

Elevated Liver Tests

Rajiv Sharma MD



RAJIV SHARMA MD

GASTROENTEROLOGIST

GASTROMD

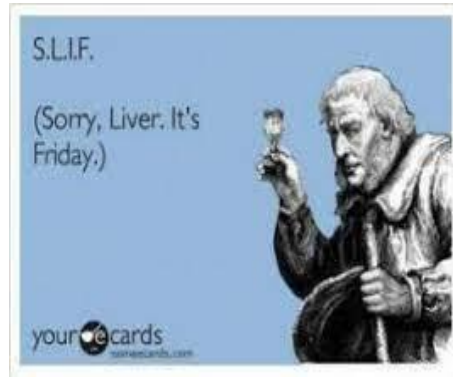
DIGESTIVE HEALTH

ASSOCIATES

drsharma@dhagastro.com

707-290-5198

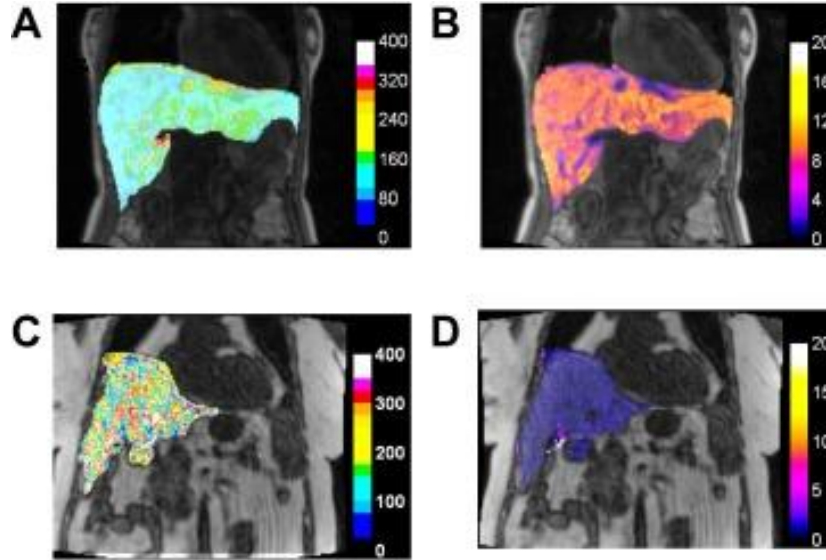
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Courtesy: Google, ECards

Liver : anatomy

- Right upper quadrant, Epigastric area
- Size : 13-16 cms in Adults
- Well vascularized: Portal vein, Hepatic artery
- Glisson's capsule encapsulates liver and is sensitive to stretch
- **Hepatic veins drain into IVC** Three large intrahepatic **veins drain** the **liver** parenchyma, **into** the inferior **vena cava (IVC)**, and are named the right **hepatic vein**, middle **hepatic vein** and left **hepatic vein**. The **veins** are important landmarks, running **in** between and defining the segments of the **liver**.



Courtesy : Google, AASLD

Elevated Liver Enzymes

- ALWAYS look at AST ALT ALP Tbili Albumin INR PTT
- Look at overall health status of patient
- Look for septic shock, toxin ingestion, tylenol, alcohol use, HIV, Hepatitis A, B, C, CMV, Herpes, EBV as causes for elevated LFTs
- Look for Obstruction that is, Bile duct stones, bile duct strictures, Pancreas mass

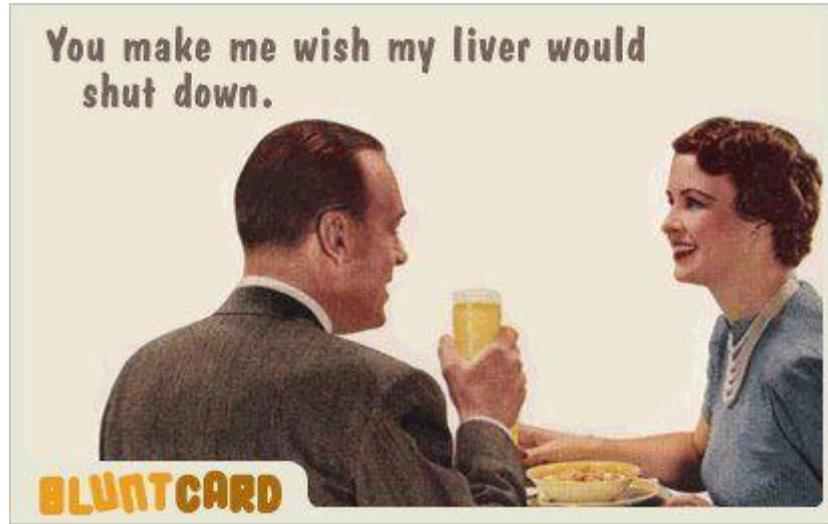
Liver Role

- Detoxification process to convert drugs, toxins into water soluble form, Ammonia metabolism
- Synthetic role : Proteins, amino acids, coagulation factors (2,7,9,10)

Albumin maintains the turgor pressure within the circulatory system and transports many drug molecules

Elevated Liver Enzymes: Imaging

- If elevated liver enzymes are from blockage of bile duct from pancreas tumor, cholangiocarcinoma, Choledocholithiasis, cholangitis then ERCP will be needed
- If Elevated LFTs are from septic shock then nothing has to be done as until the Shock gets better liver enzymes will not improve. In this case just follow the enzymes, INR and other parameters
- Make sure US of liver, CT, MRCP etc are ordered to make sure no blockage of bile ducts, pancreas cancer etc are there



Courtesy: Google, Bluntcard

Elevated Liver Enzymes: Liver Failure

- If elevated LFTs are from CHF then Cardiology consult has to be called to reduce liver congestion by improving cardiac output
- LIVER FAILURE : If LFTs keep rising, INR keeps rising and patient is in Hepatic COMA patient needs Transfer to Liver Transplant service
- Liver failure could be from Toxins, Virus infections, CHF, Budd Chiari Syndrome, Alcohol Toxicity, Cirrhosis decompensation, Tylenol toxicity and more.

Elevated Liver Enzymes: Cirrhosis

- Always check all the liver numbers
- Check for documented diagnosis by imaging - US, CT, MRI
- Always need to be 100% sure to see the word cirrhosis
- Always look for the word “ nodular contour” as alternative to the word cirrhosis
- Check all labs CBC, CMP, INR, PTT, Hepatitis A, B, C labs

Elevated Liver Enzymes: Cirrhosis

- Check serum ceruloplasmin, Alpha 1 Antitrypsin, Ferritin, Iron, TIBC
- Check Anti smooth muscle Ab, Anti Mitochondrial Antibody, Anti Liver Kidney Antibody
- Need to find the Differential diagnosis : NASH Cirrhosis, ETOH Cirrhosis, Hepatitis C cirrhosis, Hepatitis B cirrhosis, Autoimmune Hepatitis Induced cirrhosis, Idiopathic cirrhosis, Wilson's disease, Hemochromatosis and more
- Liver Biopsy needed if Autoimmune Hepatitis, Wilson's disease, Iron Overload type conditions are suspected

Elevated Liver Enzymes: Cirrhosis

- EGD : for esophagus variceal screen or for active bleeding
- Colonoscopy: for screening as per standard guidelines

Patient Education

- Healthy functional liver is critical
- Patient education for abstinence
- Good nutrition
- RD consult
- Specialty consult
- Team Approach, Access to Liver Transplant Center



**THANK YOU
PROACTIVE MD!**

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