



Echinococcus canadensis transmission in the North.

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Abstract: The *Echinococcus granulosus* complex (EG) is the causative agent of cystic echinococcosis (CE). Northern cervid *Echinococcus* was previously suggested to be the ancestor of the entire EG. During the last century, it was regarded to have three (or four) different, but often overlapping, transmission cycles in the circumpolar North: the original wolf-wild cervid (reindeer or elk)-cycle; the semi-synanthropic cycle involving sled and hunting dogs and wild cervids; and the synanthropic cycle involving herding dogs and semi-domesticated reindeer. Human infections mainly derived from the latter two cycles. In Fennoscandia, the synanthropic cycle has been eliminated during the last 50 years due to changes in reindeer husbandry methods; machinery making herding dogs largely redundant. Typical to human CE in the North has been the relatively benign nature of the disease compared with CE caused by *E. granulosus sensu stricto*. The metacestodes in humans and in the natural cervid hosts predominantly appear in the lungs. The causative agents have been identified as EG mitochondrial genotypes G8 and G10, now together with G6 (camel), G7 (pig) and G9 genotypes constituting the *Echinococcus canadensis* species. Based on recent findings in reindeer in Yakutia, G6 might also be recognised among cervid genotypes. The geographical distribution of both G8 and G10 is circumpolar, with G10 currently apparently more prevalent both in the Palearctic and Nearctic. Because of the disappearance of the working dog, *E. canadensis* in Fennoscandia is again highly dependent on the wolf, as it was before domestication of the dog. Pet and sled dogs, if their number further increases, may to a minor part participate in the life cycle. Human CE in the North was mostly diagnosed by mass chest tuberculosis radiography campaigns, which have been discontinued.

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