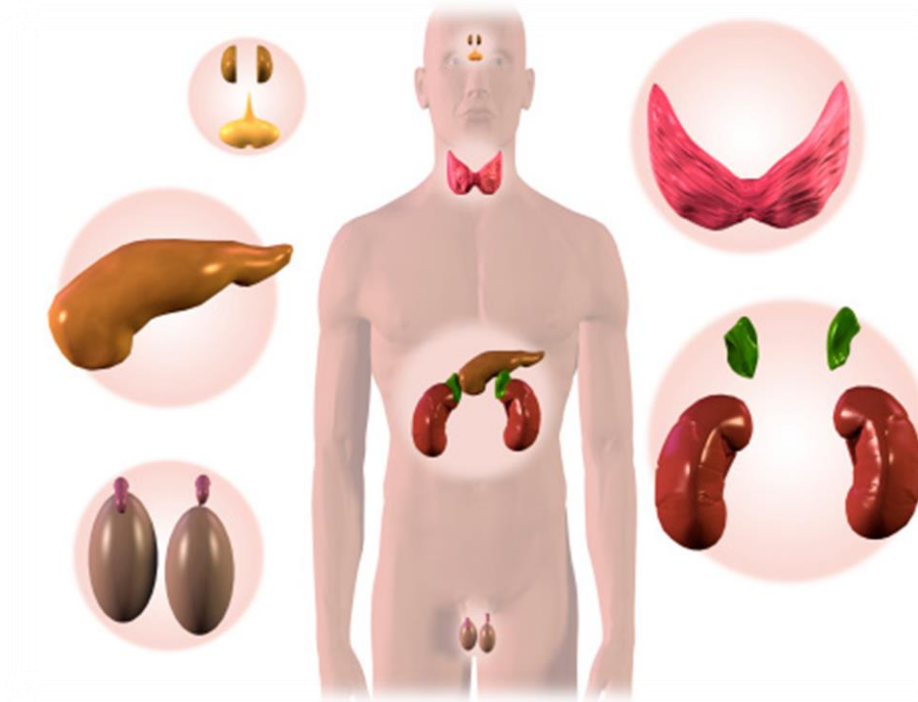




ENDOCRINE SYSTEM



LECTURE: **ANATOMY OF PANCREAS**

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[If there is any mistake or suggestions please feel free to contact us:](#)

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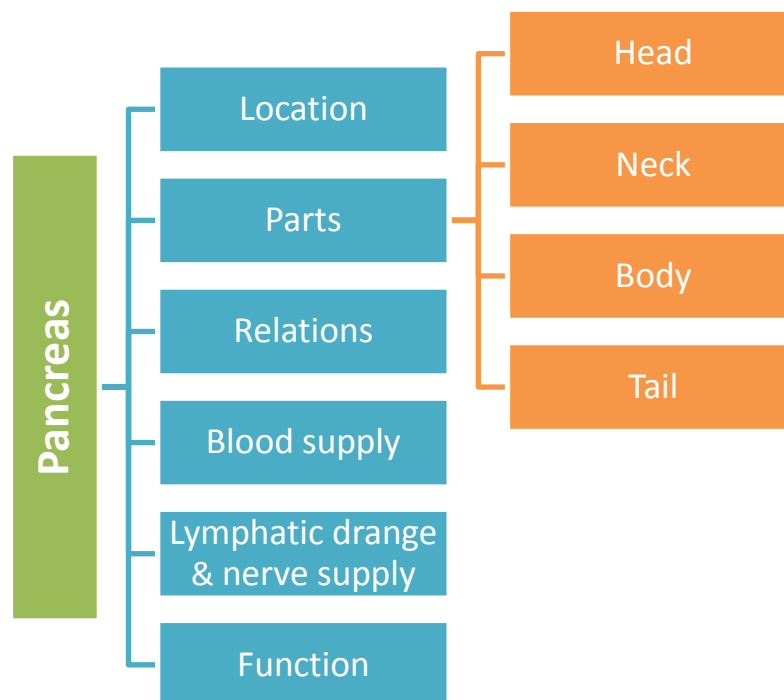
Both - Black
Male Notes - BLUE
Female Notes - GREEN
Explanation and additional notes - ORANGE
Very Important note - Red



Objectives:

- **By the end of this lecture the student should be able to:**
- **Describe the anatomical view of the pancreas regarding ; location, parts relations, ducts**
- **Arterial supply & Venous drainage**
- **Describe the nerve supply and lymph drainage**

Mind Map:



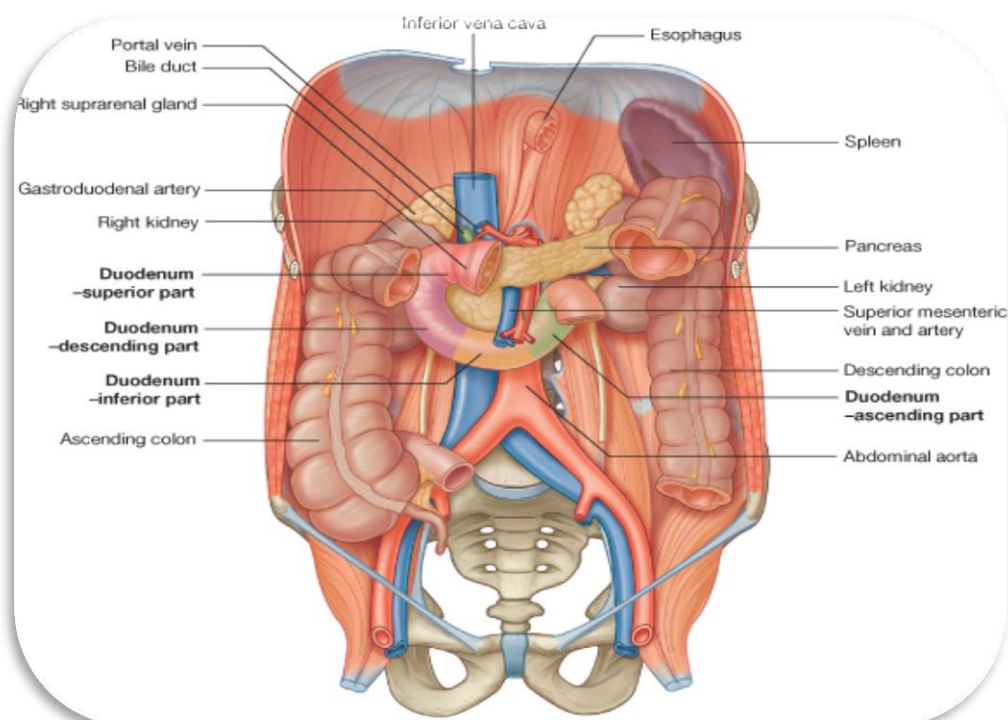


Pancreas

- It is an elongated soft pinkish structure
- (60-100) gram in weight & (6-10) inch in length
- It is Lobulated, because it is surrounded by a fibrous tissue capsule from which septa pass into the gland and divide it into lobes.
- The lobes are divided into lobules.

Location:

- It is a **Retro-Peritoneal** structure.
- It lies on the posterior abdominal wall in the: **Epigastrium & Left upper quadrant of the abdomen.**
- It extends in a transverse oblique direction at the **transpyloric plane (1st lumbar vertebral)** from the concavity of the duodenum on the right to the spleen on the left.

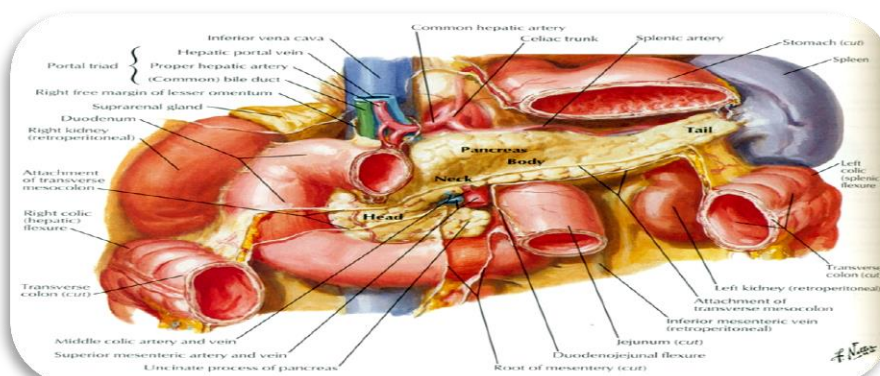




Parts:

- It is divided into: Head, Neck, Body and Tail.
- Because of its oblique direction the **tail** is higher than the head (at T12).

Head	Neck	Body	Tail
<p>*It is disc shaped</p> <p>*Lies within the concavity of the duodenum</p> <p>*Related to the 2nd and 3rd portions of the duodenum.</p> <p>*On the <u>left</u>, it emerges into the neck.</p> <p>*On the <u>left</u>, it Includes Uncinate Process (an extension of the lower part of the head behind the superior mesenteric vessels).</p> <p>*Structures Posterior to the Head:</p> <ol style="list-style-type: none"> 1. Bile Duct runs downwards and may be embedded in it. 2. IVC runs upwards. 	<p>*It is the constricted portion connecting the head & body of pancreas</p> <p>*It lies in front of:</p> <ol style="list-style-type: none"> 1. Aorta 2. Origin of Superior Mesenteric artery 3. The confluence of the Portal Vein. <p>*Its antero-superior surface supports the <u>pylorus of the stomach</u>.</p> <p>*The superior mesenteric vessels emerge from its inferior border</p>	<p>*It runs upward and to the left.</p> <p>*It is triangular in cross section.</p> <p>*The <u>Splenic Vein</u> is embedded in its post. Surface.</p> <p>*The <u>Splenic Artery</u> runs to the left along the upper border of the pancreas.</p>	<p>*A narrow, short segment.</p> <p>*Ends within the splenic hilum.</p> <p>*Lies in the Splenicorenal ligament.</p> <p>*Anteriorly, related to: splenic flexure of colon.</p> <p>*May be injured during <u>Splenectomy</u></p>





Relations of the pancreas:

Anterior (to body & tail)	Posterior (to body & tail)
<ul style="list-style-type: none"> Stomach separated by lesser sac. Transverse colon & transverse mesocolon. 	<ul style="list-style-type: none"> Left Psoas muscle Left Adrenal gland Left Renal vessels Upper 1/3rd of Left kidney Hilum of the spleen.
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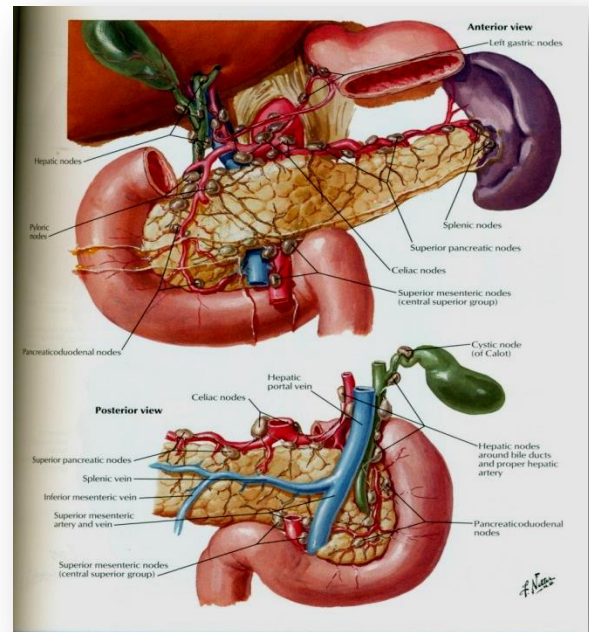
Blood Supply:

Arterial supply	Venous drainage
<ul style="list-style-type: none"> Celiac trunk → Common hepatic artery → Gastroduodenal → Superior pancreaticoduodenal Superior mesenteric artery → Inferior pancreaticoduodenal to head. Splenic A supplies the Body and Tail of pancreas by about 10 branches. 	<ul style="list-style-type: none"> Anterior and posterior arcades drain head and the neck. Splenic vein drains the body and tail. Ultimately, ends into Portal Vein.



Lymphatic drainage:

- Rich network drains into nodes along the upper border of the pancreas.
- Ultimately the efferent vessels drain into the celiac nodes.
- **Lymph vessels from the region of the Head pass to Superior Mesenteric nodes**



Nerve supply:

- Sympathetic from the **splanchnic nerves**, they have a predominantly inhibitory effect
- Parasympathetic from the **Vagus**, they stimulate both exocrine and endocrine secretions.

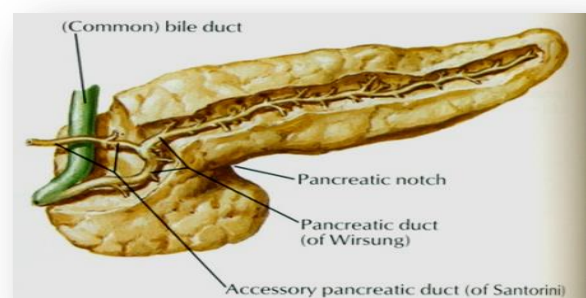
Pancreatic ducts:

Main P duct (of wirsung) :

- Joins common bile duct & they open into a small hepatopancreatic ampulla in the duodenal wall (Ampulla of Vater).
- The ampulla opens into the lumen of the duodenum through (**Major Duodenal Papilla**).

Accessory P duct (of Santorini):

- Drains superior portion of the head
- It empties separately into 2nd portion of duodenum at (minor duodenal papilla).





Functions:

- **Exocrine and Endocrine** gland
- The Exocrine portion:
Small ducts arise from the lobules and enter the main pancreatic duct (which begins in the tail), and passes through the body and head where it meets the bile duct.
- The Endocrine portion (Islets of Langerhans): produce insulin & glucagon.

Questions:

1) Which one of the following abdominal regions the pancreas occupies:

- A. Epigastrium, right hypochondrium.
- B. Epigastrium, left hypochondrium.
- C. Epigastrium, Umbilical region.
- D. Epigastrium, Right flank region.

2) The beginning of the pancreas lies opposite to:

- A. L1.
- B. L2.
- C. T11.
- D. T12.

3) The uncinate process is located:

- A. Behind the superior mesenteric vessels.
- B. In front of superior mesenteric vessels.
- C. Lateral to superior mesenteric vessels.
- D. On either sides of superior mesenteric vessels.



4) The superior mesenteric vessels emerge at which one of the following pancreatic segments:

- A. Body.
- B. Head.
- C. Neck.
- D. Tail.

5) The splenic vein is embedded in which one of the following pancreatic segments:

- A. Body.
- B. Head.
- C. Neck.
- D. Tail.

6) The tail of the pancreas lies in:

- A. Gastrosplenic ligament.
- B. Falciform ligament.
- C. Round ligament.
- D. Lienorenal ligament.

7) The body & tail of pancreas are supplied by:

- A. Superior pancreaticoduodenal artery.
- B. Inferior pancreaticoduodenal artery.
- C. Splenic artery.
- D. Right gastric.

8) Efferent lymphatic vessels from the pancreas ultimately drain into:

- A. Celiac nodes.
- B. Hepatic nodes.
- C. Para-aortic nodes.
- D. Iliac nodes.



9) The ampulla of vater opens into the duodenal lumen through:

- A. Minor duodenal papilla.
- B. Major duodenal papilla.
- C. Duct of Santorini.
- D. Pyloro-duodenal junction.

10) The accessory pancreatic duct drains which one of the following pancreatic segments:

- A. Uncinate process.
- B. Superior portion of the head.
- C. Superior portion of the tail.
- D. Superior portion of the neck.

Q	Answers
1	B
2	A
3	A
4	C
5	A
6	D
7	C
8	A
9	B
10	B

GOOD LUCK

Anatomy Team Leaders:

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&

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