Incidence of liver abscess in feedlot mortalities during the feeding period and association with co-morbidity

Rachel Brown[1], Phillip Lancaster[1], Brad White[1], Paige Schmidt[1], Madeline Mancke[1], Makenna Jensen[1], Brandon Depenbusch[2]
[1]Beef Cattle Institute, Department of Clinical Sciences, College of Veterinary Medicine, Kansas State University, Manhattan, Kansas
[2]Innovative Livestock Services, Great Bend, KS

Introduction

The primary liver abnormality of feedlot cattle recorded at the time of slaughter is liver abscess (Brown & Lawrence, 2010). Liver abscesses have a negative economic impact in the feedlot cattle industry which is highly dependent on the severity of the abscesses (Amachawadi & Nagaraja, 2016). Despite this, liver abscesses are not well characterized throughout the feeding period.

Objectives and Hypotheses

- Evaluate frequency of liver abscesses in deceased feedlot cattle throughout the feeding period and associations with comorbidities and necropsy diagnosis
- We hypothesize that liver abscesses occur throughout the feeding period with a higher incidence in transition-period and late-day cattle and are strongly associated with gross gastrointestinal and lung lesions

Materials and Methods

- Data set included:
  - All mortalities within 12-24 hours of death with minimal autolysis from June 2 – July 21 at 6 central Kansas feed yards
  - All mortalities due to illness and euthanasia were included
- Systematic necropsies were performed on all mortalities
- Individual animal history records were obtained from the feed yard database

Gross Necropsy
Pathology
Primary Cause of Death
Liver Abscess Score

→

Individual History
Treatment Record
Arrival Date (DOF)
Arrival Weight

→

Final Dataset

Image 1

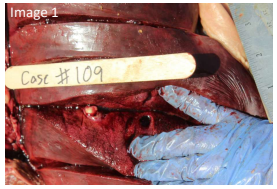


Image 2

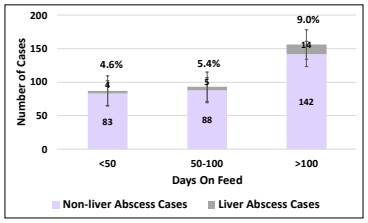
Abscess Scoring

- Liver abscesses were measured using Elanco's system: O, A, A+
- O: "No abscesses"
- A: "One or two small abscesses or up to 2-4 well-organized abscesses (generally under 1 inch in diameter) (Image 1)
- A+: 1 or more large abscesses (Image 2)

Results and Discussion

- Out of all necropsies performed (n= 336), 23 cases with liver abscesses were observed
- Liver abscesses occurred in mortalities throughout the feeding phase, however 9.0% of liver abscess cases were observed in cattle on feed for greater than 100 days (Fig. 1)
- 12.8% of the cases with arrival-weights from 227 - 317 kilograms had liver abscesses. This weight range had the largest percentage of liver abscess cases. (Fig. 2)
- There was no observed correlation between the occurrence of liver abscesses and primary cause of death (Fig 3)

Fig. 1. Prevalence of liver abscess cases out of all cases at <50, 50-100, and >100 days on feed.



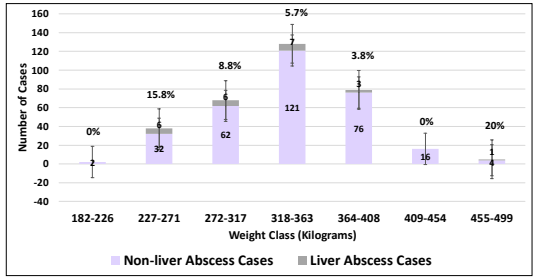


Fig. 2. Prevalence of liver abscess cases within lot average arrival-weight categories.

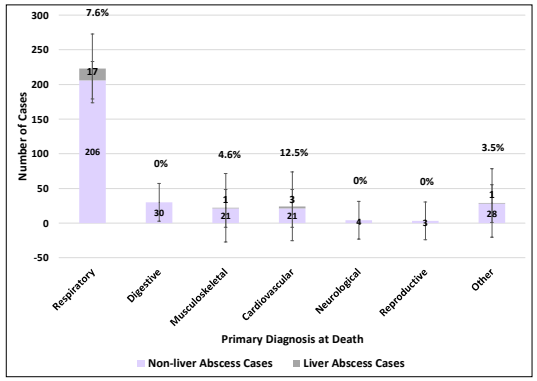
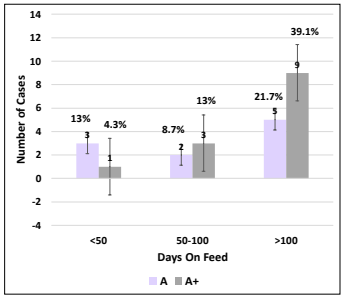


Fig. 3. Primary cause of death of liver abscess cases in various categories: Respiratory, Digestive, Musculoskeletal, Cardiovascular, Neurological, Reproductive, and Other.

- No cases with rumenitis (n = 92) or gastrointestinal lesions (n = 16) were also noted to have liver abscesses.
- Of the liver abscess cases treated prior to death (n=17):
  - 11 were diagnosed at treatment as bronchopneumonia
  - 1 was diagnosed as gastrointestinal disease
  - 5 were diagnosed as other
- Of all liver abscess cases (n=23), 6 received no treatments prior to death, 5 were treated once, 5 were treated twice, 3 were treated 3 times, and 4 were treated >3 times.

Fig. 4. Liver abscess cases within days on feed categories by liver abscess score.

https://cabcattle.com/on-target-the-growing-requirements/



Conclusions

- Findings of this study indicate liver abscesses
  - Primarily occur after 100 days on feed
  - Are not strongly associated with comorbidities including gastrointestinal lesions
- This study's sample of liver abscesses is biased since only feedlot mortalities were included instead of all cattle during the 6-week period
- Studies to better understand liver abscesses, such as this one, have the potential to improve feedlot cattle health

Acknowledgements

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References

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