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Infection of mycobacterium avium paratuberculosis and mycobacterium avium hominissuis in a wild red deer

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Paratuberculosis is a chronic enteritis of ruminants caused by *Mycobacterium avium* subsp. paratuberculosis (*Map*). Major lesions are mainly observed in the lower part of the small intestine and associated mesenteric lymph nodes. Mixed mycobacterial infections are reported in cervids but mostly in farmed deer. In this study, we report a mixed infection *Map* / *Mycobacterium avium* subsp. *hominissuis* (*Mah*) in a free-living red deer culled in fall 2011 for sanitary reasons (severe emaciation and diarrhoea). At necropsy, gross lesions were observed in the mesenteric lymph nodes, which were strongly enlarged, and the jejunum presenting encephaloid-like portions. Samples of feces, ileocaecal junction and mesenteric lymph nodes were processed for bacterioscopy, histopathology, *Map* PCR and culture. Microscopic changes were characterized by granulomatous enteritis and lymphadenitis, with abundant acid-fast bacilli in macrophages and giant cells (multibacillary form). The presence of *Map* was shown by targeted IS900 PCR performed on mesenteric lymph nodes, ileocaecal junction and fecal samples while bacterial cultures on these tissues demonstrated a mixed infection of *Map* with *Mah*. This environmental mycobacteria, commonly found in soil and water, is associated with opportunistic infections in humans. In conclusion, mixed mycobacterial infections are probably underdiagnosed in wild cervids but further investigations are needed to know if these mixed infections may result in more aggressive lesional picture in infected animals.