

In contrast, antigens were persistently detected in myocytes from two days PI at the site of inoculation of mice infected intramuscularly. At three days PI, virus antigens were demonstrated in the spinal dorsal root ganglia, spinal cord and muscle spindles, before their detection in the cerebrum and hippocampus. There were no findings of apoptosis in the spinal and dorsal root ganglia, in spite of many infected neurons. Electron microscopy confirmed the presence of viral inclusions and virus particles in the cytoplasm of degenerated neurons or myelinated axon. Hind limb paralysis was found in all infected mice; this progressed to quadriparalysis, and all infected mice died between days 11 to 13. Inflammatory cells were observed in the spinal and dorsal ganglia neurons from four days PI.

Therefore, the results of this study demonstrate that paralysis in C57BL/6J mice infected with CVS-11 strain is caused by necrosis of spinal neurons and host immune reactions, rather than by severe cerebral infection and apoptosis. The virus, which primarily replicated in the muscles, was considered to ascend the spinal cord via afferent fibers and then retrogradely to invade the cerebrum, with subsequent centrifugal virus spread to muscle spindles.

Key words · Histopathogenesis, Encephalomyelitis, Rabies (CVS-11), C57BL/6J mouse

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A Case of Spindle Cell Sarcoma in an American Buffalo (*Bison bison bison*)

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A case of spindle cell sarcoma in multiple organ systems in a 20-year-old male American Buffalo (*Bison bison bison*) from Gwangju Zoo, Republic of Korea was studied. The animal showed no apparent clinical signs before death. Grossly, neoplastic nodules were observed in the skin, lung, heart, liver stomach, mesentery and kidney in various sizes. Most of the neoplastic nodules histologically were composed of fusiform cells that formed multidirectional bundles. Tumor cells were arranged in interlacing bands and bundles. Nuclei were atypical, hyperchromatic, blunt or round ends and with few mitotic figures observed in skin, lung, heart, liver, stomach, intestine and kidney. Several marker immunostains were used in an attempt to differentially diagnose the tumor: vimentin, CD4, cytokeratin (CK), actin, smooth muscle actin (SMA) and S-100. Vimentin showed positive results but negative for CD4, CK, actin, SMA and S-100. Because of the above findings we concluded that this case is highly compatible with spindle cell sarcoma. Spindle cell sarcoma is a rare neoplasm and as far as we are concerned this is the first reported case in American Buffalo (*Bison bison bison*).