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Screening Methods for Active Toxoplasmosis in Animal Blood Samples

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Dear Editor,

In the 2014 vol. 7, no. 6 issue of the Jundishapur journal of microbiology, a paper entitled "*Toxoplasma gondii* in cattle, camels and sheep in Isfahan and Chaharmahal va Bakhtiary provinces, Iran" was published. We are grateful to Khamesipour et al. (1) for their effective paper in this journal. The paper described animals like cattle, camels, and sheep brought to abattoirs for slaughter and chosen to determine the occurrence of *T. gondii* by collecting blood samples with the polymerase chain reaction (PCR) method. We would like to discuss this topic. *Toxoplasma gondii* is an obligate intracellular parasite that can be found in two forms, the first of which involves actively proliferating trophozoites, or tachyzoites. Tachyzoites are usually seen in the acute phase of the infection and in tissue cysts, which form primarily in the muscle and brain, probably as a result of the host immune response (2). As it mentioned, after the parasite enters the host's blood, because of immune system development, it moves into tissues to evade the immune system.

The presence of *T. gondii* tachyzoites in biological fluids like blood indicates active infection by the parasite (3-5). These evidence recommended that using the PCR method on blood samples only used for diagnosis of acute infection with *T. gondii* and should be reported as screening for active toxoplasmosis. In the Khamesipour et al. results section, the claims that "The overall prevalence of *T. gondii* in camels was 6.6% while the overall prevalence of the parasite in sheep was 17.9%," and, "In sheep, however, the prevalence of *T. gondii* was significantly higher in Chaharmahal va Bakhtiary (33.33%) compared to Isfahan (8.47%) (P = 0.005, 95% CI: 6.88 - 43.35)" are not true due to failure to differentiate between occurrence and prevalence. Because the differential diagnosis between active infection and tissue cysts was not done on these animals, it is likely the true prevalence of *T. gondii* was not reported. We recommend that the PCR method be used with tissue cysts to more accurately determine the prevalence of *T. gondii* in hosts.

Footnote

Authors' Contribution: Mohammad Ali Mohaghegh and Mohsen Ghomashlooyan: study concept and design; Hossein Hooshyar, Mohammad Ali Mohaghegh and Mohsen Ghomashlooyan: drafting of the manuscript; Hossein Hooshyar and Mohsen Ghomashlooyan: critical revision.

References

1. Khamesipour F, Doosti A, Iranpour Mobarakeh H, Komba EV. Toxoplasma gondii in Cattle, Camels and Sheep in Isfahan and Chaharmahal va Bakhtiary Provinces, Iran. *Jundishapur J Microbiol.* 2014;**7**(6):e17460. doi: 10.5812/jjm.17460. [PubMed: 25371809].
2. Dubey JP. The history of Toxoplasma gondii–the first 100 years. *J Eukaryot Microbiol.* 2008;**55**(6):467–75. doi: 10.1111/j.1550-7408.2008.00345.x. [PubMed: 19120791].
3. Angel SO, Matrajt M, Margarit J, Nigro M, Illescas E, Pszenny V, et al. Screening for active toxoplasmosis in patients by DNA hybridization with the ABGTg7 probe in blood samples. *J Clin Microbiol.* 1997;**35**(3):591–5. [PubMed: 9041395].
4. Bayani M, Mostafazadeh A, Oliaee F, Kalantari N. The Prevalence of Toxoplasma gondii in Hemodialysis Patients. *Iran Red Crescent Med J.* 2013;**15**(10):e5225. doi: 10.5812/ircmj.5225. [PubMed: 24693366].
5. Mosallanejad B, Avizeh R, Razi Jalali MH, Hamidinejat H. Seroprevalence of Toxoplasma gondii among wild rats (Rattus rattus) in Ahvaz District, Southwestern Iran. *Jundishapur J Microbiol.* 2012;**5**(1):332–335. doi: 10.5812/kowsar.20083645.2373.