Portal Hypertension

- Is when portal v. pressure >5mmHg than IVC pressure, or >15 mmHg than splenic v.
- Normal p. is 5-10 mmHg in portal v., has no valves
- It supply 75% blood & 72% O2 to liver
- 1-1.5 liter /mint. Of the blood supplied to liver
- Portal v. communicated with systemic circulation via gastro-oesophageal junction, anal canal, falciform ligament, splanic venous, retroperitoneal and left renal vein.

Etiology of portal hypertension:

- Most common cause is liver cirrhosis
- It may be:

**Presinusoidal**
- Sinistral/extrahepatic
  - Splenic vein thromboisis
  - Splenomegaly
  - Splenic arteriovenous fistula
- Intrahepatic
  - Schistosomatic
  - Congeital hepatic fibrosis
  - Nodular regenerative hyperplasia
  - Idopathic portal fibrosis
  - Myeloproliferative disorder
  - Sarcoi
  - Graft-versus-host disease

**Sinusoidal**
- Intrahepatic
  - Cirrhoisis
    - Viral infection
    - Alcohol abuse
    - Primary biliary cirrhosis
    - Autoimmune hepatitis
    - Primary sclerosing cholangitis
    - Metabolic abnormality

**Postsinusoidal**
- Intrahepatic
  - Vascular occlusive disease
- Posthepatic
  - Budd-Chiari synrome
  - Congestive heart failure
  - Inferior vena cava web
  - Constrictive pericarditis

Clinical features:

1. Haematemesis duo to gastro-esophageal varices
2. Splenomegaly associated with hypersplenism causing pancytopenia
3. Caput medusa due to umbilical vein opening, you may hear audible venous hum-Cruveilhier-Baumgarten murmur
4. Ascites
5. Anorectal varices
6. Increasing cardiac output causing generalised vasodilatation.
1- Treatment of esophageal varices:

A. Prevention of bleeding
   - Abstention from alcohol
   - Avoidance of aspirin, NSAID
   - B-blockers as propranolol, nadolol
   - Prophylactic endoscopic variceal ligation

B. Treatment acute variceal bleeding
   1. Admission ICU
   2. Blood resuscitation
   3. Coagulopathy problems, FFP, plasmin, vit K injection
   4. Cirrhotic pts. High risk for bacterial infection, short term prophylaxis as Ceftriaxone
   5. Drugs Vasopressin or somatostatin or its analogue
   6. Octerotides
   7. Oesophagogastroduodenoscopy (OGD)
      i. Sclerotherapy with ethanolamine oleate
      ii. Banding
   8. 10-20% needs shunt treatment or TIPSS (Transjugular Intrahepatic Portosystemic Stent Shunt)
   9. Ballon tamponade (Sengstaken-Blakemore tube)

2- Treatment of gastric varices: is the same lines as esophageal varices

3- Surgical shunts: which is decreased since introduction of the TIPSS and liver transplantation.

4- Treatment of cases due to portal vein & splenic thrombosis by Sugiura operation (splenectomy, lower esophagus and gastric devascularization).
Ascites

- Accumulation of free peritoneal fluid
- Common features of the advanced liver disease independent of the etiology
- **Etiology:**
  1. Advanced liver disease
  2. Cancer
  3. Acute pancreatitis ascitis
  4. TB
  5. Primary peritonitis
  6. Other causes
- **Clinical features:**
  - Insidious
  - Abdominal discomfort and dragging sensation
- **Diagnosis:**
  - Clinically
  - US and CT-abdomen confirm it
  - Aspiration
    - Cytology
    - Amylase content
    - C&S test
- **Treatment:**
  1. Restrict additional salt intake
  2. Diuretics as furosemide, spironolactone
  3. Prevent liver impairment by avoiding precipitating factors as alcohol
  4. Avoid hyponatremia and hypokalemia
  5. Abdominal paracentesis
  6. Liver transplantation for ascites in diuretic resistant ascites and patients with deterioration liver v function (rising bilirubin, dropping albumin, prolong PT)
  7. Peritoneovenous shunting (Le Veen shunt, Denver shunt)
  8. TIPSS

Benign Liver Lesions

- **Include:** Cysts, Hemangioma, Adenoma, Focal nodular hyperplasia, Bile duct hamartoma

1-Hemangioma

- Most common benign lesion, 2-20% of the population
- Common in women
- Consist of abnormal plexus of blood vessels, endothelial-lined space, contain fibrous tissue, congenital.
- Size range from < 1 to 10-25 cm. called giant cavernous hemangioma
- Often multiple
- **Clinical features:**
  - Pain
  - Rarely rapture spontaneously to peritoneal cavity
- **Diagnosis:**
  - By U/S, if uncertain do CT abdomen.
  - No percutaneous biopsy .....bleeding occur
- **Treatment:**
  - Small one no treatment
  - If symptomatic (pain) ...surgery (enucleation or formal resection)
  - If giant type ....controversial
2-Hepatic adenoma

- Rare
- Common in young women
- Well circumscribed & vascular solid tumor with no bile duct gland or kuffer cells.
- Malignant risk potentially to change to hepatocellular carcinoma (HCC)
- Clinically the patient may have abdominal pain or bleeding because it carries also significant risk of spontaneous rupture with intra-peritoneal bleeding.
- Associated with sex hormones including oral contraceptive pill (OCP)
- Regression of symptomatic adenoma occur if pt. stop using pill.
- Radiologically cannot differentiate from malignant lesions, so do CT-Abdomen angiography
- Confirm the diagnosis by liver biopsy
- Treatment is resection

3-Focal nodular hyperplasia

- Unusual benign lesion of unknown etiology
- No association with underlying liver disease
- Common in middle aged women
- It is a focal overgrowth of the functioning liver tissue supported by fibrous stroma, with central scar tissue.
- Do not rupture and has also no significant change to carcinoma.
- May cause abdominal pain.
- Diagnosis by U/S- CT-abdomen but sulphur colloid liver scanning differentiate it from benign adenoma and primary or metastatic cancer lesions.
- Treatment if causing pain do resection and stop using pill.

4-Bile duct hamartoma

- Small lesions (2-4mm) on surface of the liver.
- Firm, smooth, whitish-yellow in color
- Difficult to differentiate it from metastatic cancer
- Treatment needs excisional biopsy

Malignant Liver Tumors

1-Primary

- Hepato-cellular cancer (HCC)
- Cholangio-carcinoma (bile duct cancer)
- Gall bladder cancer

2-Metastatic

- Colorectal metas, is commonest cause for metas., 60% metastases to liver
- Neuro-endocrine cancer (carcinoid, islet cell tumor)
- Other metastatic tumors, nearly every cancer has propensity to metas. to liver specially breast, long, other GIT tumors

Hepato-cellular carcinoma

- 5th commonest carcinoma worldwide, 1,000,000 new cases annually
- Increase incidence due to association with chronic liver disease (HBV, HCV)
- So screening of patients with viral disease with serial liver sonography and AFP is necessary
- Multifocal usually
- Middle age affected mostly
- 70-80% has liver cirrhosis
- In cirrhosis 3-6% annually change to HCC
- Metastases to long and bone, so needs CT of the chest and bones for staging especially
- Risk factors: HBV, HCV, Alcoholic cirrhosis, Hemochromatosis, Nonalcholic steatohepatitis
- Clinical features: Symptoms of chronic liver disease (malaise, weakness, jaundice, ascites, variceal bleeding, and encephalopathy) or anorexia, loss of weight in advanced cancer.