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Apoptosis occurs early after irradiation, which may be a better indicator of radiation damage in various tissues. Recent evidence has indicated that apoptotic cells may be actively involved in suppression of inflammatory responses by inducing the anti-inflammatory cytokines and TGF- β 1. Because elevated levels of TGF- β are associated with radiation-induced inflammation and fibrosis, the mice null for Smad3, a key downstream mediator of TGF- β , show accelerated healing of cutaneous injury with reduced inflammation and accumulation of matrix. Therefore, we hypothesized that loss of Smad3 will decrease liver damage induced by irradiation. To evaluate resistance to the radiation-induced liver injury in the Smad3-null mice, we determinate the incidence of apoptosis and expression of senescence marker protein-30 (SMP30), as an anti-apoptotic marker after irradiation to the liver.

Livers of Smad3-mutant mice were exposed to local irradiation of 0 and 15 gray (Gy), at a dosage rate of 1.95 Gy/min from a Co⁶⁰-gamma radiation source unit. In Smad3-WT mice of irradiated group body weights were significant decreased at 1week after irradiation. In Smad3-KO mice of irradiated group, however, change of body weight was mild compared to those of irradiated WT mice. At 1 week after irradiation, radiation-induced apoptosis of Smad3-KO mice was produced lower levels than that of WT mice liver. These findings

were correlated with expressions of CYP2E1, which play as a role in hepatic injury produced by oxidative stress. In addition, antioxidant related protein, SMP30 levels were reduced by gamma irradiation in both irradiated mice. However, highly increased expression of SMP30 in Smad3-KO mice liver was preserved higher level than that of WT mice after irradiation.

Therefore, these results suggest that interruption of TGF- β signaling by deletion of Smad3 bring about inhibition of hepatic apoptosis after exposure to ionizing irradiation. Moreover, protective effect to ionizing radiation might be correlated with overexpression of SMP30 in the Smad3 null mice, act as an anti-apoptotic signaling molecule. Alteration of SMP30 by interruption of Smad3 might be useful therapeutic target for the radiation-induced liver injury.

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P#40

Canine Multiple Intestinal Lymphomatous Polyposis

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Objective - We report here the case of canine multiple intestinal lymphomatous polyposis in the Jindo breed.

Animals - A male, 5-year-old Jindo dog underwent an enterectomy and enteroanastomosis due to ileus of the intestine in a local veterinary hospital.

Procedure - The gross and histopathological findings of the excised intestine were observed. In order to identify the origin of the neoplastic cells, sections were stained immunohistochemically.

Results - The excised intestine include markedly thickened multinodular masses showed extensive mucosal protuberances into the lumen. These large round neoplastic cells were infiltrated mainly in the mucosal and submucosa, and they were diffusely invaded the muscular and serosal layers. In immunohistochemistry, the tumor cells were diffusely positive for CD20 as the B-cell marker and negative for CD3 as the T-cell marker.

Conclusions and Clinical Relevance - The morphological diagnosis was determined as a canine multiple intestinal malignant lymphomatous polyposis based on the gross and histopathological findings of this case. The origin of these tumor cells was elucidated the B-cell that was expressed as being positive for anti-CD20.

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P#41

Case of Sporadic T-cell Lymphosarcoma in a Cattle

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In the parous cattle of livestock farmhouse near the Kyungpook province, several subcutaneous masses were observed initially, but abdominal cavity had multinodular mass when the animal was slaughtered. In clinical signs, veterinarian described that the animal was accompanied with mild leukemic signs, but not affected viral or bacterial infection. Samples from the abdominal masses were collected into 10% buffered formalin and submitted for microscopic examination at the department of pathology, in Kyungpook National University. Grossly, whitish to yellowish smooth masses like fat tissue were covered with thin membrane. Multilobulated mass formed around