

Case reports - *Mannheimia haemolytica* in dairy cows.

Kirsten Stemme¹, Egon Thesing¹, Dirk Schäfer², Siegfried Marquardt³

INTRODUCTION

Mannheimia (M.) haemolytica is one of the most important pathogens of respiratory disease in young cattle (calves and feedlot cattle).

In recent years, however, cases of severe pneumonia caused by *M. haemolytica* in lactating dairy cows, have been reported.

OBJECTIVE

To raise awareness of this disease in dairy cows, the wide range of clinical symptoms and diagnostic as well as treatment options are discussed based on two German clinical cases.

MATERIALS AND METHODS

Case 1: dairy farm with 500 lactating cows

Increased number of deaths. When the veterinarian was consulted, five animals had already died, and more than 15 cows showed high fever and an increased respiratory rate. Cows of all ages and in different stages of lactation were affected. As a new silo had been opened preceding illness, *Clostridia* infection was suspected. Samples were taken from the affected animals for further diagnosis. One moribund cow was euthanized and sent to the state laboratory for postmortem examination (Fig. 2).

Case 2: dairy farm with 110 lactating cows

One cow showed unspecific symptoms (e.g. drop in milk production, anorexia, slightly elevated body temperature). As metal particles were found in the feed mixer acute traumatic reticuloperitonitis was diagnosed. In following days, 9 other cows fell ill with similar symptoms. One of them developed severe disease (recumbency, bloody nasal discharge) and was euthanized for postmortem examination. Three new heifers had entered the farm 12 days before.

M. haemolytica can infect dairy cows and cause severe economic losses due to substantial drop in milk production or even sudden death of diseased animals. Vaccination with Bovilis[®] Bovipast[®] RSP can protect a herd, especially if new animals are entering the farm regularly.



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RESULTS

Severe acute pneumonia was diagnosed on autopsy. *M. haemolytica* was detected in lung tissue as well as in other tissues and respiratory samples.

On farm 1 (Fig. 1), clinically healthy animals were vaccinated with Bovilis[®] Bovipast[®] RSP around 10 days after the first mortality case. A few days after the first vaccination, the disease was already beginning to subside. This quick effect might be due to paraimmune reactions. After the second vaccination 4 weeks later, no further disease or death were observed in the dairy cows.

On farm 2, paired serum samples were taken from all diseased cows and antibodies against BRSV, PI3-V, *Mycoplasma bovis* and *M. haemolytica* were measured. Only the titers of *M. haemolytica* antibodies showed an increase over time (Table 1).

FIGURE 1. Affected animals from farm 1.



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FIGURE 2. Lung of an affected animal from farm 1.



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TABLE 1. Serum antibody titers against BRSV, *M. haemolytica*, *M. bovis* and PI3-V (paired serum samples).

| Cow Number | ELISA-BRSV | | ELISA-MANH | | | ELISA-MB | | ELISA-PI3 | |
|------------|--------------------|--------------------|--------------------|--------------------|-------|------------|------------|------------|------------|
| | I | II | I | II | Δ log | I | II | I | II |
| | 31.10.2018 2Log | 29.11.2018 2Log | 31.10.2018 2Log | 29.11.2018 2Log | | 31.10.2018 | 29.11.2018 | 31.10.2018 | 29.11.2018 |
| 185 | <6.3 | <6.3 | 9.7 | 11.2 | 1.5 | NEG | NEG | ++ | ++ |
| 76 | <6.3 | <6.3 | 9.6 | 10.8 | 1.2 | NEG | NEG | ++ | +++ |
| 59 | 6.9 | 7.9 | 12.6 | >13.6 | >1 | NEG | NEG | + | + |
| 167 | <6.3 | <6.3 | 10.3 | 13.6 | 3.3 | NEG | NEG | ++++ | ++++ |
| 145 | 9.9 | 9.1 | 8.5 | >13.6 | >5.1 | NEG | POS | ++ | +++ |
| 147 | <6.3 | <6.3 | 9.5 | 13.2 | 3.7 | NEG | NEG | ++ | ++ |
| 68 | <6.3 | 7.0 | 7.2 | >13.6 | >6.4 | NEG | NEG | ++++ | +++ |
| 197 | <6.3 | <6.3 | 9.8 | >13.6 | >3.8 | NEG | NEG | +++ | ++++ |
| 111 | <6.3 | <6.3 | 11.3 | 11.7 | 0.4 | NEG | NEG | ++ | +++ |
| 87 | 6.5 | 7.6 | 9.0 | >13.6 | >4.6 | NEG | NEG | ++++ | ++++ |

AUTHORS' AFFILIATION

- MSD Animal Health, Unterschleißheim.
- Praxis Schäfer, Dörmitz.
- Tierarztpraxis Marquardt & Walter, Goch.