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

Djebala S., Evrard J., Gregoire F., Thiry D., Bayrou C., Moula N., Sartelet A., Bossaert P.

Bovine Clinic, Sustainable Livestock Production, FARAH
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

**Introduction**

A new predilection site of *Mycoplasma bovis*: Post-surgical seromas in beef cattle

L. Gille, P. Pilo, B.R. Valgaeren, L. Van Driessche, H. Van Loo, M. Bodmer, S. Bürki, F. Boyen, F. Haebebruck, P. Deprez, B. Pardon

1 Department of Large Animal Internal Medicine, Faculty of Veterinary Medicine, Ghent University, Sint-Katelijneplein 133, 9000 Gent, Belgium
2 Department of Infectious Diseases and Pathobiology, Institute of Veterinary Bacteriology, 122 Langeminesse, Postbus 4466, 1800 Merial, Switzerland
3 Animal Health Service Haelen, DCI Vlaanderen, Dikke Heurne, 9031 Diest, Belgium
4 Department of Clinical Veterinary Medicine, Clinic for Anatomy, Veterinary Faculty, University of Bern, Biologiestrasse 109A, 3001 Bern, Switzerland
5 Department of Pathology, Bacteriology and Avian Diseases, Faculty of Veterinary Medicine, Ghent University, Sint-Katelijneplein 133, 9000 Gent, Belgium

**Comparison between generalised peritonitis and parietal fibrinous peritonitis in cows after caesarean section**

Salem Djebala, Julien Evrard, Nassim Moula, Arnaud Sartelet, Philippe Bossaert

Atypical case of parietal fibrinous peritonitis in a Belgian Blue heifer without a history of laparotomy

Salem Djebala, Julien Evrard, Nassim Moula, Arnaud Sartelet, Philippe Bossaert

SUMMARY

A 19-month-old Belgian Blue heifer was referred to the Veterinary Clinic of Liege University. The heifer was 2 months pregnant by insemination and presented hyperthermia, anaemia and weight loss. Rectal palpation revealed a large, depressed abdominal mass. Diagnosis of parietal fibrinous peritonitis (PFP) was made by ultrasound, revealing a solid and fibrin filled University of Liege. The heifer had undergone an artificial insemination (AI) 2 months before and had been confirmed pregnant by ultrasonic examination. After that, the heifer had shown a gradual reduction of feed intake, increasing symptoms of abdominal pain and hyperthermia. The referring veterinarians had treated the heifer intravenously with a non-steroidal anti-inflammatory
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

Material and methods

qPCR + serology
(BoHV4, M. Bovis, C. burnetii) + bacteriology
Results and discussion

**Results of bacteriological culture** in peritoneal exudate samples, with specific focus on the 51 positive samples for *T. pyogenes* and 20 positive samples for *E. coli*.
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

Results and discussion

A) **Results of qPCR** in peritoneal exudate samples, with a specific focus on the 49 positive samples for *BoHV4*.

B) **Results of ELISA** in blood samples, with specific focus on the 56 positive samples for *BoHV4*.
Combined results of ELISA (blood Samples) and qPCR (peritoneal sample) for *BoHV4*, *C. burnetii* and *M. bovis* in the 72 cows affected by parietal fibrinous peritonitis.

| Results of qPCR and ELISA of the three searched germs | qPCR         |
|------------------------------------------------------|-------------|
|                                                      | Positive   | Negative   |
| **Bovine Herpesvirus 4**                             |            |            |
| ELISA                                                | Positive   | 45          | 11          |
|                                                      | Negative   | 4           | 12          |
| **Coxiella burnetii**                                |            |            |
| ELISA                                                | Positive   | 2           | 13          |
|                                                      | Negative   | 4           | 53          |
| **Mycoplasma bovis**                                 |            |            |
| ELISA                                                | Positive   | 3           | 14          |
|                                                      | Negative   | 3           | 52          |
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.

Results and discussion

Relation between ELISA and qPCR of *BoHV4* with the bacterial culture results.
Conclusion

- Parietal fibrinous peritonitis (PFP) can no longer be considered as a sterile process.

- Our study confirms previous reports of *M. bovis* in the peritoneal fluid of cows

- PFP is a new target sites for *BoHV4, C. burnetii* and other bacterial species

- The origin of the identified germs endogenous and exogenous contaminations of CS or due to the haematogenous spread.

- The exact role in these germs in the pathogenesis of PFP cannot be concluded, it requires further studies.
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

Article

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

Salem Djebara 1,*, Julien Evrard 2, Fabien Gregoire 2, Damien Thiry 3, Calixte Bayrou 1, Nassim Moula 4, Arnaud Sartelet 1 and Philippe Bossaert 1

1 Clinical Department of Ruminants, University of Liège, Quartier Vallée 2, Avenue de Cureghem 7A-7D, 4000 Liège, Belgium; Calixte.Bayrou@uliege.be (C.B.); asartelet@uliege.be (A.S.); p.bossaert@uliege.be (P.B.)
2 Gestion et Prévention de Santé, Regional Association of Health and Animal Identification, Allée des Artisans 2, 5590 Ciney, Belgium; julien.evrard@arsia.be (J.E.); fabien.gregoire@arsia.be (F.G.)
3 Bacteriology, Department of Infectious and Parasitic Diseases, University of Liège, Quartier Vallée 2, Avenue Cureghem 6, B-4000 Liège, Belgium; damien.thiry@uliege.be
4 Department of Animal Production, University of Liège, Quartier Vallée 2, Avenue de Cureghem 6

Thank you for your attention