Infectious agents identified by real-time PCR, serology and bacteriology in blood and peritoneal exudate samples of cows affected by parietal fibrinous peritonitis after caesarean section

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Abstract: The aim of the current study was to identify the pathogens that are potentially involved in parietal fibrinous peritonitis (PFP). PFP is a relatively common complication of cattle celiotomy, characterized by an accumulation of exudate in a fibrinous capsule within the abdominal or pelvic cavity; its aetiology is poorly understood.

We have studied 72 cases of PFP, confirmed by a standard diagnostic protocol. Blood were collected to evaluate the presence of antibodies for *Mycoplasma bovis* (*M. bovis*), *Coxiella burnetii* (*C. burnetii*) and *Bovine Herpesvirus 4* (*BoHV4*) by enzyme-linked immunosorbent assays. Peritoneal exudate samples were obtained from the PFP cavity to perform bacteriological culture, and to identify the DNA of *M. bovis*, *C. burnetii* and *BoHV4* using real time polymerase chain reaction (qPCR).

Bacteriological culture was positive in most of peritoneal samples (59/72); *Trueperella pyogenes* (*T. pyogenes*) (51/72) and *Escherichia coli* (*E. coli*) (20/72) were the most frequently identified. For *BoHV4*, the majority of cows showed a positive serology and qPCR result (56/72 and 49/72, respectively), in contrast to *M. bovis* (17/72 and 6/72, respectively) and *C. burnetii* (15/72 and 6/72, respectively), who were less frequently detected ($p<0.0001$).

Our study proves that PFP can no longer be qualified as a sterile inflammation, since most PFP samples yielded a positive bacteriology and qPCR. Moreover, we herein describe the first identification of BoHV4 and C. burnetii in cows affected by PFP. The exact role of these germs in the pathogenesis of PFP is not yet elucidated and requires further studies