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ULTRASONOGRAPHIC APPEARANCE OF DIFFUSE CHANGES
IN THE BOVINE LIVER

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Ultrasonography was applied to observe diffuse changes in the bovine in clinical, periparturient and experimental cases, respectively.

1. In animals with clinical cases, some changes such as blunting of the edges of the liver, dilatation and stricture of intrahepatic vessels and decrease of overall liver echogenicity were observed. The liver echogenicity was compared to the histological findings, and it was found that as the echogenicity decreased, the degree of hydropic degeneration and/or fatty changes increased.

2. In the periparturient cases, the decrease of overall liver echogenicity were observed in three out of six heifers. In this group, mild fatty change of the liver was observed histologically. In the other group, one case in which ultrasonographic examination was done on the seventh day post calving revealed a mixed-echo pattern which involved several echogenicities, however, no remarkable changes were recognized with histologically or hematologically. Hence the explanation of the mixed-echo pattern is unclear.

3. In the cases of administration of DL-ethionine, decrease of overall liver echogenicity was observed. The degree of decrease in echogenicity was directly proportional to the amount of fat droplets, as observed histologically. The degree of the overall liver echogenicity and its normal recovery was confirmed by the liver-kidney contrast method. Ultrasonographic findings also indicated stricture of the intrahepatic vein. The diameter of the vein became narrow with the decrease of liver parenchymal echogenicity. Normal recovery of the vein also corresponded with changes of the overall liver echogenicity.

4. When carbon tetrachloride was used to induce liver injury, enlargement of the liver, including changes of the edges, was observed, especially on the second to the fourth day. Concurrently, significant changes were also observed histologically and hematologically. After the eighth day, the edges became sharp gradually, and no blunting was observed on the 36th day.

The results of the above study indicated that ultrasonography is a useful tool for the general diagnosis of diffuse liver diseases in cattle.