

Review Article

Canine Babesiosis in Austria in the 21st Century - A Review of Cases

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Babesia canis is a piroplasmid species that affects domestic dogs and can lead to a variety of clinical signs, ranging from mild and transient febrile illness to life-threatening inflammatory conditions [1]. Due to its close connection with its vector, the ornate tick *Dermacentor reticulatus*, its distribution was previously considered to be limited to the focal distribution of this tick species around the palearctic [2]. However, *D. reticulatus* is now considered to be spreading throughout Europe [3-8]. Therefore, a spread of *B. canis* is expected and with it an increase of cases. However, canine babesiosis is not a notifiable disease and so there are no official records of infections diagnosed. From a clinical point of view, the time for the highest risk of infection is difficult to predict. Austria has long been described as endemic for *B. canis*, but the frequency of cases in different parts of the country has not been analyzed. Based on data from two animal clinics in eastern Austria, the frequency of cases over 20 years and the origin of the dogs were evaluated. An increase in cases over time could not be detected. This might be due to the rather short time period evaluated (20 years) or the seasonal and annual fluctuation of cases; the mean of the three lowest numbers of cases per year was 7, the mean of the three highest numbers was 53 cases, and most cases were recorded in April and October, although year-round transmission, confirming a corresponding activity of *D. reticulatus* [6] was observed. Other factors that could contribute to this are an increased effective tick prevention in Austrian dogs in general, and changing awareness of canine babesiosis among practitioners or owners. Corresponding to this rather stable rate of infections diagnosed each year, a constant and repeated import of *B. canis*-positive dogs from endemic areas seemed to “renew” the pool of positive animals presented to the clinics. Interestingly, imported cases were restricted to eastern Austria, while presumed autochthonous cases were reported mainly, but not exclusively, from this part of the country. A confounder for these results are the locations of the two reporting clinics in eastern Austria. However, a primary focus on eastern (and southern) Austria is supported by earlier works based on questionnaires provided by veterinary practitioners [7].

From this work, several conclusions can be drawn:

- (1) it seems difficult to predict a spread of *B. canis* based on data for *D. reticulatus* alone (although data on vector presence are highly valuable to estimate the risk of pathogen establishment after introduction).
- (2) more data are required to define risk areas for *B. canis* both at the regional and the international level, due to the movement

of dogs within a country and across borders;

- (3) the unrestricted movement of dogs over long distances must be monitored to control the introduction of pathogens into formerly non-endemic countries and the spread of pathogens in new areas;
- (4) the former recommendation to focus on tick control in spring and autumn must be revised, since several hard ticks, including *D. reticulatus*, show year-round activity and this is reflected by year-round diagnosis of *B. canis*;
- (5) the awareness for *B. canis* as a canine pathogen must be extended to practitioners and owners in locations where the parasite and its vector are not (yet) well known due to low or absent endemicity.

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