

Association of liver abscess with demographic factors, comorbidities and gastrointestinal histologic lesions in feedlot mortalities

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Introduction

Liver abscess (LA) is a major cause of hepatic condemnation in feedlot cattle. Due to antemortem limitations, risk factors are poorly characterized. Study objective was to identify associations of LA at necropsy with comorbidity/demographic factors and gastrointestinal histologic lesions in feedlot mortalities.

Materials and methods

Systematic necropsies ($n = 396$) were performed in the central U.S. (6 commercial feedyards; all of June/July). Gross pathology was determined by necropsy technicians and veterinarian. Formalin-fixed sections of rumen, small intestine and spiral colon were collected from LA cases ($n = 22$) and time-matched necropsies (no LA) from the same feedyard ($n = 22$). Demographic data including sex, days on feed at death, arrival weight, number of treatments, and diagnoses at treatment were added. Morphologic features were measured in gastrointestinal tissues using hematoxylin and eosin-stained digitally scanned slides (Aperio eSlide Manager). General and linear mixed-effects models were used to evaluate LA association with demographic/comorbidity factors and gastrointestinal morphologic differences between LA and control cases.

Results

Steers had greater probability of LA than heifers ($P = 0.02$). No other associations were observed with comorbidity/demographic factors. LA cattle had thinner ($P < 0.05$) rumen stratum granulosum and stratum basale, and narrower small intestine villi and crypts after controlling for demographic factors. LA cattle tended ($P < 0.08$) to have shallower small intestine crypts, but there were no differences in spiral colon morphology.

Significance

Sex was the only factor associated with LA of all demographic/comorbidity factors included. However, multiple histologic observations were significantly different in LA cattle compared to controls. Further investigation is required to better understand factors influencing LA formation in feedlot cattle.

