COMPLICATIONS ENCOUNTERED IN LETHAL EUROPEAN BABESIOSIS

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Introduction: Canine babesiosis is an important emerging vector-borne diseases of worldwide distribution. Reported pathologic findings of this disease include haemolytic anaemia with jaundice, bilirubin and haemoglobin deposition in tissues, splenomegaly, haemorrhages and pulmonary oedema. Here we report pathological findings so far not described in European canine babesiosis.

Materials and Methods: The study included 31 dogs that had died due to babesiosis, proven by the detection of merozoites within erythrocytes but not lymphocytes, in cytological (Fig. 1A) and histological specimens (Fig. 1B). In all dogs, leptospirosis was excluded by a microscopic agglutination test, and the most common bacterial infections were excluded with a Gram stain.

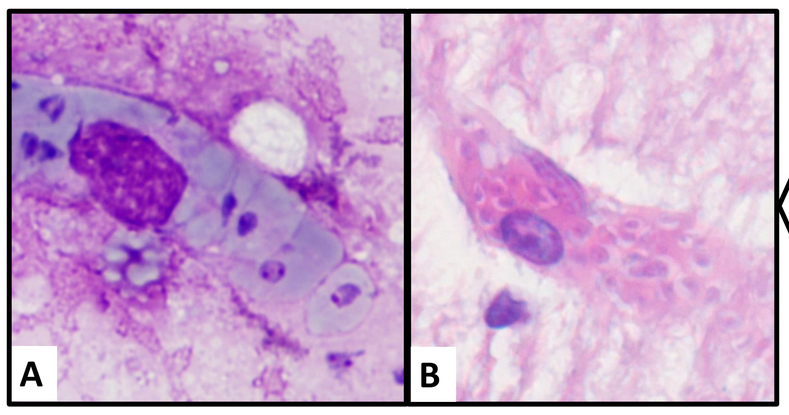


Fig. 1.
Intraerythrocytic *Babesia* merozoites.
A. brain imprint, May-Grünwald-Giemsa, objective magnification 100x.
B. blood vessel, brain, HE, 100x.

Results: All dogs showed signs of haemolytic disease, and eight dogs exhibited changes consistent with disseminated intravascular coagulation. Three dogs suffered from fibrinous pleuritis (Fig. 2A) accompanied by multifocal to confluent rhabdomyolysis of intercostal muscles (Fig. 2B), with intralesional vascular thrombi in one dog. Ten dogs showed severe alveolar oedema with alveolar haemorrhage (Fig. 3), and seven dogs exhibited a multifocal to coalescing, necrotic mixed cellular myocarditis (Fig. 4). Fibrinous peritonitis was seen in five dogs, in three of these this was accompanied by acute necrotic pancreatitis (Fig. 5).

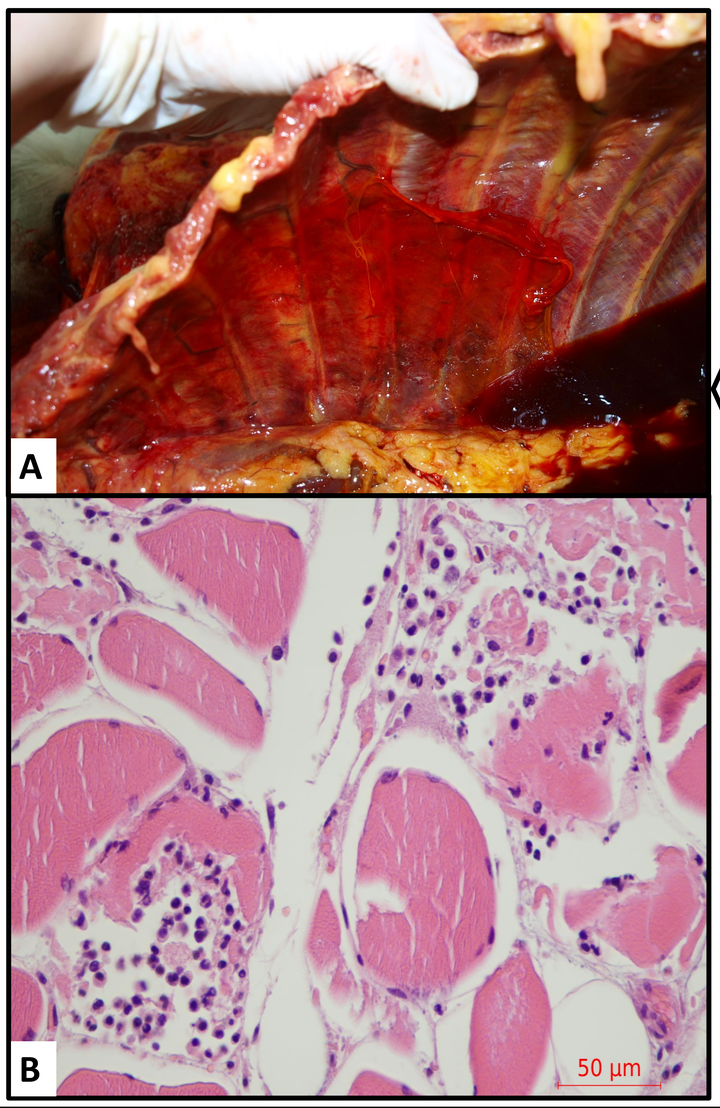


Fig. 2.
A. fibrinous pleuritis, with concurrent jaundice of pleural adipose tissue.
B. rhabdomyolysis of intercostal muscles with accompanying neutrophilic and histiocytic inflammation, same dog as A, HE, 40x.

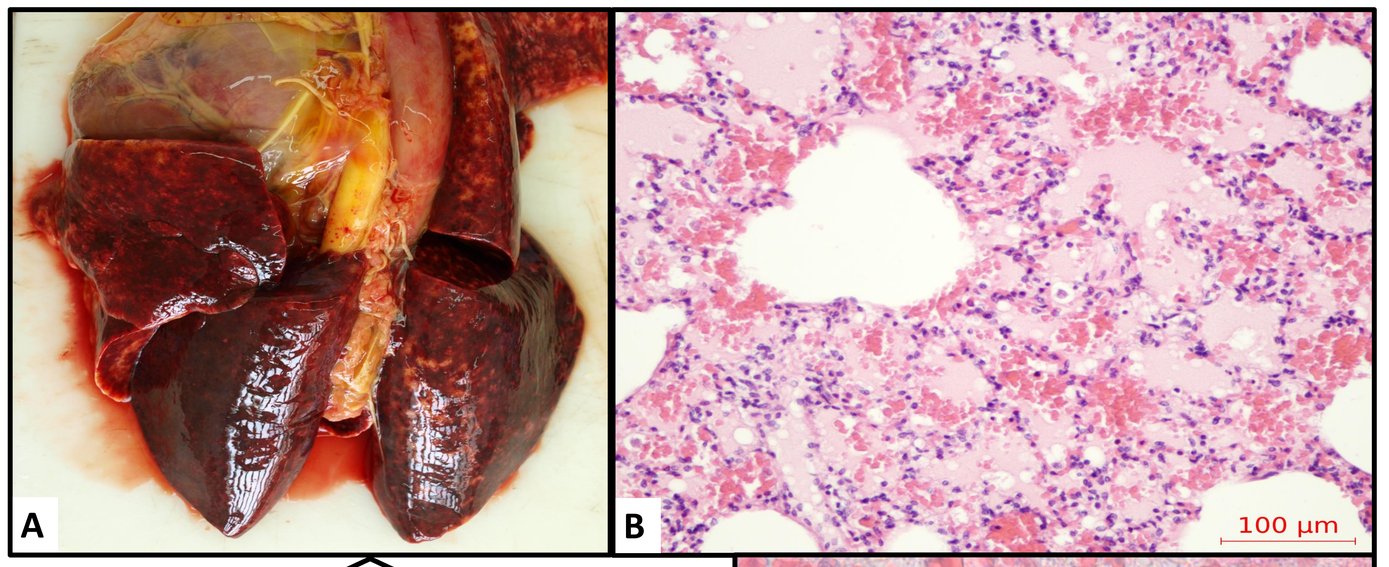
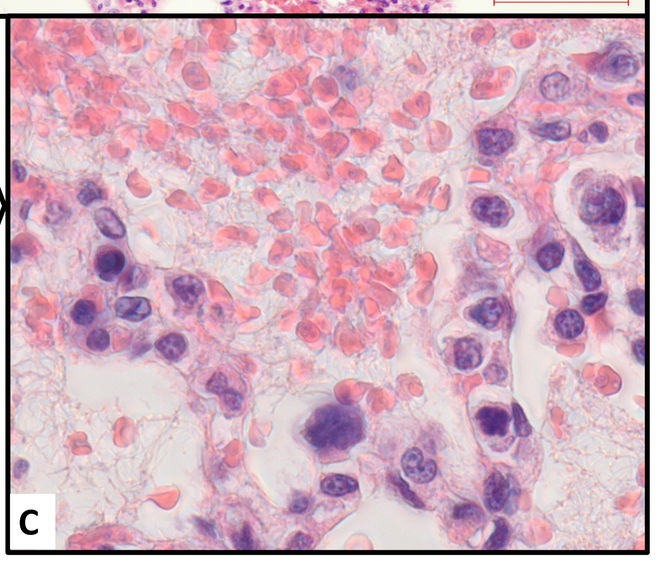


Fig. 3.
A. alveolar oedema with alveolar haemorrhage, severe, diffuse, bilateral.
B. alveolar oedema with alveolar haemorrhage, same dog as A, HE, 20x.
C. numerous *Babesia* merozoites are visible within erythrocytes in the alveolar space. Septa show intravascular stasis of monocytes, HE, 100x.



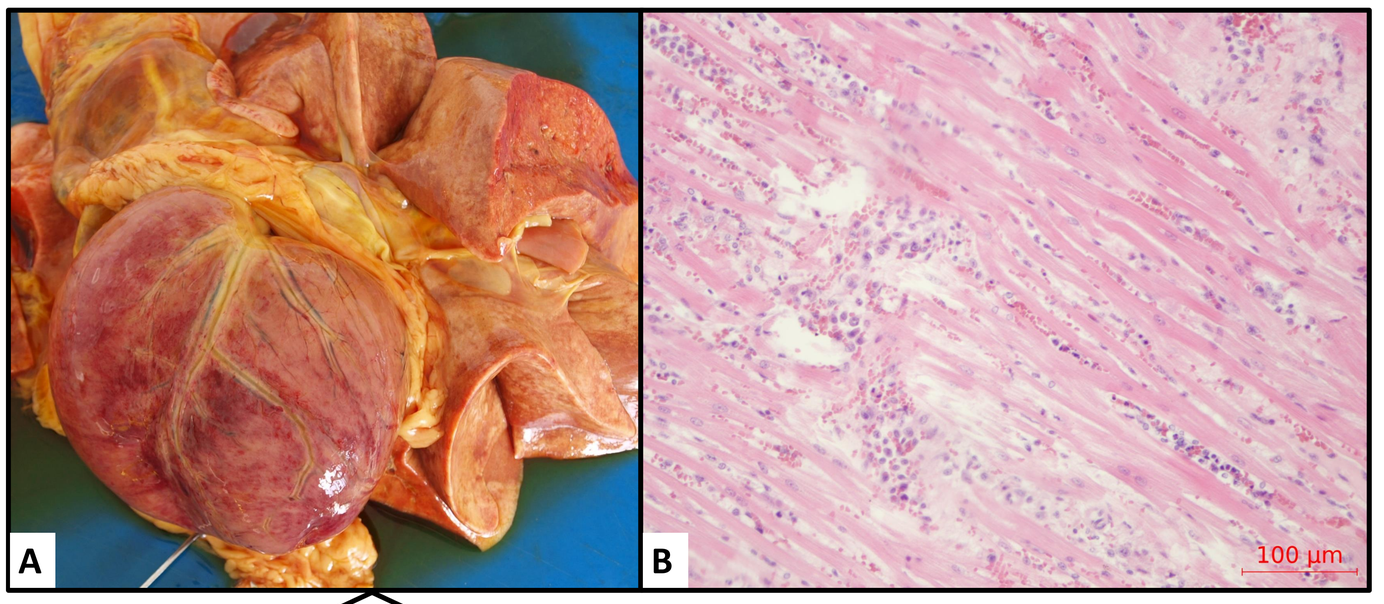
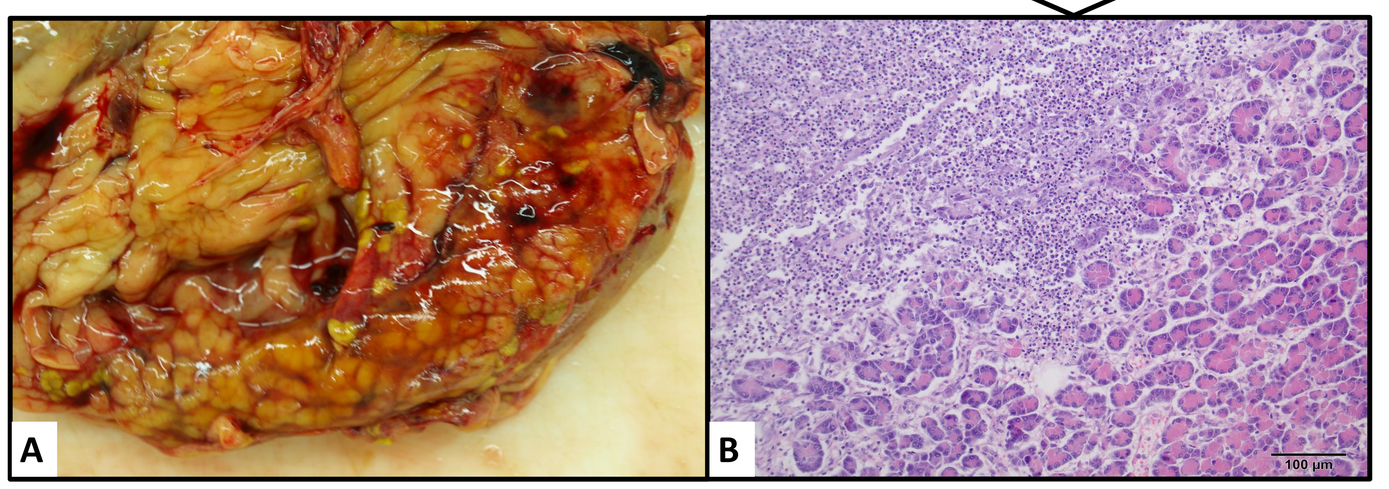


Fig. 4.
A. myocarditis, multifocal to coalescing, affecting both sides of the heart, with concurrent myocardial haemorrhage. Adjacent seroses and adipose tissue are icteric.
B. mixed cellular myocarditis, same dog as A, HE, 20x.

Fig. 5.
A. pancreatitis, necrotic, acute, severe, multifocal to coalescing. Adjacent adipose tissue is icteric.
B. severe neutrophilic inflammatory reaction infiltrating the pancreatic parenchyma, HE, 20x.



Conclusions: Acute pancreatitis and rhabdomyolysis have so far only been reported in association with African canine babesiosis, which is presumed to be the most pathogenic form of babesiosis. Other changes, i.e. pleuritis, alveolar oedema with haemorrhage and myocarditis, have so far not been associated with canine babesiosis at all. The results emphasise that even though Babesia parasites primarily affect erythrocytes, babesiosis represents a multi-systemic disease affecting all organs and tissues.

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