Accuracy of clinical examination and field tests for diagnosis of traumatic reticulo-peritonitis in cattle: a preliminary study

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Traumatic reticulo-peritonitis (TRP) is a common disease that affects mainly adult cattle. The affection is induced by ingestion of foreign bodies that migrate in reticulum and cause perforations leading to local abdominal peritonitis or pericarditis. Appeal signs are hyperthermia, anorexia, a weight loss or a drop in milk production. The clinical diagnosis of TRP is difficult because clinical signs are not pathognomonic and further tests are needed. The aim of this study was to evaluate the accuracy of clinical examination and field ancillary exams for diagnosing TRP.

Adult cattle referred for suspicion of TRP were examined. Individual data including anamnesis, clinical examinations and results of reticular grunt tests (RGT: “boots test”, “withers test” and “stick test”) were collected. Glutaraldehyde-test (Glutal) on fresh whole blood, and ultrasonography (US: with linear-5MHz-probe) of the rumen-reticulum junction were performed. Clinical examination and results of RGT were further defined as “clinical signs”. Glutal was considered as positive with a coagulation time below 3 minutes. US was qualified as positive if there was a decreased reticulum motility and/or any hetero-echogenic picture in the area of rumen-reticulum junction (showing abscess or local peritonitis). Final diagnosis was established by surgery or necropsy (gold standard). Cases were assigned into 2 groups: confirmed TRP-cases (A) and not-TRP-cases (B). Accuracy of diagnosis was given for clinical signs, Glutal and US using logistic regression and proc logistic procedures (SAS 9.1, SAS Institute. Inc., Cary, NC, USA) and contingence tables (Win Episcope 2.0).

Ninety-four adults bovine were included in the study whom 39 were TRP-confirmed. The other 55 composed the control population. No significant difference was found between groups A and B ($p>0.1$) regarding age, speculation type or lactation number. However, group A had a lower lactation stage (first 90 days of lactation), compared to group B ($p<0.05$). There was a significant difference, in favor of group A, between the two groups regarding the number of positive US ($p<0.001$), glutal ($p<0.05$), and RGT ($p<0.05$). In the frame of field tests TRP-diagnosis, “clinical signs” have a sensitivity (Se) and specificity (Sp) of 66% both (Youden’s index = 0.33). Glutal alone has a Se of 37% and a Sp of 31% (Youden’s index =-0.3) and US alone has Se of 97% and Sp of 61% (Youden’s index =0.58). The combination in serial of glutal and US tests decreases the Se (36%) and increases the Sp (73%).

The US associated with clinical examinations is the most accurate test for diagnosing TRP on the field. Clinical signs can be a first step for diagnosing TRP. However, RGT is subject to misinterpretation. This study underlines that glutal is an accurate test for inflammation, but is not able to discriminate the etiology of such process. This field trial also reveals the importance of US for non-reproductive diagnosis in cattle practice. Veterinary practitioners could improve their skills in abdominal ultrasonography, using, for example, rectal-5MHz-probe, classically available for reproduction follow-up in cattle herds in order to improve clinical diagnosis of foreign bodies.

Key words: traumatic reticulo-peritonitis, field tests, Glutaraldehyde-test, ultrasonography, foreign bodies

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