Colonization of the bovine uterus by Candida kefyr - DTU Orbit (13/04/2019)

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Background. While fungal infections of the bovine uterus are well-known diseases in pregnant cattle, very limited knowledge exists on the presence and significance of fungi in the uterus of non-pregnant cows. Presence of fungi in the uterine lumen of postpartum (pp) cows has been reported, but little attention has been paid to this as most studies of the bovine pp uterus have focused on bacteria. Case presentation. Microscopy of uterine lavage cytology slides of three cows from one herd revealed the presence of numerous yeast-like organisms, which were located either free in the fluid or within macrophages. Two of the cows were around 30 days pp, while the third was 7 months pp. None of the cows had been treated with antibiotics. Culturing of the flush samples was unsuccessful, but Sanger sequencing of DNA extracted from an endometrial biopsy of one of the cows revealed the presence of Candida kefyr (Kluyveromyces marxianus). Fluorescence in situ hybridization examination of endometrial tissue sections of two cows using probes targeting 18S rRNA of the K. marxianus group was performed and revealed the presence of yeast cells on the endometrium. Histology was performed and demonstrated hyphal and non-hyphal yeast-like organisms on the surface of endometrium and in the crypts. Tissue invasion was restricted to the superficial part of the epithelium and although endometrial inflammation was present, this was mild and considered as not being caused by the fungi. One of the cows became pregnant and delivered a normal calf at term, while the two others were not bred. Conclusions. Candida kefyr is commonly isolated from milk of cows with mastitis, but has not been reported in association with other diseases of cattle. The infection was present as a monoculture in all three cows, but the fungi had only colonized the uterine lumen and the endometrial surface. Only a mild non-suppurative endometrial inflammation was present, but within the uterine luminal content, many macrophages having phagocytized yeast cells were present. Re-examination of the cows did not reveal a persistent infection, so the infection probably resolved spontaneously.

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