Epidemiology II

Geographic Distribution and Prevalence

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1. INTRODUCTION

It is probably correct to assume that trichinosis was present, and quite extensive in its geographic distribution, long before *Trichinella spiralis* was identified as the causative agent. There have been numerous comprehensive reviews on the epidemiology of trichinosis (Steele, 1970; Steele and Arambulo, 1975; Steele and Schultz, 1978; and others). This chapter is devoted to a survey of old and new findings on the distribution and prevalence of trichinosis throughout the world. For each geographic region, the information is presented, where available, with respect to the infection first in wildlife, then in domestic animals, and finally in man.

Heretofore, much of the data has been on the prevalence of the infection in the domestic pig because it is the best known and most important source of infection for man. Also, the infection was reported usually from urban centers or from countries with large ethnic groups whose eating habits included consumption of either raw or poorly...
cooked pork. More recently, however, there have been more reports of the infection from rural areas and countries where the infection was merely sporadic or even unknown and where the source of infection proved to be an animal other than the domestic pig. These findings have suggested a reevaluation of the epidemiology of trichinosis with respect to the sources of infection and geographic distribution.

2. NORTH AMERICA

2.1. Canada and Alaska

2.1.1. Wildlife

*Trichinella* infection appears to occur frequently throughout northern Canada, especially the Canadian Arctic, where carnivore eats carnivore out of necessity. Although the most important source of human trichinosis in northern Canada seems to be the polar bear, several other animals are also involved, including the walrus (Cameron, 1970). Rausch (1970) reported different infection rates for the walrus from various regions. He suggested that since *T. spiralis* was found in both ringed and bearded seals, although very uncommonly, it might be transmitted to the walrus by these animals. The incidence of trichinosis in polar bears in the Arctic seems to be high, varying considerably depending on the region (Cameron, 1970). *Trichinella spiralis* has been reported once in the white whale (*Delphinapterus leucas*) from the arctic coast of Alaska (Rausch et al., 1956).

*Trichinella spiralis* appears to be a common parasite among the terrestrial mammals of the Arctic and sub-Arctic (Rausch, 1970). Nearly all species of carnivores appear to have the infection, including the arctic fox (*Alopex lagopus*), the wolf, and the red fox. Earlier, it was reported that the overall rate of infection among mammals in Alaska was 11.7% based on tissue samples taken from 2433 mammals representing 42 species (Rausch et al., 1956). The domestic dog appears to be an important synanthropic host of *T. spiralis* at high latitudes. An overall infection rate of 45.3% was recorded from all localities in Alaska (Rausch et al., 1956). High rates were also observed in dogs used for transportation in the Arctic (Rausch, 1970).

A study of the incidence of trichinosis in wild animals in the Atlantic provinces of Canada in 1971–1976 (Smith, 1978) showed that of the 73 black bears (*Ursus americanus*) and 1 polar bear (*Thalarctos maritimus*) examined, only the polar bear was infected.