LEUKOMYELODEGENERATION AND OPTIC NERVE-DEGENERATION IN TWO DOLPHINS: PATHO-MORPHOLOGICAL OBSERVATIONS

Masako TAKAOKA

Department of Comparative Pathology
Faculty of Veterinary Medicine
Hokkaido University, Sapporo 060, Japan

Two adult female dolphins (*Tursiop gilli*) died of septicemia in an aquarium in Otaru, Hokkaido. Degenerative parenchymal changes in the spinal finiculi and optic nerves, such as leukomyelodegeneration and optic nerve degeneration, were encountered in the animals. Such changes in marine mammals have not previously been reported.

The changes in both the spinal cords and optic nerves were essentially qualitatively the same. The changes were characterized by swelling of nerve fibers, swelling of axons, feeble H-E-staining of axons, loss of axons, and minute inclusion body (DNA-positive) formation in axons.

Electron-microscopically, there were ultrastructures, such as minute particle-aggregated structures and fibrous structures (DNA-fibers), in axons of the spinal dorsal funiculi and optic nerves. The aggregated structures corresponded to the DNA-positive minute inclusions. The minute particles sometimes revealed features of minute virus-like particles with about 13 nm-diameter.

Proliferation of astrocytes in the optic nerves also occurred. The astrocytes sometimes had in their cytoplasm the same inclusions as those seen in axons.

It was inferred that the degeneration of nerve fibers in the spinal funiculi and optic nerves occurred as a result of having a close relation to the inclusion formation.