Approach to patient with jaundice

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TUMS

- Hyperbilirubinemia
  - Direct
  - Indirect

Indirect hyperbilirubinemia

- Hemolysis
- Dyserythropoisis
  - megaloblastic and sideroblastic anemias
  - severe iron deficiency anemia
  - erythropoietic porphyria
  - erythroleukemia
  - lead poisoning
  - primary shunt hyperbilirubinemia
- Extravasation
- Gilbert and Crigler-Najjar syndrome type I and II
- Drugs : Rifamycin , probenecid, gentamicin, atazanavir
- Congestive heart failure
- Portosystemic shunts (spontaneously occurring collaterals in cirrhosis or surgical shunts)
- Hyperthyroidism
- Wilson's disease
- Physiologic neonatal jaundice

Direct Hyperbilirubinemia (I)

- Dubin-Johnson syndrome

- Rotor syndrome

Direct Hyperbilirubinemia (II & III)

- Hepatocellular injury
- Cholestatic disease
  - R index

Cholestatic disease divided to:

1) Intrahepatic cholestasis

2) Extrahepatic cholestasis

Intrahepatic cholestasis

- Drugs and toxin
  - Antibiotics
  - chlorpromazine
  - herbal medications
  - arsenic)
- Viral hepatitis
- Alcoholic hepatitis
- NASH
- PSC
- PBC
- Neoplastic process
  - Lymphoma
  - RCC
  - Prostate CA
  - Gynecologic malignancy
- TPN
  - This complication usually requires at least two to three weeks of therapy for the development of cholestasis
- Bacterial sepsis
- Signs of cholestasis can also be found in other low perfusion states of the liver (heart failure, hypotension) and hypoxemia

Intrahepatic cholestasis

- Vanishing bile duct syndrome
  - Autoimmune
  - Lymphoma
  - Drugs and toxin
  - Chemotherapy
  - Post transplantation
- Intrahepatic cholestasis of pregnancy
- Infiltrative disease
  - Sarcoidosis
  - Amyloidosis
  - Tb
- Inherited diseases
    - Benign recurrent intrahepatic cholestasis BRIC
    - Progressive familial intrahepatic cholestasis (PFIC)
    - Low phospholipid-associated cholelithiasis (LPAC)
- Alagille syndrome

Common Drugs Causing Various Drug-Induced Cholestatic Syndromes

Cholestasis without hepatitis

Anabolic steroids, estrogens, tamoxifen, azathioprine, cyclosporine, nevirapine, glimepiride, metolazone, infliximab, cetirizine

Cholestasis with hepatitis

Isoniazid, halothane, methyldopa, macrolide antibiotics, tricyclic antidepressants, amoxicillin–clavulanate, azathioprine, oxypenicillins, NSAIDs, chlorpromazine, troglitazone, celecoxib, carbamazepine, repaglinide, terbinafine, cephalexin, fenofibrate, hydrochlorothiazides, ticlopidine, pyritinol, methimazole, metformin, gemcitabine, orlistat, celecoxib, gabapentin, propafenone, acitretin, isoflurane, bupropion, captopril, resperidone, propafenone, chlorambucil, risperidone, glimepiride, propIthiouracil, itraconazole, dextromethorphan, atorvastatin, *Senna*, *Cascara sagrada*, *Lycopodium serratum*

Cholestasis with bile duct injury

Carmustine, toxins (paraquat, methylenedianiline), flucoxacillin, dextropropxyphene, tenoxicam, gold therapy, pioglitazone, amoxicillin-clavulanate

Vanishing Bile Duct Syndrome (Ductopenia)

Aceprometazine, ajmaline, amineptine, amitriptyline, amoxicillin–clavulanic acid, ampicillin, azathioprine, barbiturates, carbamazepine, carbutamide, chlorothiazide, chlorpromazine, cimetidine, ciprofloxacin, clindamycin, co-trimoxazole, cromolyn sodium, cyamemazine, cyclohexyl propionate, cyproheptadine, D-penicillamine, diazepam, erythromycin, estradiol, flucloxacillin, glibenclamide, glycyrrhizin, haloperidol, ibuprofen, imipramine, methyltestosterone, norandrostenolone, phenylbutazone, phenytoin, prochlorperazine, terbinafine, tetracyclines, thiabendazole, tiopronin, trifluoperazine, tolbutamide, trimethoprim-sulfamethoxazole, troleandomycin, xenalamine

Sclerosing cholangitis–like cholestasis

Floxuridine, intralesional agents (hypertonic saline, iodine solution, formaldehyde, absolute alcohol, silver nitrate)

A 28 years old man presented with jaundice and early satiety since 3 months ago. He suffered from purities from 6 months ago intermittently.

PMH and FH was unremarkable

P.Exam: Normal

Lab data:

T.Bili= 4.9 (D.Bili= 3)

ALT=56 AST=28 ALP=837

WBC=3600 Hb=11.2 (MCV=69) PLT=96000

ESR=87

Albumin=4.1

INR=1.08

What is your next step?

A) Sonography

B)Viral markers

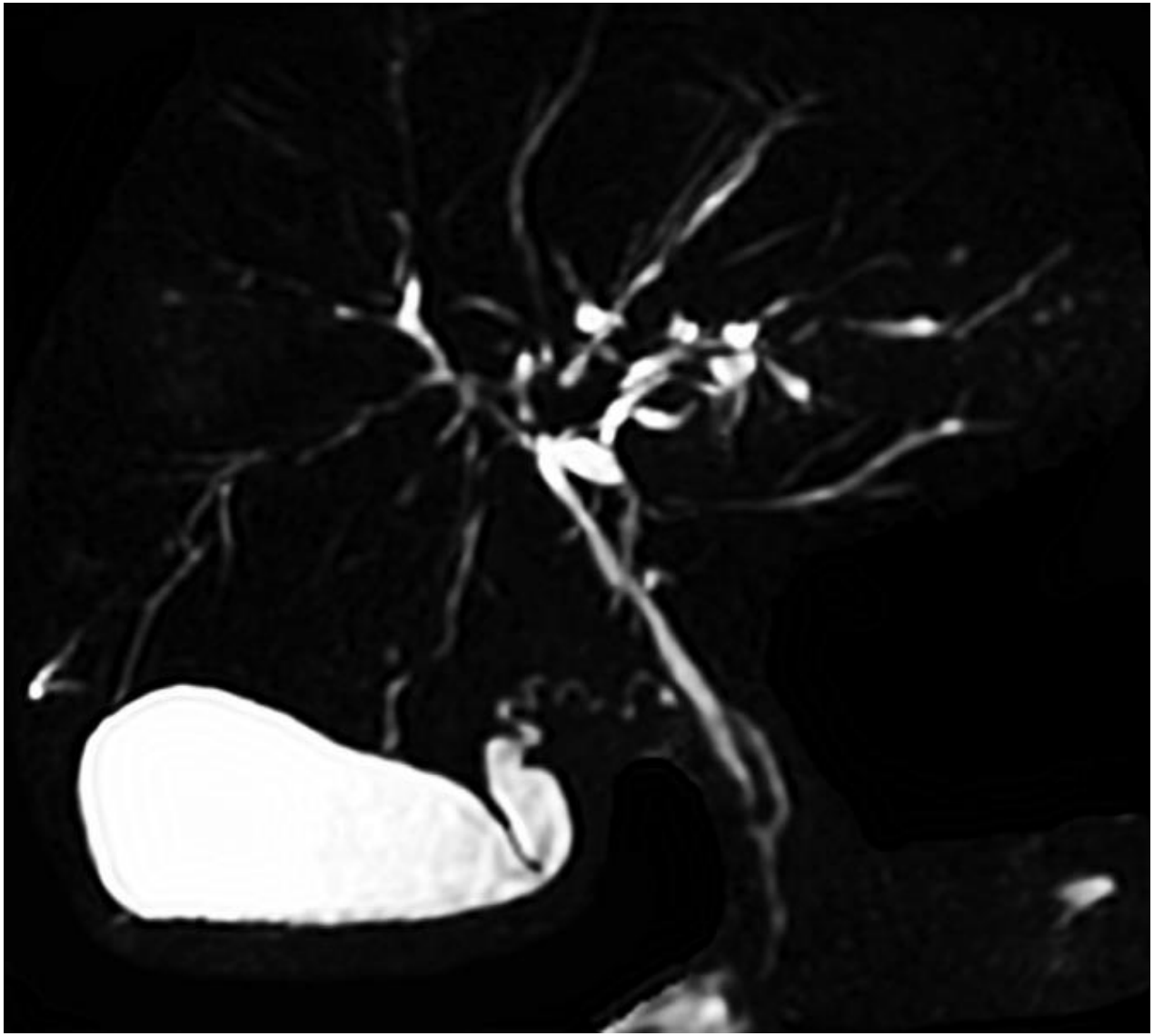
C)Auto-immune marker

D)Ceruloplasmin for Wilson disease

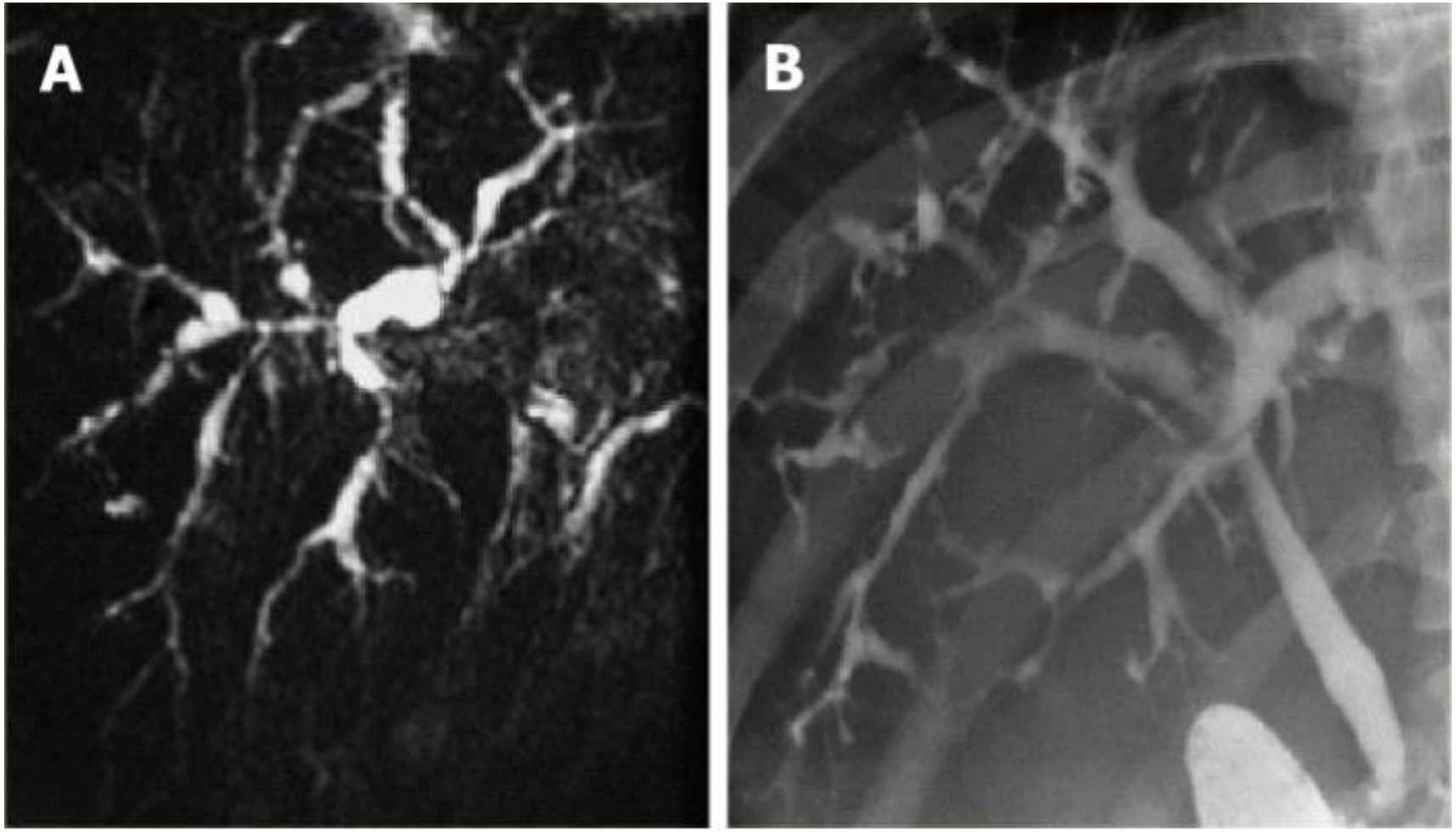
- Sonography revealed:
  - mild hepatomegaly
  - marked splenomegaly
  - Normal GB
  - IHBD was normal
  - CBD was normal

What is your next step?

A) Liver biopsy
B) AMA
C) Auto-immune marker
D) MRCP



What is your Dx?


A
B

Extrahepatic cholestasis

- Benign
  - Cholelithiasis
  - Chronic pancreatitis
  - AIDS cholangiopathy
  - Biliary strictures after cholecystectomy
  - Sphincter of Oddi dysfunction
  - Mirizzi's syndrome
  - Parasitic infections
  - Choledochal cyst
  - Autoimmune cholangiopaty/pancreatitis

- Malignant
  - Peri-ampullary tumor
  - Klutskin tumor
  - Hilar metastasis

A 68 years old man presented with jaundice and weight loss since 2 months ago. Purities and loss of appetite was added.

PMH: DM and HTN

P.Exam : Normal

Lab data:

T.bili =17 (D.bili=7)

Cr=1.1

Hb=10.8 /WBC=6700/PLT=550000

Albumin=3.6

ALT=78

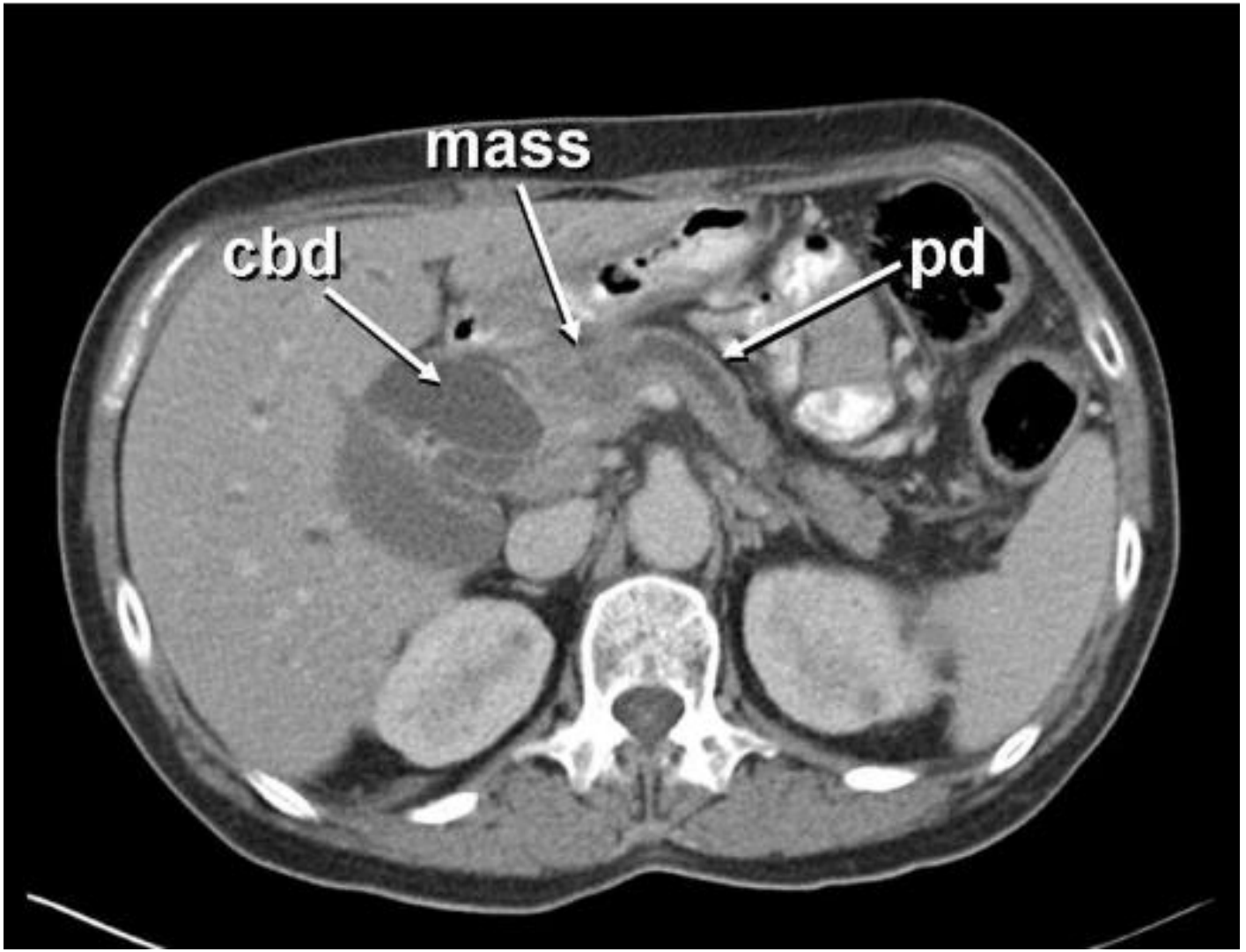
AST=67

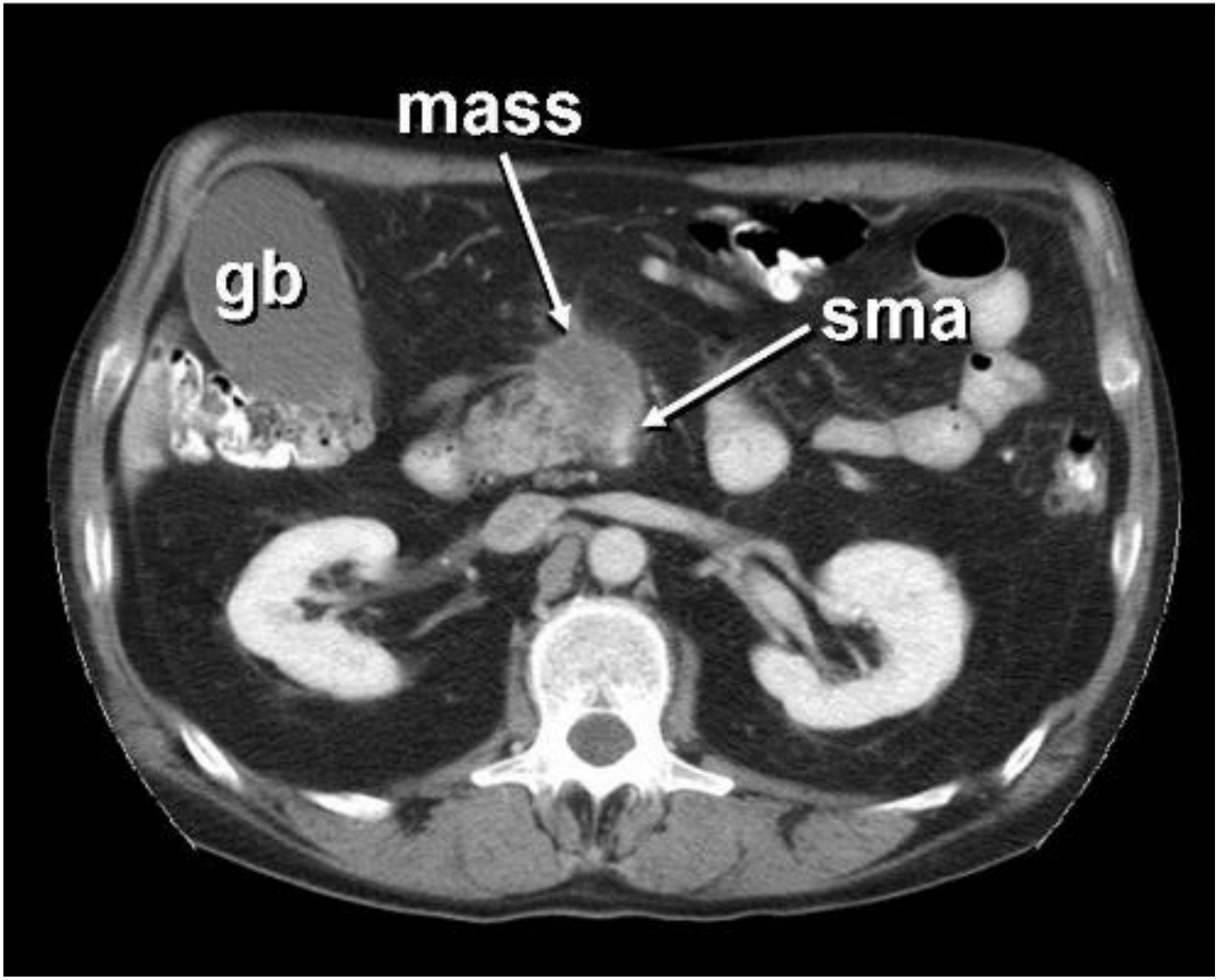
ALP=1240

Sonography revealed dilated CBD and IHBD. GB was distended. Mild ascites was present. No hepatosplenomegaly

What is your next step?

- EUS
- MRCP
- CT scan
- Abdominocentesis


mass
cbd
pd


mass
gb
sma

Hepatocelluar injury

- Acute Vs chronic liver disease
- Etiology
  - Viral
  - Drug
  - Autoimmune
  - Alcohol
  - Wilsone
  - Ischemia
  - Hemochromatosis
  - CBD stone can mimic acute hepatocellular injury
- Acute management