29. IMAGING DIAGNOSIS IN LIVER CIRRHOSIS (ULTRASONOGRAPHY)

Author: Rather Amina

Scientific adviser: Ludmila Tertisnii, MD, Department of Radiology and Imaging, *Nicolae Testemitanu* State University of Medicine and Pharmacy of the Republic of Moldova.

Introduction. Liver Cirrhosis is a chronic disease that is irreversible and characterized by necrosis of liver parenchyma further leading to fibrosis. It is a broad hepatic disease marked by fibrosis and the transformation of normal liver architecture into structurally aberrant nodules, according to histology. Cirrhosis can develop over a period of weeks to years after a liver injury. Cirrhosis affects some persons who are fully asymptomatic and have a normal life expectancy. Others have all kinds of the most severe symptoms of end- stage liver disease, as well as a poor chance of surviving. Hepatic fibrosis has already advanced to the stage where the hepatic vasculature is distorted, resulting in vascular distortion that will cause the portal and arterial blood supply to shunt directly into the hepatic outflow via central veins. While the alcoholic liver disease was once thought to be the leading cause of chronic hepatitis and cirrhosis in the US, hepatitis C is now the leading cause of cirrhosis and chronic hepatitis in the country. Non-alcoholic fatty liver disease (NAFLD) appears to be the cause of many occurrences of cryptogenic cirrhosis. Many patients with cryptogenic cirrhosis have one or more of the conventional risk factors for NAFLD, such as obesity, diabetes, and hypertriglyceridemia. In advanced liver cirrhosis, imaging findings include atrophy of the posterior segments (6 and 7) of the right lobe, as well as hypertrophy of the lateral segments of the left lobe (segments 2 and 3) and caudate lobe. Changes in the blood flow between the segments are most likely to be responsible for these changes.

Aim of study. Cirrhosis of the liver is the final step of a complicated process that begins with hepatocyte injury and ends with partial regeneration and fibrosis of the liver. Cirrhosis stage 1 is distinguished by liver scarring but few symptoms. Compensated cirrhosis in this stage is characterized by the absence of complications. Cirrhosis stage 2 is associated with worsening portal hypertension and the appearance of varices. Cirrhosis stage 3 is described by abdominal swelling and advanced liver scarring. Decompensated cirrhosis, with serious complications and the possibility of liver failure, is diagnosed at this stage. Cirrhosis at stage 4 can be fatal, and some people develop the end-stage liver disease (ESLD), which could potentially cause death without liver transplantation. Basic imaging diagnosis of liver cirrhosis has improved over the last few decades, allowing for early detection of morphological abnormalities in the liver using ultrasonography (USG). The liver has a large area of contact with the abdominal wall.

Methods and materials. In this article, previous articles were studied and analyzed from PubMed, Google Scholar, and NCBI sites.

Results. Sonography is a safe, non-invasive, fast, and relatively low-cost method of testing the liver that can be done at the patient's bedside with minimum assistance. Ultrasound of the liver is frequently used to determine the size of the organ. Changes seen in Liver on USG include surface nodularity: (88% sensitive, 82-95% specific), overall coarse and heterogeneous echotexture, segmental hypertrophy/atrophy, caudate width: right lobe width more than 0.65 mm (43-84% sensitive, 100% specific), reduction of the transverse diameter (less than 30 mm) of the medial segment of the left lobe (segment 4).

Conclusion. The study shows the importance of Ultrasonography in Liver Cirrhosis and its stages.