

# THE BILIARY SYSTEM

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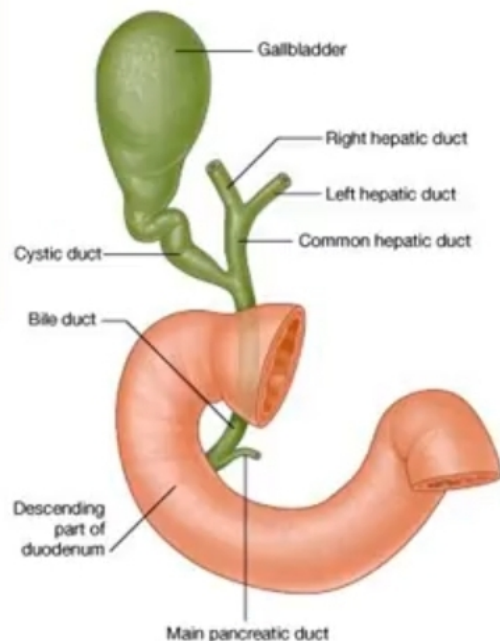
# The biliary system

## Hepatic ducts

- ✓ **Right and left hepatic ducts** emerge from porta hepatis. They **unite** to form the **common hepatic duct**.
- ✓ **Common hepatic duct** is **3cm long**, running on the **right side of hepatic artery (anterior to portal vein)**. It is **joined by cystic duct** to form the **common bile duct**.

## Gall bladder

- ✓ It has **fundus, body, and neck**. It **lies** in a **fossa** on the **inferior surface of liver**. It **acts as reservoir of bile**.



## Cystic duct

- ✓ **Emerges from the neck of the gall bladder**.
- ✓ It is **3-4cm long**. It **joins the common hepatic duct** to form the **common bile duct**. It has **15-20 mucous crescentic folds like those in the neck of the gall bladder**.

## Common bile duct

- ✓ It is **7.5cm long, 6mm diameter**.
- ✓ It **passes in the free border of lesser omentum, then behind the 1<sup>st</sup> part of duodenum, then behind the head of pancreas**.
- ✓ It **joins the main pancreatic duct to form the hepato-pancreatic ampulla (?)**.

# The gall bladder

## Fundus

- It is the **expanded** part, projecting **downwards, forwards,** and to the **right** (beyond the inferior border of the liver).
- ✓ **Anteriorly:** it is **related** to **anterior** abdominal wall.
- ✓ **Posteriorly:** it is **related** to **transverse colon**.

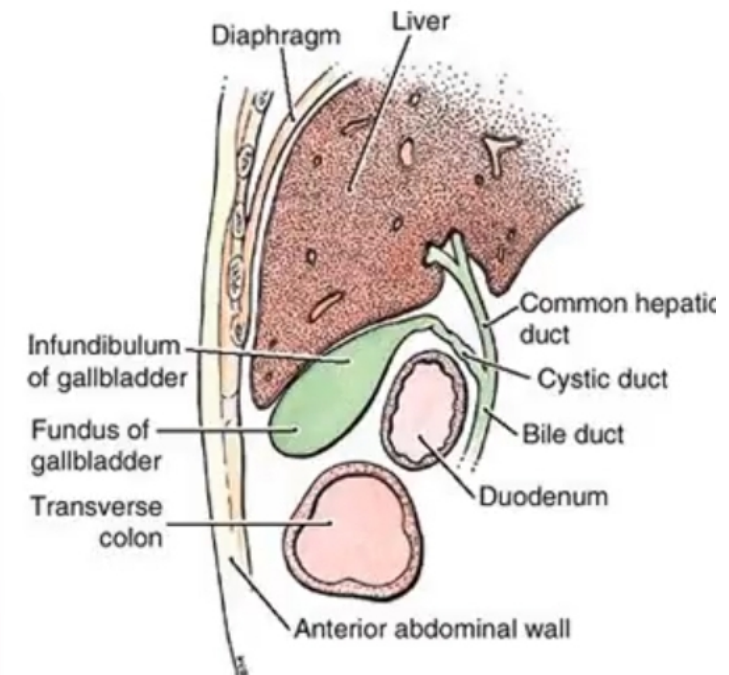
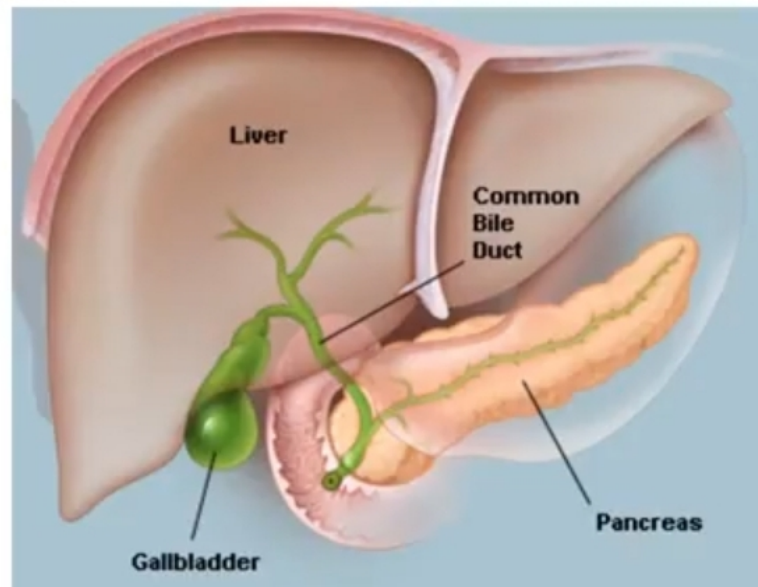
## Body

- Directed **upwards, backwards,** and to the **left**.
- ✓ **Anteriorly:** is in **contact** with **liver**.
- ✓ **Posteriorly:** **related** to **transverse colon** and **duodenum**.

## Neck

- It is the **constriction** after the body. Its **mucosa** shows **oblique ridges** forming a **spiral valve**.

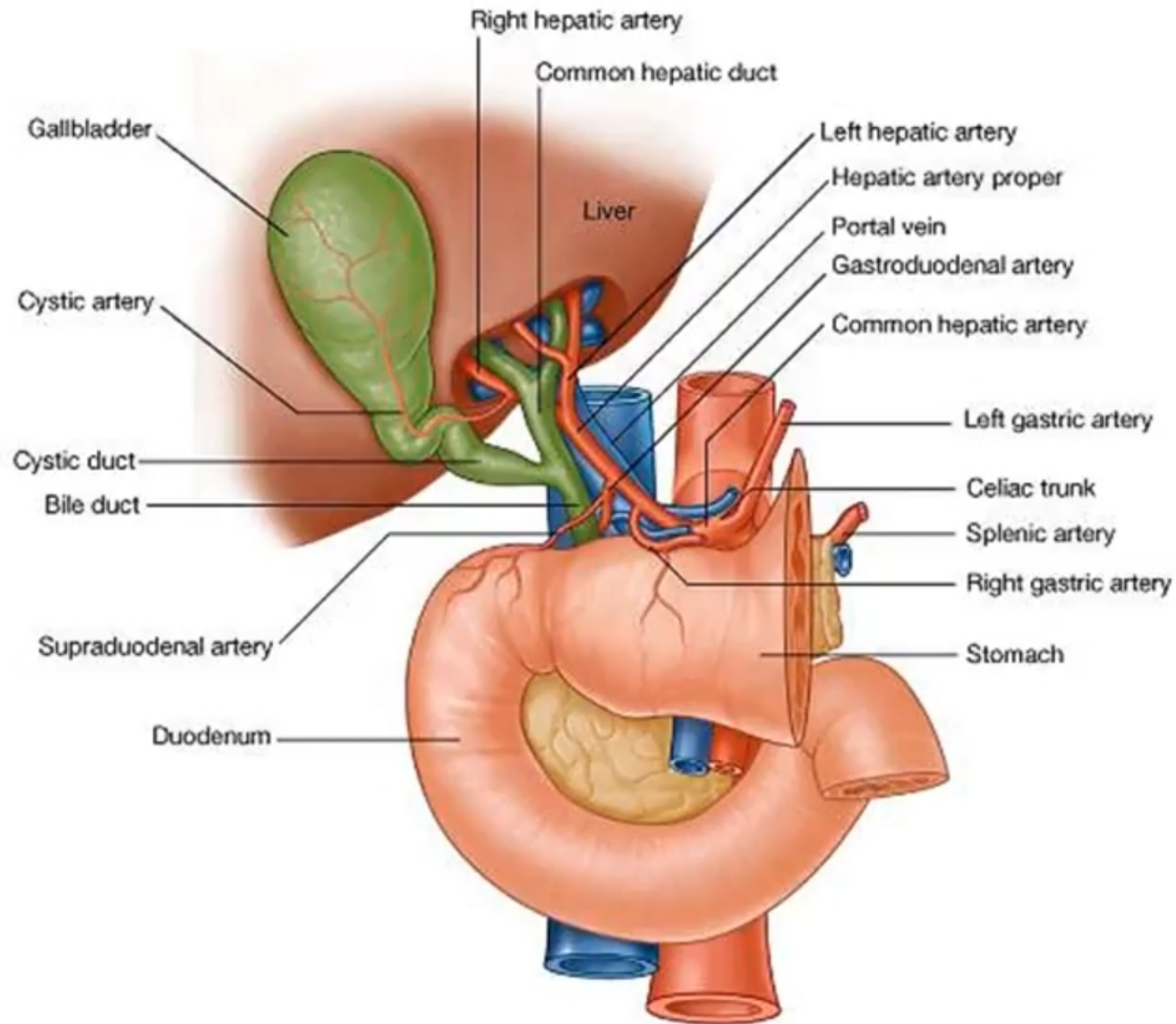
- It lies in its **fossa** (on **inferior surface** of liver). It is **connected** to liver by **connective tissue** and **covered** by **peritoneum**.
- It is **7-10cm** long, **3cm** broad. Its **capacity** is **30-50ml**.





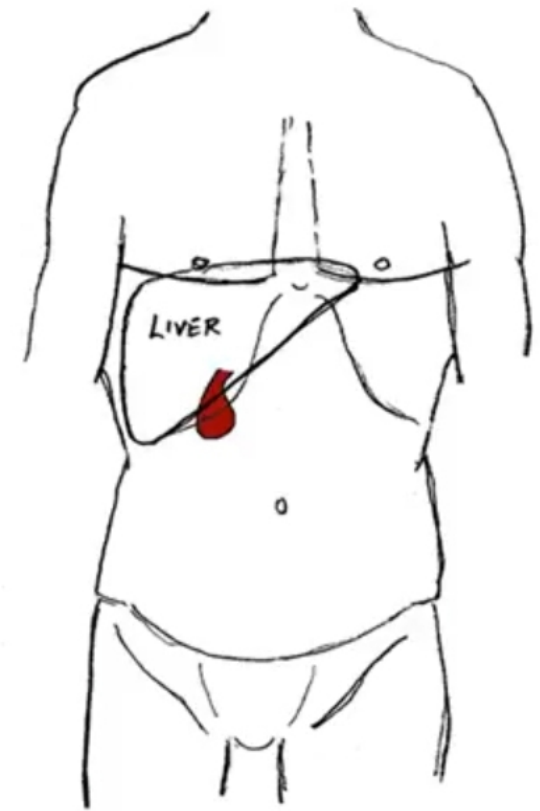
➤ **Blood supply:**

- ✓ **Arterial:** gall bladder is supplied by cystic artery (from right branch of hepatic artery).
- ✓ **Venous:** gall bladder is drained by cystic vein, which drains into the right branch of the portal vein



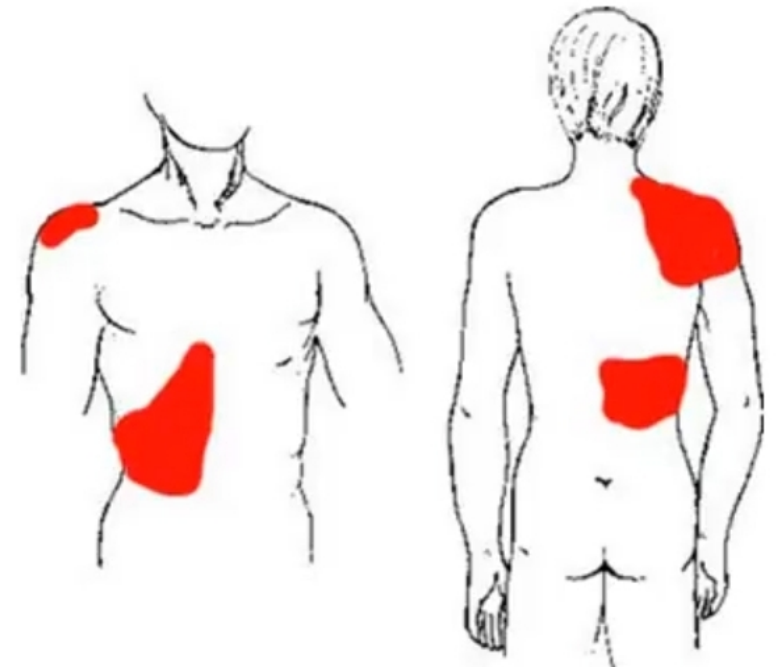
### Surface anatomy:

- The **fundus** of the gall bladder is in **contact** with **anterior** abdominal wall at the **transpyloric plane** (?) (behind the **tip** of the **right 9<sup>th</sup> costal cartilage**).



### Applied anatomy:

- **Biliary colic** (e.g. gall stones) is referred to the **tip** of the **right shoulder**. **Fibers** from **right phrenic nerve** reaches the **gall bladder** due to **connection** between **phrenic** and **celiac plexuses**.



# The common bile duct

## Supra-duodenal part

- It runs in the **free border of lesser omentum**.
- ✓ **Anteriorly:** related to **liver**.
- ✓ **Posteriorly:** related to **portal vein**.
- ✓ **On its left side:** **hepatic artery**.

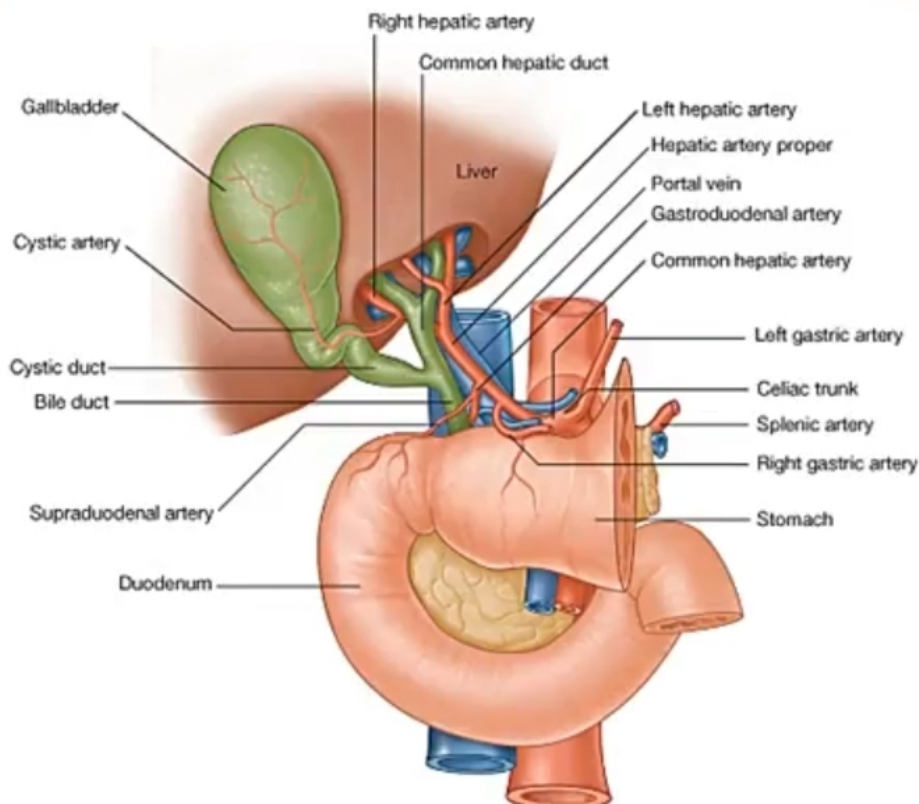
## Retro-duodenal part

- It runs **behind the 1<sup>st</sup> part of duodenum**.
- ✓ **Posteriorly:** related to **IVC**.
- ✓ **On its left side:** **gastroduodenal artery (from hepatic artery)**.

## Infra-duodenal part

- It runs in a **groove on posterior surface of head of pancreas**.
- ✓ **Posteriorly:** **IVC**.

- It is **formed by union of (?)**.
- It is **7.5cm long, 6mm in diameter**.
- It runs in **3 anatomical areas (?)**.



- **Remember the union of common bile duct and pancreatic duct to form the hepato-pancreatic ampulla.**
- **The sphincter controlling the ampulla is called sphincter of Oddi.**
- **They open into (?)**.



## Applied anatomy:

- **Imaging** of the **biliary system** is performed by **intravenous injection of dye** which is **taken** by the **liver** and **secreted** in the **bile** and **concentrated** in the **gall bladder** (intravenous **cholecystography**).

