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Neglected zoonotic agents in cattle abortion: Molecular and serological screening of difficult to grow bacteria

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Coxiella burnetii, Chlamydia abortus and Leptospira spp., are three agents that may lead to bovine abortion. The importance of these difficult to grow zoonotic bacterial pathogens lies in significant economic loss in animal production and the public health risk, at least in endemic countries. Routine bacteriological diagnostics of abortion in cattle in Switzerland is regulated by law including screening by serology and staining. However, only few infectious agents are examined using molecular approaches due to the high costs associated with extended analyses. In the present work, we used both serological and molecular methods to assess the possible role of these pathogens in bovine abortion. From 249 studied bovine abortion events, 242 placenta samples, 57 fetal abomasal content and 182 sera were taken from mother cows. The seroprevalence was 15.93%, 38.46% and 21.43% for *C. burnetii* (ELISA), *C. abortus* (ELISA) and pathogenic *Leptospira* spp. (microscopic agglutination test), respectively. Using specific real time PCR, the prevalence of *C. burnetii*, *Chlamydia* and pathogenic *Leptospira* spp., were of 12.15%, 16.87% and 8.24%, respectively. After direct sequencing of Chlamydiales positive samples, we identified *C. abortus* in 8.84% of the cases and probable infection with *Chlamydia*-related bacteria in 5.22% of the cases. Altogether, routine abortion diagnostics did not detect a possible bacterial agent in 96 cases. Extending the spectrum of analysis could assign at least one possible abortive agent in 39 more cases. In conclusion, diagnostic approaches enabling the detection of *C. burnetii*, *C. abortus* and *Leptospira* spp., should be used more commonly due to their zoonotic potential.

Biography

Sara Vidal Lopez has completed her MS in Molecular Biology from University of Malaga, Spain where she has worked for 3 years in the Department of Microbiology, Faculty of Science. Since 2014 she is a PhD student in the Institute of Veterinary Bacteriology, Vetsuisse Faculty, University of Bern, Switzerland.

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