Genetically distinct isolates of Spirocerca sp. from a naturally infected red fox (Vulpes vulpes) from Denmark

Spirocerca lupi causes formation of nodules that may transform into sarcoma in the walls of the aorta, esophagus and stomach of infected canids. In February 2013, post mortem examination of a red fox (Vulpes vulpes) hunted in Denmark revealed the presence of several nodules containing adult worms of Spirocerca sp. in the stomach and the omentum. The nodules largely consisted of fibrous tissue with infiltration of mononuclear cells, neutrophilic granulocytes and macrophages with hemosiderin deposition. Parasitological examination by three copromicroscopic methods, sedimentation, flotation with saturated sugar-salt solution, and sieving failed to detect eggs of Spirocerca sp. in feces collected from the colon. This is the first report of spirocercoasis in Denmark, and may have been caused by a recent introduction by migrating paratenic or definitive host. Analysis of two overlapping partial sequences of the cox1 gene, from individual worms, revealed distinct genetic variation (7–9%) between the Danish worms and isolates of S. lupi from Europe, Asia and Africa. This was confirmed by phylogenetic analysis that clearly separated the Danish worms from other isolates of S. lupi. The distinct genetic differences of the current worms compared to other isolates of S. lupi may suggest the presence of a cryptic species within Spirocerca.

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