112 Presence of bacteria in the endometrium and oviduct of cows with pyometra as detected by flourescence in situ hybridization - DTU Orbit (08/11/2017)

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The objective of the study was to identify the location of the present bacteria in the uterus and oviducts of cows with pyometra. Pyometra is one of the postpartum infectious diseases in cattle that can result in infertility and thereby affect reproduction performance. Reproductive tracts (n = 21) were collected at a slaughterhouse in Denmark and send to The University of Copenhagen for examination and sampling. The uteri were included in the study when the following criteria were met: the cow was more than 21 days postpartum, the uterus was distended with pus, the cervix was closed, and a corpus luteum was present in one or both ovaries. A full thickness uterine tissue sample from the previous pregnant horn and both oviducts were sampled and then fixed in formalin. The tissues were trimmed, processed by routine methods, embedded in paraffin, sectioned at 3 microns, and prepared for fluorescence in situ hybridization using a probe targeting the 16S ribosomal RNA of the domain bacteria (i.e. targeting all bacteria regardless of species). Using fluorescence microscopy, the presence of bacteria within or on the surface of the endometrium and in the oviducts were noted. The endometrial biopsies from all cows (n = 21) contained bacteria, while 75% (16/21) of the cows had bacteria in one or both oviducts. The bacteria were located on the luminal surface and in the lamina propria in 38.1% (8/21) of the uterine biopsies. In the remaining 62% of the uterine biopsies, the bacteria were only located above the basal membrane. Regarding the oviduct biopsies, the bacteria were located on the luminal surface and in lamina propria in 9.5% (2/21) of the biopsies, whereas the bacteria were located only above the basal membrane in 90.5% of the biopsies. In conclusion, 1) bacteria are present in the uteri and oviducts of cows with pyometra and 2) the bacteria are primarily located on the luminal epithelia surface above the basal membrane. Further analyses will investigate which specific species of bacteria that are located in the lamina propria of the uterine and oviduct biopsies.

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