Endometrial Microbial Isolates Are Associated With Different Ultrasonographic and Endometrial Cytology Findings in Thoroughbred Mares

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β-hemolytic Streptococcus and Klebsiella species were more commonly associated with intrauterine fluid and cytological inflammation than isolation of E. coli and other gram-negative organisms. Authors’ addresses: Rood and Riddle Equine Hospital, PO Box 12070, Lexington, Kentucky 40580-2070 (Burleson, LeBlanc, and Riddle); and Southwest Florida Research and Education Center, 2685 SR 29 N, Immokalee, Florida 34142 (Hendricks); e-mail: modesty@burlesonfarms.com. © 2010 AAEP.

1. Introduction
This study was performed to determine whether ultrasonographic and cytologic findings differed based on microbial pathogens isolated from the uterus of Thoroughbred mares during estrus.

2. Materials and Methods
Cytologic and ultrasonographic findings from 410 Thoroughbred mares were compared with microorganisms isolated from 670 positive endometrial cultures (culture swab, n = 453; small volume flush, n = 217).

3. Results
β-hemolytic Streptococcus (189/670, 28.3%) and Escherichia (E). coli (138/670, 20.5%) were isolated most frequently from uterine samples of mares. Mares with intrauterine fluid were 1.4 times more likely to have >5 neutrophils/field on cytologic specimens than those with no or mild fluid. Intrauterine fluid was more commonly seen when β-hemolytic Streptococcus (90/181), Klebsiella species (12/22), Enterobacter cloacae (6/14), or yeast (4/4) was isolated compared with E. coli (50/128), Staphylococcus aureus (20/63), Pseudomonas spp. (13/45), at least two cultured organisms (39/114), or non-pathogens (4/24). Forty-one percent (273/659) of cytologic specimens paired with a positive culture had >2 neutrophils/field. Mares positive for E. coli (57/136), Staphylococcus aureus (18/63), and Pseudomonas spp. (15/46) or at least two cultured organisms (43/119) had fewer cytology specimens with >2 neutrophils/field than mares positive for β-hemolytic Streptococcus (93/185) Klebsiella species (13/22), or yeast (5/7). Moderate to heavy debris was highly associated with E. coli (89/108), β-hemolytic Streptococcus (91/112), at least two cultured organisms (70/83), and yeast (4/4).

4. Discussion
Intrauterine fluid was associated with >5 neutrophils/field on cytology and not with isolation of specific microorganisms. However, intrauterine fluid and a cytology containing >2 neutrophils/field were more common when β-hemolytic Streptococcus were isolated than E. coli.