Features of Computed Tomography in a Passive Congestive Liver

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A 61-year-old woman presented to the emergency department with a two-day history of increasing dyspnea, abdominal fullness and dull-ache in the right upper quadrant of the abdomen. She had mild icterus scleras and ankle edema as well as basal rales on the chest auscultation. Laboratory data revealed total bilirubin of 3.8 mg/dl, aspartate aminotransferase 203 units/L and alanine aminotransferase 98 units/L. A chest radiography showed cardiomegaly and the presence of pleural effusion (Picture 1). Sonography of the whole abdomen revealed hepatomegaly and a moderate amount of ascites. A contrast-enhanced computed tomography (CECT) was performed. The presence of dilation of the heart, pleura effusion, ascites, distended hepatic vein and inferior vena cava (IVC) (black arrow), early reflux of contrast medium into IVC and hepatic veins (white arrow) as well delayed contrast enhancement and inhomogeneous enhancement of the liver (asterisk, Picture 2) further supported the diagnosis of heart failure-induced congestive liver. The patient was admitted for treatment of heart failure. Five days after admission, dyspnea and bilateral ankle edema improved. Her liver function tests and bilirubin level returned to normal gradually. She was discharged uneventfully on the twelfth hospital day.

Heart failure leads to congestion of the liver by retrograde transmission of elevated venous pressure via the IVC and hepatic veins. With prolonged passive congestion and poor perfusion secondary to reduced cardiac output, necrosis of centrilobular hepatocytes can lead to ominous liver dysfunction. Liver function tests are slightly elevated. Serum bilirubin is usually elevated but less than 5 mg/dl. Prothrombin time is often prolonged (1). Typical CT findings of a congested liver are inhomogeneous hepatic enhancement during the portal phase of bolus contrast administration, distension of the IVC and hepatic veins, and early reflux of intravenous contrast from the right atrium into IVC or hepatic vein.
Other unspecific findings include the presence of pleural effusion, ascites, pericardial effusion and hepatomegaly (2-4). Treatment of heart failure can usually ameliorate the impaired liver functions.

References


