

Short Communication

First report of *Chlamydophila* seroprevalence in house sparrows (*Passer domesticus*) in Lanzhou, Northwest China

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***Chlamydophila* is an obligate intracellular bacterium, found in a wide range of birds, which is frequently transmitted from infected birds to humans. In the present study, a total of 313 serum samples from free-living, clinically healthy house sparrows were examined using an indirect hemagglutination assay (IHA). Antibodies against *Chlamydophila* were found in 33 (10.54%) of 313 serum samples (IHA titer \geq 1:16). The result indicated that clinical healthy status was not a reliable "standard" for the diagnosis of *Chlamydophila* infection and there was a potential risk for human infection with *Chlamydophila* in this region. The present study is the first seroprevalence survey of sparrows infected by *Chlamydophila* in China.**

Key words: *Chlamydophila*, Seroprevalence, house sparrows, Lanzhou, northwest China, indirect hemagglutination assay (IHA).

INTRODUCTION

Chlamydophila is a zoonotic, intracellular bacterium, widespread in avian populations, including companion, domestic and wild birds (O'Shea, 2010). In birds, it usually causes systemic and occasionally fatal disease by clinical signs such as anorexia, depression, respiratory distress, or diarrhea (Elder and Brown, 1999). *Chlamydophila* organism can be transmitted to humans via the inhalation of the agent dispersed in dust particles and air from respiratory secretions and dried feces shed

by the infected birds. Domestic and companion birds are considered to be the main risk for the transmission of *Chlamydophila* to humans (Circella et al., 2011).

In recent years, several studies of *Chlamydophila* infection in sparrows and other wild birds have been conducted (Matsui et al., 2008; Pennvcott et al., 2009; Sharples and Baines, 2009; Monsalve et al., 2011), and there have been some surveys in mainland China (Yang et al., 2011; Zhang et al., 2008), but some of these reports were published locally in Chinese journals and not readily accessible to international readers. However, little is known about the prevalence of *Chlamydophila* in sparrows in China. Here, we detected *Chlamydophila* seroprevalence in house sparrows in Lanzhou, northwest

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China for the first time.

MATERIALS AND METHODS

The investigated city

The survey was conducted in Lanzhou City (35°5' to 38°N, 102°30' to 104°30' E), the capital of Gansu province, northwest China. Lanzhou is situated in the geometric center of China's territory, covering an area of 13,000 km², with an average altitude of 1,500 m. The climates of this city are typical temperate and monsoonal continental, with an average annual temperature of 9.3°C, annual precipitation of 360 mm.

House sparrow serum samples

A total of 313 blood samples were collected from free-living, clinically healthy house sparrows in Lanzhou, Gansu Province, northwest China between September and November 2011. Blood samples were kept at 37°C for 2 h and centrifuged at 3,000 g for 10 min, then clear serum was obtained. The serum samples were stored at -20°C until further analyzed.

Serological examination

The commercial indirect hemagglutination assay (IHA) kit (Lanzhou Veterinary Institute, Chinese Academy of Agriculture Sciences, China) was used to examine antibodies to *Chlamydomphila*. The detection procedures were carried out as described previously (Xu et al., 2010). Samples reaction at dilutions of 1:16 or higher were considered positive for *Chlamydomphila* antibodies. Dilutions between 1:4 and 1:16 were suspicious and should test again, and positive and negative controls were included in each test.

RESULTS AND DISCUSSION

A total of 33 (10.54%) out of 313 serum samples were seropositive for *Chlamydomphila* infection by IHA at the cut-off of 1:16, and with IHA titers of 1:16 in 17 house sparrows, 1:32 in eleven, 1:64 or higher in five house sparrows. Although no clinical signs were seen in the house sparrows, diagnostic testing revealed the presence of *Chlamydomphila*.

In this study, the seropositive of *Chlamydomphila* infection in the house sparrows was 10.54%, which was lower than that reported in other counties (Holzinger-Umlauf et al., 1997; Monsalve et al., 2011). The difference in geographical conditions, diagnostic methods, stress and the samples from different sources with different socioeconomic and ecological conditions may contribute to the low seropositivity.

The results suggested that birds with recessive *Chlamydomphila* infections were not always clinically ill but did have positive antibody titers. Therefore, clinical healthy status was not a reliable "standard" for the diagnosis of *Chlamydomphila* infections (Grimes et al., 1996). Humans and other animals could infect *Chlamydomphila* via inhalation of the agent dispersed from the infected birds (Vanrompay et al., 2007; Petrovay and

Balla, 2008; Harkinezhad et al., 2009), but it is still unknown whether *Chlamydomphila* from sparrows can potentially cause disease in humans or other animals. Sparrows may play an important role in the epidemiology of *Chlamydomphila* infection.

Conclusion

The present study revealed the seroprevalence of *Chlamydomphila* infection in house sparrows in Lanzhou, Gansu Province, northwest China. This is the first *Chlamydomphila* seroprevalence survey in house sparrows in China, and we believe that this information will be significant for researching the *Chlamydomphila* infection in humans and other animals.

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