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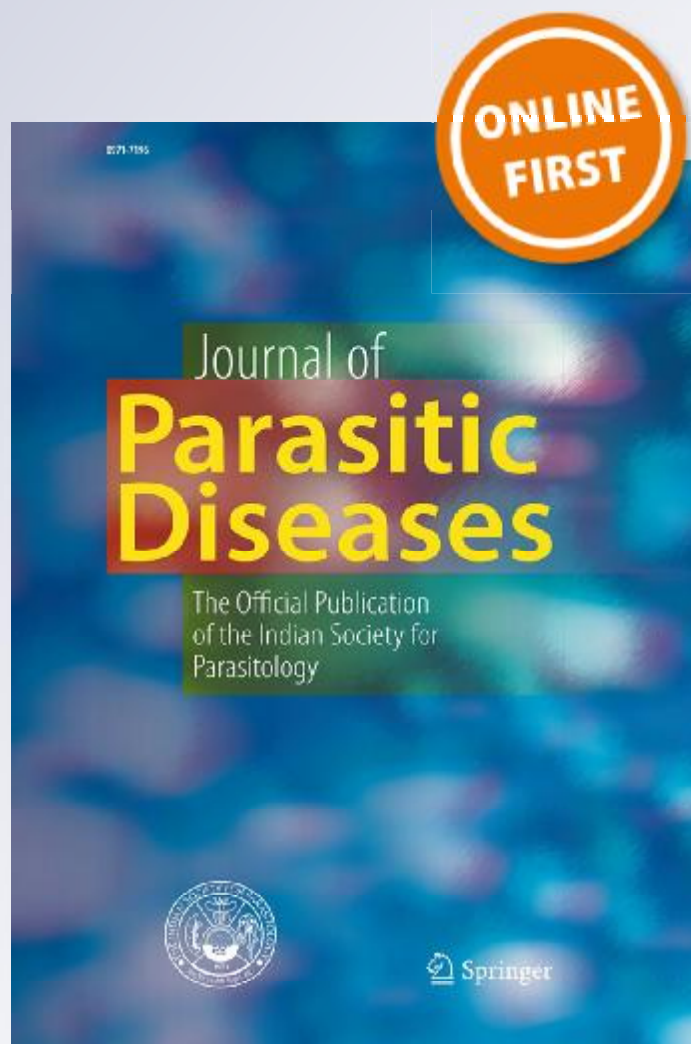
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## Prevalence of *Toxoplasma* infection in veterinary laboratory sciences students comparing to ordinary people: a case–control study

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**Abstract** *Toxoplasma gondii* causes the foremost widespread protozoan infection with a broad variety of host range, which consists of regarding of almost all warm-blooded vertebrates. There are some opinions concerning the probable occupational influence on infections to *Toxoplasma* in veterinary services personnel. The present study aimed to examine influence of studying in veterinary laboratory sciences as a risk factor on the prevalence rate of *Toxoplasma* infection in the students. In this case–control study, 80 blood samples were taken from veterinary laboratory sciences students (VLSS) as a case group and 80 blood samples from ordinary people of general population as a control group with the relatively same age, gender and health condition. Anti-*Toxoplasma* IgG levels in the serum samples were determined using quantitative ELISA method. According to the results, 27 (33.75 %) out of 80 samples of the cases group and also 29 (36.2 %) out of 80 samples of the control group were infected by the parasite. No statistically significant difference observed in the infection rate between the case and control groups ( $P = 0.740$ , OR 0.931; 95 % CI 0.61, 1.421). The mean serum antibody concentration in infected subjects of case and control groups showed no statistically significant difference ( $P = 0.618$ ,  $t = 0.502$ ). Normality of the data was assumed using Kolmogorov–Smirnov test ( $P = 0.806$ ,  $Z = 0.641$ ). Based on the results, in veterinary laboratory science students, toxoplasmosis is not related to their career

and also the subjects of this group as the other people have the same risk to infect by this protozoan parasite.

**Keywords** Toxoplasmosis · Occupation · Veterinary students · Risk factor · *Toxoplasma gondii*

### Introduction

For the first time, Nicolle and Manceaux described *Toxoplasma gondii* in Tunisia in a rodent, *Ctenodactylus gundi* (Nicolle and Manceaux 1908, 1909). Wolf et al. in 1939 reported the first congenital infection of *Toxoplasma* in an infant (Wolf et al. 1939). The parasite was identified as a coccidian after the 1960s (Weiss and Dubey 2009). Coccidia are parasites that develop in the intestinal epithelium of definitive hosts (Lainson et al. 2005).

Cat is the definite host of *Toxoplasma gondii* and almost all warm-blooded animals even the cat itself, are its' intermediate hosts (Lainson et al. 2005). Oocysts are the environmentally resistant form of its life cycle and are excreted in cat feces, spread out and contaminate the environments. If the intermediate hosts ingest oocysts in feces and or food, soil, water and also undercooked meat containing tissue cysts, it become infected (Dubey 2004; Hill and Dubey 2013). Toxoplasmosis is one of the most widespread parasitic infections found all around the globe, which infects almost all nucleated cells of homeothermic vertebrates including humans. It is found worldwide and the infection is common among humans and food animals. Nearly one-third of humanity are told to be infected by this parasite (Furtado et al. 2013; Hill and Dubey 2013; Jones and Dubey 2010).

Mostly, the infection manifests no evident symptoms in immunocompetent individuals, however once in case of

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