

ivermectin (IMEC-POURON, SFCo. Ltd., Korea) and 17 cattle were not treated. All cattle were put out to graze after treatment. During grazing, blood examination to compare Hct values and the infection of *T. orientalis* before and during grazing was performed from the same 68 cattle.

**Results:** The results showed that the decrease of Hct level and the increase of *T. orientalis* infection rate were 3.5% (34.4% to 30.9%) and 11.7% (5.9% to 17.6%) in no ivermectin-treated group and 1.8% (31.9% to 30.2%) and 1.9% (5.9% to 7.8%) in ivermectin-treated group, respectively.

**Conclusions:** As treated with ivermectin to cattle before grazing, the decreasing level of Hct was reduced and the increasing level of infection rate of *Theileria* was increased. Therefore, our results suggest that ivermectin could be effective to protect theileriosis.

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### Clinical Features of Suspected Cholangiocellular Carcinoma in a Dog

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**Introduction:** Primary hepatic tumors are rare in dogs and include hepatocellular adenoma/carcinoma, cholangiocellular adenoma/carcinoma. Among these, cholangiocellular carcinomas are rare accounting for 15% of primary hepatic tumors and have high morbidity and mortality.

**Materials and Methods:** A 12-year-old, intact male dog with hepatic mass was referred to Seoul National University Veterinary Medicine Teaching Animal Hospital. Physical exams, blood exams including CBC and serum chemistry, urinalysis, thoracic X-ray, abdominal ultrasonography and fine needle aspiration (FNA) from the hepatic mass were performed.

**Results:** The patient had clinical signs of anorexia and vomiting. On initial visit, the CBC showed leukocytosis with neutrophilia and elevated CRP. Serum chemistry revealed increases of all of the liver enzymes (ALT, AST, ALP, and GGT) and hyperbilirubinemia. The cPLI kit showed positive and ultrasonography revealed hyperechoic change in the parenchyma of pancreas, suggesting pancreatitis. Thoracic X-ray indicated the presence of pleural effusion. In abdominal ultrasonography, hypoechoic and anechoic cavitory lesion with irregular margin was found in the

liver. Cytology showed the neoplastic cells arranged in clusters forming tubular and acinar structures with intercellular junctions to each other. Most of the neoplastic cells were smaller than normal hepatocytes. The treatment for pancreatitis and liver abnormalities was attempted but the patient died after 2 weeks.

**Conclusions:** Although a confirmatory diagnosis by histopathology could not be performed, both ultrasonography and FNA results were suggestive of the high possibility of cholangiocellular tumor in this patient. Based on the cytology with moderate anisocytosis and anisokaryosis, the malignancy was determined as moderate. However, the indication of hepatic damage from blood exam and presence of pleural effusion with lymphadenopathy corresponded to the biological behavior of malignant neoplasia. This case demonstrates that multiple exams should be performed to evaluate the type and malignancy of cancer in a patient.

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### Antibody formation rate of equine herpes virus type 1 and 4 after equine rhinopneumonitis vaccination

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**Introduction:** Equine herpes virus is DNA virus of the family Herpesviridae that horses. The two most common strains are EHV-1 which causes abortion, respiratory disease and neurologic disease, and EHV-4 which usually causes respiratory disease. This study was conducted to investigate vaccine antibody titers after equine rhinopneumonitis vaccination.

**Materials and Methods:** 49 Jeju cross-breed horses raised in Subtropical Livestock Research Institute, National Institute of Animal Science, were vaccinated against equine rhinopneumonitis. 39 horses were once inoculated (group 1). 10 horses were inoculated twice at an interval of one month (group 2). Blood collection carried out two months after the first vaccination. equine herpes virus type 1 (EHV-1) and equine herpes virus type 4 (EHV-4) vaccine antibody levels were tested by ELISA.

**Results:** There was a high vaccine antibody formation rate in group 2 (50%) than group 1 (30.77%) against EHV-1, and vaccine antibody formation rate of all groups against EHV-4 was 100%.

**Conclusions:** After equine rhinopneumonitis vaccination, the vaccine antibody formation rate of EHV-4 was 100%, while the vaccine antibody formation rate of EHV-1 was higher in group 2. However, the antibody of EHV-1 is not a high level, so it will have to look for ways to raise the antibody.