MED439
KING SAUD UNIVERSITY

Revised & Approved

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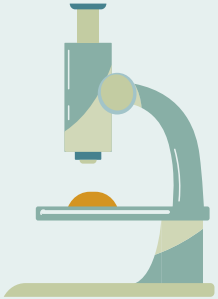

Biliary passages & Exocrine pancreas

Histology Team
439

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Editing file

Objectives:

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

Biliary passages

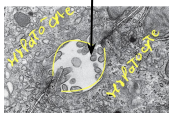
Intrahepatic passages

Bile canaliculi

• The formed bile pass to the canaliculi which is present between the blood vessels and interlobular duct and the at the end of it the canals of hering formed.

Bile ductules (canals of Hering)

• Formed of small cuboidal cells with narrow lumen.
• (مرحلة انتقالية) Between the canaliculi and interlobular ducts.
• Isn't duct because it **doesn't has its own lining but** is formed by the epithelial linings of lateral concave membrane of the 2 hepatocytes.



Interlobular bile ducts

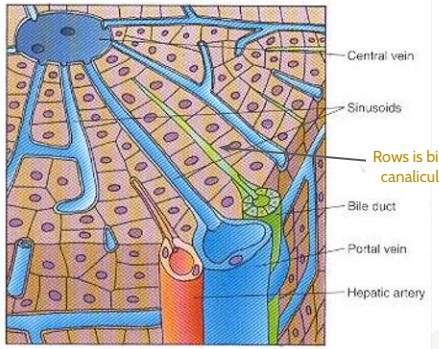
Extrahepatic passages

Right & left Hepatic ducts

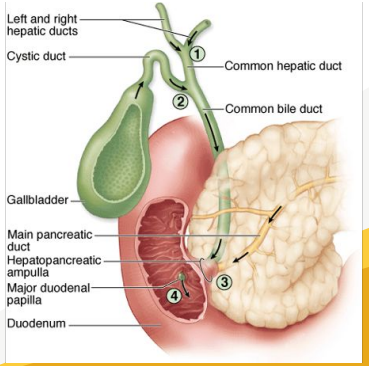
Common hepatic duct

Common bile duct

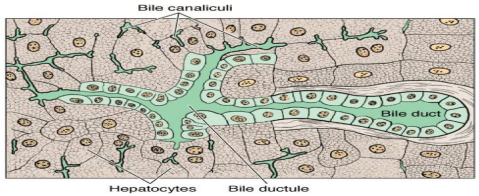
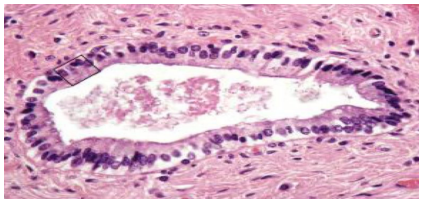
• Bile source is the hepatocyte.
• Bile pass from the hepatocytes through the the passages in the liver called intrahepatic passages then to the passages located out of the liver called extrahepatic passages.



The section is millions of hypoglobus (liver)



Intrahepatic Passages

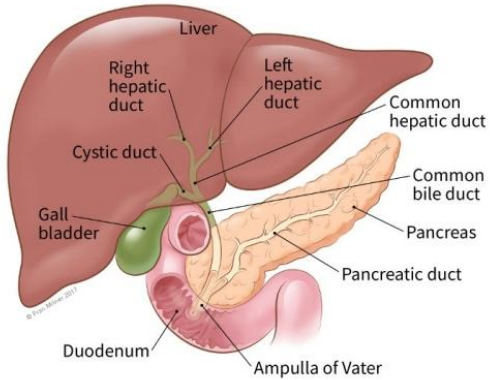
Bile Canaliculi	Bile Ductules (Canals of Hering)	Interlobular Bile Ducts
• Narrow channels located between hepatocytes, limited only by the cell membranes of 2 adjacent hepatocytes. • They are the first portions of the bile duct system. • Microvilli project from the hepatocyte into the bile canaliculi, thus increasing the surface area and the secretion. • Tight junctions between the cell membranes of the 2 hepatocytes prevent leakage of bile. Patient with hepatitis,the liver cells undergo degeneration which allow for the bile to leak out to the blood cause jaundice .	• Near the peripheral portal (called portal cuz portal vein present in the area) 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. • They connect bile canaliculi with interlobular bile duct • They are damaged by primary biliary cirrhosis	• 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

It's structure Looks like gallbladder

- 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 gallbladder and other extrahepatic bile ducts.
- Mucosa: (no muscularis mucosae & submucosa)
  - Epithelium: Simple columnar.
  - Lamina propria.
- Muscularis: bundles of smooth muscle fibers in all directions.
- Adventitia the liver cover all these structures except the Fundus and prevent them from Coming in contact with peritoneum

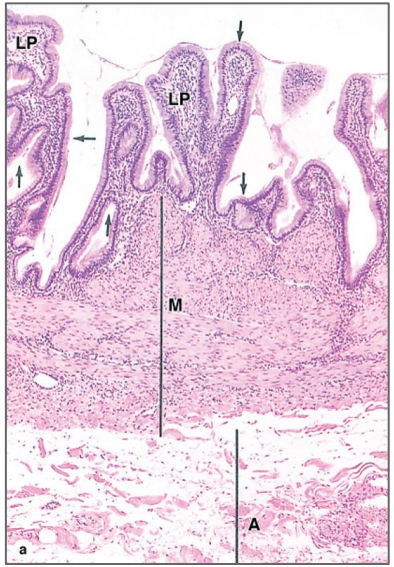


Gallbladder

A saclike structure that stores, concentrates and releases bile. Its wall is formed of:

- **Mucosa:** highly folded. عشان لازم يصير لها = distension for storage
  - Simple columnar epithelium.
  - Lamina propria: contains mucous glands in the neck of gallbladder.
- **Muscularis:** bundles of smooth muscle fibers oriented in all directions.
- **Serosa** or **adventitia.** (Fundus= serosa and other section Adventitia)

- Gallbladder is dilated to store the bile because it's not secreted immediately to the duodenum until there's fat because the bile contain enzymes for emulsification (تفكيك) not digestion.
- Gallstones developed when there is imbalance between concentrates and release of bile



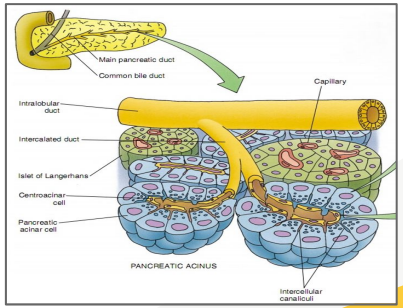
Pancreas

- **Stroma:** capsule,septa & reticular fibers.
- **Parenchyma:** Pancreas is a mixed gland.
  - **Exocrine part (acini & ducts):** produces digestive pancreatic enzymes.

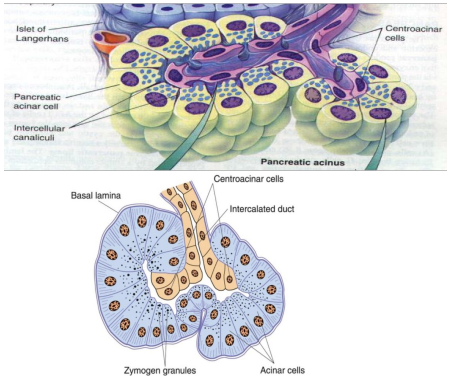
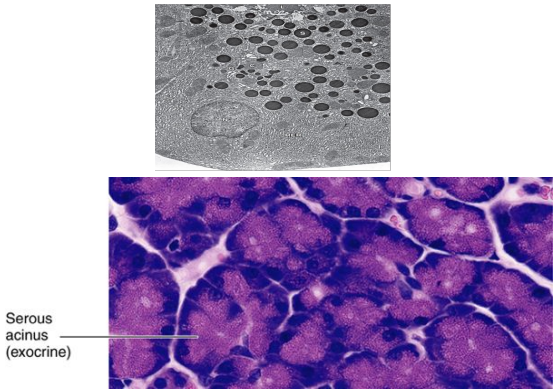
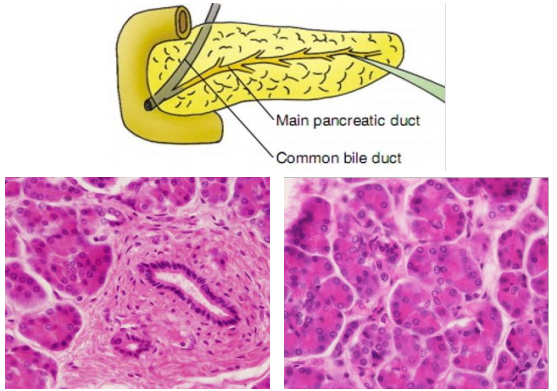
    It secretes to enzymes to same area of duodenum that some hepatic ducts empties in.
  - **Endocrine part (islets of Langerhans):** produces hormones.

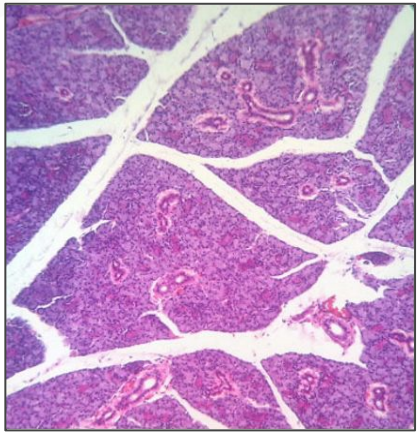
    they secretes insulin which regulate and manage glucose.

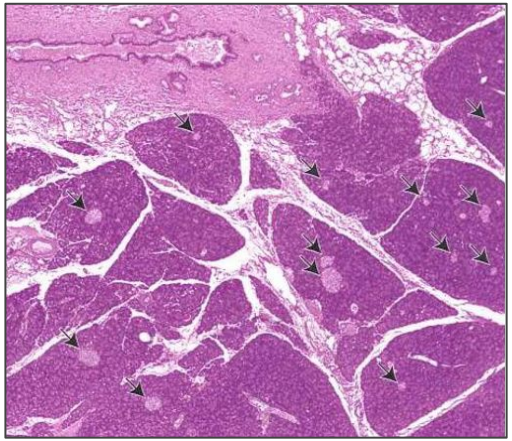
    In the islets the acini surrounded by thin reticular fibers to form capsule like to separate them from the islets.

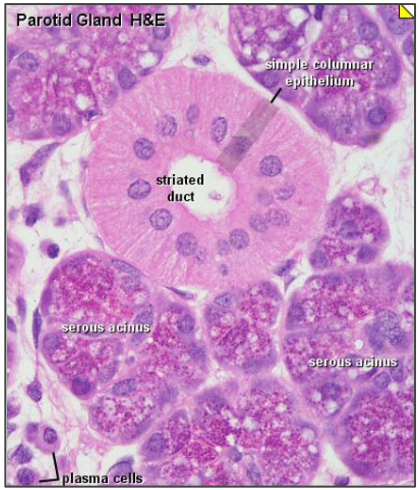


Exocrine Pancreas

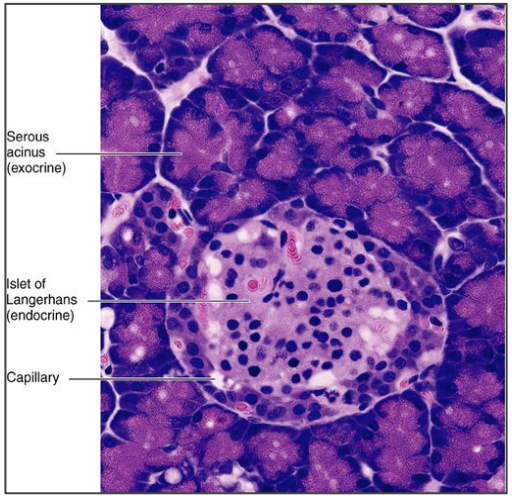
Pancreatic Acini	Pancreatic Acinar Cells	Duct System
• They are serous acini : secreting a thin fluid rich in digestive pancreatic enzymes. • Centroacinar cells : Their nuclei appear in the center of the acini. They represent the beginning of the ducts. • No myoepithelial cells around the acini. The pancreatic duct حشرت نفسها في lumen of acini -looks like the parotid gland but differ in the secreted enzymes and have centroacinar cells with not prominent intralobular ducts .	• Pyramidal in shape. • Nuclei are basal, rounded and vesicular. • Cytoplasm : - Basal part basophilic (due to abundant rER). - Apical part acidophilic (due to secretory granules).	• Centroacinar cells. • Intercalated ducts (low cuboidal). • Intralobular ducts (small NOT prominent). • Interlobular ducts. • Main pancreatic duct. (lined by simple columnar epithelium)
		







Parotid gland



Pancreas

MCQs

Q1) Which of the following is intrahepatic passages?
A- Common bile duct
B- Common hepatic duct
C- Bile ductules
D- Right & left hepatic ducts

Q2) Which of the following project from the hepatocyte into the bile Canaliculi?
A- Flagella
B- Simple cuboidal epithelium
C- Simple columnar epithelium
D- Microvilli

Q3) Canals of Hering are composed of?
A- cholangiocytes
B- simple columnar epithelium
C- simple squamous epithelium
D- stratified columnar epithelium

Q4) Which of the following is correct about Common Hepatic Duct?
A- Mucosa lined by simple cuboidal epithelium
B- Muscularis formed by bundles of skeletal muscle fibers in all directions.
C- Doesn't have adventitia
D- Mucosa lined by simple columnar epithelium

Q5) Which of the following forms the endocrine part of pancreas and produce hormones?
A- Acini & ducts
B- Islets of Langerhans
C- Both A & B
D- Cholangiocytes

Q6) Which of the following is a feature of Pancreatic Acinar Cells?
A- Cells are pyramidal in shape
B- Cells are tubular in shape
C- Nuclei are central
D- The cytoplasm is completely basophilic

Q1:C
Q2:D
Q3: A
Q4: D
Q5: B
Q6: A

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