible cause of the bites, but on the morning following the second evening of bites, the author found a number of tiny animals (< 1 mm) crawling on the anterior thigh. These animals were collected with transparent adhesive tape and later examined with a microscope. At this time, 24 hours after the attack began, there were about 50 obvious bites on the body, most of which were marked by red papules 3–4 mm in diameter.

Examination of the specimens collected from the skin by the author showed that they were bird mites. Examination of illustrations in standard texts[1,2] indicated that they most probably belong to the genus *Ornithonyssus*.

After being alerted to the diagnosis of bird mite infestation the author recalled that there was a starlings' nest under the eave of the roof about 3 metres from the bed, and that the young chicks had recently left the nest (as judged by the cessation of squawking that had accompanied the morning feeding of the chicks in the previous week). When the wall near the site of the nest was examined carefully, it was found to be covered with hundreds of tiny crawling animals of the same size as those found on the skin. They were collected, examined and found to be the same as those collected from the skin.

Immediate treatment of the subject with permethrin cream ('Lyclear') and insecticide treatment of the infested room was sufficient to control the problem. However, it should be noted that removal of an infested nest and fumigation of the roof cavity and adjacent rooms would be recommended in order to eradicate the source of an infestation.

Discussion

The significance of bird mite infestation in humans is not so much the annoyance and discomfort caused by the bites, but the expense of repeated treatment if the problem is thought to be lice or scabies, and the source of infestation is therefore not eliminated.

Some bird mites have been found to carry viral or rickettsial pathogens, but their significance as a vector for human infestation has not been demonstrated.[2] However, it has been suggested that *Ornithonyssus bacoti* (the tropical rat mite) may be responsible for the transmission of *Rickettsia akari*,[1] so the potential for transmission of rickettsial disease should not be ignored.

Blood-sucking mites are ectoparasites of a wide range of domestic and wild birds, as well as small mammals and certain reptiles. Bird mites are an important cause of ill health in poultry, and infestations result in decreased egg production, weakness, and susceptibility to infection. Under unusual circumstances, such as when breeding birds and their nestlings desert a nest, mites may attack other vertebrate hosts, including humans.[3,4] Insecticide treatment of infested humans and temporary vacation of infested premises are not sufficient to eliminate the problem because adult mites can survive for weeks or months without feeding.[3,5] Identification of bird mites can be attempted with a microscope and illustrations from a standard parasitology text.[1,2] Because most bird mites are less than a millimetre long, a magnification of 40 to 100 times is necessary for accurate identification.

Once the parasite has been identified, the source of infestation must be found. This is usually a poultry yard or a bird's nest.

Anecdotal evidence indicates that bird mite bites are often misdiagnosed by general practitioners, and the bites are treated as if the problem was scabies or body lice. The problem with misdiagnosis is that treatment of the individual and their clothing and bedding will not eliminate the source of the infestation, and it may recur, requiring further treatment.

The issue was discussed with a number of pharmacists in the Wollongong area in 1996; all were aware of the bird mite problem because they sell insecticidal creams and washes to affected families during the bird mite season. The Wollongong pharmacists reported that the problem is most common in December. Veterinarians in the Wollongong area encounter bird mite infestations in domestic animals and are well aware of its seasonal incidence.

The differential diagnosis of itchy bites in humans is complicated by the fact that some of the causes are relatively rare. The major alternatives to be considered are scabies, fleas, body lice, mosquitoes, sand flies, horse flies, spiders, centipedes, bed bugs, ticks, midges, bird mites, and harvest mites.[4,1] Diagnosis requires information on the circumstances in which the bites occurred, and the nature and distribution of lesions. In difficult cases, an entomologist should be consulted. Goddard emphasises the importance of excluding imaginary insect or mite infestations ('delusory parasitosis').[1] The characteristics of a bird mite infestation are shown in the Box.

Box. Characteristics of bird mite infestation

- Commonly in late spring or early summer.
- Parasites are barely visible (< 1 mm long) but can be found crawling on the skin.
- The parasites do not burrow into the skin.
- The parasites have a characteristic appearance – they can be collected with transparent adhesive tape and recognised with the aid of an identification key and a low power microscope.
- The bites usually produce small itchy papules.
- Source of infestation is usually obvious – such as a bird nest or poultry yard.

References

1. Goddard J. Physician's guide to arthropods of medical importance. Boca Raton: CRC Press, 1993.
2. Walker A. The arthropods of humans and domestic animals. A guide to preliminary identification. London: Chapman and Hall, 1994.
3. Kettle DS. Medical and veterinary entomology. 2nd edition. New York: Oxford University Press, 1997.
4. Alexander JO. Arthropods and human skin. Berlin: Springer-Verlag, 1984.
5. Beatty BJ, Marquardt WC. The biology of disease vectors. Niwot: University Press of Colorado 1996.