Bacterial invasion of the uterus and oviducts in bovine pyometra

Pyometra is a common disease of cattle that causes infertility and thereby financial losses to the cattle industry. Bacteria involved in the development and progression of pyometra have been investigated by microbial culture but their tissue invading abilities, which is an important aspect of bacterial pathogenicity and development of lesions, have not been investigated. Bacterial invasion of the uterus and oviducts was studied in 21 cows diagnosed with pyometra at the time of slaughter by applying fluorescence in situ hybridization using probes targeting 16S ribosomal RNA of Fusobacterium necrophorum, Porphyromonas levii, Trueperella pyogenes and the overall bacterial domain Bacteria. Fusobacterium necrophorum and P. levii were found to invade the endometrium, especially if the endometrium was ulcerated, and penetrated deep into the lamina propria. These species co-localized within the tissue thus indicating a synergism. Trueperella pyogenes did not invade the uterine tissue. In addition to endometrial lesions, most cows with pyometra also had salpingitis but without significant bacterial invasion of the oviductal wall.

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