Survey of death causes in northern fur seal pups on bering island – on the basis of pathological changes –

Kensuke Kato

Laboratory of Comparative Pathology,
Department of Veterinary Clinical Sciences,
School of Veterinary Medicine,
Hokkaido University, Sapporo 060, Japan

Thirty-two northern fur seal (*Callorhinus ursinus*) pups were examined pathologically. These died within two months of age and were collected in the Northwest Rookery of Bering island in the Kommandorski Islands, Russia, between July 6 and 23, 1995. The main causes of death were as follows : uncinariosis in 20 pups (63%), trauma in 5 pups (16%), emaciation (starvation and malabsorption) in 4 pups (13%), and pneumonia in 3 pups (9%). It was suggested that the higher mortality of pups on this island was mostly due to hookworm infestation, while emaciation was a common finding. Uncinariosis in fur seal pups has seldom been seen in other areas of the world. The gross and histological findings suggested that severe infestation of hookworms caused continuous hemorrhaging from the small intestine, resulting in severe chronic systemic anemia and death.

The animals showed extramedullary hemopoiesis in varying degrees, which was marked (predominantly in myeloblastic cells) in pups with severe hookworm infestation. Myeloid metaplasia of the spleen was recognized in 7 cases infestated with hookworms.

Most of cases with uncinariosis had a dilated gall bladder with abundant bile and a milk-filled stomach in spite of the mild emaciation. These findings suggested that hookworm infestation disturbed their digestion and absorption of milk by mucosal impairment or luminal obstruction in the small intestine and by iron deficiency due to continuous hemorrhaging. Three pups showed severe emaciation resulting from malabsorption, probably due to severe hookworm infestation.

Multiple subcapsular granulomatous zonal lesions were found in the liver in 4 cases. The etiology of these lesions is unknown, although a migration of parasites was suspected.

Amphophilic intranuclear inclusion bodies were found in epithelial cells of the left submandibular gland of one pup. Ultrastructurally, these had herpes virus particles.