Prevalence and pathological lesion of *Trichomonas gallinae* in pigeons of Iran

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**Abstract** This research was conducted to determine the prevalence and pathological lesion of *Trichomonas gallinae* in pigeons in the northeast part of Iran. Wet mount preparations from the oral cavity/crop of 418 pigeons (*Columba livia*) captured from various locations in Khorasan province analyzed for *T. gallinae* by Giemsa’s staining between April 2008 and June 2009. A total of 418 pigeons, 37.32% (n = 156) were infected with *T. gallinae*. Macroscopically, the oropharynx of infected pigeons has white, caseous lesions or stomatitis. Microscopically, there was moderate congestion with infiltration of mononuclear inflammatory cells in the lamina propria of pharynx, hyperplasia of mucous cells in epithelia of trachea with infiltration of mononuclear inflammatory cells, numerous granulomatous foci in the livers with many multinucleated giant cells, tubulointerstitial nephritis with multifocal to diffuse infiltration of mostly mononuclear inflammatory cells in the kidneys. In the present paper we have described for the first time the co-existence of both genotypes of *T. gallinae* based on pathological lesions in this area.

**Keywords** *Trichomonas gallinae* · Prevalence · Pathology · Iran

**Introduction**

*Trichomonas gallinae* is an economically important pathogen, since it affects avian livestock and poses a considerable threat to the conservation of threatened species of columbid, and their avian predators. Despite the parasite’s preference for pigeons and doves, *T. gallinae* can affect a wide range of bird families, and infections in bustards (Silvanose et al. 1998), psittacine birds (Baker 1996; McKeon et al. 1997), fowl (McDougald and Calnek 2000) and passerine birds (Cousquer 2005) have been reported. Parasites live mainly in the bird’s anterior digestive tract, where they can cause granulomatous lesions that occlude the oesophageal lumen, leading to the death of birds as a result of severe starvation. However, it is well known that virulence of the strains varies and some can reach parenquimatous organs and generate necrotic foci (Prez-Mesa and Stabler 1960; Narcisi et al. 1991).

Studies with *T. gallinae* have demonstrated a wide spectrum of virulence. With highly virulent isolates, a bird can succumb to infection within 14 days after being inoculated with a single trichomonad, whereas with avirulent isolates, a bird may fail to even seroconvert after being inoculated with 1 × 106 organisms (Stabler and Kihara 1954). Additionally, it has been demonstrated that clinically normal pigeons can harbor both avirulent and virulent isolates. However, naive doves and pigeons challenged with a mixture of virulent and avirulent isolates will succumb to infection (Stabler 1954).

Pigeons are distributed all over of Iran and few information is available in the literature on pathological effects and virulence of *Trichomonas gallinae* (Pirali-Kheirabadi et al. 2008). It is not known whether *T. gallinae* is a single species or a group of species and whether virulent strains are present in eastern part of Iran. Therefore, this research was conducted to determine the prevalence of *T. gallinae* and pathological effect of infection on pigeons in Khorasan province of Iran.