

# Pancreas

- **pan = all; kreas = flesh**
- **The pancreas is a gland that is partly exocrine and partly endocrine.**
- **The exocrine part secretes the digestive pancreatic juice and the endocrine part secretes hormones.**
- **It is soft lobulated and elongated organ.**
- **With the exception of the tail of the pancreas, it is a retroperitoneal organ.**

- **Location -**

It lies more and less transversely across the posterior abdominal wall, at the level of L1 and L2 vertebrae.

- **Shape-**

J-shaped or retort shaped

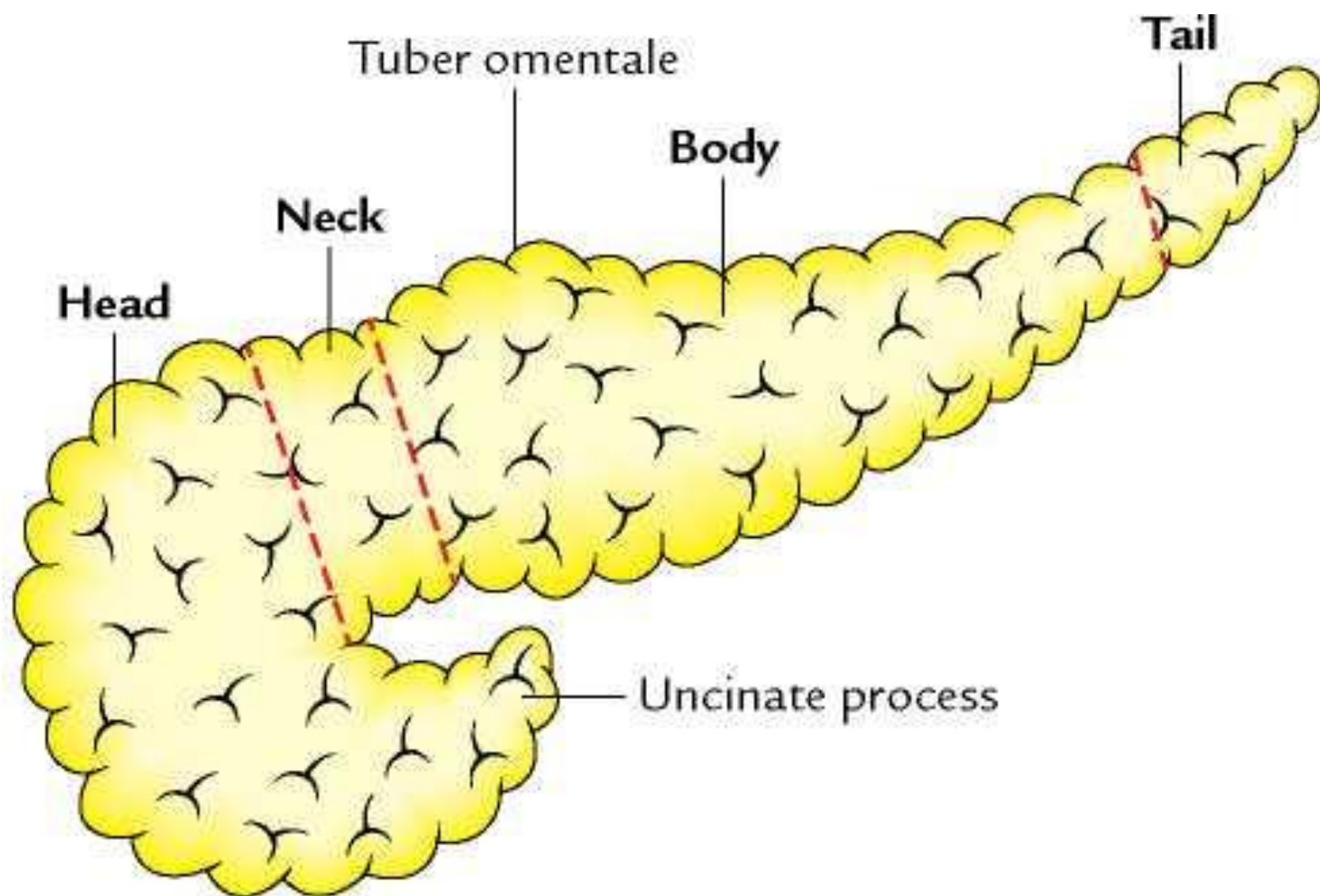
It has head, neck, body, tail

- **Diameter –**

15-20 cm long, 1.2-1.8 cm thick .

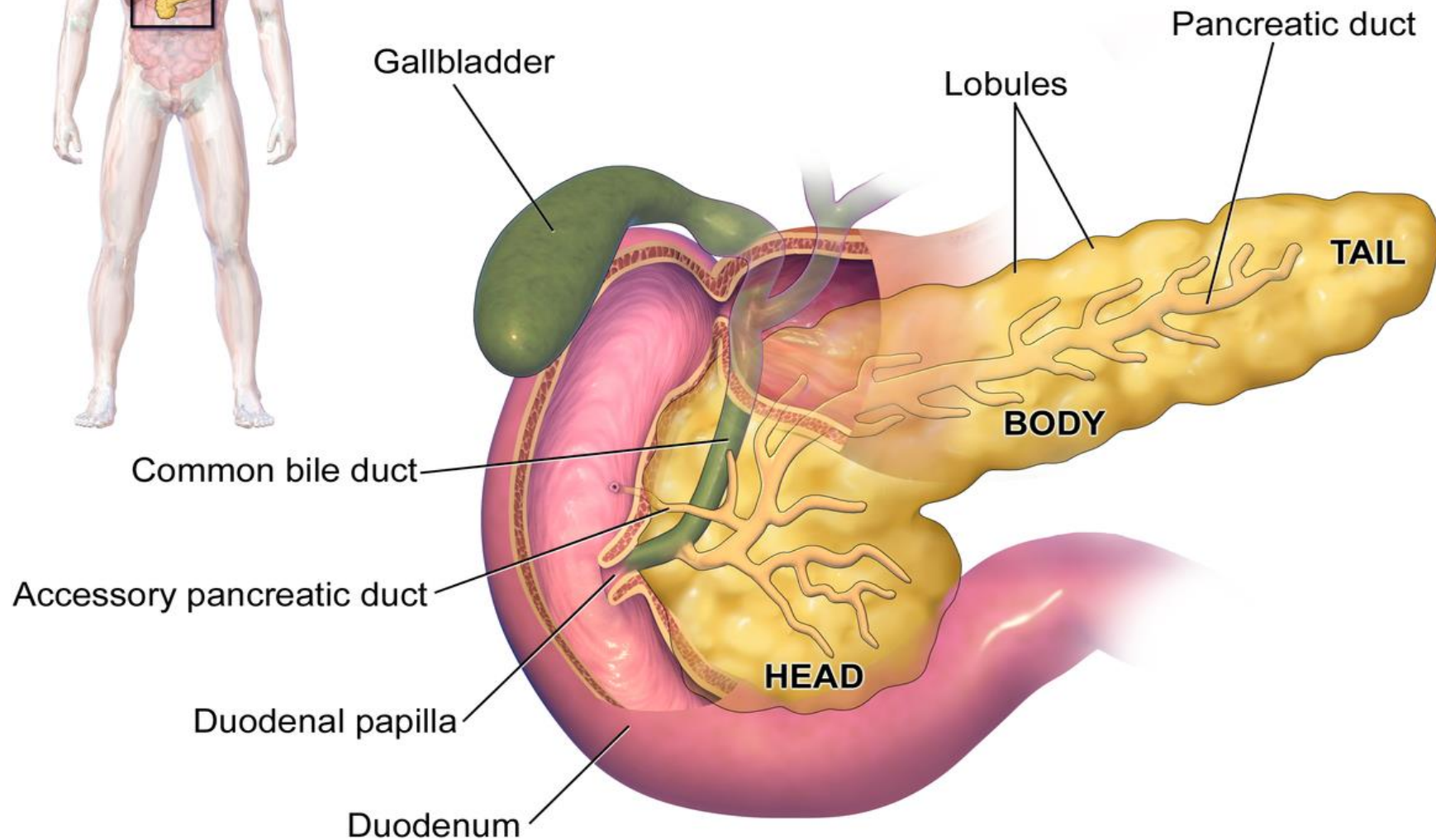
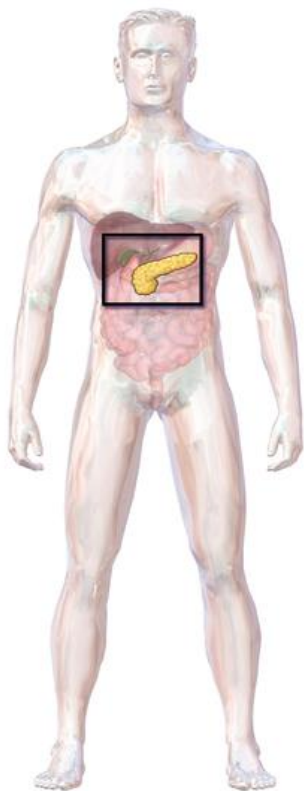
Weight– 90 gm





**Fig. 9.13** Parts of the pancreas.





## **1. Head of the pancreas-**

the widest part of the pancreas. It lies within the C-shaped curve created by the duodenum, and is connected to it by connective tissue

It has **3 borders**-superior, inferior, right lateral

**2 surfaces**-anterior and posterior

**1 process- uncinate process-** it projects from lower and left part of the head towards the left.

## **2. Neck of the pancreas-**

slightly constricted part of the pancreas between its head and body. It is directed forwards, upwards and to the left.

- It has 2 surfaces- anterior and posterior
- The posterior surface of neck is related to the termination of the superior mesenteric vein and the beginning of the portal vein.

### **3. Body of the pancreas-**

**Elongated. It extends from its neck to tail.**

**It passes towards the left with a slight upward and backward inclination.**

**It is triangular in cross section and has 3 borders- anterior, superior, inferior**

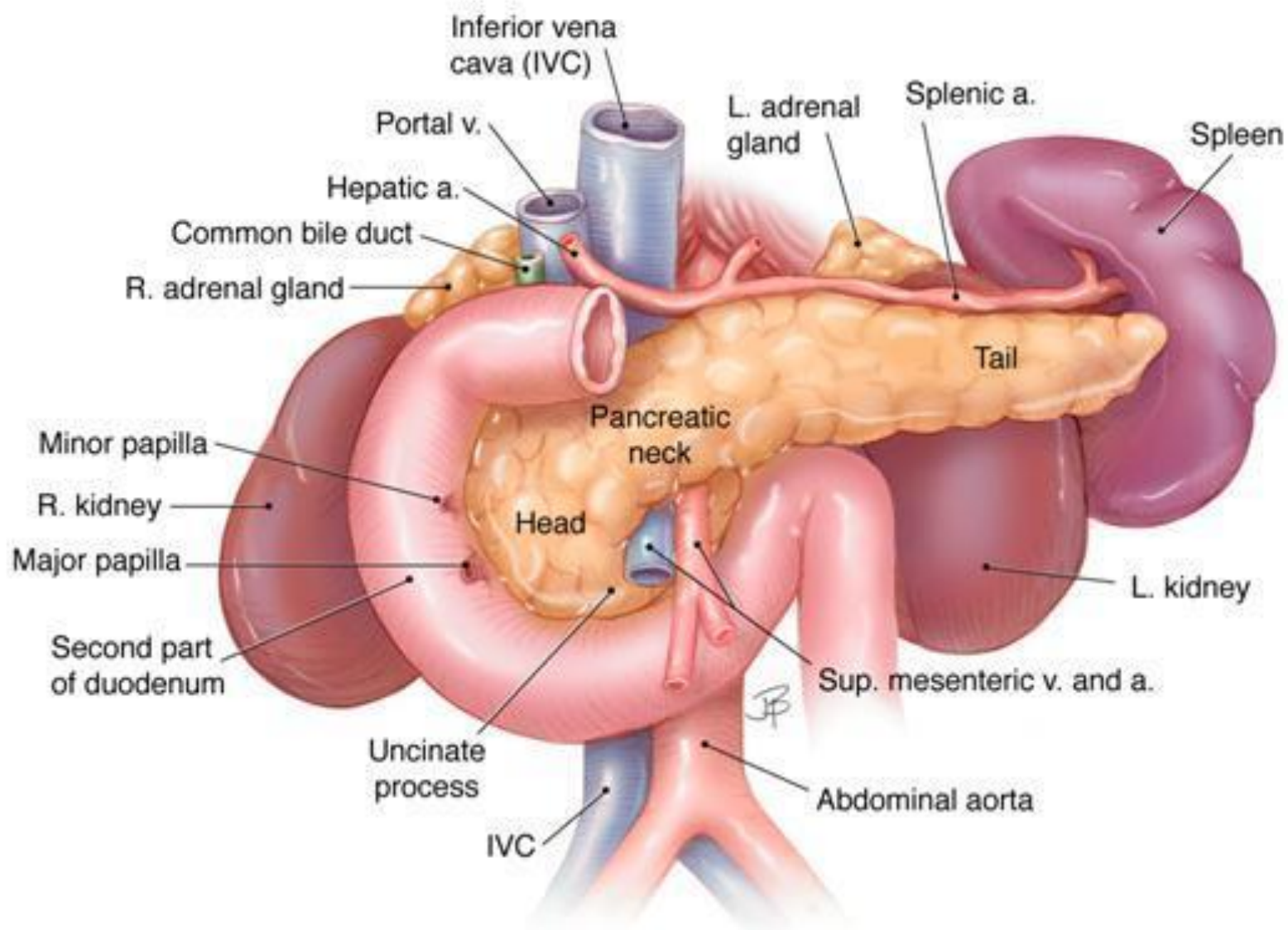
**Tuber omentale-** on the superior border, a little to the left of the neck, this projection is known as the tuber omentale.



#### **4. Tail of the pancreas-**

**This is the left end of the pancreas.**

**It lies in the lienorenal ligament together with the splenic vessels.**

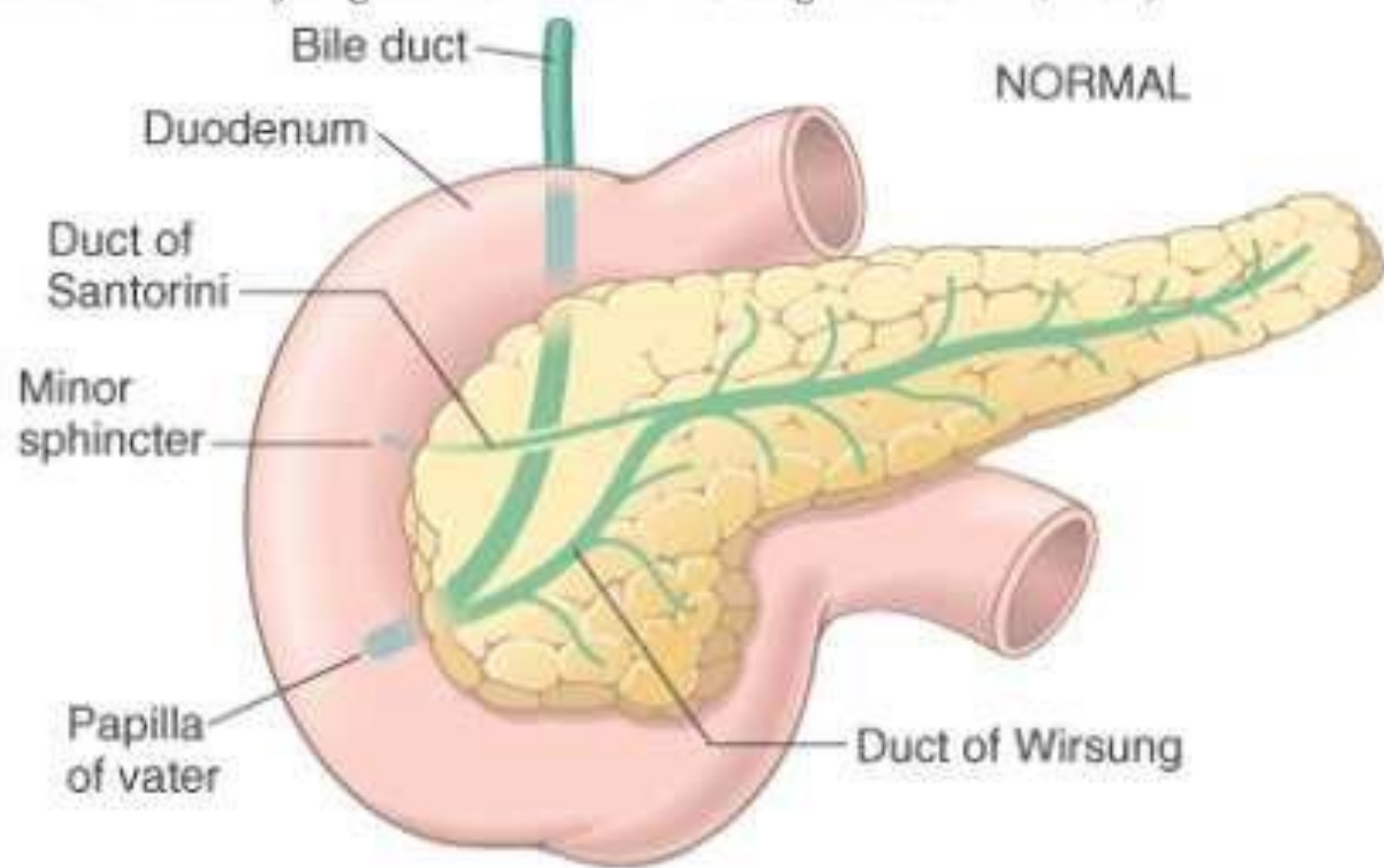


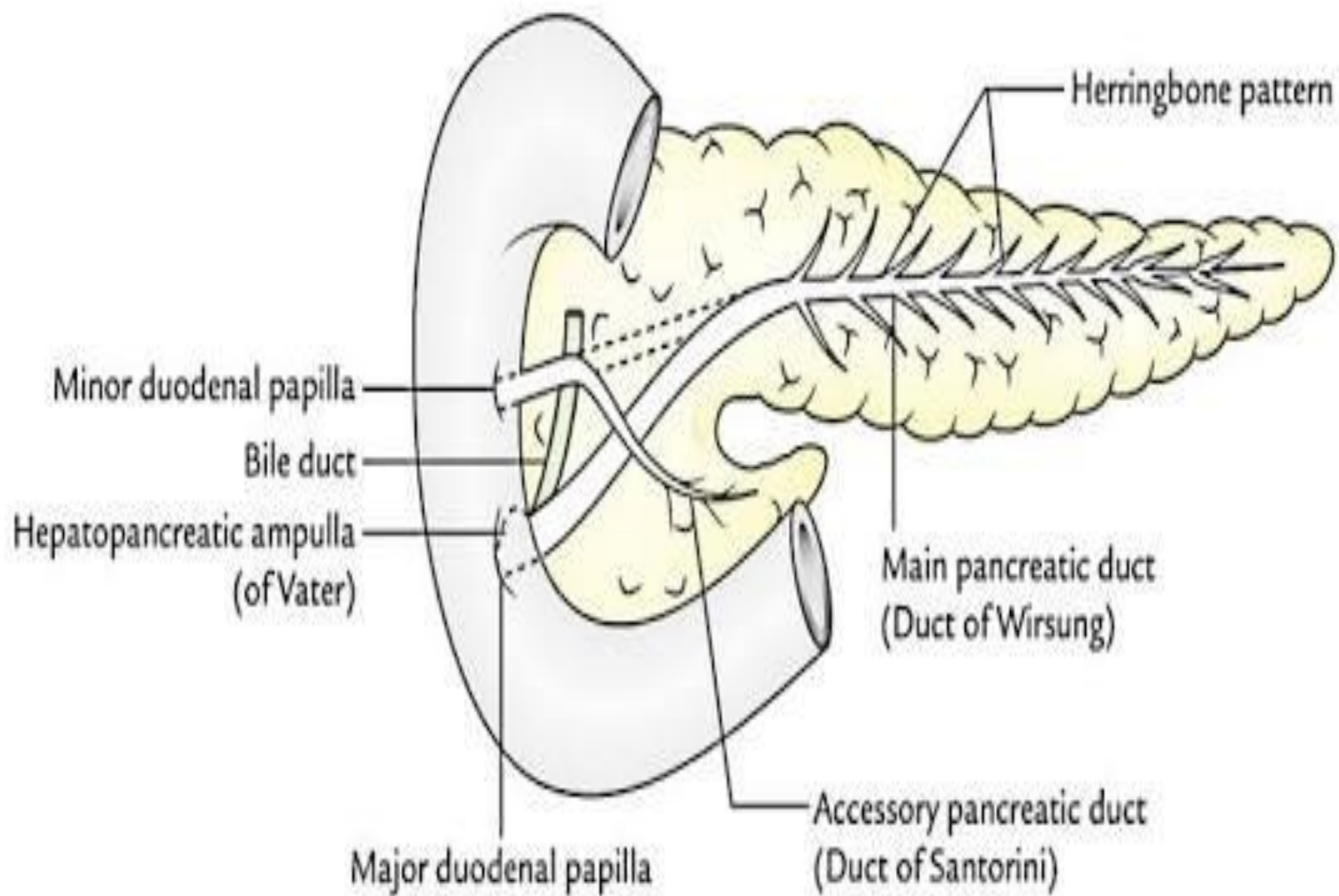
## **Ducts of the pancreas-**

**It has 2 ducts main and accessory**

**1. Main pancreatic duct of wirsung- 3mm, white colour, it begins at the tail; runs towards the right through the body and bends at the neck to run downwards, backwards and to the right in the head.**

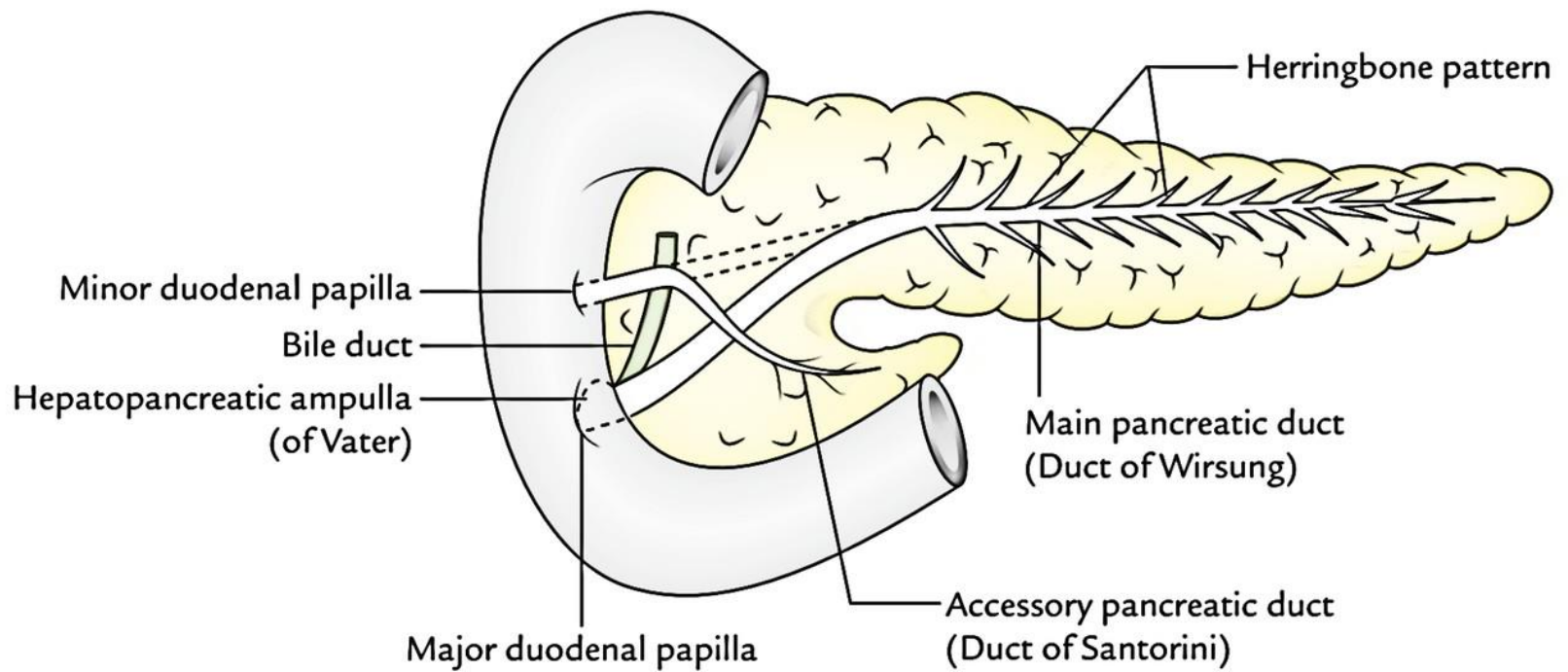
- It receives many small tributaries which join it at acute angles to its long axis showing a V shape pattern forming as a herring bone pattern.
- Within the head of the pancreas the pancreatic duct is related to the bile duct which lies on its right side.
- The 2 ducts enter the wall of the second part of duodenum and join to form the **hepatopancreatic ampulla of vater** which opens by **major duodenal papilla**, 8-10 cm distal to the pylorus.







**2. Accessory pancreatic duct of santorini-** it begins in the lower part of the head, crosses the front of the main duct with which it communicates and open into the duodenum at the **minor duodenal papilla**. 6-8 cm distal to pylorus.



## **Arterial supply-**

- **Pancreatic branches of the splenic artery**
- **Superior pancreaticoduodenal artery**
- **Inferior pancreaticoduodenal artery**

## **Venous drainage-**

- **Splenic, superior mesenteric and portal vein**

## **Nerve supply-**

- **Parasympathetic- vagus**
- **Sympathetic- abdominopelvic splanchnic nerve**

## Lymphatic Drainage

- pancreaticosplenic, coeliac and superior mesenteric groups of lymph nodes

# Histology

- The pancreas is made up of small clusters of glandular epithelial cells. About 99% of the clusters, called acini, constitute the exocrine portion of the organ. The cells within acini secrete a mixture of fluid and digestive enzymes called pancreatic juice.
- The remaining 1% of the clusters, called pancreatic islets (islets of Langerhans), form the endocrine portion of the pancreas. These cells secrete the hormones glucagon, insulin, somatostatin, and pancreatic polypeptide.

# Surface Marking

- (a) The head is marked within the concavity of the duodenum.**
- (b) The neck passes upwards and to the left behind the pylorus in the transpyloric plane.**
- (c) The body is marked by two parallel lines 3 cm apart, drawn upwards and to the left for 10 cm from the neck, occupying the upper two-thirds of the space between the transpyloric and subcostal planes.**
- (d) Tail reaches till hilum of spleen.**