

# General Histology Practical

## Lab 12

## Alimentary Canal:

- The histology of the alimentary canal of four broad layers: the mucosa, submucosa, muscularis externa, and serosa (or adventitia). These layers are similar throughout the length of the digestive tract but display regional modifications and specializations.
- **1- Mucosa:** The lumen of the alimentary canal is lined by an epithelium, deep to which is a loose connective tissue known as the lamina propria. Surrounding this connective tissue coat is the muscularis mucosae, composed of an inner circular and an outer longitudinal layer of smooth muscle.

- **2-Submucosa:** The mucosa is surrounded by a dense, irregular fibro- elastic connective tissue layer.
- **3-Muscularis extena:** The submucosa is invested by a thick muscular layer, muscularis externa, composed of smooth muscle (except in the esophagus) and is usually organized in an inner circular and an outer longitudinal layer.
- **4-Serosa or adventitia:** The muscularis externa is enveloped by a thin connective tissue layer that may or may not be surrounded by the simple squamous epithelium of the visceral peritoneum.

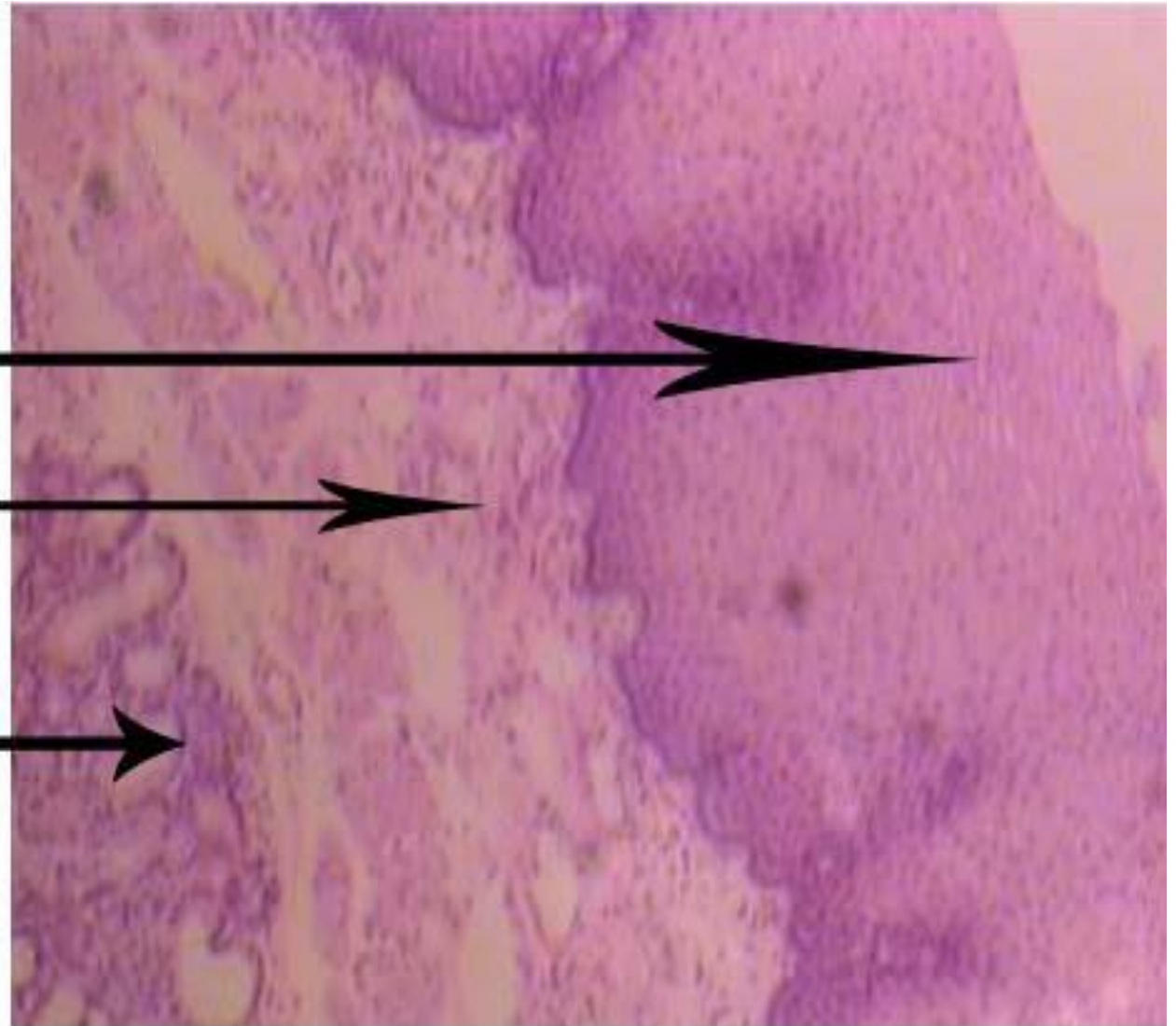
## 1- Esophagus:

- The lumen of the esophagus , lined by a stratified squamous non keratinized epithelium. The lamina propria is unremarkable . it houses esophageal cardiac glands. The muscularis mucosae is unusual in that it consist of a single layer of longitudinally oriented smooth muscle fibers that become thicker closer to the stomach.
- The submucosa is composed of a dense fibroelatic connective tissue, which houses the esophageal glands proper (tubuloacinar glands). The esophagous and the duodenum are the only two regions of the alimentary canal with glands in the submucosa.

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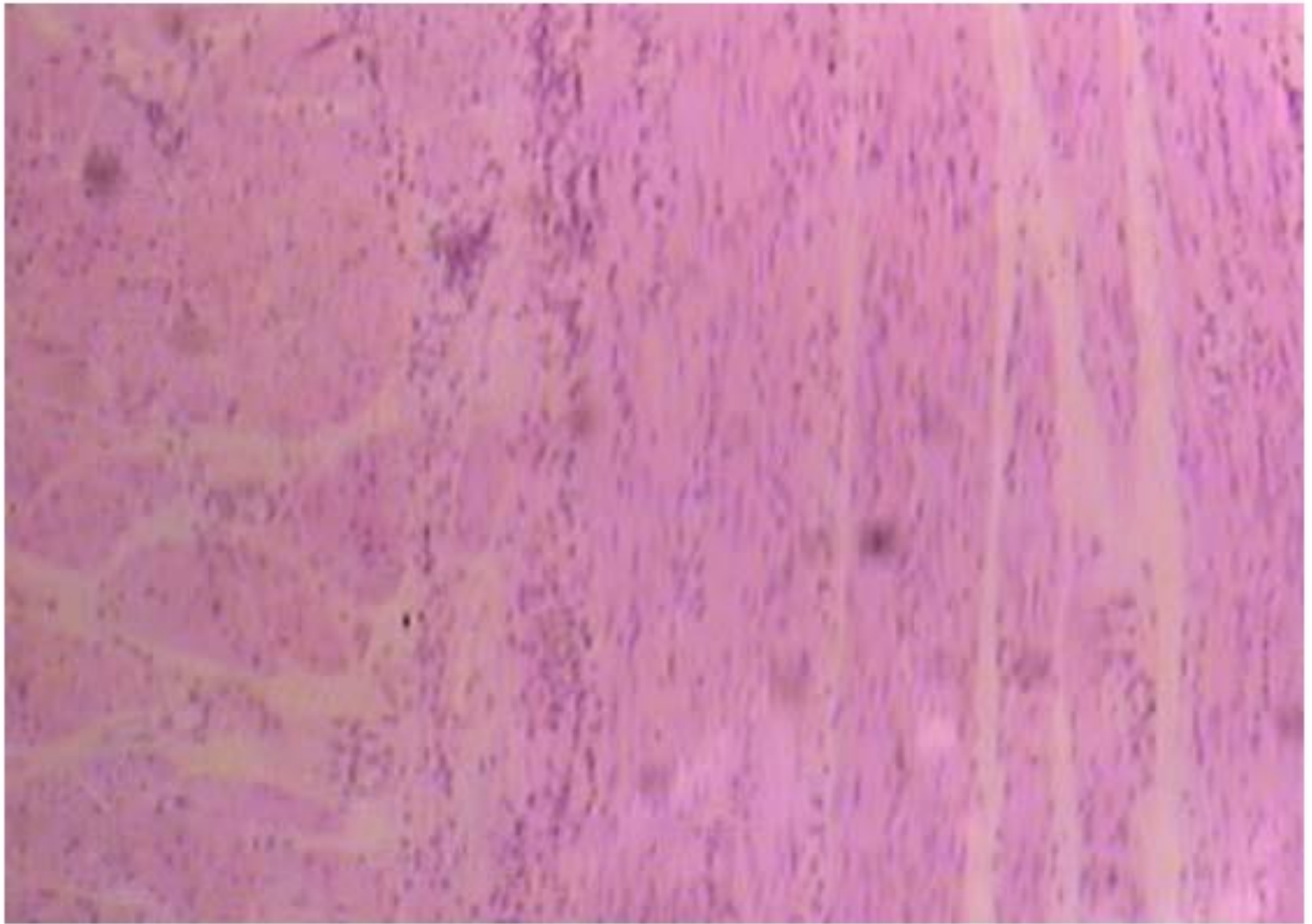
submucosa

esophageal gland



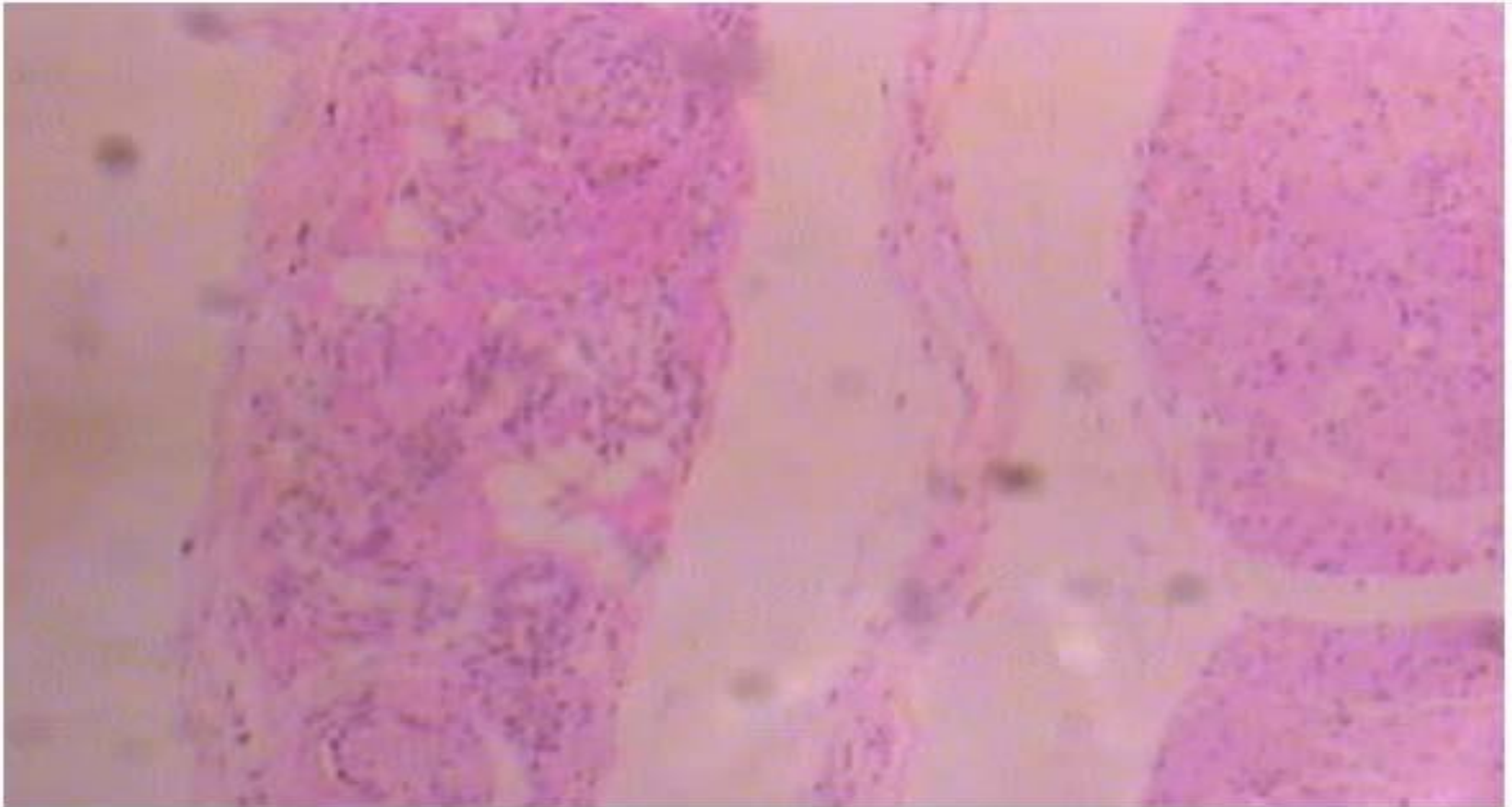
Perpendicular section in esophagus 4x

- The muscularis externa is arranged in two layers. Inner circular and outer longitudinal, but they are unusual in that they are composed of both skeletal and smooth muscle fibers. The upper third of the esophagus has mostly skeletal muscle, the middle third has both skeletal and smooth and the lowest third has only smooth muscle fibers.



Perpendicular section in esophagus (muscularis externa)4x

- The esophagus is covered by an adventitia until it pierces the diaphragm , when it is covered by a serosa.



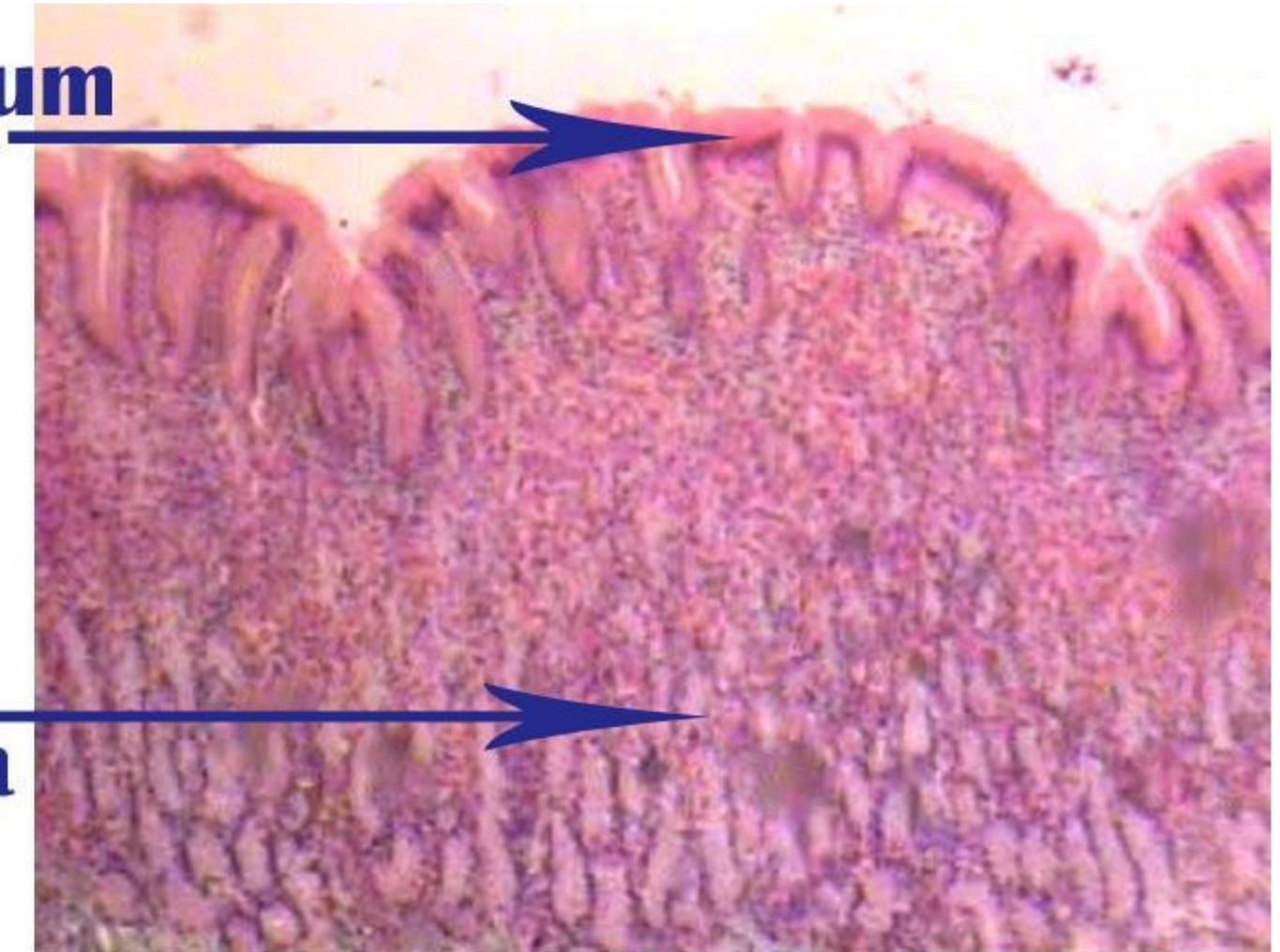
**Perpendicular** section in esophagus (adventitia)4x

## 2- Stomach:

- The stomach has four regions:
- 1- Cardia: is a narrow region at the gastroesophageal junction.
- 2- Fundus: is a dome shaped region to the left of the esophageal.
- 3- Body (corpus): is the largest portion, for the formation of chyme.
- Pylorus: is a funnel shaped constricted portion, equipped with a thick pyloric sphincter, that controls release of chyme.
- All the gastric regions display rugae, longitudinal folds of the mucosa and submucosa, the epithelial lining of the stomach invaginates into the mucosa , forming **gastric pits**, increase the surface area of the gastric lining.

- **1- Mucosa:**
- The mucosa of the fundic portion of the stomach is composed of the usual three components (epithelium lining the lumen, an underling connective tissue, the lamina propria, and the muscularis mucosae) The lumen is lined by a **simple columnar epithelium** composed of surface lining cells.
- The loose, highly vascularized connective tissue of the lamina propria has a rich population of **plasma cells, lymphocytes , mast cells, fibroblasts**, lamina propria is occupied by fundic glands.
- Each **fundic gland** extends from the muscularis mucosae to the base of the gastric pit and is subdivided into three regions, the **isthmus , neck, and base**, of which the base is the longest.

**epithelium**



**lamina  
propria**

**perpendicular section in fundic stomach (mucosa) 10x**

# PERPENDICULAR SECTION IN FUNDIC STOMACH 4X

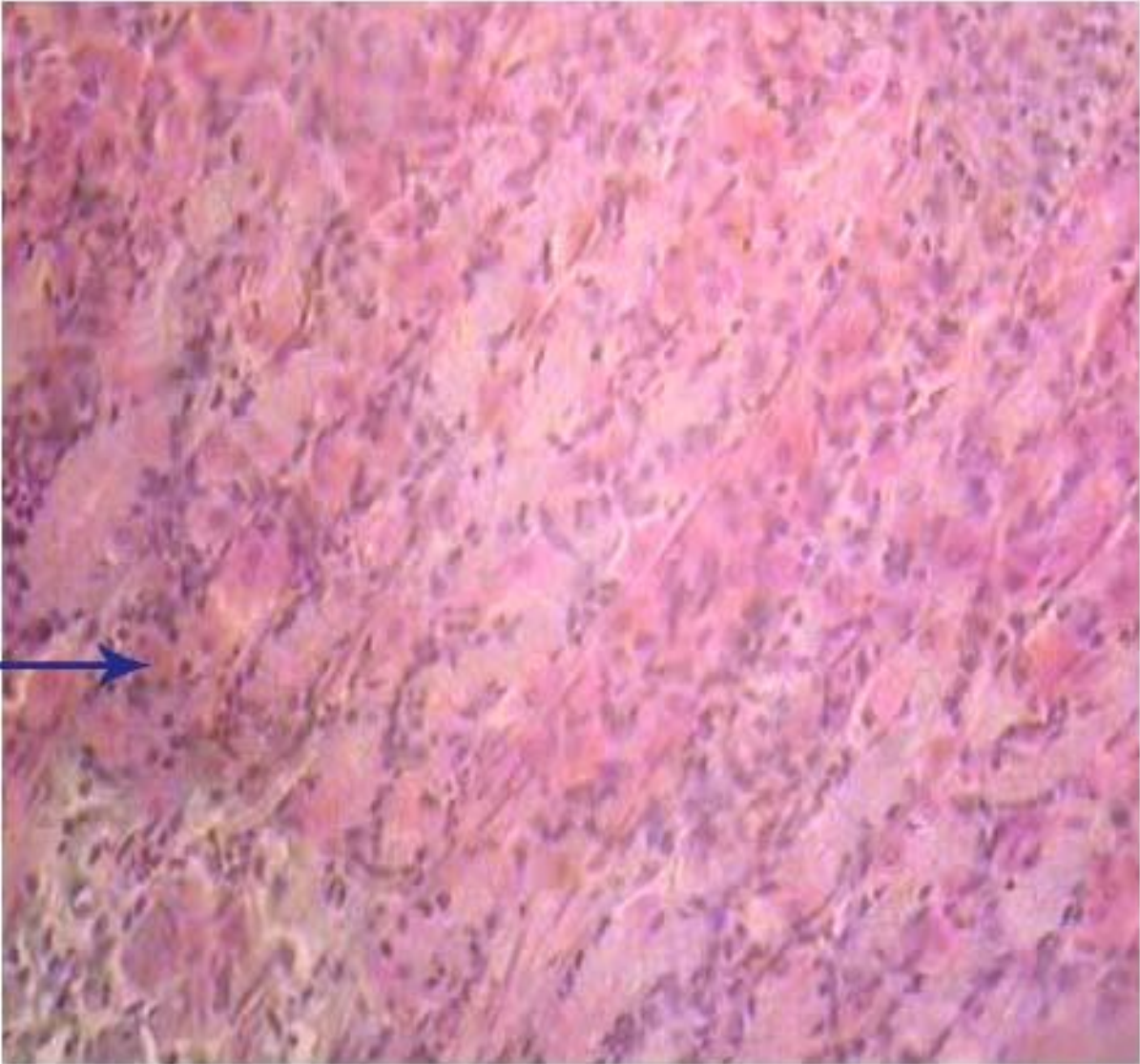
**SIMPLE COLUMNAR  
EPITHELIUM**



**LAMINA PROPRIA**

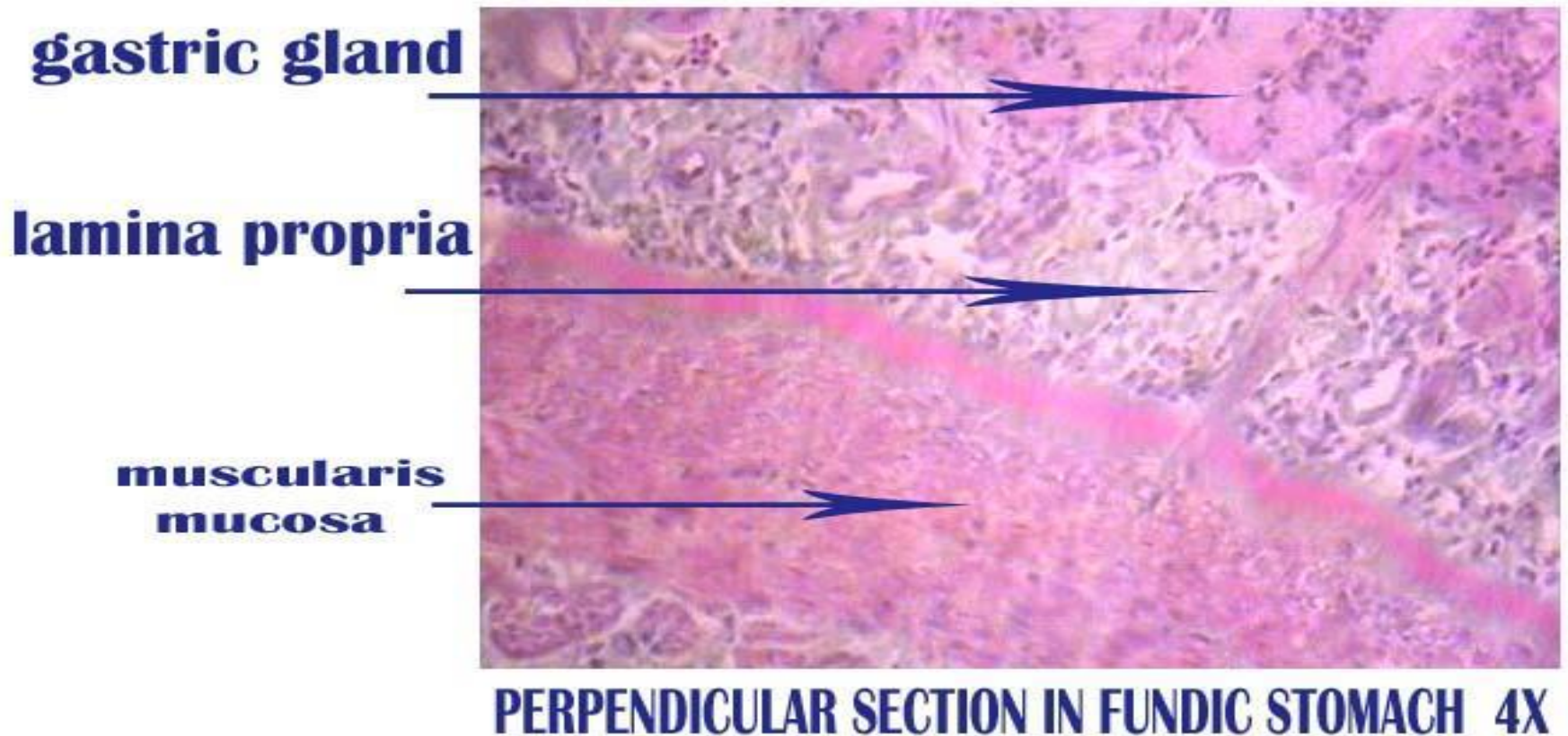


**gastric gland**

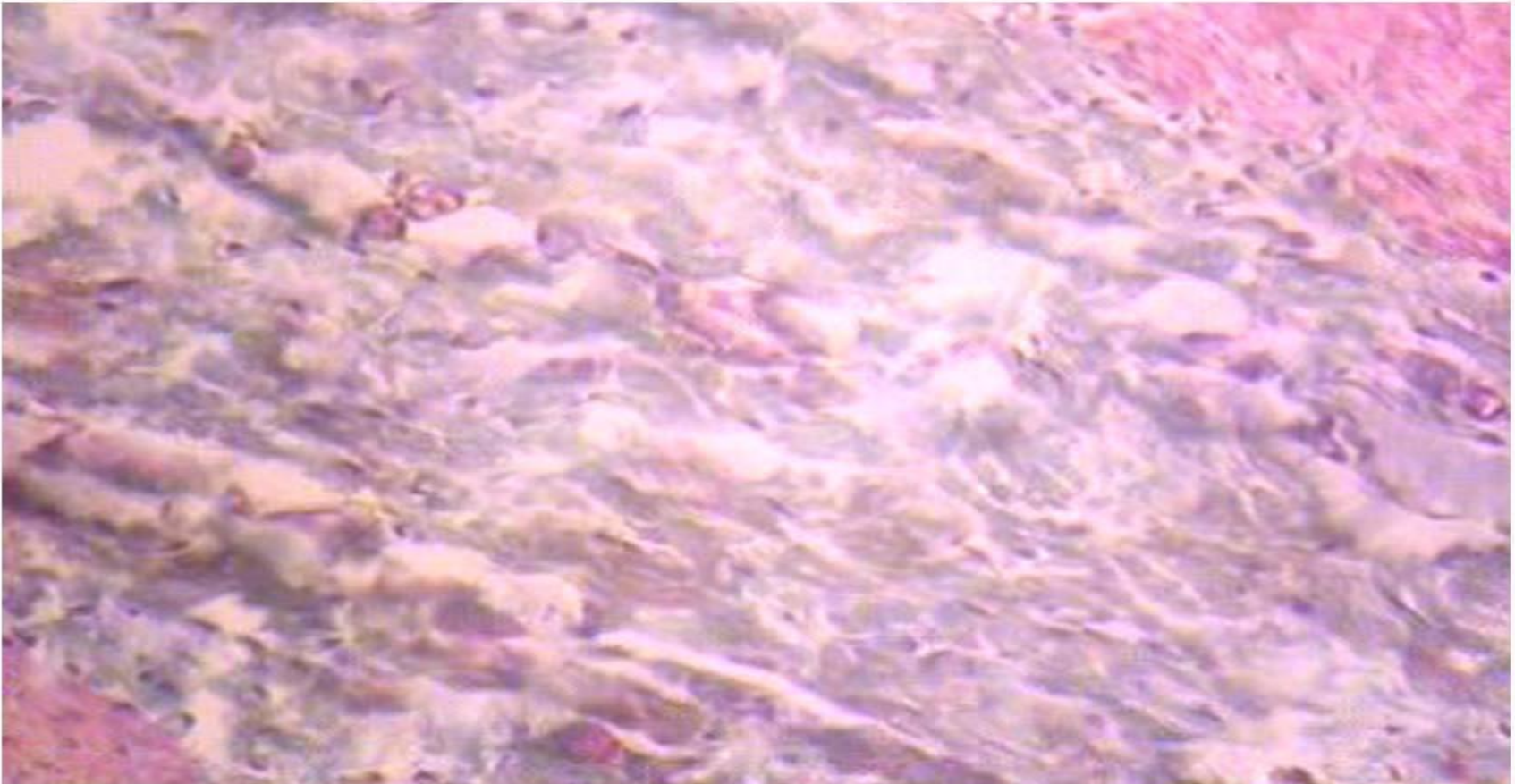


**PERPENDICULAR SECTION IN FUNDIC STOMACH(LAMINA PROPRIA)4X**

- The smooth muscle cells that compose the muscularis mucosae are arranged in three layers. The inner circular and outer longitudinal layers are well defined, however, an occasional third layer (outer most longitudinal) is not always evident.

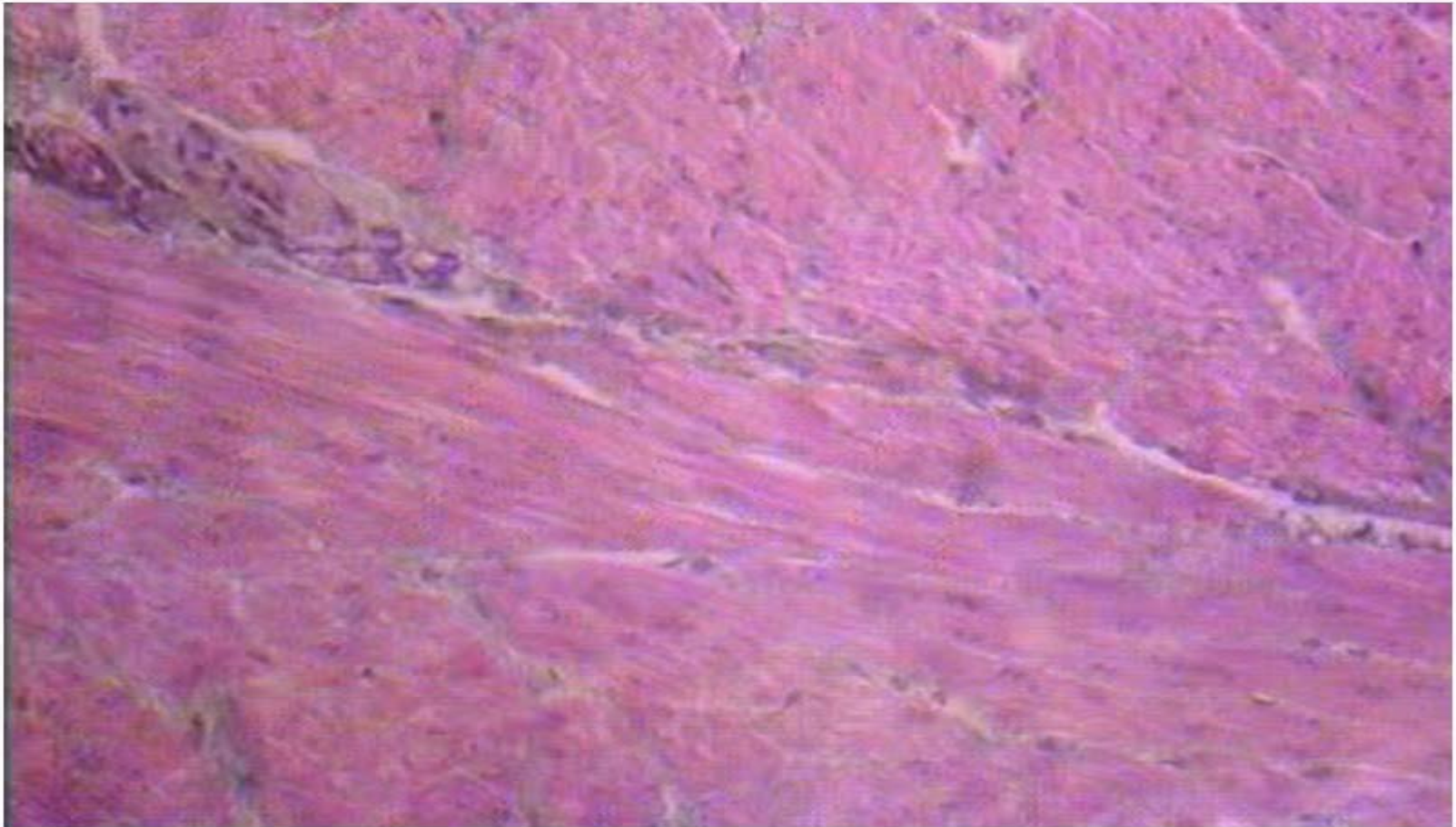


- **2-** Submucosa: Dense, irregular, collagenous connective tissue and has rich vascular and lymphatic network.



**perpendicular section in fundic stomach ( sub mucosa) 10x**

**3-** Muscularis externa: Smooth muscle cells arranged in three layers. The inner oblique layer is not well defined, the middle circular layer is clearly evident, and the outer longitudinal layer.



**perpendicular section in fundic stomach ( muscularis externa) 4x**

4- Serosa: Composed of a thin, loose, subserous connective tissue covered by a smooth, wet, simple squamous epithelium.

**THANK YOU FOR  
LISTENING**

