Dipetalonema spirocauda IN ALASKAN MARINE MAMMALS

Author: ELEY, THOMAS J.

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Dipetalonema spirocauda IN ALASKAN MARINE MAMMALS

THOMAS J. ELEY, Alaska Department of Fish and Game, 1300 College Road, Fairbanks, Alaska 99701, USA. [1]

Abstract: Dipetalonema spirocauda were found in 17 of 369 (4.6%) free-living ringed seals *(Phoca hispida),* 4 of 47 (8.5%) spotted seals *(Phoca vitulina largha),* 17 of 99 (17.2%) harbor seals *(Phoca vitulina richardii),* 1 of 19 (5.3%) ribbon seals *(Phoca fasciata),* and 2 of 51 (3.9%) bearded seals *(Erignathus barbatus)* collected from March, 1975 through September, 1979 in Alaskan waters. This is the first report of *D. spirocauda* in ribbon and bearded seals. Certain species of marine mammals from the families Ursidae, Otarridae, Odobenidae, Balaenidae, Phocaenidae and Monodontidae also were examined but none was found to be infected.

INTRODUCTION

Dipetalonema (Acanthocheilonema) spirocauda is a filaroid nematode of holarctic phocid seals.[1,3,4,5] The nematode has been recovered from the cardiovascular systems of harbor seal *(Phoca vitulina),*[4,5,8,9] ringed seal *(Phoca hispida)*[4] and hooded seal *(Cystophora cristata).*[7] Most specimens have been obtained from beached seals or animals in captivity.[5,8,9] The prevalence, distribution and pathology of *D. spirocauda* in wild pinniped populations is poorly known.

This survey was conducted to determine the prevalence and distribution of *D. spirocauda* in phocid seals found in Alaskan waters. In addition, the cardiovascular systems of several additional species of marine mammals were examined.

METHODS

Hearts and pulmonary arteries of 13 species of Alaskan marine mammals, collected from March, 1975 through September, 1979, were examined for *D. spirocauda.* Marine mammals were obtained from all the major coastal waters of Alaska. The majority were killed by Eskimo hunters for food and the remainder were obtained by personnel of the Alaska Department of Fish and Game and the National Marine Fisheries Service for research. Hearts and pulmonary arteries were removed and either examined immediately or frozen until they could be examined.

RESULTS

Adult *D. spirocauda* were recovered from the cardiovascular systems of 40 phocid seals representing five species (Table 1). The heartworms were found chiefly in the right ventricle but 11 seals had additional nematodes in the pulmonary artery. All infections of *D. spirocauda* in the pulmonary artery were associated with infection in the right ventricle. In two hosts, all nematodes were females and in another seal the nematode was a male. It is possible that other nematodes were present in the seals but had not reached the heart. No gross lesions were associated with *D. spirocauda.*[5] The weights of hearts of infected seals were not significantly different from the weights of hearts of non-infected seals (Eley, unpubl. data).

Infections in the ribbon seal *(Phoca fasciata)* and bearded seal are the first

[1] Present address: S.R. Box 60977, Fairbanks, Alaska 99701, USA.

TABLE 1. Prevalence of *Dipetalonema spirocauda* in Alaskan marine mammals.

Species	No. examined	No. positive	% positive
Ringed seal *(Phoca hispida)*	369	17	4.6
Spotted seal *(Phoca vitulina largha)*	47	4	8.5
Harbor seal *(Phoca vitulina richardii)*	99	17	17.2
Ribbon seal *(Phoca fasciata)*	19	1	5.3
Bearded seal *(Erignathus rosmarus)*	51	2	3.9
Walrus *(Odobenus rosmarus)*	25	0	—
Northern sea lion *(Eumetopias jubatus)*	38	0	—
Northern fur seal *(Callorhinus ursinus)*	22	0	—
Bowhead whale *(Balaena mysticetus)*	3	0	—
Belukha whale *(Delphinapterus leucas)*	23	0	—
Dall's porpoise *(Phocoenoides dalli)*	1	0	—
Harbor porpoise *(Phocoena phocoena)*	4	0	—
Polar bear *(Ursus maritimus)*	17	0	—

record of these species as hosts for *D. spirocauda*. *D. spirocauda* was not recovered from any marine mammals except members of the Family Phocidae.

The five species of phocid seals infected with *D. spirocauda* are found in a variety of habitat types in Alaskan waters. Bearded and ringed seals generally are associated with sea ice throughout the year.[2,6] Spotted and ribbon seals are found in the edge zone of the sea ice in the Bering Sea in the winter and spring, then inhabit open water during the summer and fall.[2,6] The harbor seals are not usually associated with sea ice and remain in open water south of the seasonal ice pack.[6] Harbor seals also inhabit the nearshore and fiord areas of the southern Alaskan coast, but sometimes may be associated with glacial ice in fiords. *D. spirocauda* was recovered from seals inhabiting all the major coastal waters of Alaska, including the Bering, Beaufort and Chukchi Seas; Gulf of Alaska; North Pacific Ocean; and the "inside passage" of southeastern Alaska. Heartworms were most common in harbor seals (17.2%) obtained not in association with sea ice, while the prevalence ranged from 3.9% to 8.5% in sea-ice associated phocid seals.

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