

between the number of TUNEL-positive cells and the severity of dementia. However, there was no relationship between the number of SP and DI. The results suggest that the two age-related lesions (apoptosis and SP) could independently occur. Furthermore, brain cell apoptosis rather than SP might be more appropriate histopathological hallmark accounting for canine dementia.

Above mentioned aged-related brain pathology was detected not only in mammalian but also avian species. A variety of SP morphology was observed according to species. SP of dogs and monkeys were divided into 2 types, diffuse (DP) and mature (MP) types as in human. The shape of SP of the cat and camel are very different from that of other species. Amyloid angiopathy was detected also in several species. However, NFT which had been reported only in the sheep, bear, cattle and wolverine, was never observed in the species examined in the present study.

The aged mammalian species, in particular dogs, would be useful animal models to elucidate the pathomechanism of Alzheimer's disease.

#### [ Session I ] #4

### **Possible Emerging Infection of EQUINE HERPESVIRUS 9 (EHV-9) in Domestic Animals and Primates**

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An outbreak of acute encephalitis occurred in a herd of Thomson's gazelles (*Gazella Thomsoni*) in a Japanese zoo. Seven of 9 gazelles died with or without neurological symptoms in a 3-week period. A herpesvirus was isolated from the brain of the dead gazelles. The virus was neutralized by anti-EHV-1 serum, but its DNA fingerprint differed from those of EHV-1 and other equine herpesviruses. The isolated virus was named equine herpesvirus 9 (EHV-9) based on DNA analysis. Pathologically, all animals examined had nonsuppurative encephalitis characterized by necrosis and degeneration of neurons, gliosis and perivascular cuffing in the cerebrum. Five cases had intranuclear inclusion bodies in neurons compatible with herpesvirus. The neuropathology of EHV-9 infection clearly differed from EHV-1-induced encephalitis in the horse, which is characterized by vasculitis, thrombosis, ischemia, and lack of intranuclear inclusions in neurons.

We are conducting experimental studies to clarify the infectivity of EHV-9 in domestic animals and nonhuman primates.

Mice and rats inoculated intranasally showed growth deterioration and neurological symptoms, including depression and seizures, and dies within 8 days of inoculation. The brain of dead animals had severe neuronal degeneration and necrosis accompanied by numerous intranuclear inclusion bodies characteristic of herpesviruses.

Goats, pigs, cats and dogs inoculated intranasally showed sudden neurological symptoms consisting of marked convulsion, tremor and ataxia and died around a week after inoculation. Dead animals had fulminant encephalitis characterized by neuronal degeneration and necrosis with intranuclear inclusion bodies.

Horses and cattle inoculated intranasally showed no clinical symptom except a moderate fever. The brains showed a moderate degree of nonsuppurative encephalitis characterized by perivascular cuffings and gliosis. Neither neuronal necrosis nor intranuclear inclusions were observed.

Marmosets: A member of new world monkeys had high susceptibility to EHV-9 because four of four marmosets showed fulminant encephalitis after nasal inoculation. They had fulminant encephalitis and EHV-9 was isolated from the brain.

EHV-9 showed infectivity in a wide variety of animals including plamates. It is likely that affected animals were foreign hosts for EHV-9 and, as a result, fatal infection occurred. Because marmosets infected with EHV-9, there is possibility of EHV-9 as an emerging infectious agent for humans as well as domestic animals, and zebra must be considered a possible reservoir of EHV-9.

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[ Session II ] #5

**Canine Hepatozoonosis in the  
Philippines: A Report of 4 Cases**

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Canine hepatozoonosis is a hemoprotozoan disease due to *Hepatozoon canis*. The disease is transmitted through the ingestion of an infected common brown dog tick, *Rhipicephalus sanguineus*. In the Philippines, it was first reported by Carlos *et al.* in 1971 when the organism was demonstrated in monocytes and neutrophils during routine blood smear examination of eight dogs.

For public health reasons, stray dogs are captured and impounded by the local government. At the Manila City Pound in Metro Manila, about 100 dogs are captured and impounded every week. Dogs unclaimed were euthanized. A preliminary survey conducted to determine the presence of blood parasites in 100 stray dogs at this Pound revealed 34 % were positive. Of the positive dogs, 24% had *Hepatozoon canis*, 8% had microfilariasis and 2% had mixed infection of *Hepatozoon canis* and microfilariasis.

Four cases of *Hepatozoon canis* infection in stray dogs impounded at the Manila City Pound are herein presented. All cases were mongrel dogs weighing between 7-10 kg.; two were males and two were females. Prior to death, the animals were observed to be weak, lethargic and depressed. On blood smear examination, only two dogs demonstrated gametocytes in neutrophils. Limited laboratory findings revealed anemia, leucopenia, and adequate platelets. Grossly, two dogs, male and female, had subcutaneous hemorrhagic patches in the ventral abdomen and legs; petechial to ecchymotic hemorrhages and hematomas in the lungs; friable and congested liver; ecchymotic to diffuse hemorrhages in the intestinal mucosa; hemorrhagic exudate in the intestinal lumen; round flabby hearts with petechial to ecchymotic hemorrhages, and petechial to ecchymotic hemorrhages in the kidneys. The other two dogs did not show severe hemorrhagic lesions. Tissue forms of *Hepatozoon canis* were seen in the lung, liver and spleen but not in all cases. Histopathologic lesions included cutaneous and pulmonary hemorrhages, interstitial pneumonia, vasculitis and perivasculitis in the lung, liver and kidney with predominantly lymphoplasmacytic cell infiltrates.

[ Session II ] #6

**Pathological Features of Lead  
Poisoning in Swans in Japan**

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