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Dogs and echinococcosis in Iceland

Sigurdur Sigurdarson

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History

Hydatid disease was first described in Icelandic literature about the year 1200. According to the first qualified physician in Iceland, Bjarni Pálsson (1719-1779) was echinococcosis about 1760 one of the most frequent diseases among the human population, and was also commonly observed in sheep and cattle. Autopsies and questionaries indicate that 20-25% of the inhabitants might have been infested by hydatidosis about 1850. The nature of the disease was still unknown at that time. The dog population was estimated to be 15.000-20.000, or about one dog for every three or four people. At the same time there were in Copenhagen 1 dog for every 30-32 persons. Obviously there were too many dogs in Iceland. The sheep, cattle, dogs and humans lived in close contact. The dogs often shared a room and even bed with the family, and were the best playmate for the children. The people lived mostly in primitive houses at that time and under primitive hygienic conditions. It is therefore not wonder that the hydatid disease flourished as long as the nature of the disease was still obscure.

In 1849 the Danish physician P.A.Schleisner (1819-1900) concluded that one out of every six Icelanders suffered from hydatid disease. In 1862 doctor Harald Krabbe (1831-1917) from the Royal Veterinary and Agricultural University in Copenhagen studied the hydatid problem in Iceland. He found that 28 out of 100 dogs and most of the old sheep and cows that were slaughtered were infested with echinococcus cysts. Experiments he carried out in cooperation with an Icelandic physician Jón C Finsen (1826-1885) proved the relationship between taenias in dogs and the hydatid cysts in humans. Doctor H. Krabbe realized that most important was to inform the people of the nature of the disease in order to prevent the infestations of humans and animals with eggs of the intestinal parasites of the dog. H. Krabbe was a chief adviser to the Icelandic government on hydatid disease and prophylactic measures in the period 1860-1890. His recommendations were followed strictly for more than 100 years and partially they still are. New infestations by *E. granulosus* practially dissappeared in Iceland the decade 1890-1900. That is based on 7333 autopsies of people performed in the period 1932-1966. And based on 15.888 autopsies 1932-1982 only few human infestations occurred after 1900. The most recent human cases are a person born in 1937 who was autopsied in 1960, another person born in 1905 operated 1984 and the third person born in 1920 operated in 1988. In 1863 an autopsy survey of 100 dogs were carried out. E. granulosus was found in 28 of them, 75 dogs carried *T. marginata*. In the period one hundred years later 200 dogs were autopsied (1950-1960). *T. marginata* was found in 11 dogs but none of them carried E. granulosus. Reports of meat inspectors from Icelandic abattoirs did not record hydatid cysts in cattle, pigs and horses after 1961. However in the period 1953-1979, cysts of echinococcus were recorded in a total of 21 old ewes, all of which came from few farms on 2 small areas in East-Iceland. There was an indication that the parasite had been introduced to the country by an imported dog. After 1979 no hydatid cysts have been found in any animal in Iceland.

Why so successful control of hydatid disease in Iceland

Echinococcosis is a great public health and economic problem in many countries. It has been extremely difficult to eliminate it in many endemic areas. Apparently it was done in Iceland rather easily. How?

The campaign against hydatid disease in Iceland was for more than one century and partially still is based on Harald Krabbe´s recommendations: **1) Succesful information to the people.** Most people in Iceland had lost

The Icelandic Food- and Vetarinary Authority Austurvegur 64, 800 Selfoss, Iceland

either relatives or friends as a victim to hydatid disease and the memory of this disease was and still is dreaded. When people knew what to do, strong parcipitation of both young and old was easy to activate.

2) Reduction of the dog population by taxes on all dogs, higher tax on unnessesary dogs and a ban on keeping a dog without permission. Outbrakes of distemper in 1870, 1888 and 1890 reduced the number of dogs considerably, **3)Preventing the dog gaining access to raw offal and burning cysts in organs 4) Caution in dealing with dogs,** esp. Children, **5) Yearly anthelmintic treatment of all dogs** after the slaughtering sesion. Some factors that assisted in the campaign: -Ceasing of milking sheep on the farms, - improvement of the houses and hygiene, -strictly practiced caution on the contact between dogs and animals/people. Building of slaughterhouses all over the country in the period 1900-1920, then slaughtering on the farms almost ceased. The hydatid disese was never found in horses, rodents or in wild animals in Iceland.

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