

## **Case report**

### **A case report of tropical rat mite infestation *Ornithonyssus bacoti* (Dermanyssidae: Acarina) in Ahvaz, SW Iran**

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#### **Abstract**

***Ornithonyssus bacoti* (tropical rat mite) is associated with rats throughout the world. Infestation of human follows by rat control or when the rodent is not available. It's bite is painful, causing intense itching and a skin irritation known as rat-mite dermatitis. In this case report, a 35-year-old woman was affected by *O. bacoti* in neurosurgery department of Golestan hospital. It had been applied of rodenticide for mice control in previous days. She had cutaneous sign in neck, shoulders, face, and upper trunk. The patient was treated with topical corticosteroids and antihistamines. Transmission of some pathogen agents such as *Rickettsia* and bacterial by *O. bacoti* is important. It is suggested that in rat control program, insecticide should be applied to control mites that escape their host.**

**Keywords:** Mite, *Ornithonyssus bacoti*, Infestation

#### **Case history**

A 35-year-old woman, staff of neurosurgery department of Golestan hospital, referred to the department of medical parasitology and mycology with complaining from itching in her neck and shoulders. She was examined to find the cause of irritation. She had cutaneous sign in neck, shoulders, face, and upper trunk (Fig. 1). The clinical sign was macula and papule from 3-5mm in diameter, itching, and dermatitis was present. It has happened after applying of rodenticide for mice control in the hospital a few days before. Precise inspection of the room revealed the existence of pale-yellowish mites measuring 0.8-1mm, active motile on wall and hole. After collection, the samples were transferred to the parasitology

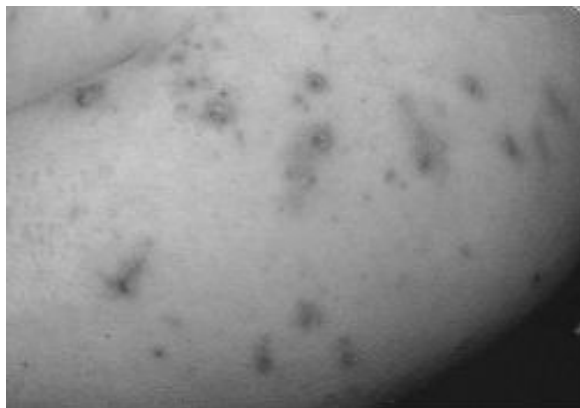
department of medical school. Microscopic examination revealed rat mite, *O. bacoti* (tropical rat mite) according to entomology Walker key [1] (Fig. 2). The patient was successfully treated with topical corticosteroids and antihistamines.

#### **Discussion**

The varieties of the mites that infest human and animals are known as ectoparasite. They spend their life on the surfaces or beneath skin (*Sarcoptes* and *Demodex*) and cause dermatitis. One of the zoonotic infestations is caused by *O. bacoti* that infects naturally rat and can infects human as zoonotic parasite. When they do not find appropriate host or in rat control situation, or if they are near to human habitat they invade human.

Some have nocturnal activity but *O. bacoti* is active 24 hours a day. The length of the male mite is 0.89mm and female 1.4mm when fully engorged. The unfed mite is a

grayish in color and very active but when engorged it is red and sluggish in movement and the body is hairy [2].



**Fig. 1:** The eruption lesion of patient with *O. bacoti* infestation (tropical rat mite)



**Fig. 2:** *O. bacoti* from patient room

In this report, infestation occurs in one of the staff of Golestan hospital in neurosurgery department after using of rodenticide a few days ago. Dermatitis signs were seen on head, neck, shoulder, and upper trunk with symptom including itching, rash, macula, and papule. The diameter of primary lesions was small urticated papule from 1 to 5mm (or even 1cm). Many of the lesions have a small central punctum, which may be hemorrhagic. The first report of disease in Iran was announced by Abai *et al.* [3] in Ghaemiyae town, Fars province. The patient was an unemployed married man living in unsanitary house condition in suburb. A careful inspection was made of his house to collect the infected rodents with mites and identified them. Both sexes in any age may be affected.

There are many reports from different part of the world [4-7], in Moscow [8], in Iceland [9], and in America [10]. In some reports, there are relationship between infestation and job. An outbreak of tropical rate mite (*O. bacoti*) dermatitis occurred in a group of research and animal technicians. The technicians were affected with an intense pruritic dermatitis after exposure to asymptomatic laboratory mice infested with

the mite [11,12]. Five mentally handicapped individuals living in a home for disabled persons in Southern Germany were seen with pruritic, red papules predominantly located in groups on the upper extremities, neck, upper trunk, and face. Over several weeks 40 inhabitants and five caretakers were affected by the same rash [13]. Transmission of some pathogen agents such as *Rickettsia* and bacterial by *O. bacoti* is important. Isolation of *Rickettsia* and *Coxiella burnetii* by PCR method from *O. bacoti* has been investigated. In this study *O. bacoti* was collected from rats (*Rattus norvegicus* and *R. rattus* throughout 14 area in Egypt and tested. *Bartonella* species, *C. burnetii*, and *Rickettsia* species was detected by PCR amplification and sequencing [14].

The large amount of population of rat and mice live near human habitat and many of them are infested by tropical rat mite (*O. bacoti*) so they can transmit mite (*O. bacoti*) to human and other animals. Invade of parasite is increased especially when rat control or eradication program is carried on. It is suggested that in rat control program, insecticide should be applied to control mites that escape their host or applying a systemic rodenticide.

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