

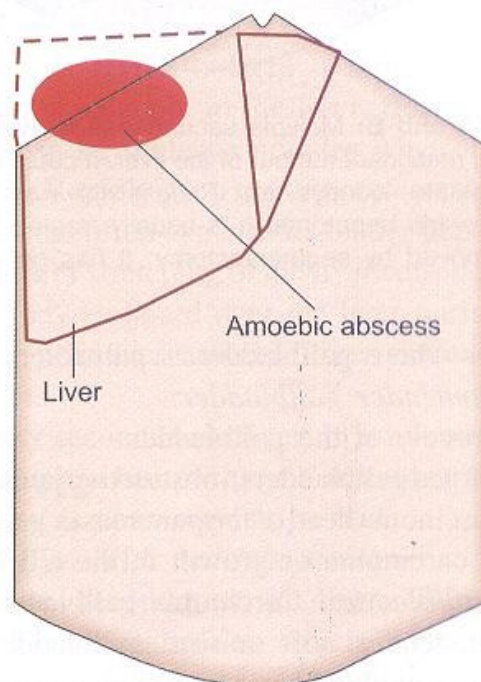
**Fig. 21.40:** Hepatocellular carcinoma/hepatoma. It is common in right lobe, uncentric, attains large size.

#### Amoebic liver abscess

- It is due to *Entamoeba histolytica* infestation
- It is more common in alcoholics and cirrhotics
- Single abscess is common—70%; common in right posterosuperior lobe—80% (**Figs 21.41 and 21.42**)
- Chocolate coloured *anchovy sauce* pus is classical
- Secondary infection can occur—30%—life threatening due to septicaemia
- It can be acute or chronic; both mimic hepatoma
- Rupture into lungs—commonest site of rupture
- Most dangerous rupture is into pericardium—left lobe abscess
- Liver failure can develop in cirrhotic patient
- Common in males (20:1), fever, pain, intercostal tenderness, tender liver—features
- Mimics cholecystitis, subphrenic abscess, hepatoma
- Total count, LFT, prothrombin time, US abdomen are relevant investigations
- Chest X-ray may show right sided sympathetic pleural effusion
- CT scan to differentiate from hepatoma
- Treatment—drugs like metronidazole, injection dihydroemetine, chloroquine tablets, diloxanide furoate; after controlling prothrombin time using inj vitamin K or FFP US guided aspiration; if recurs percutaneous guided drainage using pigtail catheter; open laparotomy and drainage with placement of Malécot's catheter



**Fig. 21.41:** Anchovy sauce pus in amoebic liver abscess.



**Fig. 21.42:** Common location of amoebic liver abscess—posterosuperior part of right lobe.

#### Subphrenic Abscess

Subphrenic abscess presenting as mass is not common but mimics mass in the right hypochondrium. Common causes are postoperative sepsis, perforated duodenal ulcer, trauma.

**Features:** Pain, fever with often rigors, anorexia, nausea, tachycardia, tachypnoea. Pain may be present or may not be clear. When present it may be in the right hypochondrium/epigastrium/right thorax/lumbar region or may be referred to right shoulder. Tenderness in 11th intercostal space is very evident; tenderness



in right hypochondrium or in the loin is seen. Right sided pleural effusion can occur. Reduced breath sounds on right lower areas may be a feature. Jaundice is usually absent. There are 4 intraperitoneal and 3 extraperitoneal spaces. **Bernard** said—'Pus somewhere, pus nowhere, pus under diaphragm'.

#### *Courvoisier's Law*

**'In a patient with jaundice if there is palpable gallbladder, it is not due to stones'.**

In obstruction due to CBD stone, gallbladder does not distend because it is chronically inflamed, thickened and fibrotic.

In malignancy, like carcinoma of head of the pancreas or periampullary carcinoma, gallbladder will be distended and palpable to the right of rectus muscle in the right hypochondrium, as nontender, globular, smooth, soft, dull mass which moves with respiration and with horizontal mobility. *Exceptions for the rule are*—Absence of gallbladder; intrahepatic gallbladder; previous cholecystectomy; double impacted stone; large stone in Hartman's pouch.

#### **Surgical Jaundice**

**Causes:** Biliary atresia; choledochal cyst; CBD stones; ascending cholangitis; biliary strictures; sclerosing cholangitis; carcinoma of head and periampullary region of the pancreas; cholangiocarcinoma; *Klat skin tumour* (Carcinoma at the confluence of hepatic ducts above the level of the cystic duct and so will cause hydrohepatosis without GB enlargement); extrinsic compression of CBD by lymph nodes or tumours; parasitic infestations.

#### *Classification of Causes of Obstructive Jaundice*

*Congenital:* Biliary atresia, choledochal cyst

*Inflammatory:* Ascending cholangitis, sclerosing cholangitis.

*Obstructive:* CBD stones.

*Neoplastic:* Carcinoma of head or periampullary region of pancreas, cholangiocarcinomas, Klat skin tumour.

*Extrinsic compression* of CBD by lymph nodes or tumours.

#### *Investigations for Obstructive Jaundice*

Serum bilirubin. Normal value is less than 1.0 mg%. Both direct and indirect bilirubin is assessed. Direct is increased in obstructive jaundice, i.e. conjugated hyperbilirubinaemia. Vandenberg test is done.

*Serum albumin, globulin and A: G ratio.* Normal S. albumin is more than 3.5 gm%.

*Prothrombin time.* Normal value is 12-16 seconds. It is significant if it is more than 4 sec from the control or more than one and half times the control. It is corrected by injection vitamin K 10 mg IM od for 5 days or by fresh frozen plasma.

Serum alkaline phosphatase, SGPT, SGOT, 5' nucleotidase.

US abdomen.

ERCP to visualise site of obstruction, brush biopsy, bile sample for analysis.

MRCP—Noninvasive diagnostic tool.

CT scan in case of tumours to assess operability.

**Urine tests:** Fouchet's test for bile pigments, Hay's test for bile salts and test for urobilinogen in urine.

**Fouchet's test:** 10 ml of urine + 5 ml of BaCl<sub>2</sub> + pinch of MgSO<sub>4</sub> causes formation of BaSO<sub>4</sub> which is filtered over a filter paper and few drops of Fouchet's reagent is added. Green or blue colour signifies bile pigments in the urine.

**Hay's test for bile salt:** Sprinkle sulphur to 2 ml of urine. In presence of bile salts sulphur sinks to the bottom.

**Ehrlich's test:** 5 ml of freshly voided urine + 1 ml of Ehrlich reagent (p-dimethyl amino benzaldehyde) and wait for 5 minutes. Formation of red colour signifies presence of urobilinogen in urine. Normally it is present in traces, in obstructive jaundice it is absent and in haemolytic jaundice it is in excess.

#### *Preoperative Preparation of Patient with Obstructive Jaundice*

Proper diagnosis and assessment; Injection Vitamin K IM 10 mg for 5 days; Fresh frozen plasma—often requires 6 bottles or more; blood transfusion in case of anaemia; oral neomycin, lactulose; Mannitol 100-200 ml BD IV to prevent hepatorenal syndrome;



repeated monitoring by doing prothrombin time, electrolytes; antibiotics like third generation cephalosporins; Calcium supplements as calcium chloride IV.

#### *Treatment of Obstructive Jaundice*

CBD stones—ERCP stone removal, Choledocholithotomy, Transduodenal sphincteroplasty, Choledochojunostomy or Choledochoduodenostomy.

Carcinoma periampullary or head of pancreas—Whipples operation or Triple bypass or ERCP stenting.

Biliary stricture—Stenting, Choledochojunostomy, Roux en Y hepaticojejunostomy.

Klat skin tumour—Radical resection or palliative stenting.

Biliary atresia—Kasai's operation or liver transplantation.

Choledochal cyst—Excision, hepaticojejunostomy, mucosal resection.

#### *Postoperative Management*

Monitoring with prothrombin time, bilirubin, albumin, creatinine, electrolyte estimation; FFP or blood transfusion; Antibiotics; Observation for septicaemia, haemorrhage, pneumonia, pleural effusion, bile leak; Care of T tube and drains; T tube cholangiogram in 10-14 days; TPN, CVP line, nasogastric tube, urinary catheter.

### **Portal Hypertension**

Sustained raise of portal pressure more than 12 mmHg. Isolated splenic vein thrombosis causes left sided sinistral/segmental portal hypertension.

*Causes are*—(a) Prehepatic—portal/splenic vein thrombosis, trauma, periportal inflammation, hypercoagulable status, neonatal umbilical sepsis. (b) Hepatic (80%)—cirrhosis, idiopathic, primary biliary cirrhosis, hepatitis, schistosomiasis, Wilson's disease, haemochromatosis, congenital hepatic fibrosis. (c) Post-hepatic—Budd-Chiari syndrome, constrictive pericarditis, veno-occlusive disease, congestive cardiac failure.

*Presentations*—Oesophageal varices (haematemesis/melaena), splenomegaly, ascites, jaundice, features of encephalopathy.

*Investigations*—Gastroscopy, LFT, splenoportography, US abdomen, CT abdomen, prothrombin time, liver biopsy.

*Acute bleed* is managed by pharmacotherapy (vasopressin, glypressin, octreotide, propranolol, Sengstaken-Blakemore balloon tamponade, surgical ligation of varices by various approaches.

*Further bleeding* is prevented by endoscopic banding for oesophageal varices; sclerotherapy; endoscopic glueing for gastric varices.

*Shunt surgery* is done if it is Child's grade A or B. Selective shunts like distal splenorenal shunt (Warren's shunt) or Inakuchi shunt between left gastric vein and IVC. Portocaval, mesentericocaval, proximal splenorenal shunts are nonselective shunts.

*Orthotopic liver transplant* is ideal and best. If patient is ideal for liver transplant open shunt surgery is contraindicated as liver hilum should be kept virgin for effective transplantation. TIPSS—Transjugular Intrahepatic porta Systemic Stenting can be done in these patients. TIPSS is a nonselective shunt.

#### *Indications for Shunt Surgery: Child's Grades A and B*

(Child's grading is used for selecting patients for surgery and predicting prognosis)

*Surgery is contraindicated in Child C.*

	Child A	B	C
Bilirubin	<2.0 mg	2.0-3.0 mg	>3.0 mg
Albumin	>3.5	3.0-3.5	<3.0
Ascites	None	Controlled	Uncontrollable
Mental status	Normal	Disoriented	Coma
Nutrition	Very good	Good	Poor
Score	5-6	7-9	10-15

P.T.                    Increase            Increase            Increase >6  
                                 up to 3            bet 3-6

#### **(Pugh's modification)**

#### *Palpable Left Lobe of the Liver*

It lies in the epigastric region; its upper border cannot be felt; It moves with respiration; It extends towards left hypochondriac region; It is dull on percussion.



## MASS IN THE EPIGASTRIUM

**Parietal swellings**

Sebaceous cyst, lipoma, neurofibroma, cold abscess (from ribs or spine, presents as soft, fluctuant nontender well localised swelling), liver abscess or subphrenic abscess rupturing into the abdominal wall presenting as parietal wall abscess.

Abscess in left lobe of liver rupturing into parietal wall

*Epigastric hernia* – specific

**Intra-abdominal mass (Figs 21.43A and B and 21.44)**

Left lobe of the liver – Abscess, hepatoma, secondaries

Stomach – Congenital pyloric stenosis, carcinoma, gastric ulcer perforation forming an abscess in the lesser sac, carcinoma of stomach, leiomyoma of stomach

Transverse colon mass

Omental mass

Pancreatic mass

Lymph nodal mass

Aortic aneurysm

Retroperitoneal swellings like cyst, sarcoma, teratoma

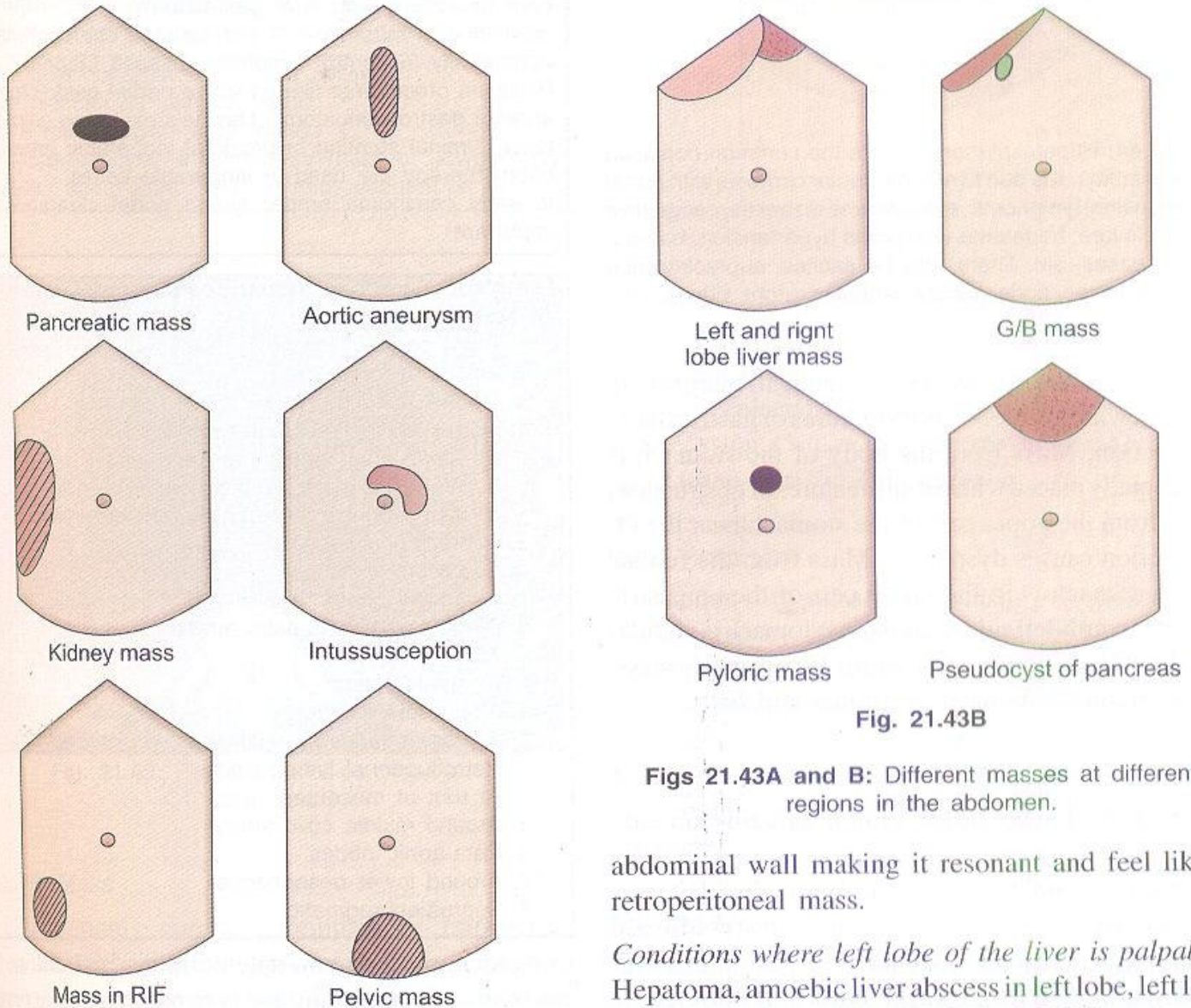


Fig. 21.43A

Fig. 21.43B

**Figs 21.43A and B:** Different masses at different regions in the abdomen.

When amoebic liver abscess occurs in left lobe, it gets adherent to anterior abdominal wall, mass will not move with respiration and is immobile, causes oedema of the abdominal wall and is dull on percussion. Occasionally bowel may interpose between liver and

abdominal wall making it resonant and feel like a retroperitoneal mass.

*Conditions where left lobe of the liver is palpable:* Hepatoma, amoebic liver abscess in left lobe, left lobe secondaries, hydatid cyst of the left lobe.

**Features of Stomach Mass**

It lies in the epigastric region; It moves with respiration; It is intra-abdominal; It is resonant or impaired resonant on percussion; Mass may be better felt on standing or on walking; Mass is often mobile, unless it gets