Inflammation

Pathophysiology of inflammation

- **Introduction about Inflammation**
- is a protective response
- to eliminate the initial cause of cell injury
- diluting, destroying and neutralizing the harmful agents
- remove the damaged tissue
- generate new tissue
- **The inflammatory response**
- to immune reaction, to injury, and to ischemic damage
- **The classic signs of inflammation**
- 1- redness 2-swelling 3- Heat 4- pain or discomfort 5- loss of function

Repairing mechanisms:

•Thrombotic and fibrinolytic system

•Inflammation

•Immune-reaction

•Oral defense These include **lactoferrin, lactoperoxidase, lysozyme and antimicrobial peptides**

Common mechanisms in all systems:

1. serum protease – antiprotease system Proteases and antiproteases are secreted from the respiratory epithelium and are **involved in respiratory homeostasis**. Modifications to the protease/antiprotease balance can lead to the development of lung diseases such as emphysema or chronic obstructive pulmonary disease.

2. oxidative – reductive systems, free radicals Free radicals are **oxygen-containing molecules with an uneven number of electrons**.

The uneven number allows them to easily react with other molecules. Free radicals can cause large chain chemical reactions in your body because they react so easily with other molecules. These reactions are called oxidation.

3. complement system

The complement system is **part of your body's immune system that cleans up damaged cells, helps your body heal after an injury or an infection and destroys microscopic organisms like bacteria that make you sick**.

Your complement system is the front line of defense for your immune system.

4. phagocytosis

Phagocytosis is **a cellular process for ingesting and eliminating particles larger than 0.5 μm in diameter, including microorganisms, foreign substances, and apoptotic cells**. Phagocytosis is found in many types of cells and it is, in consequence an essential process for tissue homeostasis.

Causes of inflammation:

A. Exogenous

•Mechanical

•Physical

•Chemical

•Biological

B. Endogenous

•Circulatory disorder, hypoxia

•Endogenous protease release

•Immune-complex formation

The Gastrointestinal Tract Function

Ingestion of food
Digestion -mechanical digestion of food particles -breaks up food particles
Motility -movements of organs and food -mechanical digestion of food particles
Secretion -secretion of digestive juices -chemical digestion of food particles

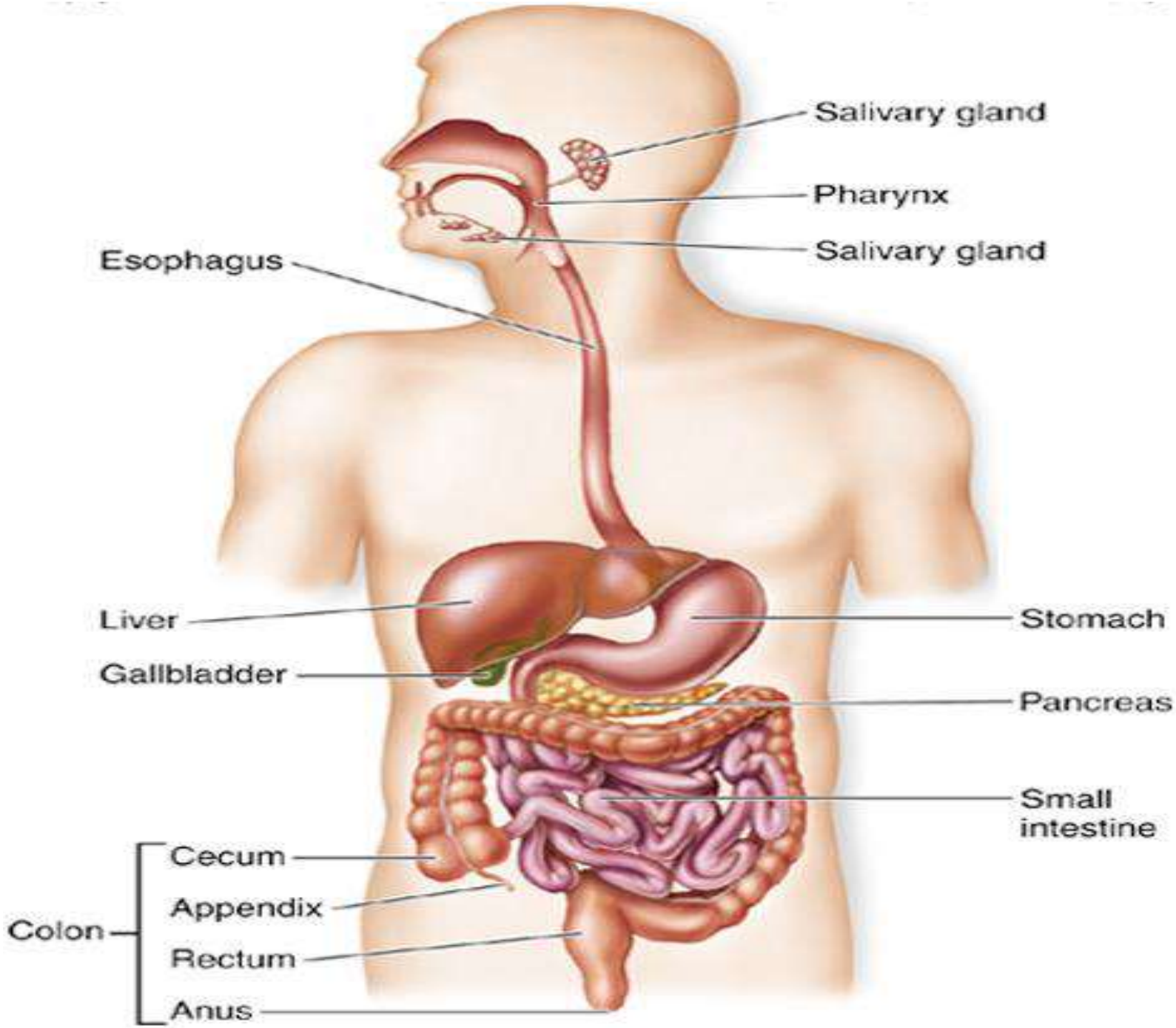
ption
ption of digestion products to

or lymphatic vessels

e and Elimination

igested food particles

tive function –mechanical, chemical, immunological
nly GIT organs but also the body as a whole, against the potential harmful food components.


Salivary gland
Pharynx
Salivary gland
Esophagus
Liver
Gallbladder
Stomach
Pancreas
Small intestine
Colon
Cecum
Appendix
Rectum
Anus

DISORDERS OF THE DIGESTIVE SYSTEM

Disorders of the digestive system have serious consequences for the activity of the organism as a whole

• traumatic processes	• congenital malformations
• neoplastic processes	• inflammatory processes
• infectious processes	

THE MOST COMMON DISORDERS of the digestive system

Motor dysfunction of smooth muscle of the individual parts of the digestive system

Indigestion of food and absorption of nutrients -malabsorption syndrome

Bleeding into the individual parts of the digestive tract

Perforation of the wall of the digestive system with subsequent leakage of the contents to the peritoneal cavity
Obstruction in moving of the contents of one part of the digestive system to the next section
Circulation disorders in the wall of the individual parts of the digestive system

CLINICAL MANIFESTATIONS of GI dysfunction

- *Vomiting* is **the body's way of getting rid of harmful substances from the stomach, or it may be a reaction to something that has irritated the gut**. One of the most common causes of vomiting in adults is gastroenteritis.

- *Dyspepsia* is **another word for indigestion**. People with chronic indigestion often report feelings of stomach pain, over-fullness and bloating during and after eating. Other common symptoms include acid reflux, heartburn and excessive burping

- *Constipation* **most commonly occurs when stool moves too slowly through the digestive tract or cannot be eliminated effectively from the rectum**, which may cause the stool to become hard and dry

- *Diarrhea* **loose, watery and possibly more-frequent bowel movements**

- *Abdominal Pain* Less serious causes of abdominal pain include **constipation, irritable bowel syndrome, food allergies, lactose intolerance, food poisoning, and a stomach virus**. Other, more serious, causes include appendicitis, an abdominal aortic aneurysm, a bowel blockage, cancer, and gastroesophageal reflux.

- *Gastrointestinal Bleeding* The blood often appears in stool or vomit but isn't always visible, though it may cause the stool to look black or tarry. The level of bleeding can range from mild to severe and can be life threatening.