Streptococcus equi subsp. zooepidemicus isolates from infectious endometritis belong to a distinct genetic group as assessed by pulsed-field gel electrophoresis

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Streptococcus equi subsp. zooepidemicus (S. zooepidemicus) is the most frequently isolated pathogen from the uterus of the mare. S. zooepidemicus is an opportunistic pathogen and a part of the resident flora of the caudal reproductive tract. The aim of the study was to genotype and compare S. zooepidemicus strains from the uterus of mares with endometritis with isolates from the vagina and fossa clitoridis using pulsed-field gel electrophoresis (PFGE).

The mares (n=29) included in the study were of different breeds and aged three to 25 years. Mares with (n=18) or without (n=11) clinical signs of endometritis were included. Uterine samples were collected using a guarded endometrial biopsy punch (Equi-vet®, Kruuse, Marslev, Denmark). A double-guarded swab (Kruuse) was used to recover samples from the cranial vagina and samples from the fossa clitoridis were collected using a sterile swab (BBL™ CultureSwab™, BD, Franklin Lakes, NJ). Samples were incubated on blood agar at 37°C for 24 hours. Only pure cultures (≥90% of all colonies) from the uterine and vaginal swabs were included in this study. If S. zooepidemicus was present, up to three colonies were selected from each anatomical location (maximum nine samples per mare). The bacterial isolates were characterized by PFGE using the smal restriction enzyme (New England Biolabs Inc., Ipswich, MA).

In 12 mares S. zooepidemicus was isolated from the endometrium. A total of 88 S. zooepidemicus isolates were analyzed, 31 from the endometrium, 26 from the cranial vagina, and 31 isolates from the fossa clitoridis. Analysis of the individual banding patterns demonstrated a genetic similarity of the S. zooepidemicus isolates obtained from infectious endometritis, which was different from the group of isolates obtained from the caudal reproductive tract. In conclusion the study indicates that a particular genetically distinct group of S. zooepidemicus is associated infectious endometritis in the mare.

Keywords: Endometritis, mare, Streptococcus, pulsed-field gel electrophoresis