Effect of dose dependent oral inoculation of Pasteurella multocida type B: 2 in mice: molecular detection and histopathological evaluation

ABSTRACT

Haemorrhagic septicaemia (HS) is an important disease of cattle and buffaloes worldwide, caused by Pasteurella multocida type B: 2 and type E. Here, we evaluated the clinical signs, gross and histopathological changes as well as molecular detection of P. multocida in various organs of mice following oral inoculation with graded doses of the bacterium. A total of 32 healthy mice were divided into four groups of 8 mice each where each group was inoculated orally with 0.4ml of P. multocida type B: 2 at the dose of $10^3$ (Group 1), $10^5$ (Group 2) and $10^7$ (Group 3) colony forming unit (CFU) respectively, while Group 4 served as a control. Post-mortem examination was conducted and gross lesions were observed. Tissue samples were collected for molecular detection and histo-pathological processing. All mice from the challenged groups showed almost no significant ($P>0.05$) clinical signs. Evidently, the severity of histo-pathological lesions in various organs was significantly high in groups 2 and 3. Through polymerase chain reaction detection (PCR), P. multocida type B: 2 was detected in all the experimental groups. Overall, the oral inoculation of mice at different doses of P. multocida type B: 2 results in clinical signs and histopathological lesions of haemorrhagic septicaemia infection.

Keyword: Haemorrhagic septicaemia; Pasteurella multocida type B; Mice; Histopathology; Lesions; Polymerase chain reaction (PCR); Dose dependent