Echinococcus multilocularis in Denmark 2012–2015: high local prevalence in red foxes

In Western Europe, the Echinococcus multilocularis lifecycle is predominantly sylvatic, typically involving red foxes (Vulpes vulpes) as the main definitive hosts with Microtus spp. and Arvicola spp. as intermediate hosts. During a 4-year surveillance study (2012–2015), Danish red foxes and raccoon dogs (n = 1345) were examined for E. multilocularis. Moreover, 134 insectivores and rodents collected in South Jutland during spring and summer 2016 were examined for the presence of metacestodes. The sedimentation and counting technique and molecular typing were used to identify E. multilocularis infections in the carnivores, while the rodent livers were examined macro- and microscopically for parasite lesions. Following morphological identification of E. multilocularis adult worms, the identity was verified by sequence analysis of the 12S rRNA gene in most cases (n = 13). Echinococcus multilocularis infection was demonstrated in 19 red foxes (Vulpes vulpes) originating from only two specific areas of South Jutland, namely Højer and Grindsted, and in two raccoon dogs (Nyctereutes procyonoides), originating from Højer. In Højer, 28.5% (CI 95% 11.7–45.3) of the examined red foxes were E. multilocularis positive per year. Moreover, positive red foxes were identified each year from 2012 to 2015, while E. multilocularis positive red foxes were only identified in Grindsted in 2013 (4.0%) and 2014 (6.4%). In contrast, all collected rodents were negative for E. multilocularis. We conclude that E. multilocularis is locally endemic in South Jutland with a high local prevalence in Højer.