

major finding, i.e. 1) congestion of liver acini around the central veins and dilatation of the sinusoids 2) fibrosis surrounding the central veins. On the other hand, fibrosis of Glisson's sheath was not remarkable, and liver cells of periportal area were almost normal. The author thought that so called "radiation hepatitis" (liver injuries following radiation therapy) might be caused by irradiation and some other factors. However, the irradiation must be the main factor of the above described findings of the liver.

Fibrosis surrounding central veins might be inhibited, followed by blood congestion in sinusoid. Blood congestion brought about a degeneration or disappearance of liver-parenchymal cells, or inhibition of regeneration of liver cell from the surrounding area of acini. Chronic partial congestion of the liver must be one of the most important factor of radiation injury of the liver.

We could not find any reactive proliferation of Kupper's star cells, and it was reason why filling defect appeared on liver scintigram.

### Scintigram of Liver Injury Following Radiation Therapy (2)

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**Purpose:** We pursued process of an appearance of filling-defect of the scintigram of the liver following irradiation.

**Method:** 1000-4000 R does were given to the right lobe of each dog.

$^{131}\text{I}$ -Rose-Bengal and  $^{198}\text{Au}$ -colloid were injected intravenously, and uptake curve was recorded over the irradiated area and the other side. The scintigrams were analyzed as compared with histological study.

**Results:** At the early stage after irradiation, scintigram showed increased up-take, and at the late stage decreased up-take and defect at the irradiated area. Maximum count ratio of the irradiated area and the other side showed similar changes. However, hepatic blood flow was similar changes at the irradiated area and also the other. Some cases, which irradiated small portion of liver by radiation therapy to the neighboring organs of the liver, were showed similar changes of scintigrams and up-take curve of dogs experiments. Although liver blood flow of the

irradiated area was different from the other side.

Histologically, at the early stage after irradiation, hepatic and Kupper cells were enlarged and contracted sinusoids. At the late stage, fibrosis surrounding the central veins and liver acini congestion appeared. Characteristically same histologic appearance at the irradiated area and the other side.

**Conclusions:** Radiation to the liver showed hyperfunction of the liver and Kupper cells at the early stage of postradiation stadium.

But liver injury appeared at the late stage. Mechanism of liver injury following irradiation was briefly discussed.

Enlargement of liver and Kupper cells→ Stenosis of sinusoids→ Insufficiency of blood supply at the center of lobulus→ Fibrosis of the surrounding the central vein→ Congestion of sinusoids→ Decrease of hepatic blood flow→ Hypofunction and destruction of hepatic and Kupper cells.