EXTRA HEPATIC BILIARY APPARATUS

DESCRIBE THE EXTRA HEPATIC BILIARY APPARATUS(LE)

Extrahepatic biliary apparatus is a transportation and storage apparatus meant for discharge of bile into the duodenum.

Components:

Right and left hepatic ducts

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Common hepatic duct

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Gall bladder

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Cystic duct

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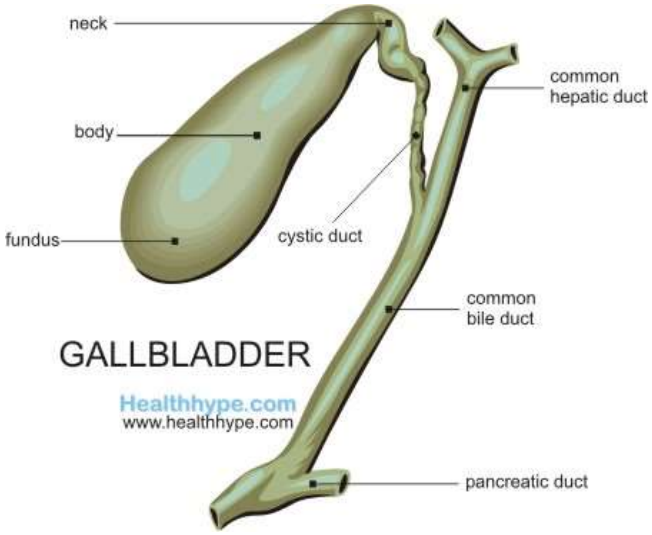
Bile duct/common bile duct



Hepatic ducts:

Emerge at porta hepatis from both lobes of liver

_Common hepatic duct:

Formed by the union of right and left hepatic ducts

Runs downwards 3cm and is joined on the right side by the cystic duct to form common bile duct

Gall bladder:

Pear shaped reservoir of bile of about 30-50 ml capacity

Stores and concentrates bile and discharges into duodenum by its muscular contraction

It lies in the fossa of gall bladder on the inferior surface of the right lobe of the liver.

The gallbladder is divided into three parts- fundus, body and neck

Cystic duct:

It is 3-4 cm long

begins at the neck of the gallbladder runs downwards, backwards and to left and ends by joining the common hepatic duct to form the bile duct.

the mucous membrane of the cystic duct forms 5 to 12 crescenteric folds arranged spirally to form spiral valve of heister

Bile Duct/Common bile duct:

It is 8cm long and isformed by the union of cystic and common hepatic ducts near the porta hepatis

It is divided into four parts

Supraduodenal part

Retroduodenal part

Infraduodenal / pancreatic part

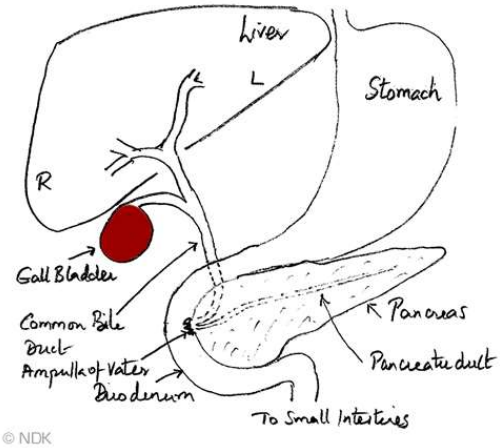
Intradudodenal part

Sphincters related to bile duct and pancreatic ducts

The sphincter around the bile duct is called sphincter choledochus of boyden

The sphincter around the pancreatic duct is called sphincter pancreaticus

The sphincter around the ampulla is called sphincter ampullae of oddi



Arterial supply

Cystic artery- chief source of blood supply

Posterior superior pancreatico duodenal artery

Right hepatic artery

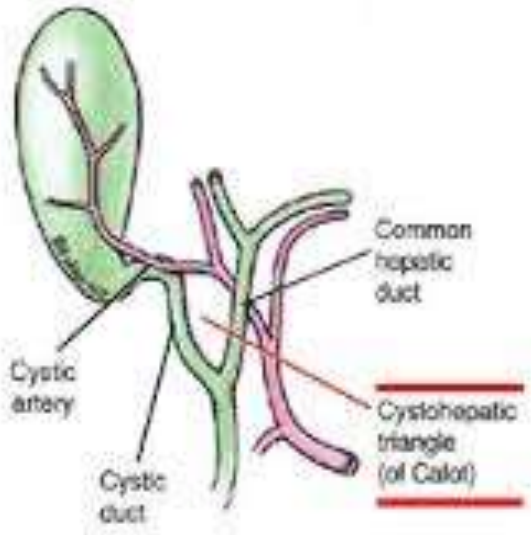
Venous drainage:

Cystic vein:

Lymphatic drainage:

Cystic lymph node of Lund and node at the anterior border of epiploic foramen

Lower hepatic and upper pancreatico splenic nodes



Calots triangle:

Triangular space bounded on the right side by the cystic duct, left side by common hepatic duct and above by inferior surface of the liver.

Contents: right hepatic artery, cystic artery and cystic lymph node of Lund

Nerve supply

Cystic plexus of nerves:
Nerve plexus over superiorpancreatico duodenal artery

Applied anatomy:

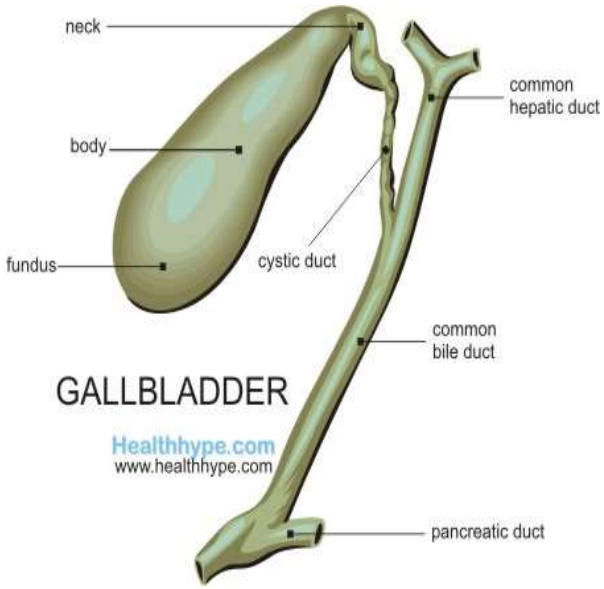
Referred pain:
Pain of stretch of CBD or gall bladder is referred to epigastrium, right shoulder and inferior angle of right scapula.
Biliary obstruction:
Arises when passage of bile into the duodenum is blocked.
Obstruction may be intra heaptic or extra hepatic.
Causes are (A) gallstones (B) cancer of head of pancreas

GALL BLADDER (SE)

Pear shaped reservoir of bile of about 30-50 ml capacity
Stores and concentrates bile. It discharges into duodenum by its muscular contraction that is induced by the enzyme cholecystokinin.

Location:

It lies in the fossa of gall bladder on the inferior surface of the right lobe of the liver.
Attached to the liver substance by connective tissue and has venous communications with it.



Parts :

The gallbladder is divided into three parts- fundus, body and neck

Fundus:

Expanded blind end of the organ

Projects from the inferior border of the liver and touches anterior abdominal wall at the tip of 9th costal cartilage.

Completely surrounded by peritoneum

Body:

lies in the fossa of gallbladder

joins the neck at the right end of porta hepatis

- superior surface devoid of peritoneum and inferior surface covered by peritoneum

Neck:

Narrow upper end of gall bladder

It joins the cystic duct and its junction with this duct is marked by a constriction

Its posteromedial wall shows pouch like dilatation – Hartman's pouch.

Gall stones may lodge in this pouch.

Arterial supply:

Cystic artery - branch of right hepatic artery

Venous drainage:

Cystic vein – drains into portal vein

Lymphatics:

Cystic lymph node of Lund

Nerve supply:

Cystic plexus

Applied anatomy:

cholecystectomy – removal of gall bladder

cholecystitis – inflammation of gall bladder. When a finger is placed just below the costal margin at the tip of 9th costal cartilage, patient winces with a catch in the breath. this is known as murphy's sign

cholelithiasis: stones in the gallbladder

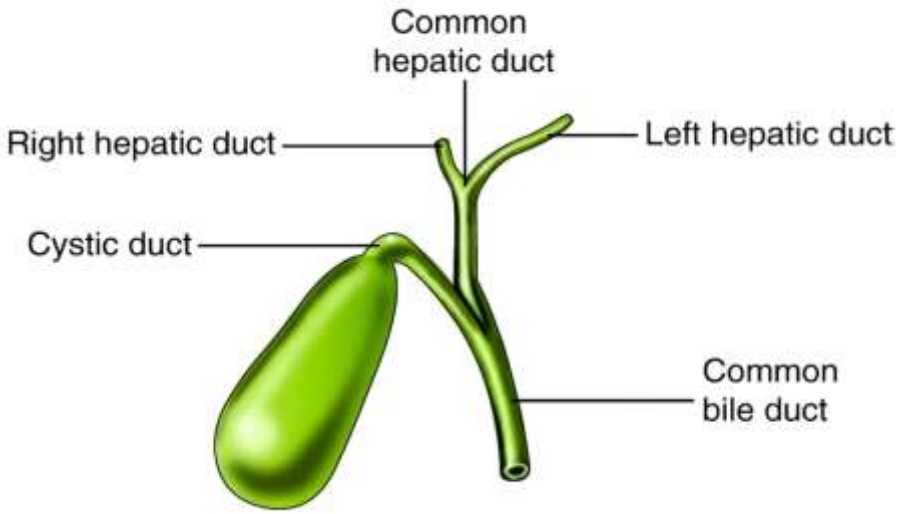
BILE DUCT – FORMATION, TERMINATION AND RELATIONS.(SE)

Formation:

It is 8cm long and isformed by the union of cystic and common hepatic ducts near the porta hepatis.

Termination:

It unites with the main pancreatic duct in the wall of the duodenum to form hepatopancreatic ampulla of vater,which bulges the mucous membrane of duodenum inward forming major duodenal papilla.



Relations:

It is divided into four parts

Supraduodenal part

Retroduodenal part

Infraduodenal / pancreatic part

Iintradudodenal part

	anterior	posterior	To the left
Supraduodenal	liver	Portal vein Epiploic foramen	Hepatic artery
Retroduodenal	1st part of duodenum	IVC	Gastroduodenal artery
Infraduodenal	Head of pancreas	IVC	-

STRUCTURES FORMING EXTRAHEPATIC BILIARY APPARATUS. (SA)

Right and left hepatic ducts

Common hepatic duct

Gall bladder

Cystic duct

Bile duct/common bile duct

LOCATION OF FUNDUS OF GALLBLADDER (SA)

The fundus projects beyond the inferior border of the liver, in the angle between the lateral border of the right rectus abdominis and 9th costal cartilage.

FORMATION OF COMMON BILE DUCT.(SA)

The common **bile duct** is a small, tube-like structure **formed** where the common hepatic **duct** and the cystic **duct** join near the porta hepatis and is 8cm long

Its physiological role is to carry **bile** from the **gallbladder** and empty it into the upper part of the small intestine (the duodenum)

SPHINCTERS RELATED TO BILE AND PANCREATIC DUCT.(SA)

The sphincter around the bile duct is called sphincter choledochus of boyden
The sphincter around the pancreatic duct is called sphincter pancreaticus
The sphincter around the ampulla is called sphincter ampullae of oddi

AMPULLA OF VATER.(SA)

Common bile duct unites with the main pancreatic duct in the wall of the duodenum to form hepatopancreatic ampulla of vater,which bulges the mucous membrane of duodenum inward forming major duodenal papilla also known as the hepatopancreatic**ampulla** or the hepatopancreatic duct