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**ROLE OF HELICAL CT IN PREOPERATIVE
ASSESSMENT OF LIVING ADULT RIGHT LOBE LIVER
TRANSPLANTATION**

THESIS

Sobmitted in partial fulfillment of M.D. degree in
BY

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CASE (10)

A 71 years old male patient with history of Alpha-1 antitrypsin deficiency and cirrhosis, presented for pretransplant evaluation.

1) Preoperative Triphasic HELICAL CT reveals:

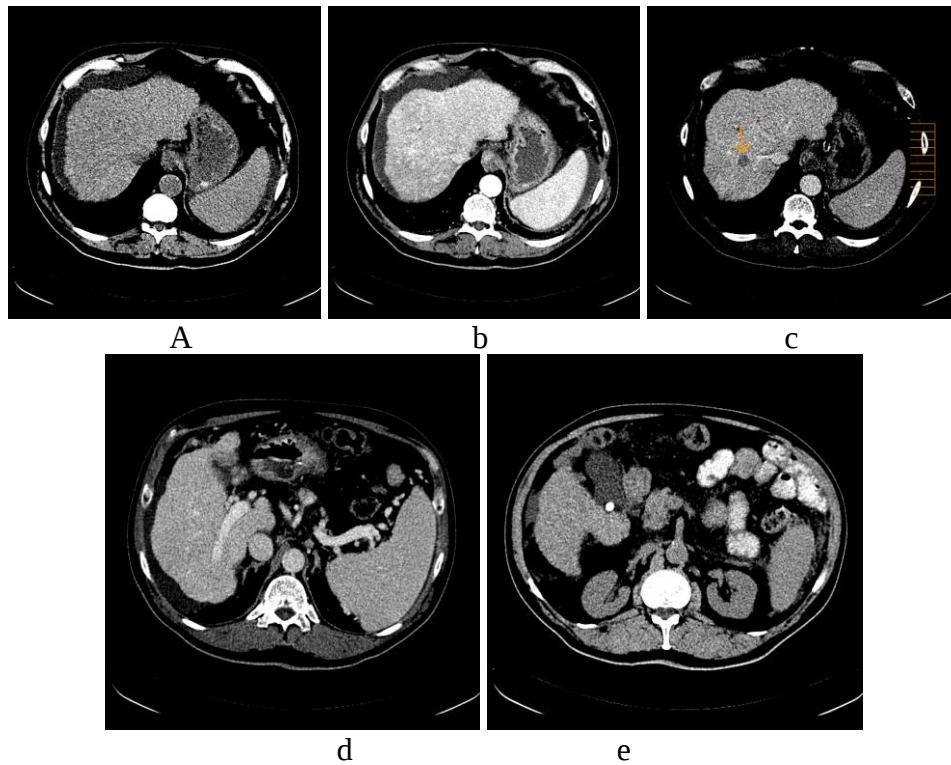


Figure (5-10-1): The liver is coarse cirrhotic, with an approximately 1.5 cm indeterminate low density lesion at the dome of the liver seen in the portal venous phase (c-arrow). Findings are suggestive of HCC. Patent SMV, splenic vein, portal vein, and hepatic veins (d). There is mild ascites. Gallstones are seen in the gall bladder (e).

2) Preoperative ULTRASOUND reveals:

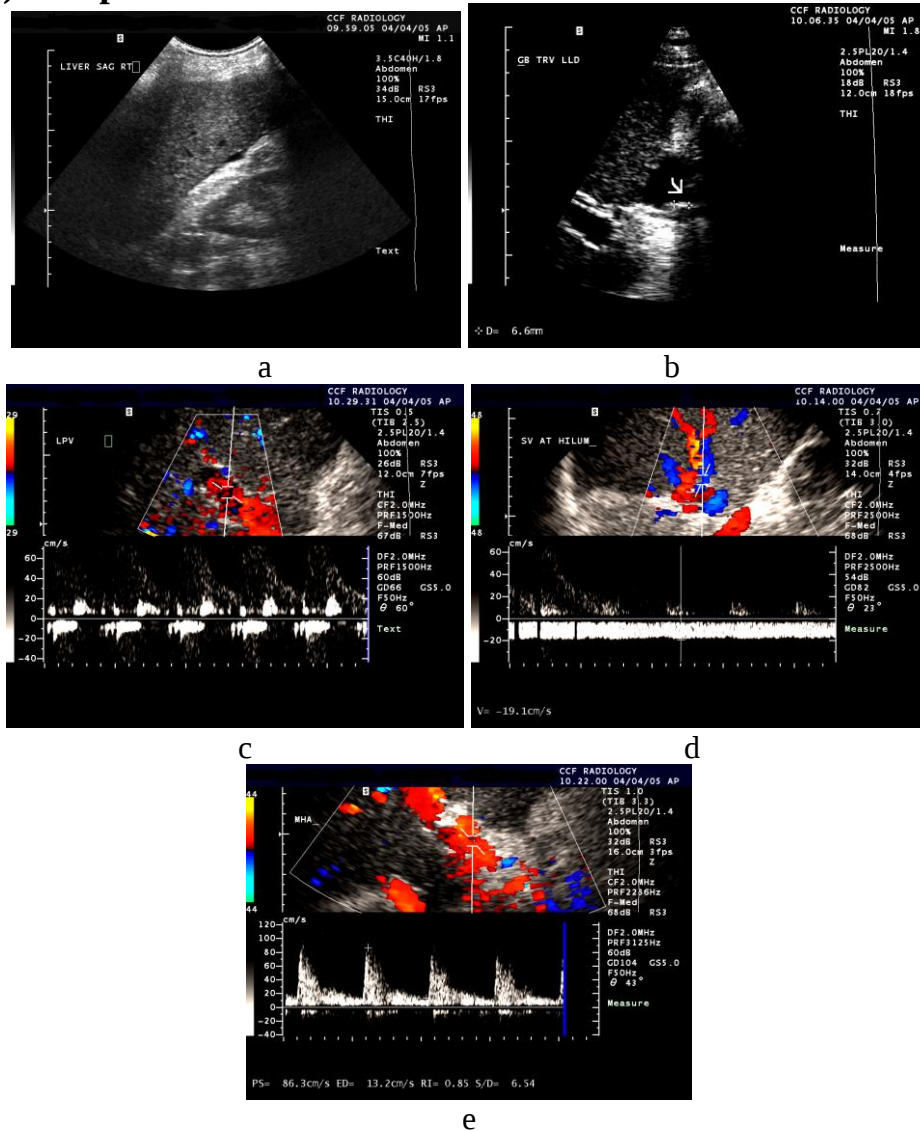


Figure (5-10-2): The liver is coarse cirrhotic (a). No focal hepatic lesions are identified. Mobile gallstones are present (b-arrow). The main and right portal vein are patent with antegrade flow. The left portal vein is patent, however, there is biphasic flow within it (c). Patency and normal direction of flow in the splenic vein (d), hepatic veins, hepatic arteries (e), and the IVC.

3) First postoperative day ULTRASOUND following OLT reveals:

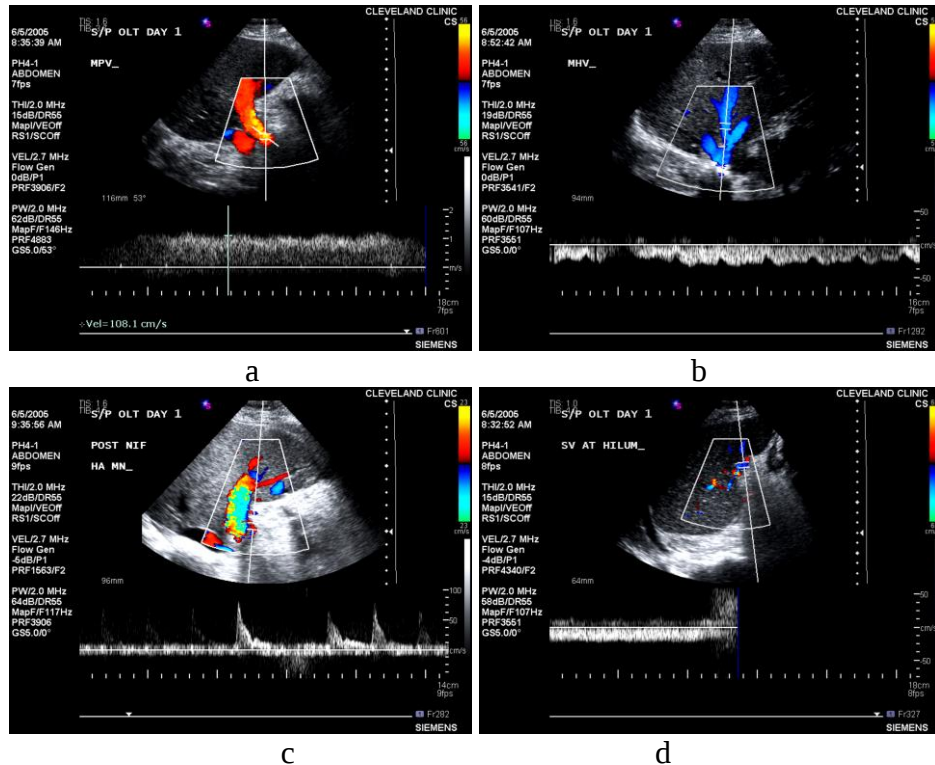


Figure (5-10-3): Patency and normal flow direction of portal vein (a), hepatic veins (b), hepatic arteries (c), splenic vein (d) and IVC. No lesion seen in liver. The spleen measures 15 cm.

4) Explanted liver PATHOLOGY reveals:

The liver is cirrhotic due to alpha-1 antitrypsin deficiency. A single 1.8 cm nodule of HCC is identified in the dome of the right lobe.

CASE (11)

A 34 years old female patient with history of HCV cirrhosis and remote history of gastric bypass, presented for pretransplant evaluation.

1) Preoperative Tripahsic HELICAL CT reveals:

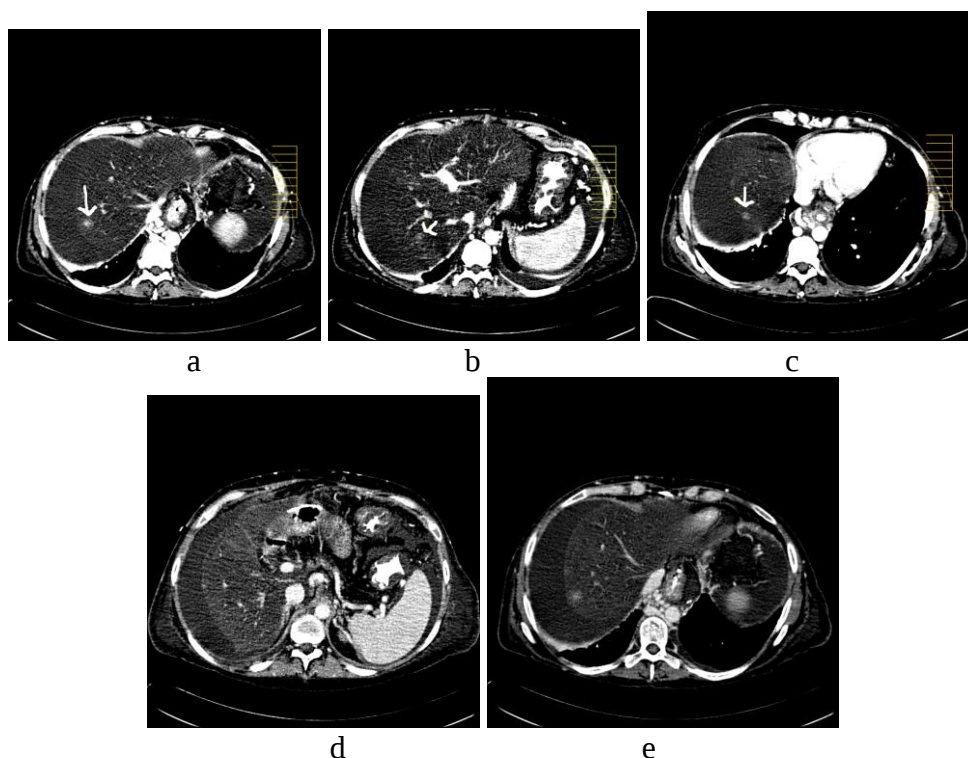


Figure (5-11-1): There is severe fatty hepatic metamorphic change. There is moderate ascites. There is a 1.5 x 1.4 cm enhancing subcapsular lesion in the dome of right lobe- segment VII (a-arrow). There are two additional subcentimeter hypervascular nodules seen in the arterial phases. One in the dome of the liver (b-arrow), and the other in the posterior segment of the right lobe (c-arrow). These lesions are suggestive of HCC. The hepatic veins, portal veins, superior mesenteric vein and splenic vein are patent (d). There are multiple large paraesophageal varices (e). The gallbladder is absent. There are postoperative changes of gastric bypass.

2) Preoperative ULTRASOUND reveals:

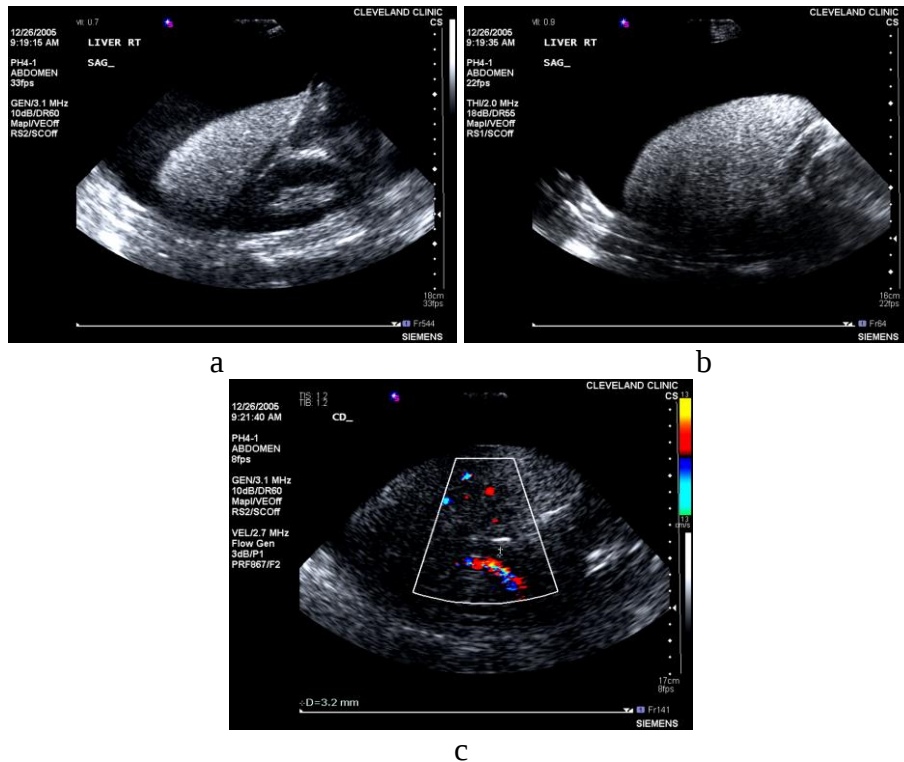


Figure (5-11-2): The liver is diffusely echogenic compatible with fatty infiltration (a). No hepatic masses are identified. There is no intrahepatic or extrahepatic biliary dilatation. There is a moderate amount of ascites (b). The CBD measures up to 3 mm in diameter (c). The gallbladder is absent.

3) Explanted liver PATHOLOGY reveals:

The liver is cirrhotic due to HCV. There are 3 separate nodules of HCC nodules in the right lobe. The largest is in segment VII measuring 1.6 cm. Two other subcentimeter nodules, one in the dome of the liver, and the other in the posterior segment of the right lobe.

CASE (12)

A 60 years old male patient with history of HCV cirrhosis, presented for pretransplant evaluation.

1) Preoperative Triphasic HELICAL CT reveals:

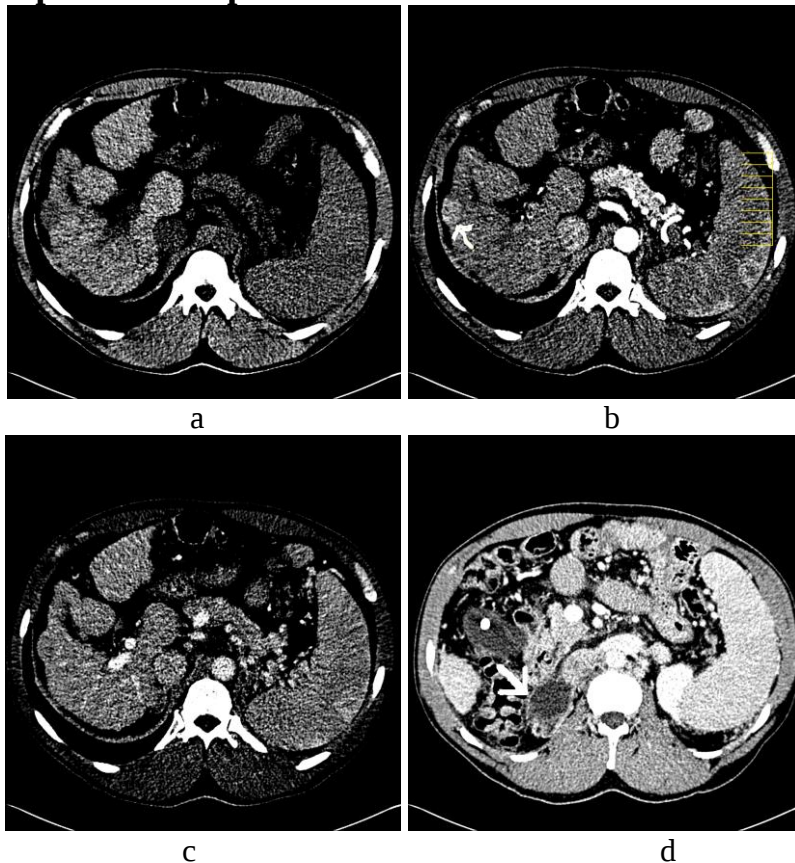


Figure (5-12-1): The liver is cirrhotic with an exophytic mass projecting off the lateral aspect of the anterior right hepatic lobe (b-arrow). It measures 2.5 by 1.8 cm. It is hypervascular, and suggestive of hepatocellular carcinoma. Markedly atrophic right kidney with hypertrophy but otherwise normal left kidney is incidentally noted. A cystic mass with perceptible wall which lies medial to the right kidney may represent a dilated renal pelvis (d-arrow). Spleen is enlarged. There is also cholelithiasis.

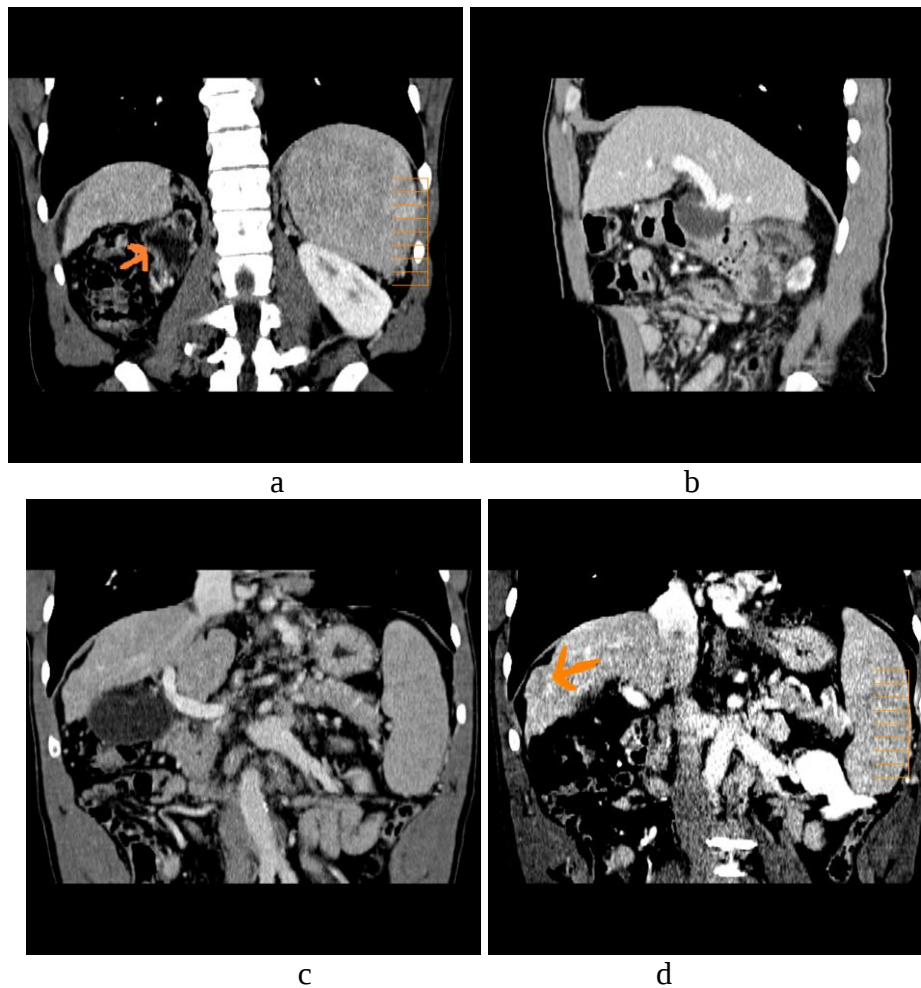


Figure (5-12-2): Multiplanar coronal and sagittal reformatting reveals markedly atrophic right kidney with hypertrophy of left kidney. A cystic mass medial to the right kidney is seen which represent a dilated renal pelvis (a-arrow). Patency of the portal vein and hepatic vasculature (b-c). Also seen the hypodense mass in the anterior aspect of the right lobe (d-arrow).

2) Preoperative ULTRASOUND reveals:

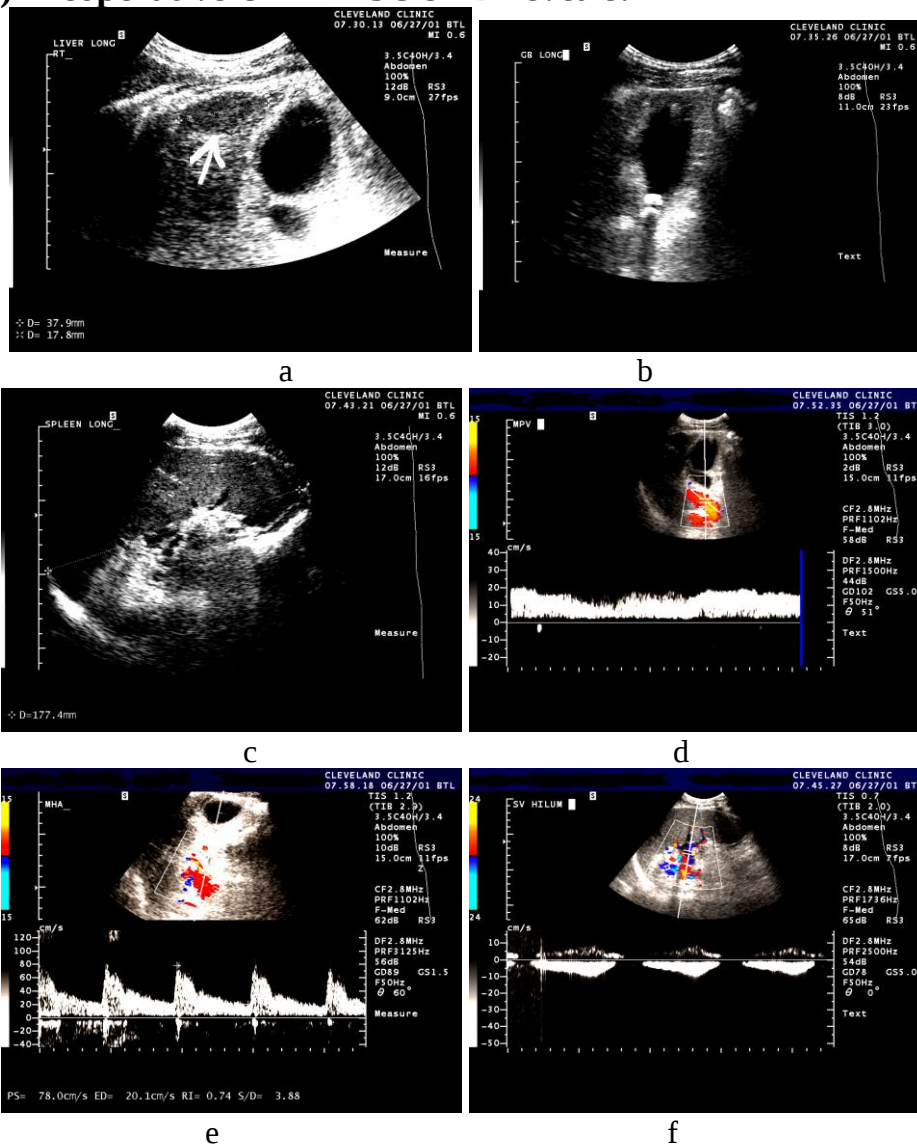


Figure (5-12-3): The liver is cirrhotic. There is approximately a 3.8 x 1.8 x 3 cm hypoechoic lesion at the anterior aspect of the lower portion of the liver lateral to the gallbladder (a-arrow). There are gallstones in the gallbladder (b). The spleen is enlarged (c). Patency and normal flow direction of portal vein (d), hepatic veins, hepatic arteries (e), splenic vein (f), and IVC.

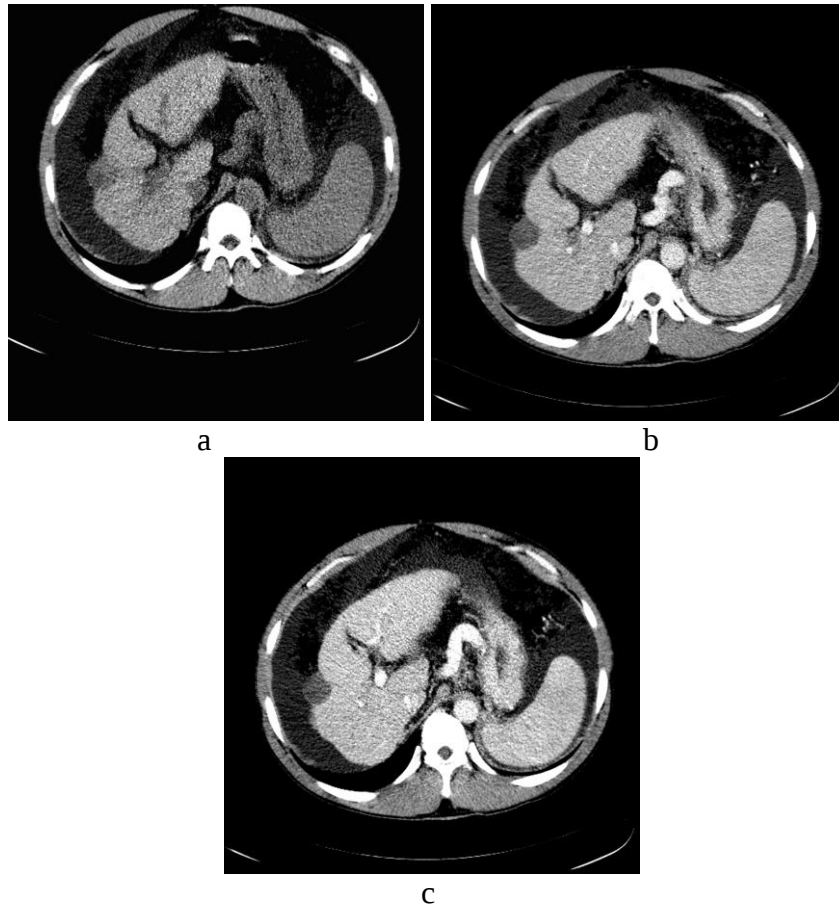
3) Pretransplant Post-RFA Triphasic HELICAL CT reveals:

Figure (5-12-4): The liver is cirrhotic with moderate ascites. There is a stable 2.9 X 2.8 cm partially exophytic radiofrequency (RFA) defect located within the anterior segment of the right lobe of the liver, at the junction of segments V and VIII.

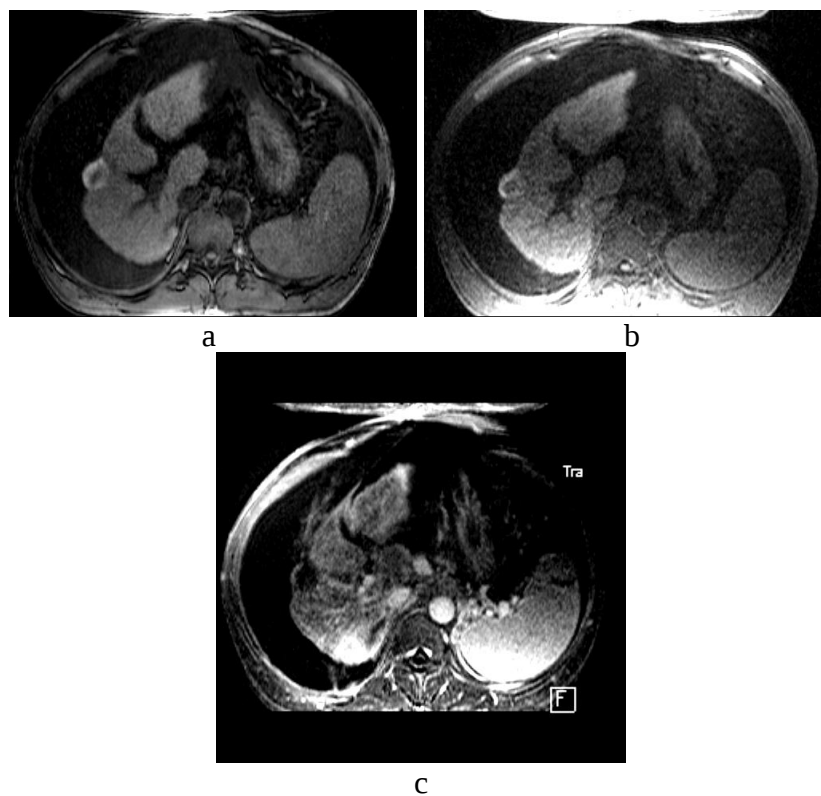
4) Pretransplant Post-RFA DYNAMIC MRI reveals:

Figure (5-12-5): The liver is cirrhotic. There is a peripheral area of abnormal signal at the junction of segments V and VIII consistent with the ablation defect. This area is predominantly high signal on precontrast T1 (a) and T2 weighted images (b). A small amount of peripheral enhancement is noted on the post contrast subtraction images (c). The defect is measuring approximately 3.1 x 2.6 cm.

5) First postoperative day ULTRASOUND following OLT reveals:

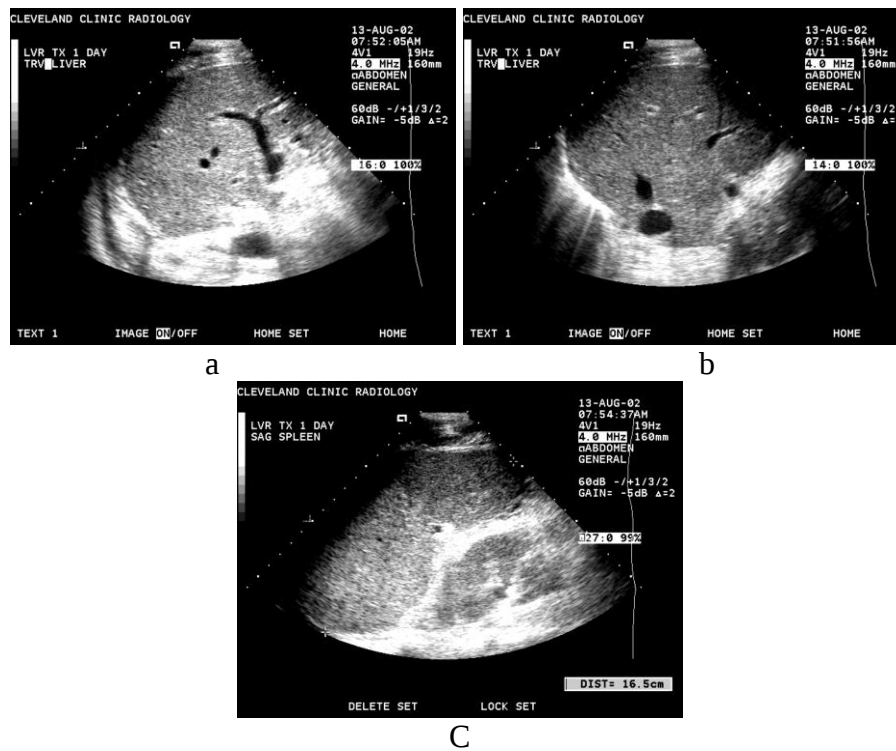


Figure (5-12-6): The liver is grossly normal in size, contour and echogenicity. No focal hepatic lesions are identified. There is no intrahepatic or extrahepatic biliary dilatation. Patency and normal direction of flow in the splenic vein, hepatic veins, portal veins, and the IVC. The left portal vein is not visualized. There is splenomegaly (c).

6) Post-OLT HELICAL CT reveals:

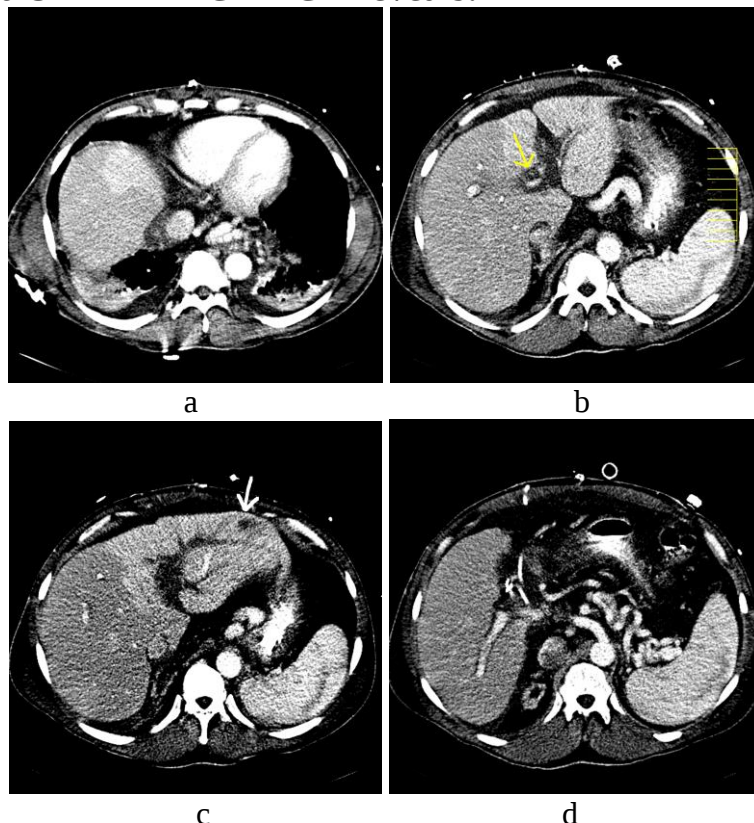


Figure (5-12-7): There are bilateral pleural effusions, left greater than right, with associated consolidation or compressive atelectasis (a). No flow can be identified within the left portal vein or its branches, with a thrombus seen in its lumen (b-arrow). There is perfusion abnormality related to this within the left hepatic lobe (c). A one centimeter low attenuation lesion is present in the lateral segment of the left lobe of the liver (c-arrow). A T-tube is present (d). Multiple collateral vessels are again identified in the upper abdomen.

7) Explanted liver PATHOLOGY reveals:

The liver is cirrhotic due to HCV. A mass lesion is identified in the anterior segment of the right lobe of the liver, at the junction of segments V and VIII. It measures 3 x 3 x 2.5 cm, consistent with necrosis of hepatocellular carcinoma.