Results of bacteriological and cytological examinations of the endometrium of mares in a practice in Denmark and in Central Kentucky, USA.

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Since endometrial cytology was first described as a diagnostic aid in evaluating potential endometrial inflammation[1] , it has become a routine tool in clinical equine reproduction. The presence of polymorphnucleated leucocytes (PMNs), indicating uterine inflammation, can be identified by light microscopy and decisions in regards to the reproductive management of the mare can be made instantly, without having to wait for culture results.

The objective of this study was to compare results of endometrial cytology and bacteriology from samples obtained at two practices, in Kentucky, USA and in Denmark. Samples from the endometrium were obtained by endometrial swabs in the Kentucky practice (n=550 samples), and by endometrial biopsy in the Danish practice (n=352). Results of bacteriological and cytological examination from the two practices were compared.

A higher proportion of culture negative, but cytology positive samples were found in the practice using endometrial swabs (26%) versus biopsies (3 %), ($P<0.0001$). In both practices, when *E.Coli* was isolated, a positive cytology sample was less likely to be identified, than if other bacterial species were isolated. This observation was statistically significant in samples obtained both in Kentucky ($P<0,05$) and in Denmark ($P<0.0001$). The significant higher number of culture negative, but cytology positive samples found using endometrial swabs compared to biopsies could not be explained by a difference in the standards between the two laboratories in diagnosing a positive sample. A more plausible explanation for the observed difference is a higher sensitivity in detecting bacteria from endometrial biopsies compared to swabs samples. This has previously been described.[2].

When bacteria other than *E. Coli* were cultured, it was often paralleled by a positive cytology. It could be speculated, if different species of bacteria are causing different inflammatory response in the endometrium of the mare. This observation is supported by a recent work by Bindslev *et al* [3] who documented that it was less likely to find PMN´s in a cytology sample, when *E. Coli* was cultured, compared to if *Strep Equi* spp. *Zooepidemicus* was cultured.

but gram negatives with more tenacious secretions. Extracellular products of some bacteria may thus alter the rheological properties of mucus, rendering cilia unable to propel uterine exudate.