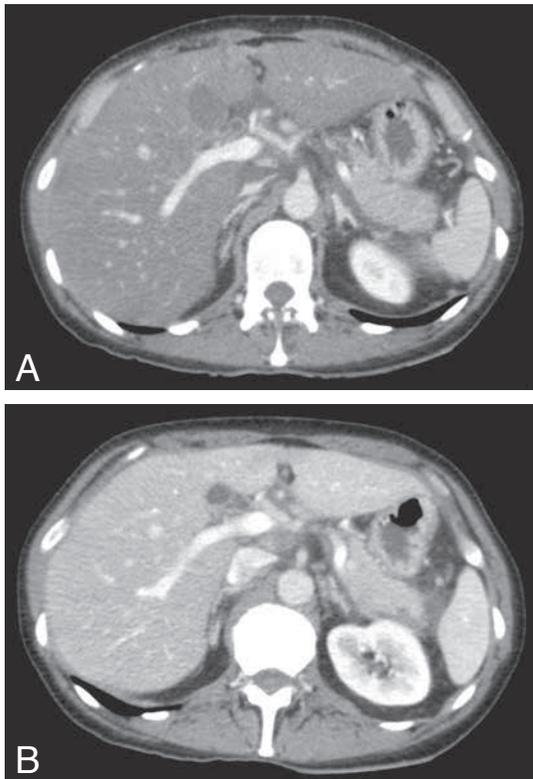


## IMAGES IN CLINICAL RADIOLOGY



### *Drink responsibly! Rapid regression of fatty liver disease on enhanced CT after alcohol withdrawal*

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A 50-year-old woman is admitted in Emergency Room for acute epigastric pain. She acknowledges the consumption of 6 to 7 beers per day last days before admission (8 to 10 alcohol units per day). Blood samples demonstrate inflammation (CRP: 5,2 mg/dL), hepatocytes cytolysis (AST 3 times higher than normal, ALT 2 times higher than normal and GGT 20 times higher than normal) and hyperlipasemia (15 times higher than normal). Diagnosis is obvious based on clinic and biology, which is confirmed the same day by an enhanced CT at portal venous phase demonstrating an acute pancreatitis graded D according to Balthazar scoring (Fig. A). After 9 days of hospitalization a follow up CT is performed in the exact same conditions (Fig. B).

#### *Comment*

Admission CT shows deep fatty liver disease (FLD) characterized by a «dark liver» aspect because of fat infiltration. Follow up CT performed in the same conditions after 9 days of complete alcohol withdrawal demonstrates significative regression of FLD with liver density approaching spleen density and tending to normal. Liver densities are respectively 31 Hounsfield Units (HU) and 105 HU on first and second CT while differences between liver and spleen densities are respectively -84 HU and -24 HU.

Liver biopsy is the gold-standard exam for FLD diagnosis and quantification, but this technique is invasive with a morbidity rate of 1-3% and a mortality rate of 0,01-0,03%, so that medical imaging is in the front line to identify patients with steatosis and orientate them toward biopsy if necessary (1). On CT FLD is responsible of a «dark liver» aspect: without contrast liver density 10 HU lower than spleen density is highly suggestive of fatty infiltration (sensitivity of 84% and specificity of 99%) whereas at portal venous phase liver density 20 HU lower than spleen density has a sensitivity of 86-87% and a specificity of 75-87% for FLD diagnosis. At portal venous phase liver density inferior to 40 HU is also a good indicator of FLD. MRI is considered as the most performant imaging method to assess and quantify fatty liver infiltration: several protocols including in-phase/out-of-phase imaging, fat saturation imaging and magnetic resonance spectroscopy (MRS) are currently in use for both detection and quantification of FLD. Recently MRS that directly measures proton signals from the acyl groups in hepatocyte triglyceride stores has shown accuracy for diagnosing and quantifying FLD and may be replacing liver biopsy as the new gold standard (1). Ultrasonography is non irradiant, available and low cost compared to MRI. Whereas FLD is characterized by a «dark liver» aspect in CT, US demonstrates a «bright liver» with increased echogenicity compared to right kidney cortex. Recent studies demonstrated the possibility to quantify FLD with B-mode ultrasound and computer analysis, while others demonstrated the efficiency of methods based on transient elastography (Fibrosan<sup>®</sup>) to evaluate steatosis as fibrosis (1).

This case demonstrates on one hand the reversibility of FLD if underlying cause is treated and on the other hand the possible rapidity of the regression process in less than ten days. We sincerely hope this report will encourage physicians to support abusive drinker patients to lower their alcoholic beverages consumption before irreversible damages occur.

#### *Reference*

1. Machado M.V., Cortez-Pinto H.: Non-Invasive Diagnosis of Non-Alcoholic Fatty Liver Disease – A Critical Appraisal. *J Hepatol*, 2013, 58 (5): 1007-1019.

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