

Clinico-pathological changes associated with *Brucella melitensis* infection and its bacterial Lipopolysaccharides (LPS) in male mice

ABSTRACT

Brucella melitensis (*B. melitensis*) is gram negative, aerobic bacteria that cause Brucellosis in humans' sheep and goats. Brucellosis causes abortion in wild and domestic animals resulting in enormous financial losses. Therefore, the purpose of this study was to evaluate the clinico-pathological changes associated with *Brucella melitensis* infection and its bacterial Lipopolysaccharides (LPS) in male mice. Three groups of 24 Balb/c male mice consisting of 8 mice in each group were used as an animal model for the study. The control group were inoculated intraperitoneally with 1 mL of Phosphate Buffered Solution (PBS) pH 7 while, the treatment groups were inoculated intraperitoneally with 1 mL \times 10⁹ of *B. melitensis* colony and 1 mL \times 10⁹ of Lipopolysaccharides (LPS) extracted from *B. melitensis* respectively. Mice that showed severe clinical signs and those that survived were euthanized by cervical dislocation method after 5 days of post infection subsequently, post mortem was conducted and histopathological studies were carried out. *B. melitensis* group showed severe clinical signs between 6 to 17 h of post inoculation compared to the PBS and LPS groups. The LPS group became lethargic 2 h post inoculation but, they become active after 5 h post inoculation, while the control group (PBS) exhibited normal responses. Histopathology results showed severe tissue alterations in the reproductive organs of the *B. melitensis* group compared to LPS group. In conclusion, the atrophy of the spermatocytes in the testes and degenerative necrosis of the pseudo stratified epithelium of the vas deferens in the *B. melitensis* group were severe while, LPS group showed moderate atrophy of the spermatocyte of the testes and severe degenerative necrosis of the pseudo stratified epithelium of the vas deferens.

Keyword: *B. melitensis*; Brucellosis; Lipopolysaccharides; Spermatocyte; Vas deferens