



King Saud University  
College of Medicine  
GIT Block

**Anatomy Team**

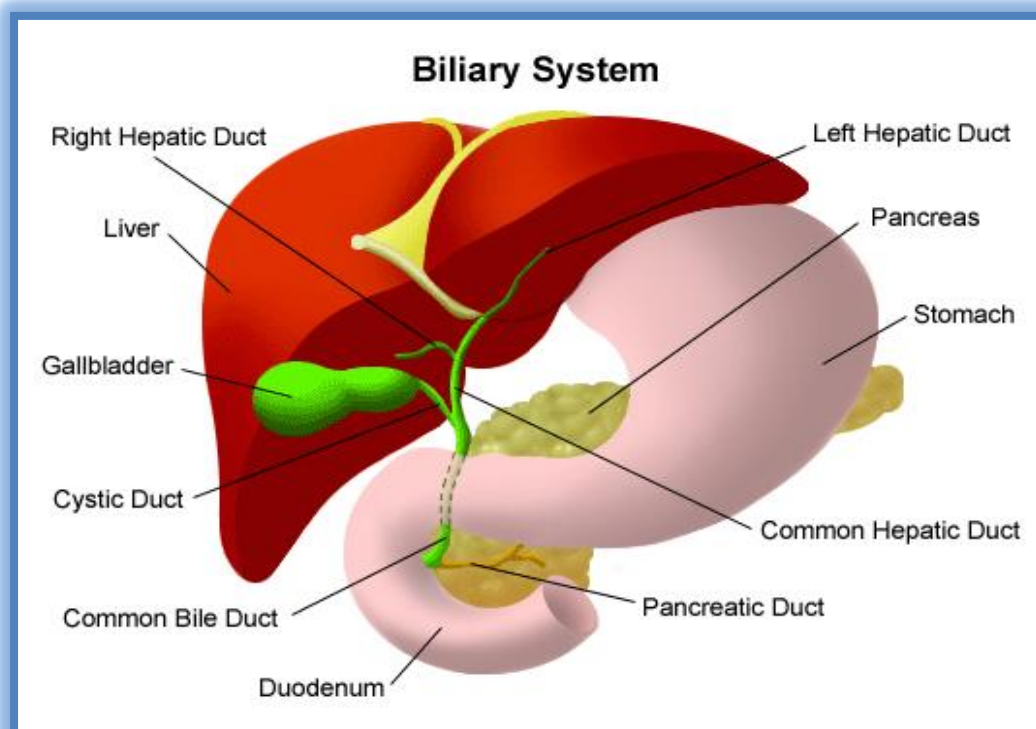
**430**

**Anatomy of  
Biliary system**

**Done by : Sara  
ALShehri**

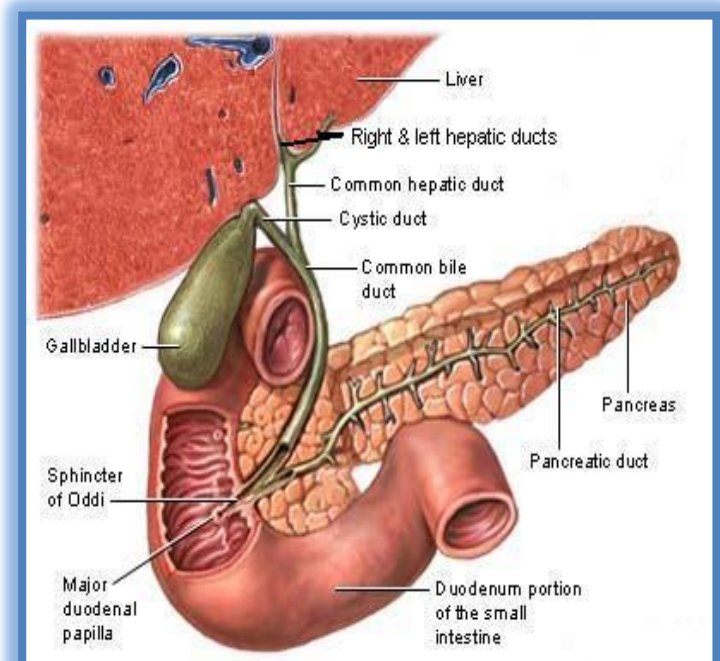
## Biliary System :

- ❖ The biliary system consists of the ducts and organs (bile ducts, liver & gallbladder) that are involved in the production, storage & transportation of bile.
- ❖ Bile is secreted by the liver cells at a constant rate of about 40 ml per hour. When digestion is not taking place, the bile is stored and concentrated in the gallbladder; later, it is delivered to the duodenum.



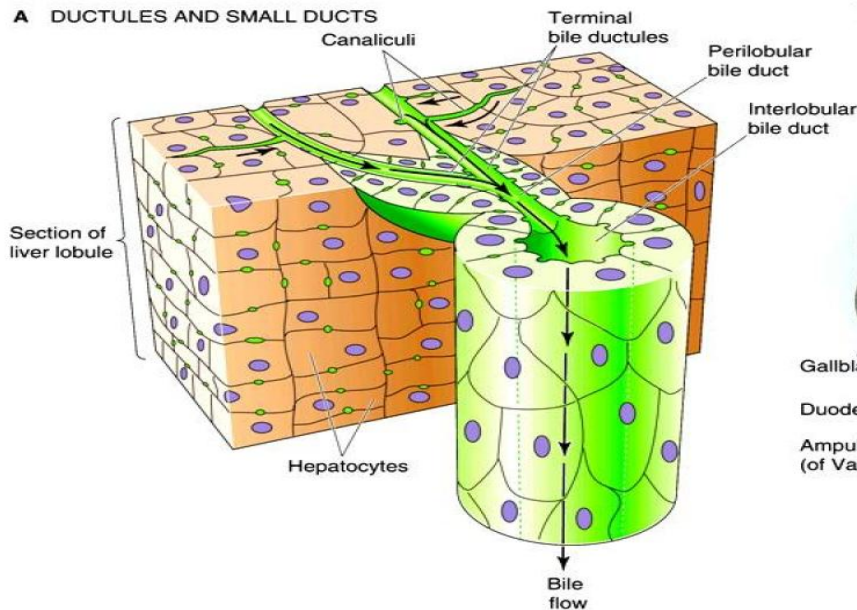
## The bile ducts consist of:

- ❖ Bile canaliculi
- ❖ Interlobular ducts
- ❖ Intrahepatic ducts
- ❖ Right and left hepatic ducts
- ❖ Common hepatic duct
- ❖ Gallbladder
- ❖ Cystic duct
- ❖ Common bile duct (Bile duct)

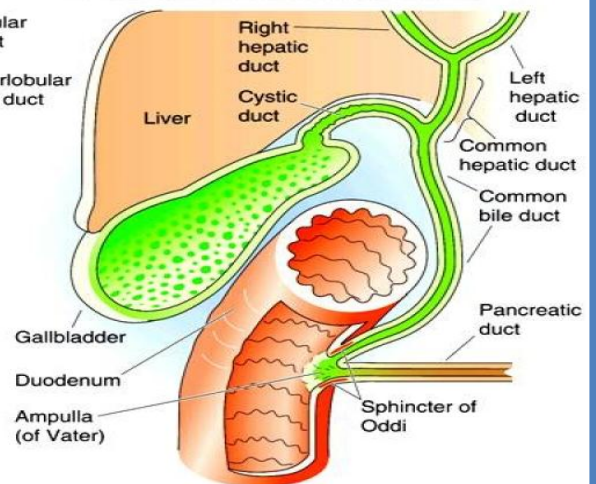


# Bile is secreted by the liver, stored in the gall bladder and ejected into the small intestine

**A DUCTULES AND SMALL DUCTS**

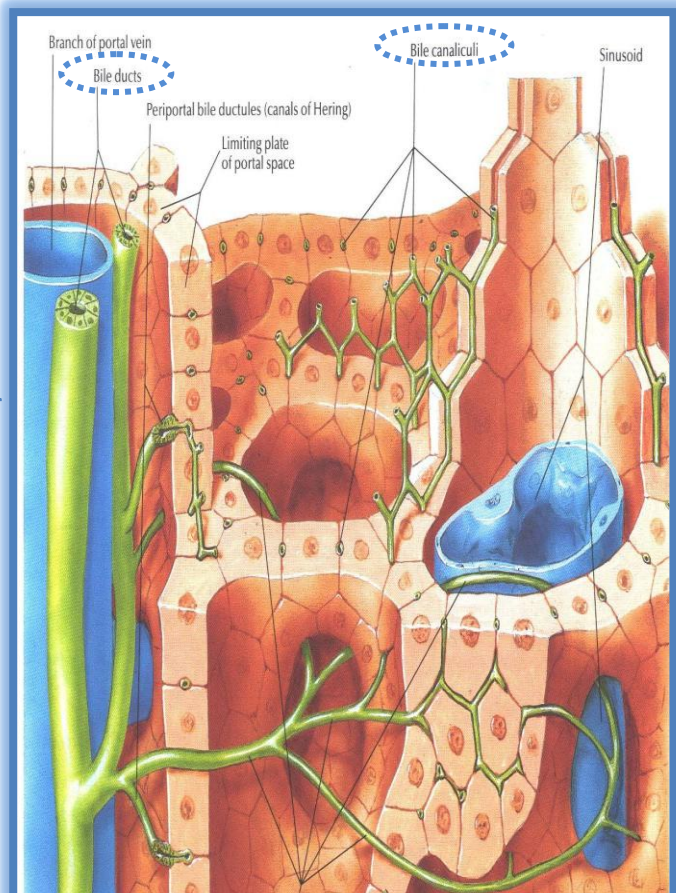


**B LARGE DUCTS AND GALLBLADDER**



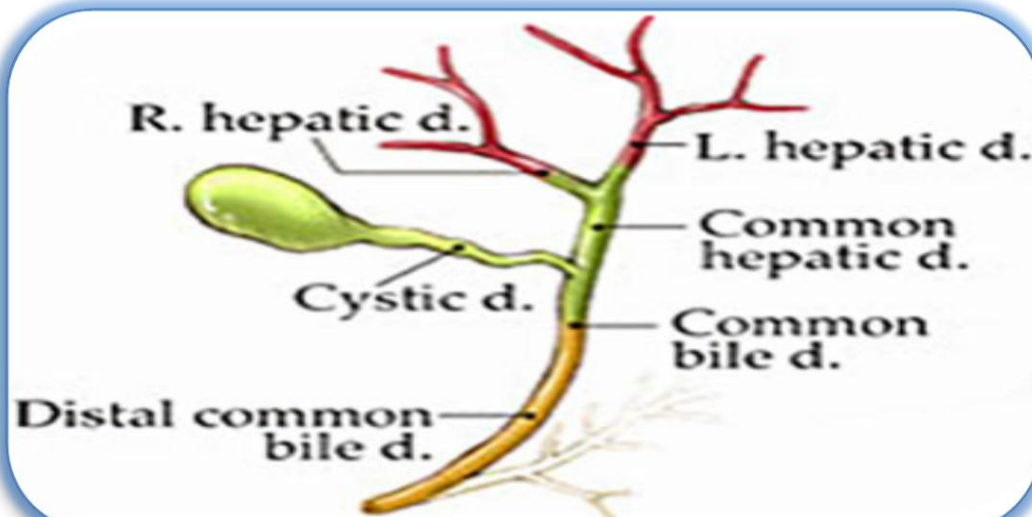
The smallest interlobular tributaries of the bile ducts are situated in the portal canals of the liver; they receive the bile canaliculi.

The interlobular ducts join one another to form progressively larger ducts and, eventually, at the porta hepatis form the right and left hepatic ducts.



The right hepatic duct drains the right lobe of the liver and the left duct drains the left lobe, the caudate lobe, & quadrate lobe. After a short course, the hepatic ducts unite to form the common hepatic duct

The common hepatic duct is about 1.5 in. (4 cm) long and descends within the free margin of the lesser omentum. It is joined on the right side by the cystic duct from the gallbladder to form the common bile duct

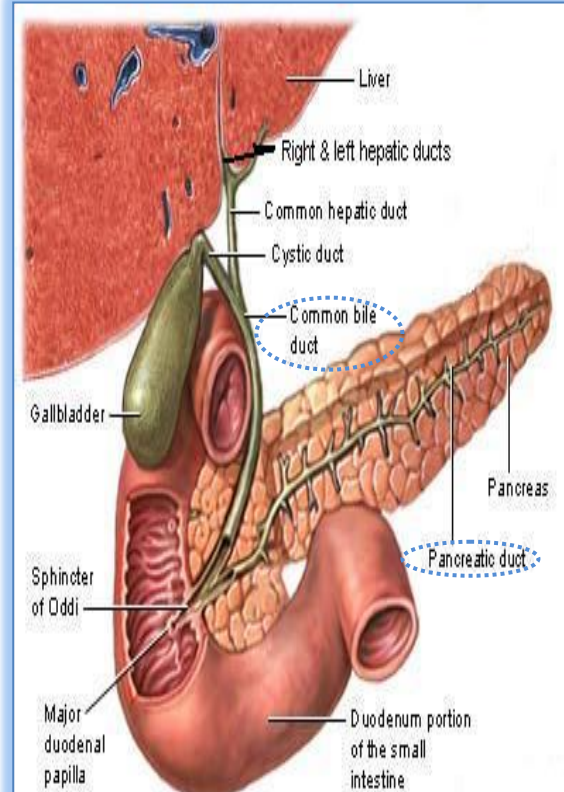


### Common Bile Duct (Bile Duct)

The common bile duct is about 3 inches (8 cm) long.

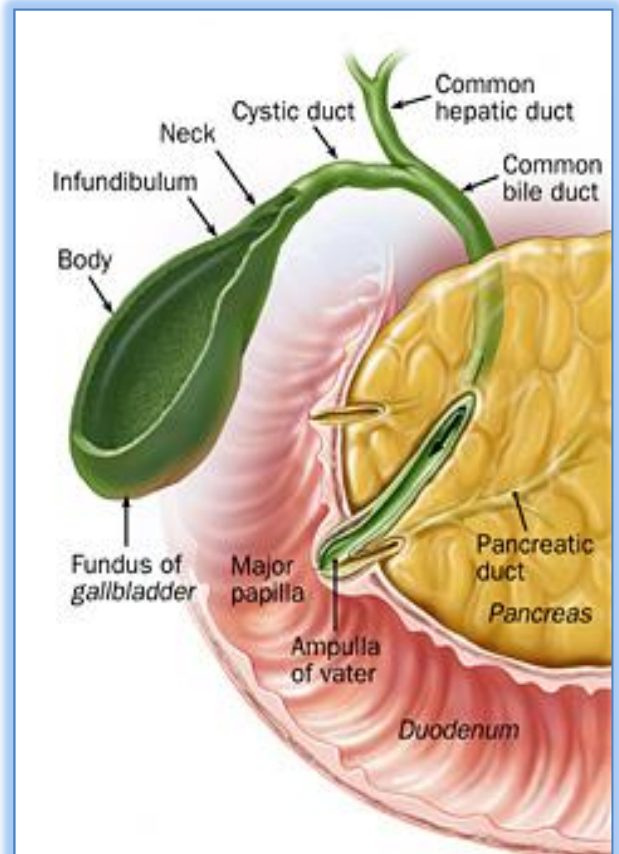
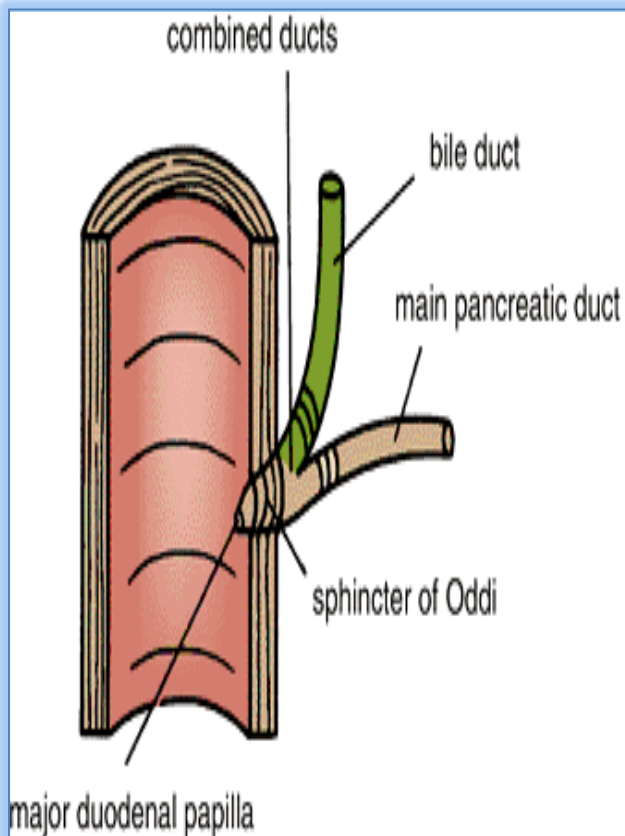
In its course:

- \*First it lies in the right free margin of the lesser omentum.
- \*Then it runs behind the first part of the duodenum.
- \*Then it lies in a groove on the posterior surface of the head of the pancreas. Here, the bile duct comes into contact with the main pancreatic duct.



## Common Bile Duct (Bile Duct)

- ❖ The bile duct ends below by piercing the medial wall of the second part of the duodenum about halfway down its length.
- ❖ It is usually joined by the main pancreatic duct, and together they open into a small ampulla in the duodenal wall, called the hepatopancreatic ampulla (ampulla of vater). The ampulla opens into the lumen of the duodenum by means of a small papilla, the major duodenal papilla.
- ❖ The terminal parts of both ducts and the ampulla are surrounded by circular muscle, known as the sphincter of the hepatopancreatic ampulla (sphincter of Oddi).
- ❖ Occasionally, the bile and pancreatic ducts open separately into the duodenum.

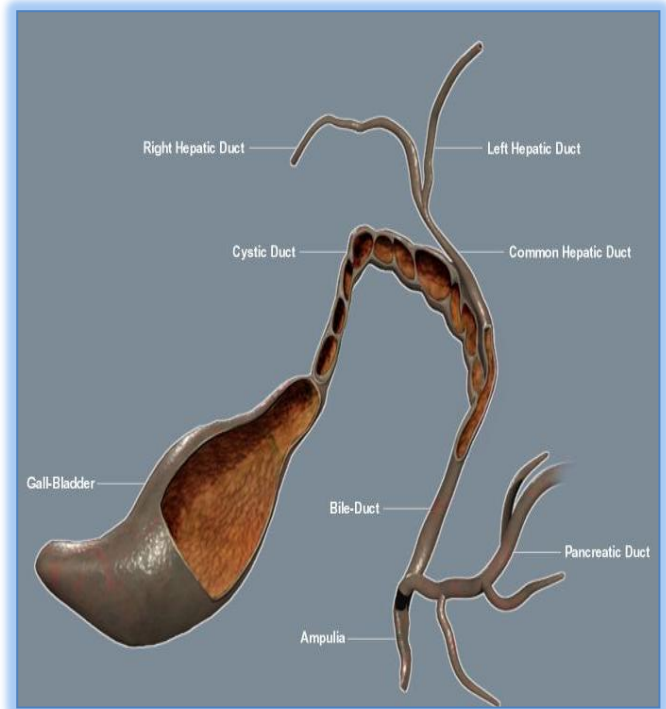


## Gallbladder

	Shape & capacity	Part	Relation	Function
Gallbladder	<p>* <u>A pear-shaped</u> sac lying on the undersurface of the liver.</p> <p>* It has a <u>capacity of 30 to 50 ml</u> and stores bile, which it <u>concentrates by absorbing water</u>.</p>	<p>* The gallbladder is divided into the <u>fundus</u>, <u>body</u>, and <u>neck</u>.</p> <p>* The <u>fundus</u> is rounded and projects below the inferior margin of the liver, where it comes in contact with the anterior abdominal wall <u>at the level of the tip of the ninth right costal cartilage</u>.</p> <p>* The <u>body</u> lies in contact with the visceral surface of the liver and is directed upward, backward, and to the left.</p> <p>* The <u>neck</u> becomes continuous with the <u>cystic duct</u>, which turns into the lesser omentum, joins <u>the common hepatic duct</u>, to form <u>the bile duct</u>.</p> <p>* The <u>peritoneum completely</u> surrounds the <u>fundus of the gallbladder</u> and binds the <u>body and neck</u> to the <u>visceral surface</u> of the liver.</p>	<p><u>Anteriorly</u>: The anterior abdominal wall and the inferior surface of the liver.</p> <p><u>Posteriorly</u>: The transverse colon and the first and second parts of the duodenum.</p>	<p>When digestion is not taking place, the sphincter of Oddi remains closed and bile accumulates in the gallbladder. <u>The gallbladder concentrates bile; stores bile; selectively absorbs bile salts, keeps the bile acid; excretes cholesterol; and secretes mucus</u>. To aid in these functions, the mucous membrane is thrown into permanent folds that unite with each other, giving the surface a honeycombed appearance.</p>

	Blood Supply	Lymph Drainage	Nerve Supply
Gallbladder	<p>* The <u>cystic artery</u>, a branch of <u>the right hepatic artery</u>.</p> <p>* The <u>cystic vein</u> drains directly into <u>the portal vein</u>.</p> <p>* Several very small arteries and veins also run between the liver and gallbladder.</p>	<p>* The lymph drains into a <u>cystic lymph node</u> situated near the <u>neck</u> of the gallbladder. From here, the lymph vessels pass to <u>the hepatic nodes</u> along the course of the <u>hepatic artery</u> and then to the <u>celiac nodes</u>.</p>	<p>* Sympathetic and parasympathetic vagal fibers form the <u>celiac plexus</u>. The gallbladder contracts in response to the hormone <u>cholecystikinin</u>, which is produced by the mucous membrane of the duodenum on the arrival of fatty food from the stomach.</p>

- ❖ The cystic duct is about 1.5 in. (3.8 cm) long and connects the neck of the gallbladder to the common hepatic duct to form the bile duct. It usually is somewhat S-shaped and descends for a variable distance in the right free margin of the lesser omentum.
- ❖ The mucous membrane of the cystic duct is raised to form a spiral fold that is continuous with a similar fold in the neck of the gallbladder. The fold is commonly known as the "spiral valve." The function of the spiral valve is to keep the lumen constantly open.



*Good luck*