General Histology Practical
for second stage students

Large intestine

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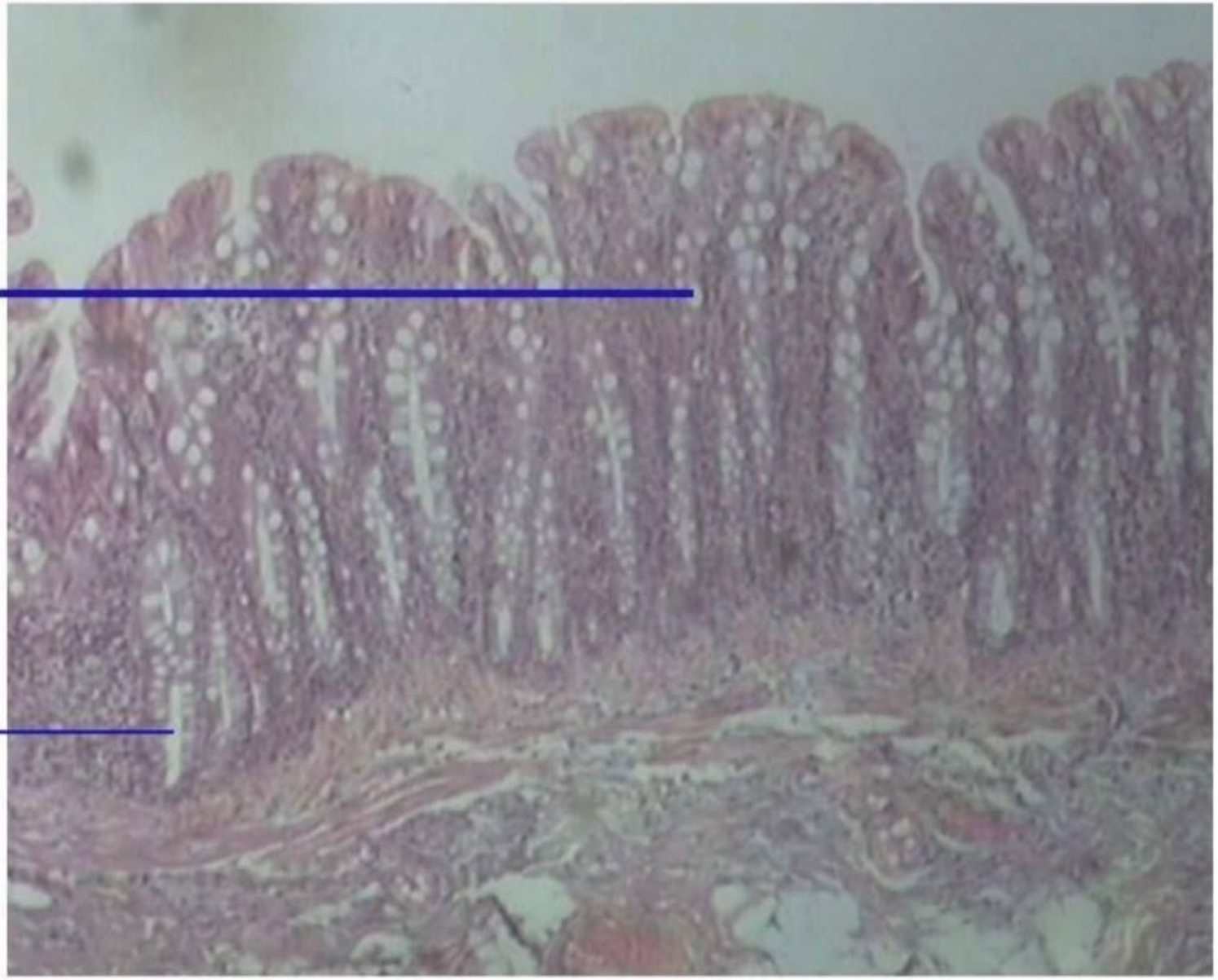
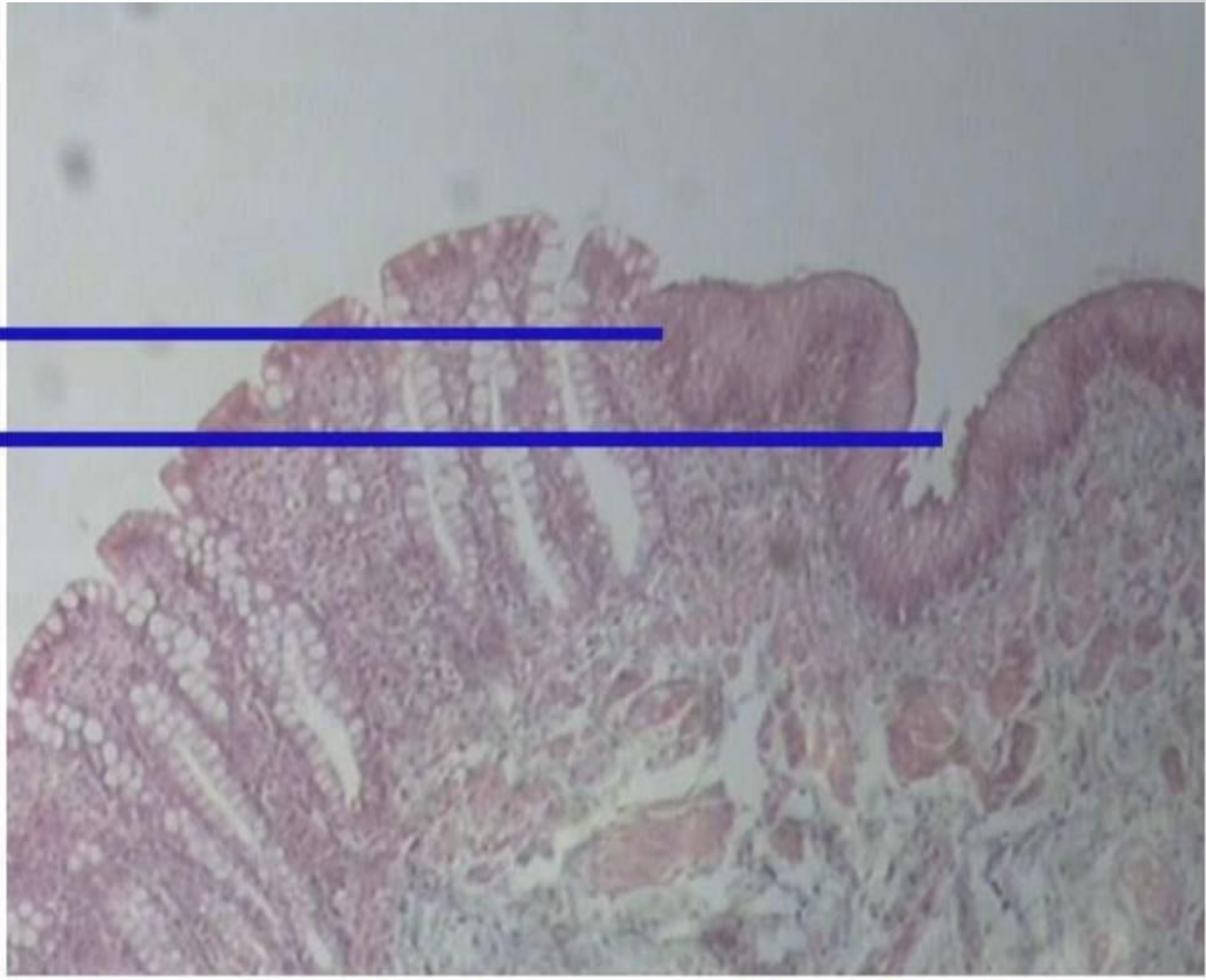
Large intestine divided into four regions: cecum, colon, rectum, and anus.

- Colon :
- Vili absent .
- High density of Lieberkühn's crypts, similar to the small intestine.
- Greater number of goblet cells.
- The lamina propria, muscularis mucosa, and submucosa are similar to the small intestine.

- The intestinal or mucosal glands are present in the gastrointestinal tract and their role is to lubricate and absorb water from undigested materials.
- The outer longitudinal layer of the muscularis externa is discontinuous.
- It forms three narrow ribbons called tenia coli.
- The serosa has fat-filled pouches known as appendices epiploicae, which are aggregations of adipose tissue.



cross section in rectum 4x



cross section in recto anal junction 4x

Rectum and anal canal

- Rectum histology similar to colon.
- Rectal crypts of Lieberkuhn are deeper.
- Fewer crypts in the rectum compared to colon.
- Anal canal crypts of Lieberkuhn short and fewer.
- Crypts absent in the distal half of the canal.
- Mucosa has longitudinal folds called anal columns.
- Anal valves formed where columns meet

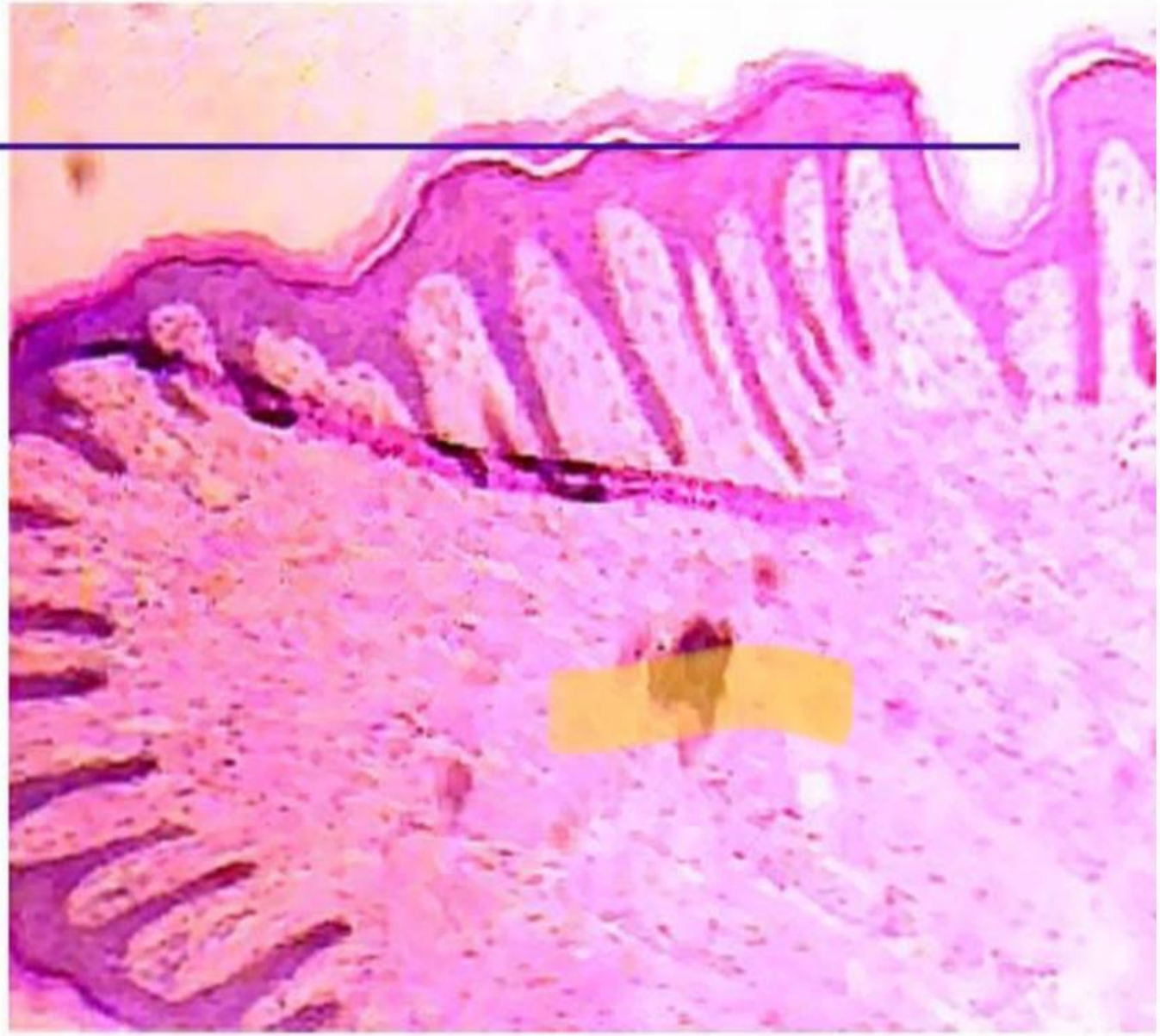
- Simple columnar epithelium from the rectum to the pectinate line.
- Stratified squamous non-keratinized epithelium from pectinate line to external anal orifice.
- Stratified squamous keratinized epithelium (epidermis) at the anus.

Note: Sweat and sebaceous glands located under the keratinized epithelium.

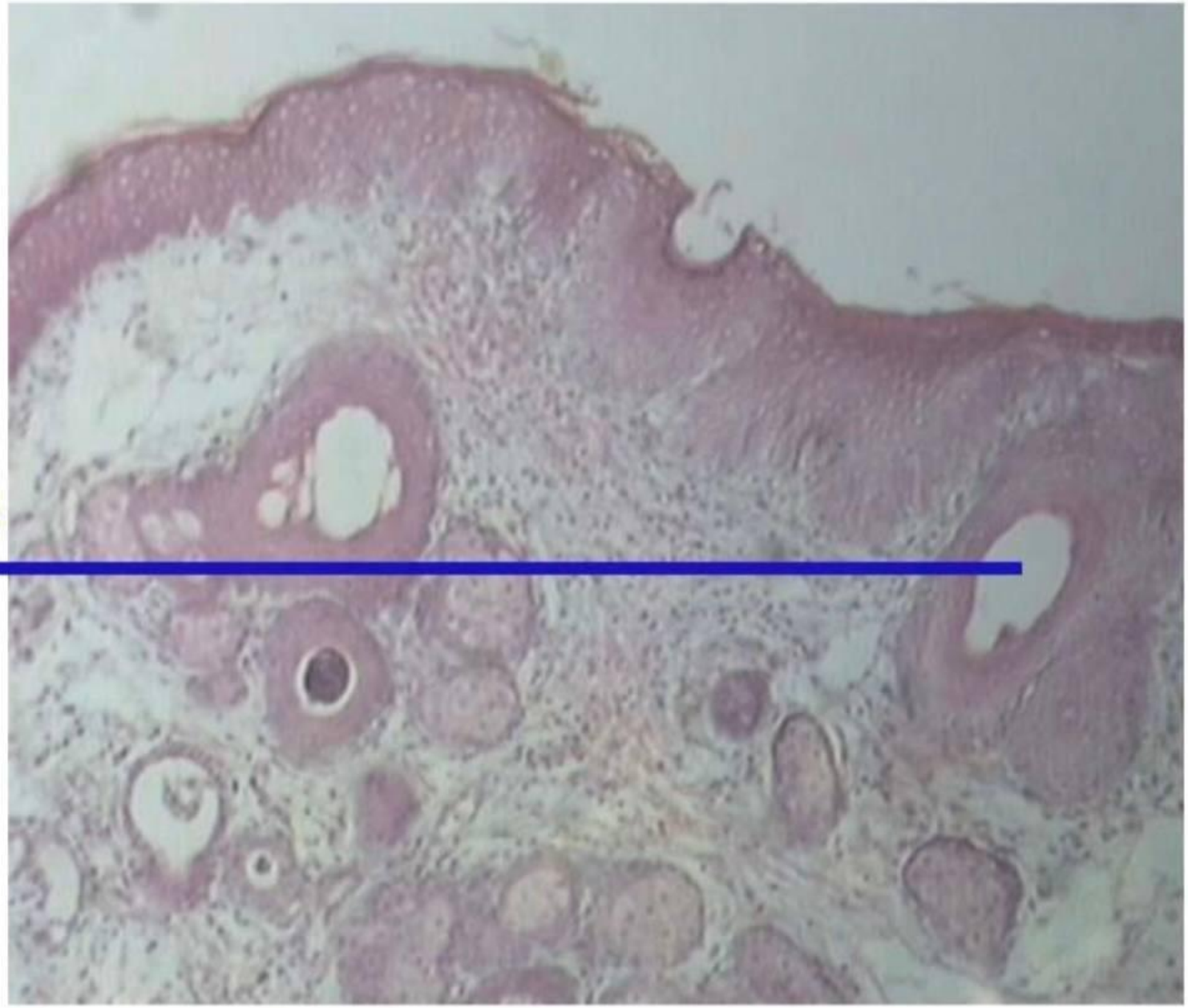
- Lamina propria fibroelastic tissue with anal glands at rectoanal junction & circumanal glands at canal's distal end (shorter, fewer).
- Numerous lymphatic tissues present.
- Muscularis mucosa has inner circular and outer longitudinal smooth muscle layers.
- Submucosa made of fibroelastic tissue.

- Muscularis externa consists of an inner circular smooth muscle layer (internal anal sphincter) and an outer longitudinal skeletal muscle layer (external anal sphincter).
- Both muscles function to voluntarily control the expulsion of undigested material.

anal column



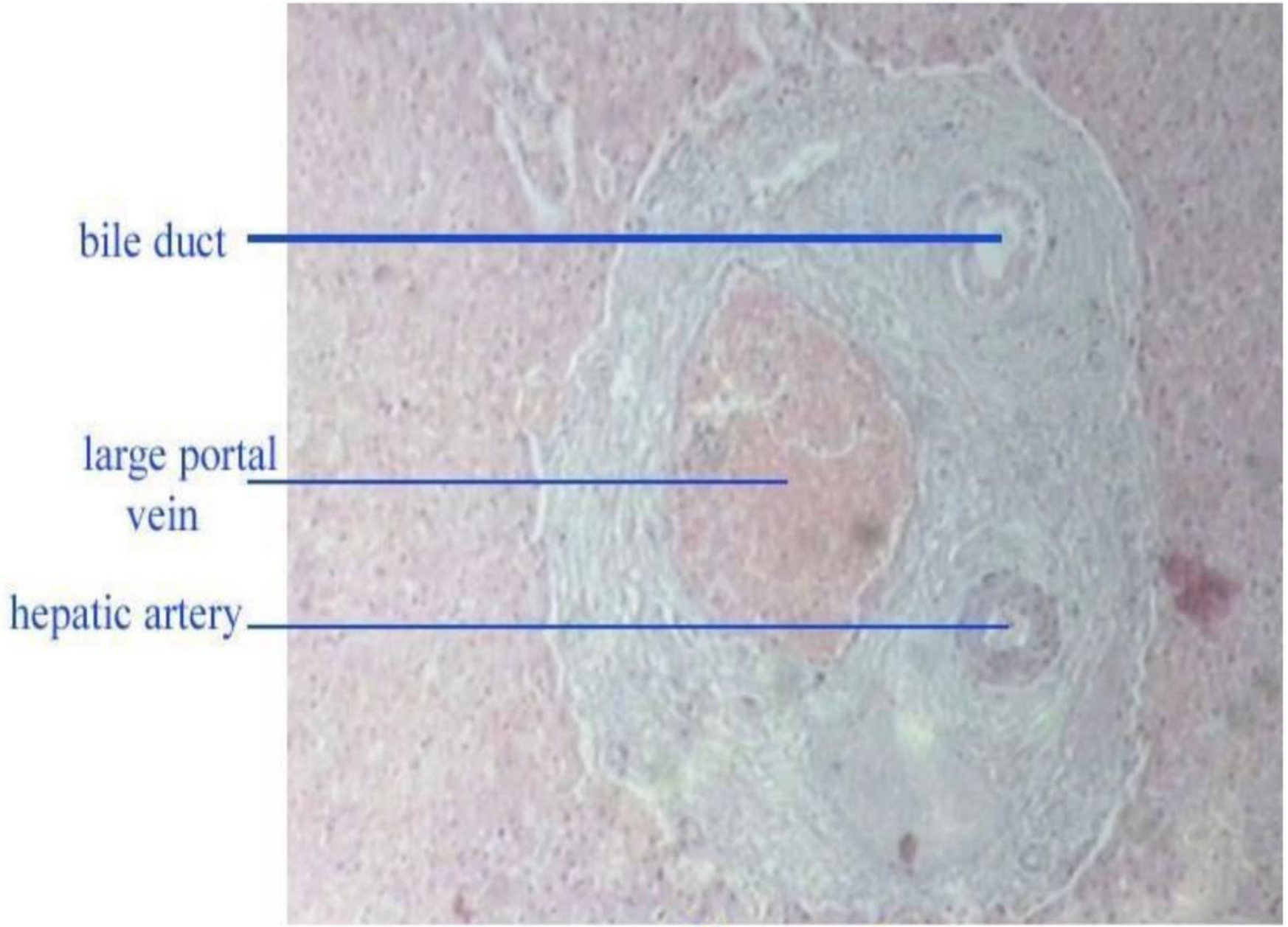
cross section in anal canal 4x



cross section in anal canal 4x

Liver

- The liver is covered by peritoneum with a simple squamous epithelium and a dense, irregular connective tissue capsule.
- Main function is the detoxification of metabolic waste from the blood.
- Hepatocytes form hexagonal lobules.
- Lobules contain branches of the hepatic artery, large portal vein, bile ducts (lined by simple cuboidal epithelium), and lymph vessels.



liver 4x

Pancreas

- The pancreatic connective tissue capsule forms septa, subdividing the gland into lobules.
- The pancreas has both exocrine and endocrine functions.
- Endocrine components, known as Islets of Langerhans, are interspersed among the exocrine secretory acini.

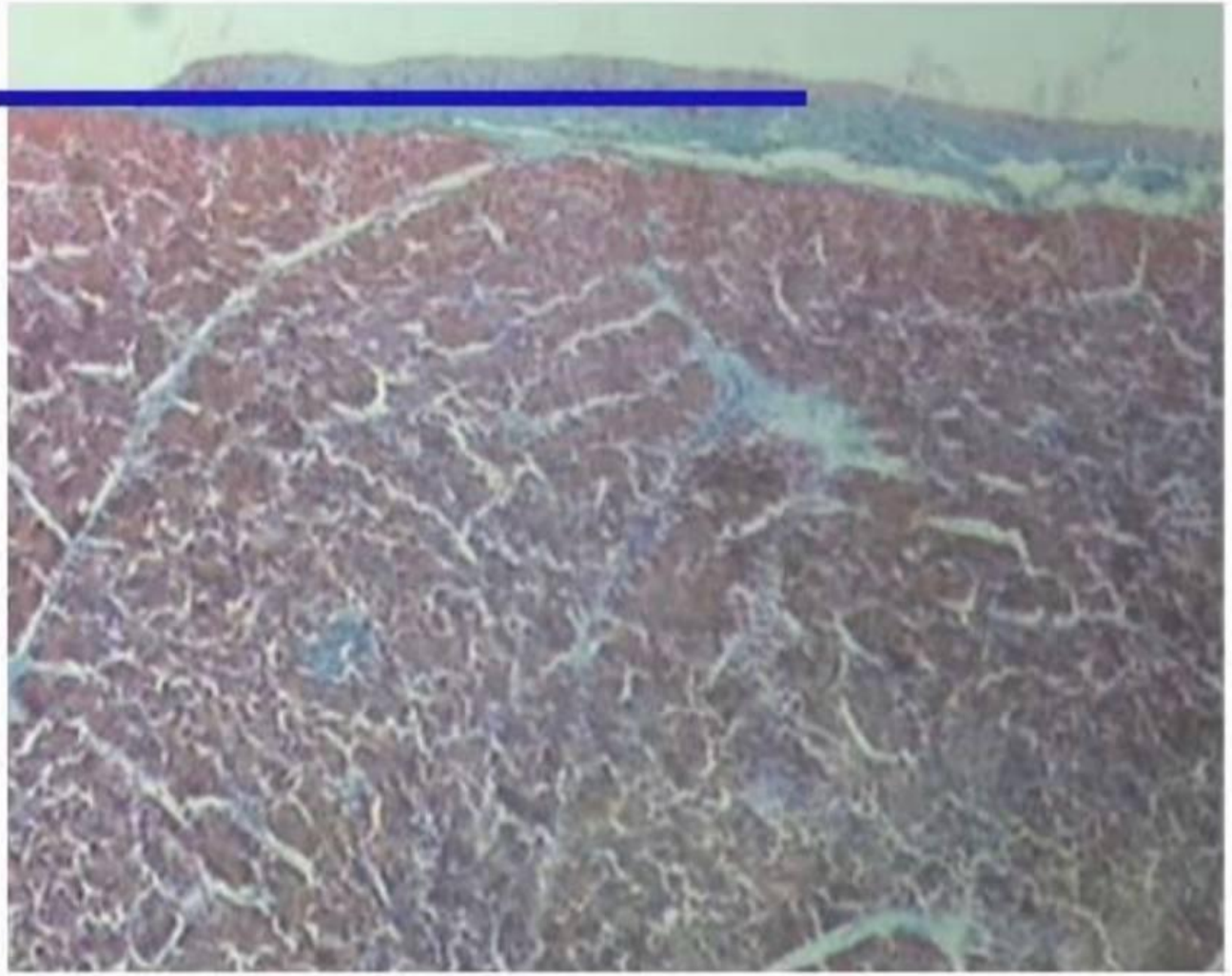
Exocrine pancreas glands

- The exocrine pancreas is a compound tubuloacinar gland.
- Each acinus is formed by 40–50 pyramidal-shaped acinar cells, with a lumen containing 3–4 low cuboidal centroacinar cells.
- These centroacinar cells mark the start of the pancreatic duct system, a distinctive feature of the gland

Endocrine pancreas

- An Islet of Langerhans is a highly vascularized spherical cluster of around 3000 cells.
- Each islet is surrounded by reticular fibers.
- There are five types of cells in each Islet: β-cells, α-cells, δ-cells, PP-cells, and G-cells.

caapsule



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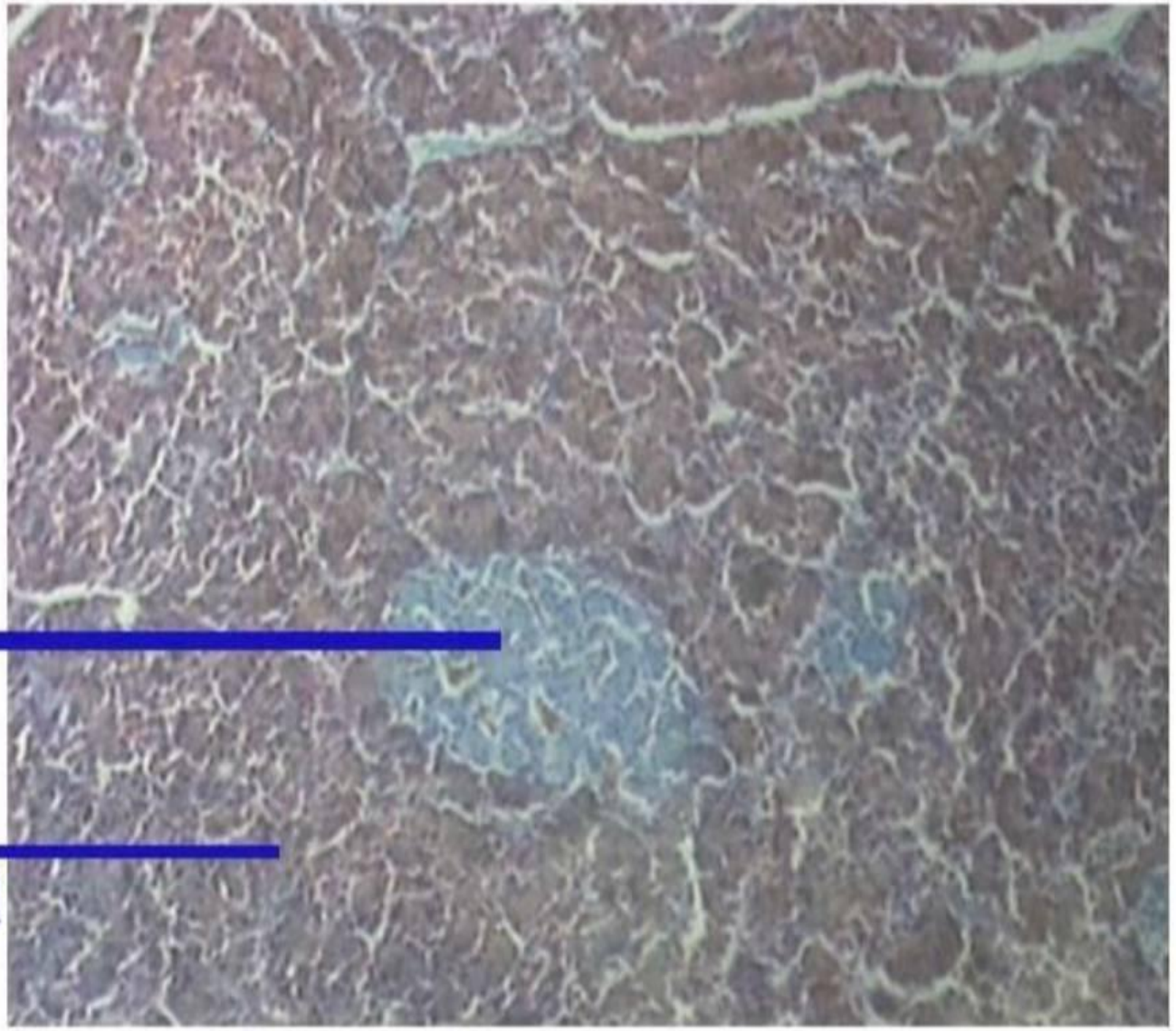

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THANK YOU
FOR
LISTENING