A Study of Spontaneous Equine Abortions and Stillbirths Submitted to the VMDL of University of Missouri

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RESEARCH OBJECTIVES
- To review the main causes of spontaneous equine abortions and stillbirths submitted to the Veterinary Medical Diagnostic Laboratory of University of Missouri (MU VMDL) between 2005 and 2014.
- To elucidate a possible cause for abortions and stillbirths originally categorized as having an unknown etiology.

BACKGROUND
- Abortion is defined as fetal loss before 300 days of gestation, and delivery of a dead foal after 300 days is denoted as a stillbirth.
- Equine abortions and stillbirths have a significant economic impact.
- The causes of abortions and stillbirths in horses are often hard to be confirmed.
- Knowledge of potential etiologies of abortions and stillbirths is a prerequisite for effective prevention and reproductive management.

Common infectious etiologies
- Bacterial: Escherichia coli, Streptococcus equisimilis, Salmonella spp., Klebsiella pneumonia, Pseudomonas aeruginosa
- Viral: Equine herpesvirus (EHV-1 & EHV-4), Equine arteritis virus

Common non-infectious etiologies
- Umbilical cord torsion
- Twins
- Trauma
- Fescue toxicosis
- Body pregnancy
- Placental insufficiency
- Congenital anomalies
- Premature placental separation

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Materials and Methods

MATERIALS AND METHODS
Summary of steps to review diagnostic results
This study was based on 100 submissions of abortions and stillbirths of necropsies (n=71) and fresh and fixed tissues (n=29) reported in the Universal Veterinary Information System (UVIS) database.

RESUMO

RESUL TS

RESULTS

Figure 1: Gestational age was only provided in 31 aborted fetuses and stillborn foals.

Common infectious etiologies
- Bacterial: Escherichia coli
- Streptococcus equisimilis
- Salmonella spp.
- Klebsiella pneumonia
- Pseudomonas aeruginosa

Common non-infectious etiologies
- Umbilical cord torsion
- Twins
- Trauma
- Fescue toxicosis
- Body pregnancy
- Placental insufficiency
- Congenital anomalies
- Premature placental separation

CONCLUSIONS

Figure 2: Month of equine abortions and stillbirths received between 2005 and 2014.

Figure 3: Upon initial review of the UVIS spreadsheet, a confirmed etiology was reported in 41 cases, a highly suspected etiology in 37 cases, and an unknown etiology in 22 cases.

Take-home points
- Careful review of UVIS database elucidated a confirmed or highly suspected cause of abortions and stillbirths in an additional 22% of the cases reviewed.
- Infectious etiologies were most often reported as the causes of the spontaneous equine abortions and stillbirths submitted to the MU VMDL.
- HOWEVER, twins, the cause of most non-infectious spontaneous equine abortions and stillbirths will be underrepresented in a review of diagnostic laboratory submissions.

Table: Summary of definitive and highly suspected etiologies

- Infectious (59)
  - Fungal: Aspergillus spp. (1), Mucor spp. (1), Absidia spp. (1), Fusarium (1)
  - Bacterial: Leptospira spp. (7), Streptococcus equisimilis (17)
  - Viral: EHV-1 (37), EHV-4 (1)

- Non-infectious (4)
  - Twins (1)
  - Umbilical cord torsion (1)
  - Trauma (1)
  - Fescue toxicosis (1)

Figure 4: The infectious causes were the most diagnosed etiologies. Only 4 non-infectious abortions were reported. However, most abortions associated with twins would not be submitted for necropsy, and no etiology was suggested in the remaining 37 cases.