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Your Abstract

Detection of polytreponemal infection in three cases of porcine ulcerative stomatitis by Fluorescent in situ hybridization

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Introduction: Ulcerative and fibrino-necrotizing stomatitis is occasionally reported in pigs. The etiology is unknown but spirochetes are observed in silver stained sections, however, the spirochetes have never been identified. The aim of this study was to report three cases of fibrino-necrotizing stomatitis associated with polytreponemal infection.

Materials and Methods: Tissue samples from the oral cavity of three sows euthanized due to ulcerative stomatitis, ulcerative vaginitis and Mortellaro-like alterations of the feet were fixed in formalin, paraffin embedded and sectioned for H&E and serial fluorescent in situ hybridization (FISH) for identification of spirochetes with genus and species specific oligonucleotide probes targeting 16S or 23S ribosomal RNA. The presence of *Fusobacterium necrophorum* and *Domain Bacteria* was additionally detected by FISH.

Results: Diffuse fibrino-necrotizing infection affecting the epidermis and dermis of the entire oral cavity was found in all sows. By FISH all lesions showed severe bacterial infiltration with a strong predominance of spirochetes. Additional hybridization revealed that the spirochetes all belonged to genus *Treponema*. Neither, *Brachyspira*, *Borrelia*, nor *Leptospira* organisms were detected. Further identification of the spirochetes showed intermingled infection with *Treponema pedis*, *Treponema putidum* and up to eight other *Treponema* species/phylotypes. Low numbers of *F. necrophorum* was also detected but only the treponemes were infiltrating deep into the lesions to the borderline between damaged and vital tissue.

Discussion: Using a panel of genus specific probes this is the first study identifying the involvement of *Treponema spp.* in porcine ulcerative stomatitis. All three sows revealed polytreponemal infections with *Treponema* species/phylotypes commonly associated with bovine digital dermatitis and human periodontal disease.