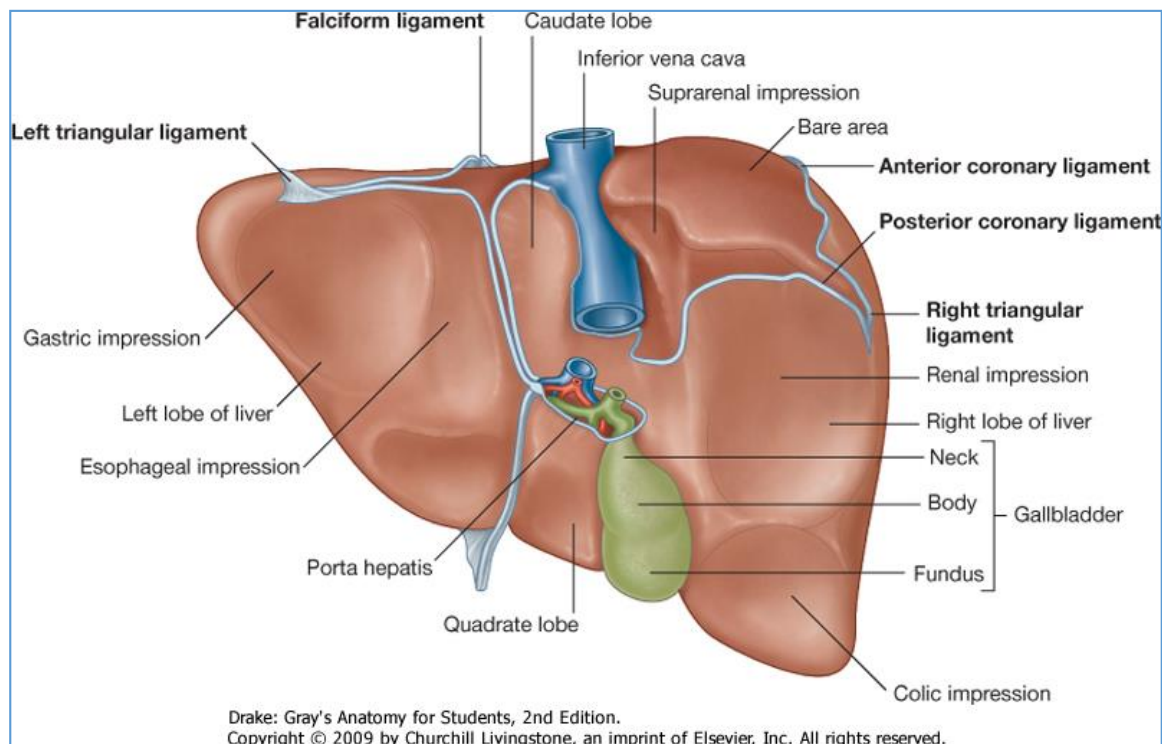


Liver: largest organ in the body (1.5kg)

Site: Extend from fifth intercostal space to right costal margin, so impalpable & protected below the ribs

Shape: Triangular (wedge)

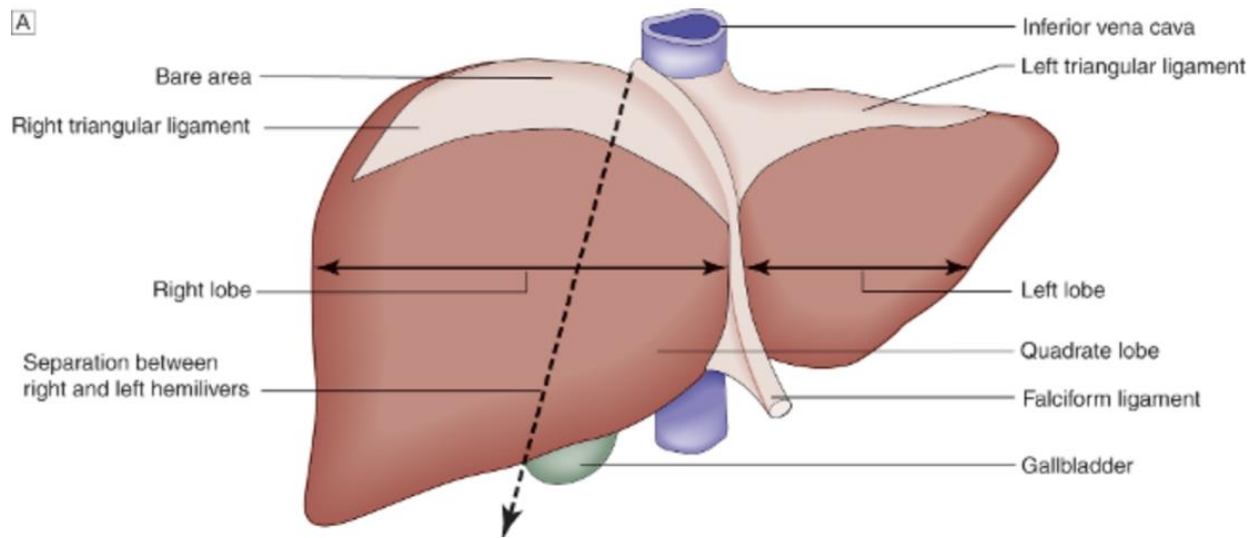
Relations: 1) **Diaphragmatic** (superio-anterior): attached to undersurface diaphragm by suspensory ligament which represents bare area (area not covered by peritoneal cavity)
2) **Visceral** (infero-posterior): right kidney, duodenum, colon, stomach



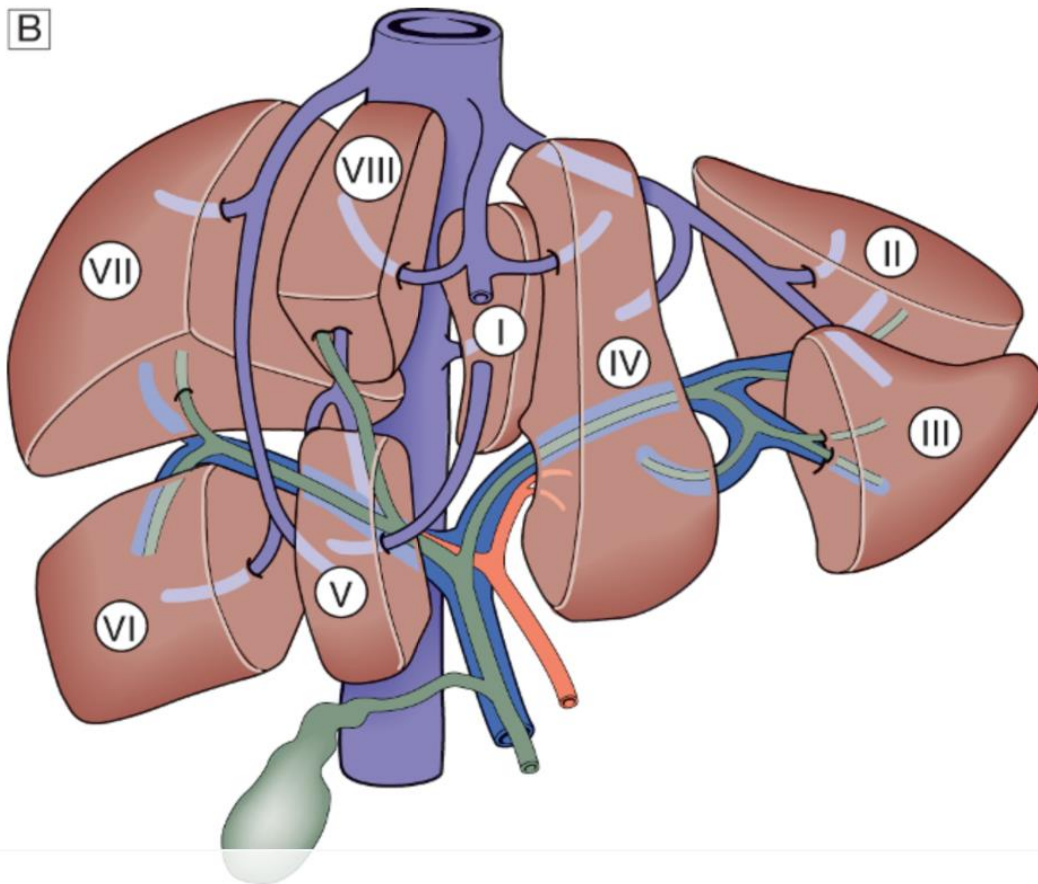
Functional unit: is hepatic acinus.

Hepatocytes are separated by interlacing sinusoids has central hepatic vein & peripheral portal tracts (portal vein, hepatic artery, bile duct)

Division: 1) By **falciform ligament** to 2 lobes: right & left (caudate & quadrate)



2) By **hepatic artery & portal vein** to 8 segments (couinaud classification) **important for surgeon**: I > caudate, II, III > left latera, IV > quadrate, V-VIII > right hemiliver



Blood supply:

Dual blood supply: 75% portal vein (from git, so oxygen poor but rich nutrients & 25% hepatic artery (50% of oxygen requirements)

Venous drainage: right, middle, left hepatic vein > ivc

However, in 25% there is inferior hepatic vein > ivc from caudate lobe (segment i)

Functions:

Metabolism	Glycogen to glucose
	Amino acids to uria
	Lipids
	Bilirubin
	Drugs
	Alcohol
Synthesis	Cougluation factors (i, v, xi)
	Vit.k dependant (ii, vii, ix, x)
	Protein c, s, antithrombin
	Glucose
Storage	Minerals
	Vitamins (vit.a)
	Glucose as glycogen
Largest reticuloendothelial system Kupffer cells	Endotoxin
	Bacterial
	Viral

Gallbladder: Volume is 50ml

Site: Undersurface of liver between right & left hemiliver

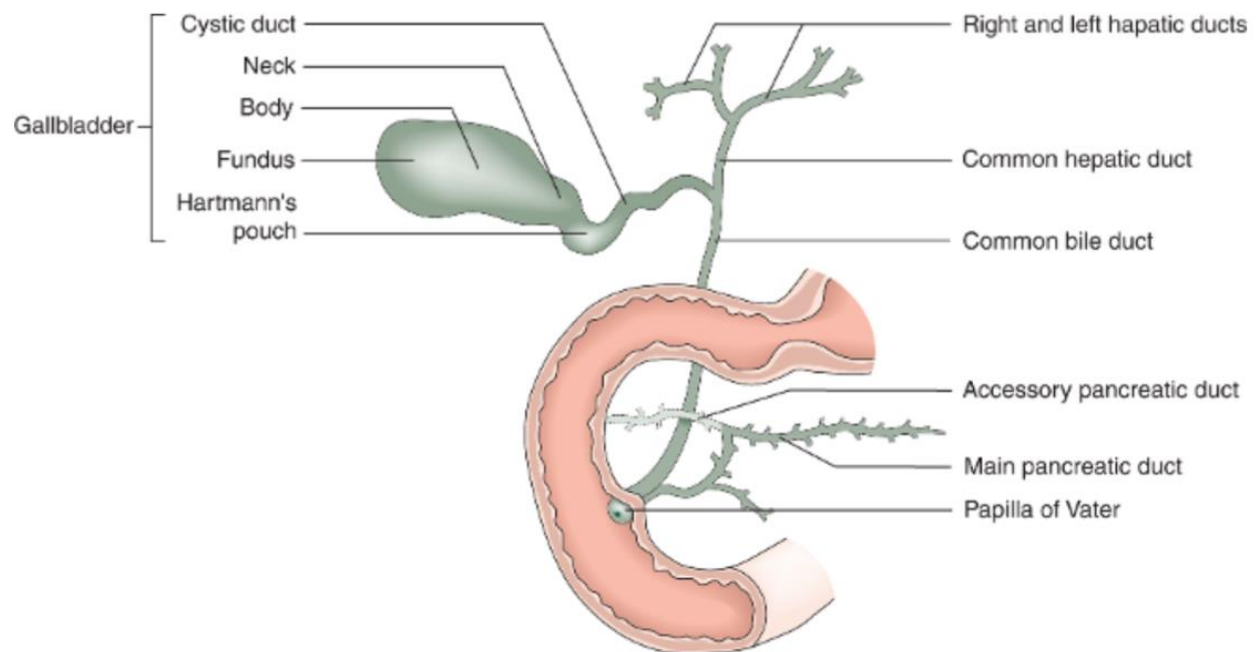
Shape: Pear-shaped musculo-membranous organ

Relations: Superiorly: liver

Inferiorly: transverse colon, segment of the duodenum (or pylorus of the stomach)

Anteriorly: transverse colon, 9th costal cartilage

Parts: fundus > body > neck > Hartmann's outpouch (dilatation of gallbladder outlet, which gallstone impacted there frequently)



Blood supply:

Cystic artery is (right hepatic artery branch)

But in 10-15% cystic artery is (gastroduodenal artery branch)

Drain directly to right branch of portal vein? There is no single cystic vein

Biliary duct:

