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Large colon torsion in the horse

Risk factors for large colon torsion and survival following surgical treatment of this potentially fatal disease

CS:019

Investigating large colon torsion in the horse

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- HBLB Clinical Scholarship reference number: VET/CS/019

Reasons for performing this research: colic

- Colic is a major cause of mortality in the horse, with significant economic and welfare implications
- Colic, or abdominal pain, is most commonly due to gastrointestinal disease
- Torsion (twist) of the large colon is one of the most painful and rapidly fatal causes of colic in the horse, accounting for >15% of cases that require surgery for colic

Reasons for performing this research: the colon

- The equine large colon (intestine) is a large 'U'-shaped organ, 3 to 3.7 metres in length, with a capacity of over 100 litres
- The colon is mobile – it can twist on itself up to 180° without a problem
- If the twist is over 270° , it cuts off its own blood supply, the colon rapidly degenerates allowing large amounts of toxins into the horse's circulation

Reasons for performing this research: colon torsion

- Because toxins are released from the damaged intestine, the horse can remain in life-threatening toxic shock when the colon is untwisted or removed at surgery
- The condition is common in Thoroughbred (TB) broodmares
- There is a lack of information on factors that increase or decrease the risk of a horse suffering from LCT and on survival of horses following surgical treatment

Aims and Objectives

- Aims: To investigate LCT in the horse, with three main objectives:

  1) *To describe long-term survival in horses after LCT*
  2) *To identify pre-, intra- and post-operative factors associated with survival*
  3) *To identify factors that increase or decrease the risk of a horse getting a LCT*

- To achieve these objectives, two studies were undertaken in the UK

Study One: Survival of horses after LCT
Methods

- All horses that had surgery for a LCT at the University of Liverpool over a 10 year period were included in this study

- Information was obtained about these horses using hospital records and from telephone questionnaires with owners or trainers after discharge of the horses from the hospital

Study One: Survival of horses after LCT
Results

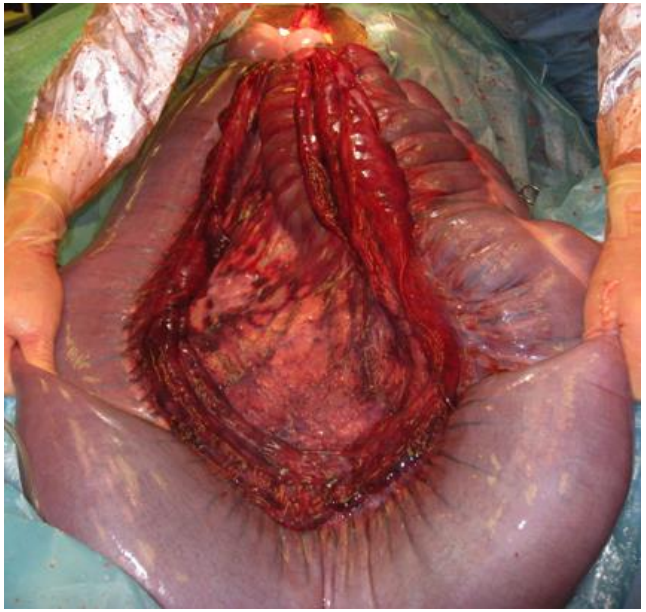
Of the 116 horses included in the study:

- **77%** (89 horses) survived the initial surgery
- These 89 horses had a median survival time of only **365 days**:
- **71%** survived until discharge from the hospital
- **48%** survived to one year after surgery
- **34%** survived to two years after surgery

Study One:

Factors associated with reduced length of survival:

- The level of loss of fluid from the blood stream of the horse on hospital admission
- Abnormal colour of the colon at surgery
- Heart rate at 48 hours following surgery
- Further colic after surgery during the hospital stay



Study Two:
Risk factors for LCT
Methods

- Over two-years, 70 cases of LCT and over 200 randomly selected control (normal) horses were recruited from four large British equine hospitals.

- For each of these horses, a telephone questionnaire was completed with the owner or trainer of the horse, with questions on the horse and its management.

- Information collected included the horse's size, type and use, its medical history, breeding history, stabling and turnout, diet, exercise, behaviour and preventive health care.

Study Two:
Results: brood mares are at risk

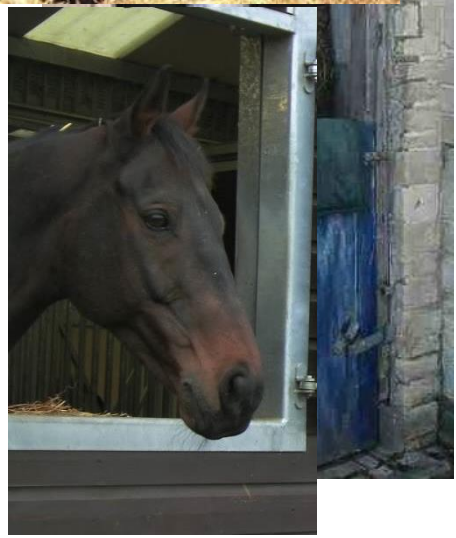
- **Broodmares** were around 13 times more likely to develop LCT than geldings and stallions
- The majority of cases of LCT in broodmares occurred in the three month period after foaling

Study Two:
Results: increasing size is a risk factor

- **Taller horses** were also at increased risk – a 17hh horse was around 8 times more likely to suffer from a LCT than a 13.2hh pony

Study Two:
Risk factors for LCT

- **Horses with a history of multiple colic episodes** in the last year were around 9 times more likely to develop LCT compared to horses that had not
- **Horses who had an increase in the duration they were stabled in the previous 2 weeks** were also found to be at greater risk



Study Two:
Results: link with dental problems?

- **Horses that exhibited quidding behaviour** were 8 times more likely to develop LCT compared to horses that did not
- Quidding, (dropping feed when eating), is normally the result of dental problems, such as sharp enamel points or diastemata (gaps) between the teeth

Study Two:
Results: management factors and LCT

- **Horses with 3 or more carers** were found to be at increased risk
- **Increased numbers of horses on a premises** was associated with increased likelihood of LCT
- **Medication** (excluding a routine wormer) **in the previous 7 days** increased the risk

Study Two:
Dietary Risk factors for LCT

- A **recent change in pasture** and a **recent change in the amount of hay or haylage** increased the risk of LCT
- **Horses fed sugar-beet** were more likely to get LCT

Study Two:
Risk factors for LCT
Conclusions and impact

- This is the first major investigation into risk factors for LCT in the horse
- Information can be used to identify high risk individuals
- We identified some factors which could be altered in these individuals with the aim of reducing the incidence of LCT

What are the Factors that could be modified in 'at risk' horses?

- Maximise turnout
- Avoid sudden increases in the duration of stabling
- Provide regular, quality dental care
- Avoid sudden changes in the amount of hay or haylage a horse is fed
- Avoid feeding sugarbeet
- Minimise the number of horses on a premises or manage horses in smaller groups
- Minimise the number of people involved in a particular horse's care
- Make changes to a horse's management and diet gradually

Relevance to the Thoroughbred

- This study is of particular relevance to the Thoroughbred breeding industry
- It has improved our ability to predict survival in TB broodmares with LCT
- It confirmed previous suspicions that TB broodmares are at increased risk of this disease
- A number of management practices, which might be modified, in attempt to reduce the incidence of LCT in the TB have been identified