Biliary Passages & Exocrine Pancreas

Red: important.
Black: in male|female slides.
Gray: notes|extra.

Editing file

➢ OBJECTIVES

- The student should be able to identify & describe the histological features of:
  - Intrahepatic biliary passages
  - Extrahepatic bile ducts
  - Gall bladder
  - Exocrine pancreas

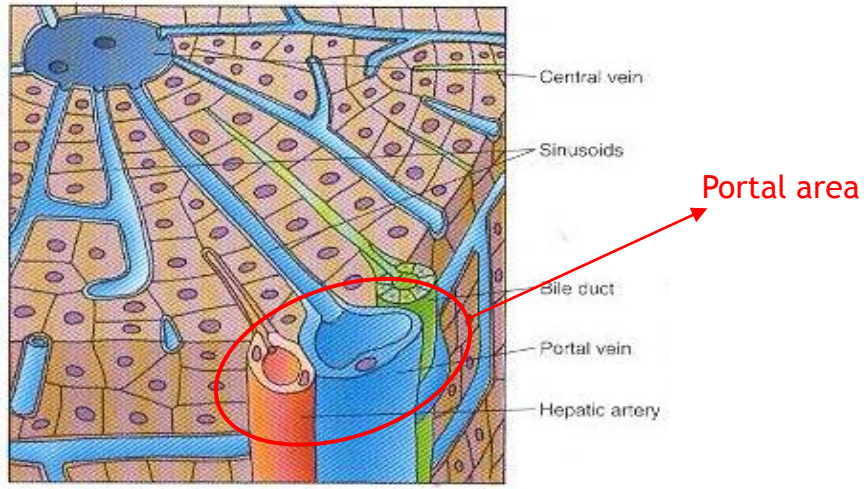
Biliary Passages

Intrahepatic passages

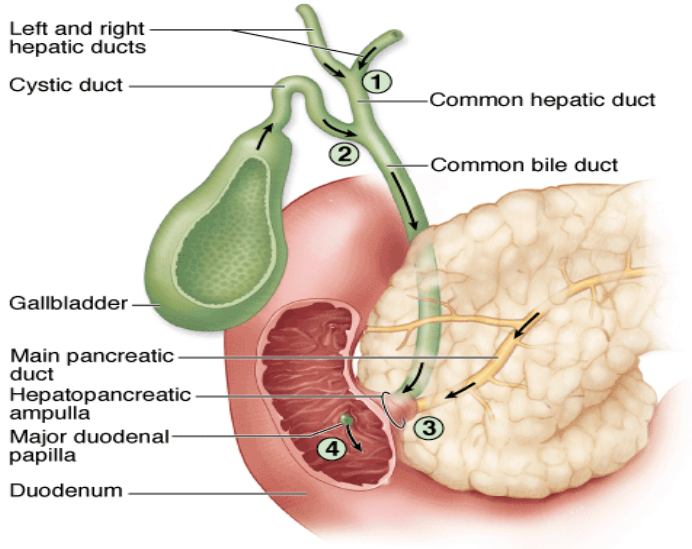
Extrahepatic passages

Bile canaliculi → Bile ductules (canals of Hering) → Interlobular bile ducts → Right & left Hepatic ducts → Common hepatic duct → Common bile duct

Bile is a liquid produced by liver, stored in gall bladder and secreted in duodenum to digest fat

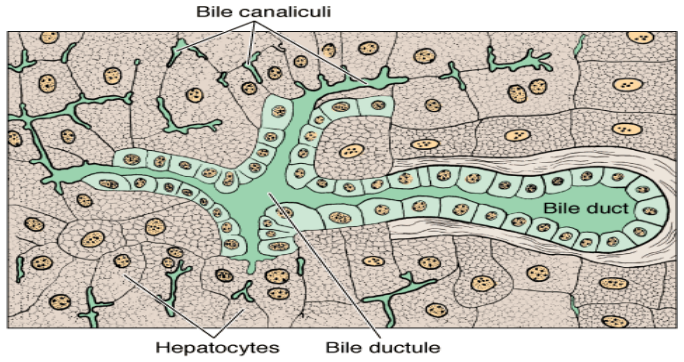


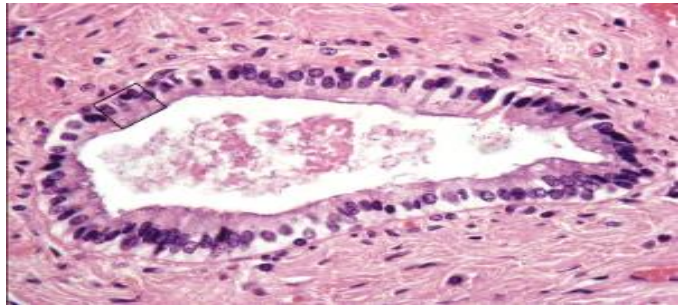
- Portal area located in liver contains (portal vain, hepatic artery, bile duct)



➢ Intrahepatic passages

Bile canaliculi	Bile ductules (canals of Hering)	Interlobular bile ducts
• Narrow channels located between hepatocytes, limited only by the cell membranes of 2 hepatocytes. • They are the first portions of the bile duct system. • Microvilli project from the hepatocyte into the bile canaliculi, thus increasing the surface area. • Tight junctions between the cell membranes of the 2 hepatocytes prevent leakage of bile. (It will cause yellowish discoloration in eyes and skin if it leakage from the canaliculi)	• Near the peripheral portal areas, bile canaliculi empty into **bile ductules** composed of **cuboidal epithelial cells** called **cholangiocytes**. • After a short distance, these ductules collect and end in the **interlobular bile ducts** in the portal areas. • Portal area located in liver contains (portal vain, hepatic artery, bile duct)	• Are in the portal areas. • Lined by **simple cuboidal epithelium** (becomes **simple columnar epithelium** near the porta hepatis). • Interlobular bile ducts merge to form larger ducts, which eventually unite to form the right and left hepatic ducts.





➢ Extrahepatic passages

Right & left Hepatic ducts	Common Hepatic Duct	Common bile duct

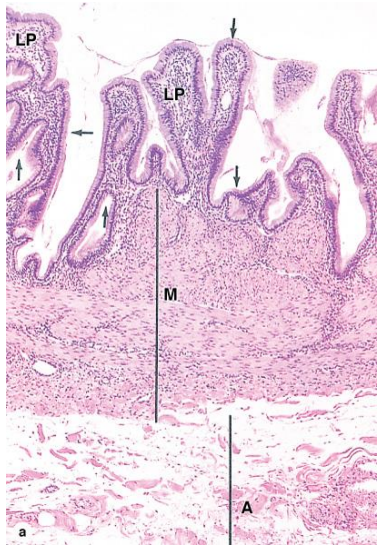
- Formed by union of the right & left hepatic ducts. It joins the cystic duct, arising from the gallbladder, forming the common bile duct.
- Similar in structure to the wall of gall bladder and other extrahepatic bile ducts.
- **Mucosa:**
  - Epithelium: **Simple columnar**.
  - Lamina propria.
- **Muscularis:** bundles of smooth muscle fibers in **all directions**.
- **Adventitia.**

➢ Gall Bladder

- A saclike structure that stores, concentrates and releases bile.

Its wall is formed of:

- **Mucosa:** highly folded.
- **Simple columnar epithelium**.
- Lamina propria: contains mucous glands in the neck of gall bladder.
- **Muscularis:** bundles of smooth muscle fibers oriented in **all directions**.
- **Serosa** or **adventitia**.
- The last layer of gall bladder is adventitia except fundus part is serosa



➢ Pancreas

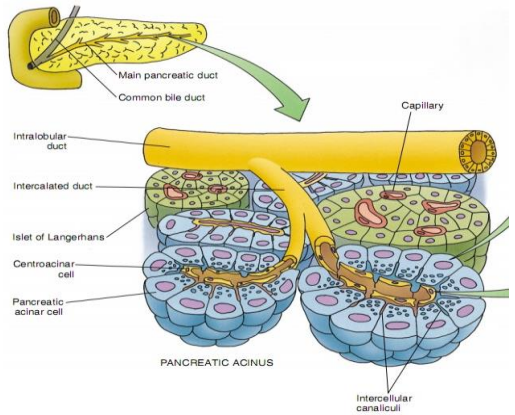
Stroma: capsule, septa & reticular fibers.

Parenchyma: Pancreas is a mixed gland:

Exocrine part (acini & ducts): produces digestive pancreatic enzymes.

Endocrine part (islets of Langerhans): produces hormones.

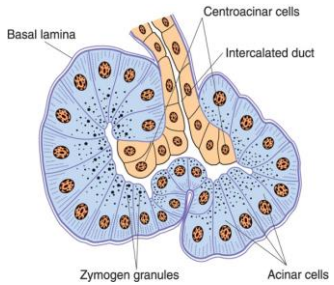
this lecture will focus only on the Exocrine Pancreas



➢ Exocrine Pancreas

Pancreatic Acini

- They are serous acini: secreting a thin fluid rich in digestive pancreatic enzymes.
- Centroacinar cells:
  Their nuclei appear in the center of the acini. They represent the beginning of the ducts. (Duct start from inside the acini in pancreas)
- No myoepithelial cells around the acini.



Pancreatic Acinar Cells:

- Pyramidal in shape.
- Nuclei are basal.
- Cytoplasm:
  Basal part Basophilic (due to abundant rER).
  Apical part Acidophilic (due to secretory granules=zymogen granules).

Duct System

- Centroacinar cells.
- Intercalated ducts (low cuboidal).
- Intralobular ducts (NOT prominent).

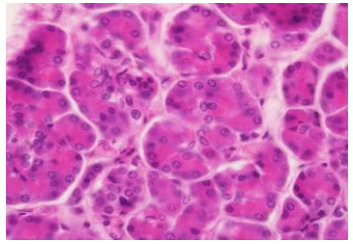
Unlike parotid glands where they're prominent

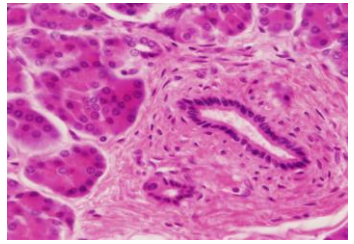
- Interlobular ducts.
- Main pancreatic duct.

} Lined by columnar epithelium

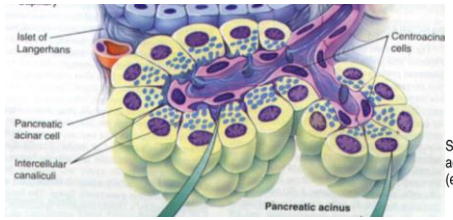
Intra = inside

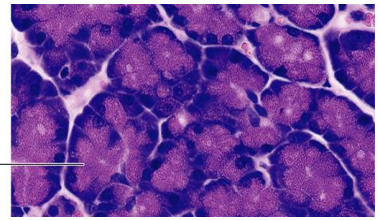
Inter = between

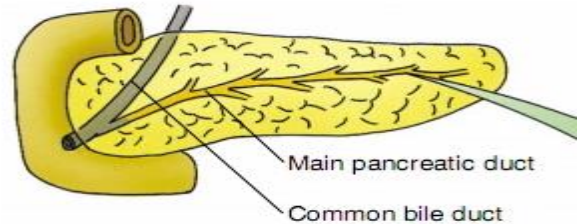




Note: Zymogen granules are any secretory vesical contains digestive enzyme





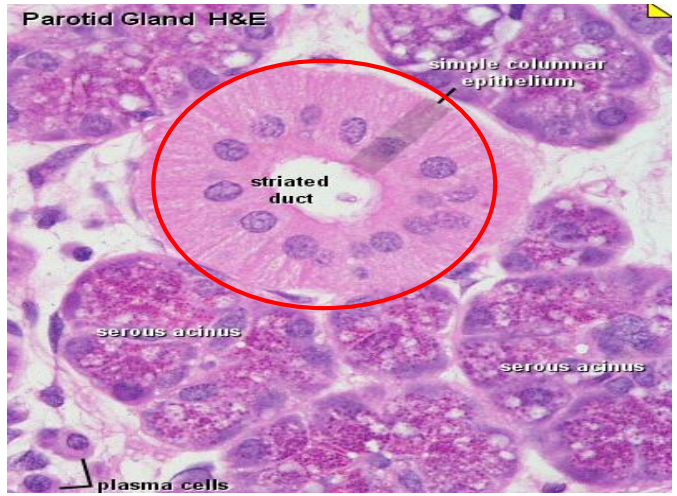


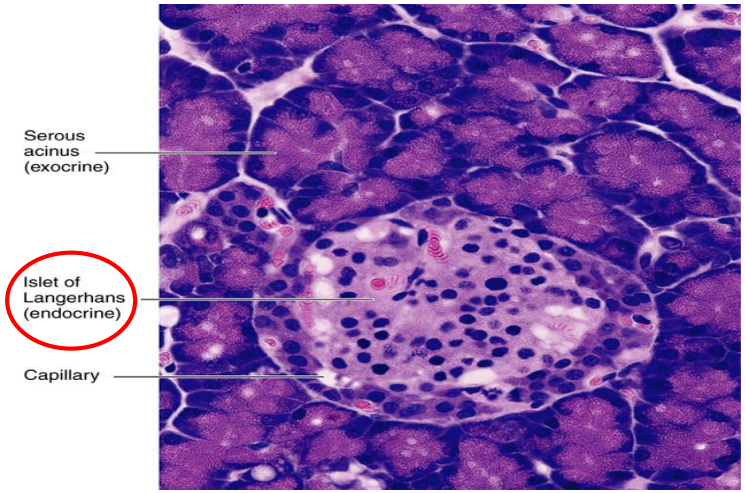
Under microscope we can differentiate Between parotid gland and pancreas by

- prominent intralobular duct (in parotid gland)
- islets of Langerhans (in pancreas only)

intralobular duct = Striated duct

islets of Langerhans





parotid gland

pancreas

QUESTIONS:

Q1:Which one is Extrahepatic passages?

A) Bile canaliculi B) Common hepatic duct
C) Bile ductules D) Interlobular bile ducts

Q2: Which intrahepatic passage is located between 2 hepatocytes ?

A) interlobular duct B) bile ductules C) Bile canaliculi D) All of them

Q3: What type of junction is found between the hepatocytes?

A) Tight junctions B) Gap junctions C) Anchoring junctions D) non of them

Q4: what is the type of epithelium in the common hepatic duct?

A) Simple columnar epithelium B) Simple cuboidal epithelium
C) Simple squamous epithelium D) Transitional epithelium

Q5: Which structure has two types of epithelium?

A) Common hepatic duct B) Right & left hepatic ducts
C) Interlobular bile ducts D) Common bile duct

1- B
2- C
3- A
4- A
5- C

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Q6: what is the type of epithelium in the gallbladder?

A) Simple squamous epithelium B) Simple columnar epithelium
C) Simple cuboidal epithelium D) Transitional epithelium

Q7: What type of acini does the exocrine part of the pancreas have?

A) Serous acini B) Mucus acini C) Mixed acini D) all of them

Q8: Which cells are not found in the pancreatic acini?

A) Centroacinar cells B) Serous cells C) Myoepithelial cells D) all of them

Q9: Unlike salivary glands, this part of pancreatic duct is not prominent:

A) Intralobular ducts B) Interlobular ducts C) Intercalated ducts D) non of them

Q10: what represents the beginning of the pancreatic ducts?

A) Intercalated ducts B) Interlobular ducts
C) Centroacinar cells D) islets of Langerhans

6- B
7- A
8- C
9- A
10- C

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