Seroprevalence of Brucellosis, Isolation and Characterization of Brucella and Identification of the Associated Risk Factors in Small Ruminants at Two Districts of South Omo Zone, Ethiopia

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Abstract

Brucellosis is one of the contagious neglected bacterial diseases of Humans and animals, caused by bacteria of the Genus brucella, and distributed worldwide including Ethiopia. However, there was scarcity of epidemiological data on its occurrence in pastoral areas. A cross-sectional study was conducted from September 2018 to June 2019, to estimate the seroprevalence of brucellosis and isolate Brucella from small ruminants in two randomly selected pastoral districts, out of eight districts in South Omo Zone, Ethiopia. A pre-tested questionnaire was used to clarify the purpose.Blood samples were collected from a total of 124 small ruminants with history of abortionforserologicaltest. Subsequently,30vaginalswabs.wereinvestigatedfromseropositiveanimalsforBrucellaisolation. Allserumsamplescollectedwerescreenedserologicallyusingthemodified Rose Bengal Plate Test (mRBPT) andserapositivewithmRBPTwereconfirmedwithComplmentFixationTest(CFT).Anoverallseroprevalence in small ruminants with history of abortionwas21%(26/124;95%CI: 0.14 - 0.28) usingcombinedmRBPTandCFT.Amultivariablelogisticregressionanalysisrevealedthat risk factors considered in the study districts: species, history of abortion (OR: 0.28, 95% CI: 0.18 - 0.43), and parity numbers (OR: 0.20, 95% CI: 0.059 - 0.72) weresignificantlyassociatedwithBrucellainfection. Brucellawasisolatedfrom5(16.7%)ofthe30samplesculturedonBrucellaSelectiveAgar.Allisolates,5(16.7%) were from vaginal swabs. The isolates were B.melitensis based on biochemical, and bacteriological culture test result, though further test is required at biovariant level. Inconclusion, the presents erological test showed that brucellosis is highly prevalent among aborted small ruminants in the study area. Moreover, the isolation of B.melitensis from abortedgoats' vaginals wabs may be considered one of the confirmatory for the brucella infection. Therefore, strategic control measures should be implemented, such asregular testing of breeding animals to reduce brucellosis isrequiredtoreduceitseconomicimpactandriskofzoonoticinfectionintheare a

Keywords: Abortion,South Omo Zone, B. melitensis, isolation, seroprevalence, small ruminants

Citation:- Feyera Gemeda Dima; Human: Seroprevalence of Brucellosis, Isolation and Characterization of Brucella and Identification of the Associated Risk Factors in Small Ruminants at Two Districts of South Omo Zone, Ethiopia; Infectious Disease 2021; July 30-31, 2021; Paris, France