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Digestive system

Ghada abdalrhman sultan

- They are found in the neck of the gland and are smaller than the surface mucous cells They have basal nuclei and finely granular cytoplasm due to the presence of small mucus vacuoles that are distributed throughout the cytoplasm By LM, mucin granules do not appear unless stained by PAS

- Enzyme-Producing Cells
  They are also called chief or peptic or zymogen cells. They are the most numerous cell types within the fundic glands, hence the name chief cells
  The cells are cuboidal or pyramidal exhibiting all the criteria of protein-secreting cells: deep cytoplasmic basophilia, vesicular nucleus, and prominent nucleoli. The cell apices appear acidophilic due to the presence of eosinophilic refractile cytoplasmic granules called zymogen granules. The zymogen granules contain the inactive enzyme precursor pepsinogen, which is released into the lumen of the stomach where it is converted by the HCl into active enzyme pepsin.

- Acid-Producing cells

  They are also called parietal or oxyntic cells. They are round or pyramidal-shaped with spherical central nuclei. They are very conspicuous, much larger than chief cells, and very strongly eosinophilic. The base of the cell bulges outward and its narrow apex reaches **the** lumen of the gland.

  The parietal cells make hydrochloric acid, to keep the pH of stomach juice low (about 2.0 to 3.0 is typical). This pH is necessary to activate the gastric enzymes. Parietal cells are also thought to secrete the substance called intrinsic factor which is essential for the absorption of vitamin B12 in the ileum.

- Enteroendocrine

  They are small spherical cells and are sited on the epithelial basement membrane. In H&E sections, they have a spherical, central dark-staining nucleus and a rim of clear cytoplasm Some cells have an affinity for silver stains and are called argyrophil cells(argentaffin) , others have an affinity for bichromate salts and are called chromaffin cells. The cells store and secrete serotonin, somatostatin, vasointestinal polypeptide-like (VIP), gastrin, bombesin-like peptides. These hormones regulate the gastrointetinal functions..

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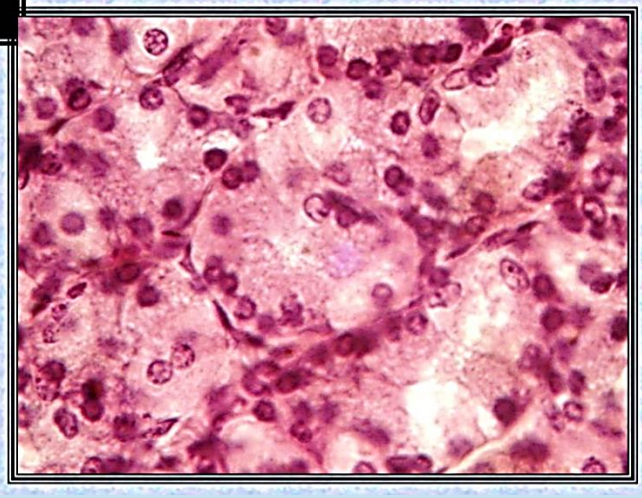
Fundic gland



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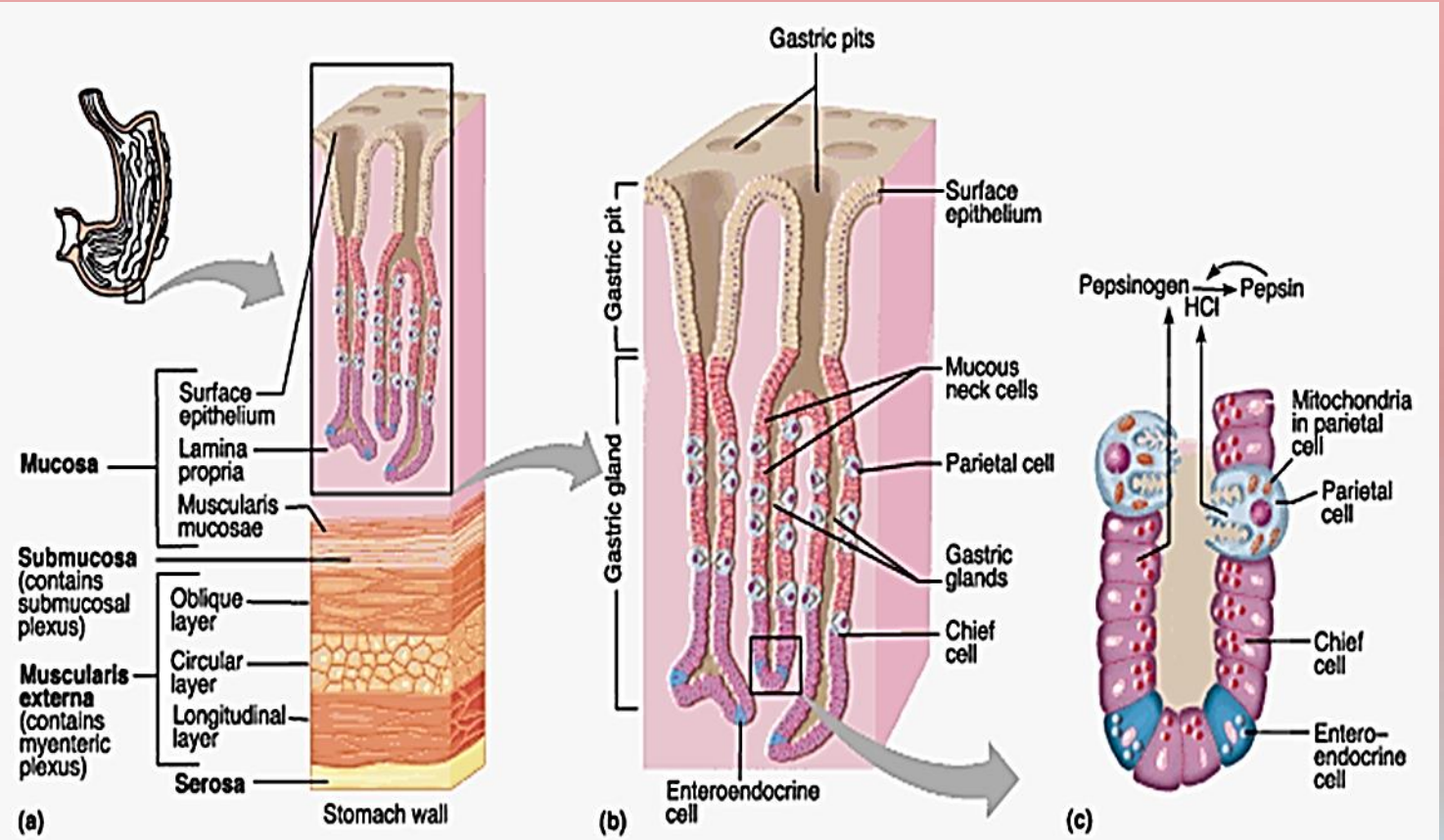

- Non-Glandular Region

  The non-glandular region is lined by stratified squamous keratinized epithelium derived from that of the esophagus. It is entirely absent in carnivores, small in pigs, wide in horse and reaches its greatest development in ruminants where it is subdivided into three distinct compartments; rumen, reticulum and omasum..

  The structure of the other layers within the non-glandular are the same as seen for any tubular organ within the digestive tract.

- **Ruminants Stomach.**

The four divisions of the ruminant stomach are the rumen, the reticulum, the omasum, and the abomasum.The first three compartments are referred to as fore stomach. The fourth compartment is referred to as true stomach.

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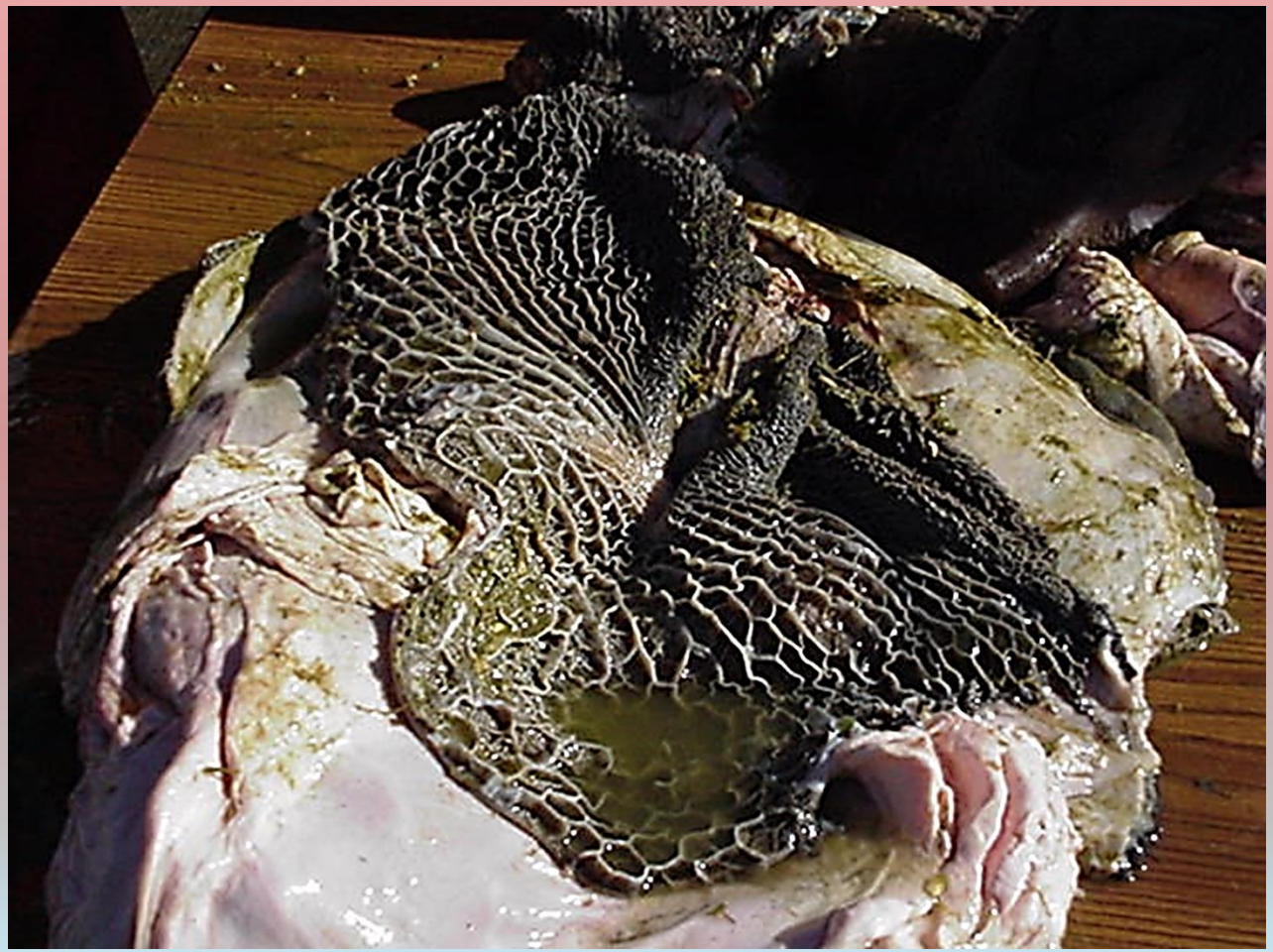

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