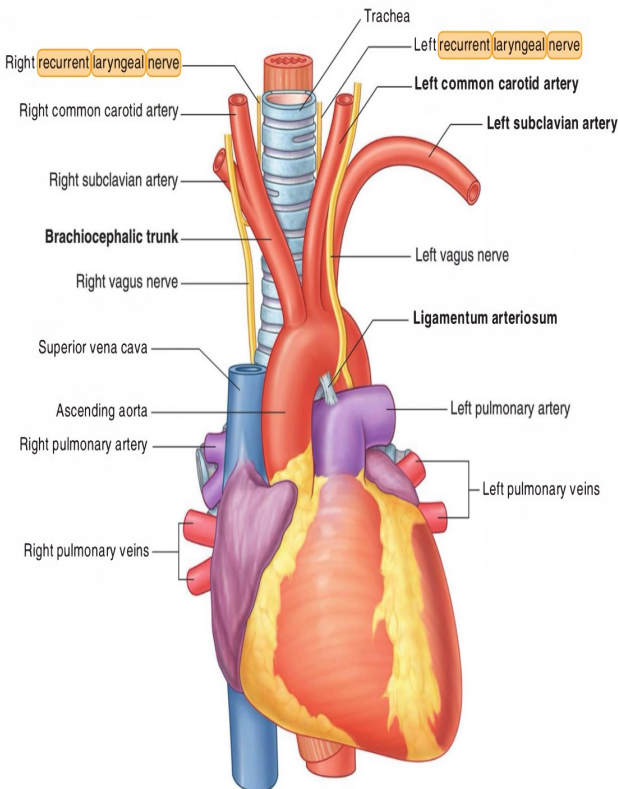


Fig. 3.23 Sternum.

such immediately to the left and slightly posterior to the



Structures anterior to the thoracic part of esophagus :

- 1-trachea and left recurrent laryngeal nerve

- 2-left main bronchus (see the picture above)

- 3-pericardium... separating it from the left atrium(not shown here)

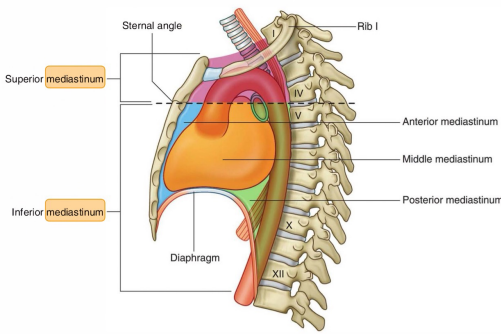
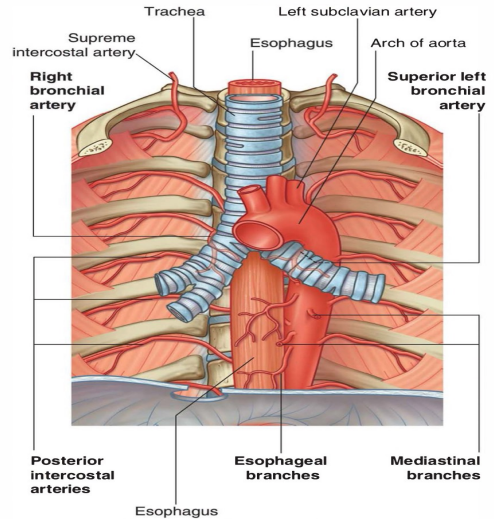
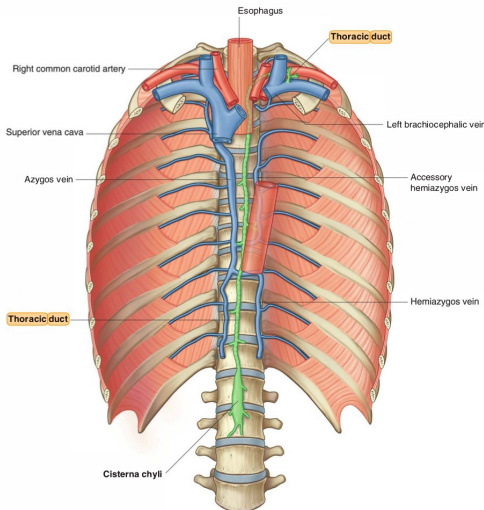


Fig. 3.5 Subdivisions of the mediastinum.

The mediastinum is a thick midline partition that extends from the sternum anteriorly to the thoracic vertebrae posteriorly, and from the superior thoracic aperture to the inferior thoracic aperture.

Understanding the concept of mediastinum helps you to better understand and memorize the posterior relationships of the thoracic part of esophagus

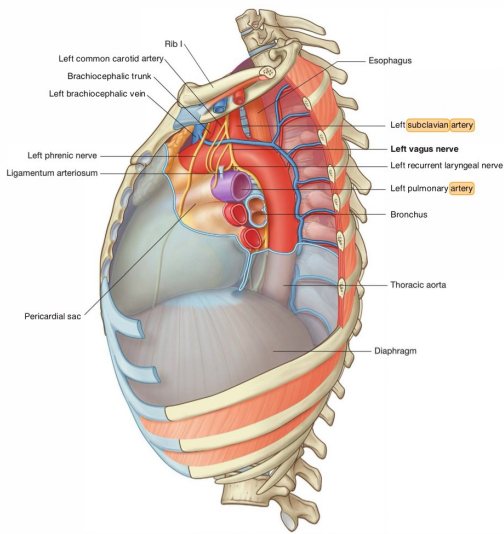


These two pictures show the structures posterior to the thoracic esophagus:

- 1-it is located in the posterior mediastinum
- 2-thoracic duct
- 3-bodies of thoracic vertebrae (not shown)
- 4-azygos vein
- 5-right posterior intercostal arteries
- 6-at the lower end Descending thoracic aorta

On the right side (not shown) ...there are :

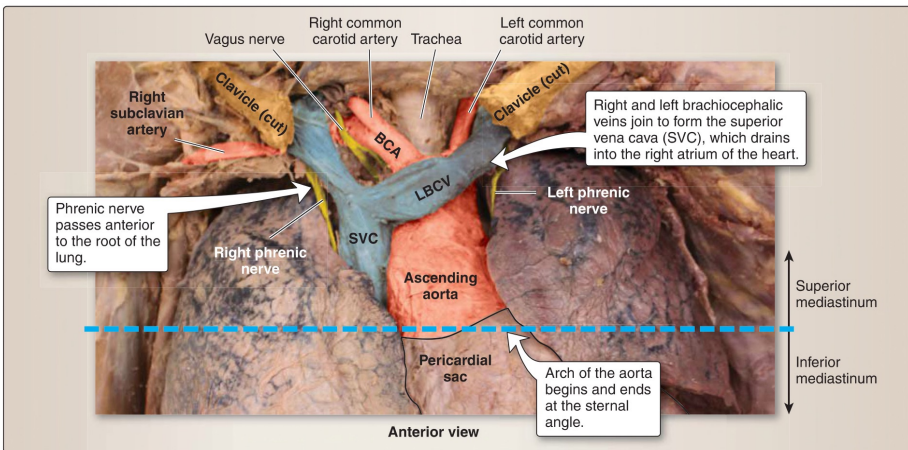
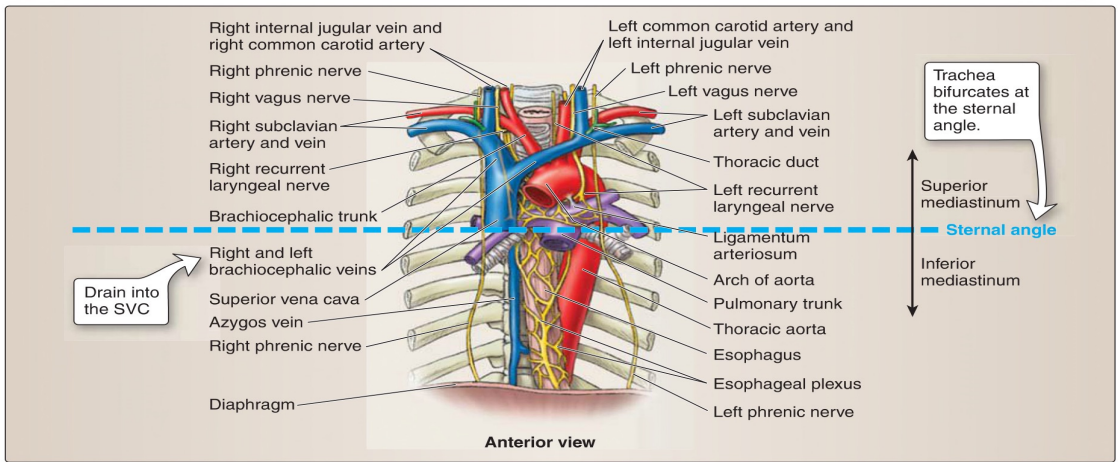
- 1-mediastinal pleura and right lung
- 2-terminal part of azygos vein



Structures on the left side of thoracic esophagus:

- 1-left lung and mediastinal pleura(not shown)
- 2-thoracic duct (not shown)
- 3-left subclavian artery
- 5-aortic arch (starts anteriorly then goes to the left)

This picture shows a goog number of the structures passing anterior, right and left to the esophagus



I have put this picture just to show you the position of lungs so you can relate it to the esophagus

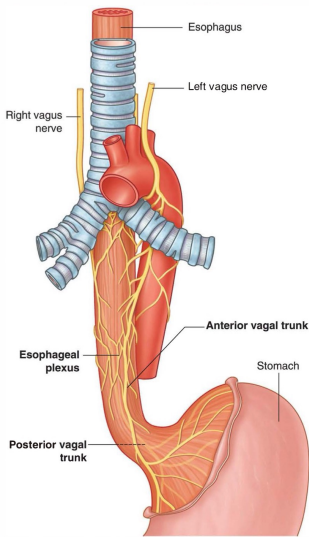
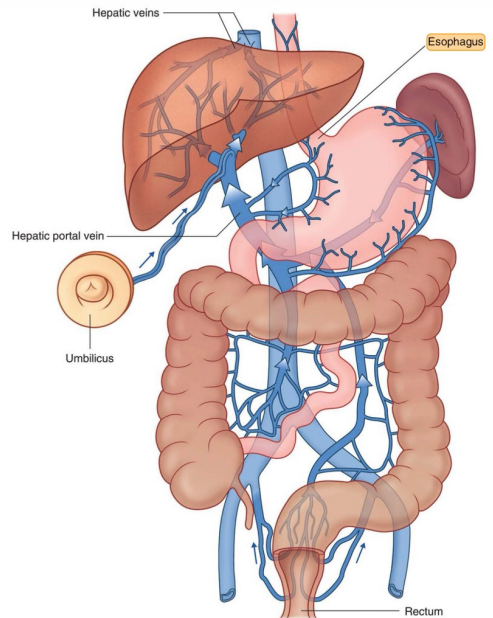


Fig. 3.92 Esophageal plexus.

After passing posteriorly to the root of the lungs, the right and left vagus nerves approach the esophagus. As they reach the esophagus, each nerve divides into several branches that spread over this structure, forming the esophageal plexus (Fig. 3.92). There is some mixing of fibers from the two vagus nerves as the plexus continues inferiorly on the esophagus toward the diaphragm.

In the abdomen, the esophagus is related to the left lobe of the liver anteriorly and the left crus of diaphragm posteriorly(not shown)



Stomach:

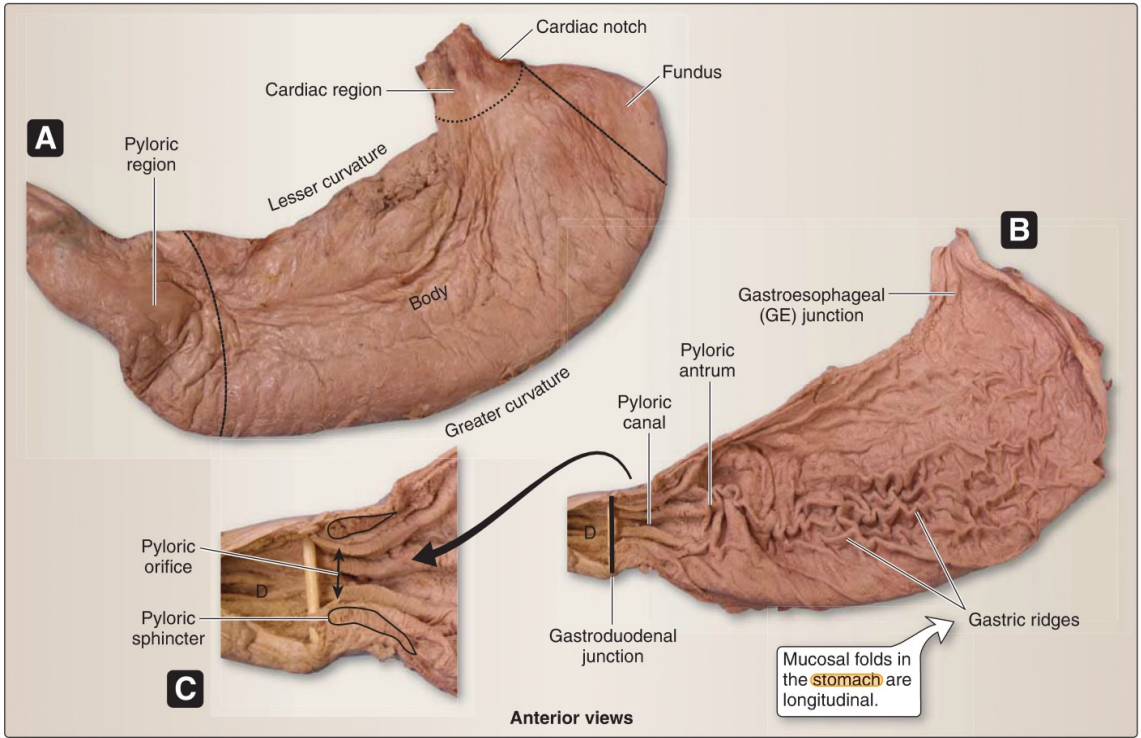


Figure 4.26

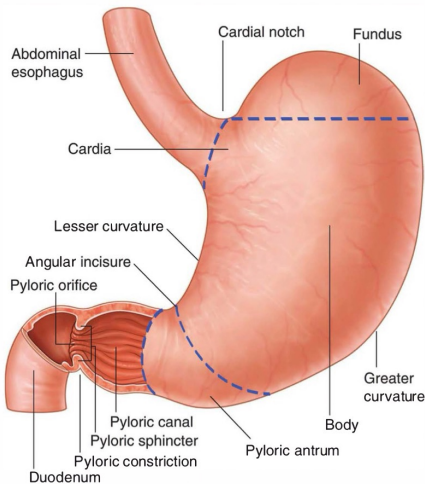


Fig. 4.61 Stomach.

Notice the anatomical areas and external and internal features of stomach

- the cardiac notch, which is the superior angle created when the esophagus enters the stomach
- the angular incisure, which is a bend on the lesser curvature.

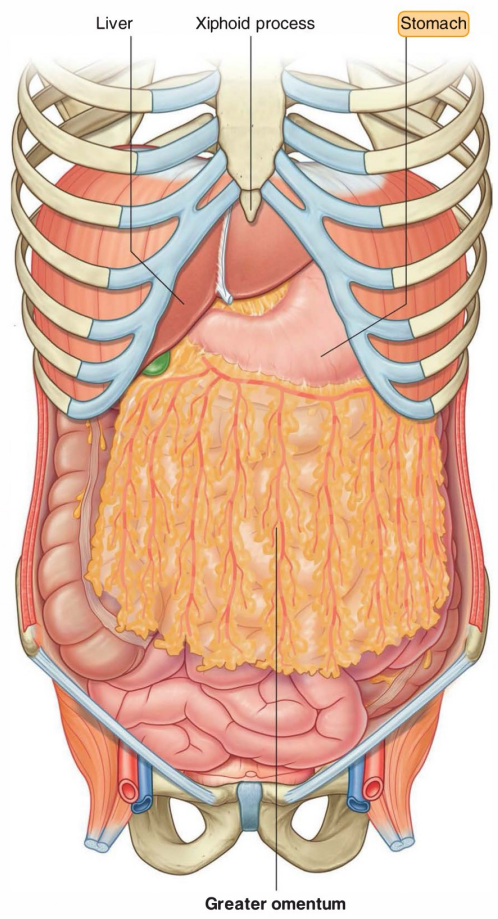
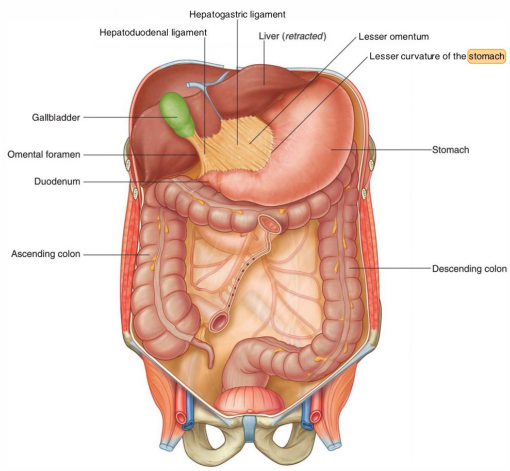
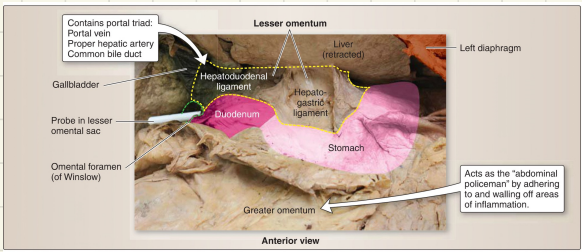
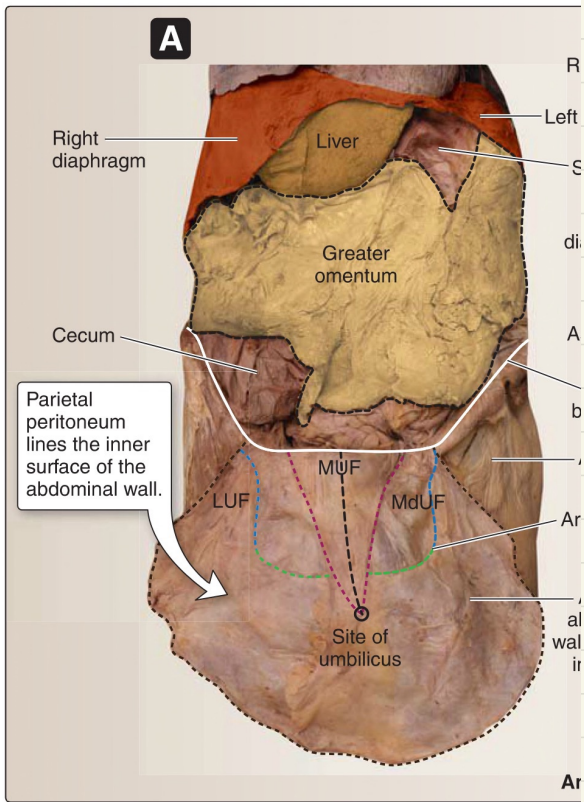


Fig. 4.56 Greater omentum.



These pictures show the lesser and greater omentum.

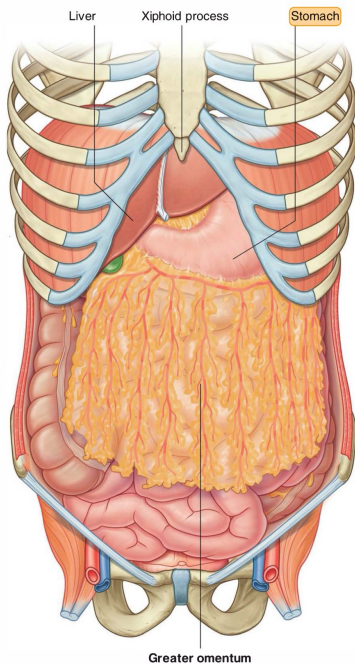


Fig. 4.56 Greater omentum.

Structures behind the posterior surface of stomach :

- 1- left crus of diaphragm(not shown)
- 2-spleen
- 3-body of pancreas
- 4-splenic artery
- 5-left suprarenal gland and the upper part of the left kidney
- 6-transverse (mesocolon and colon)

Anterior of the stomach-superior surface:

- 1-left costal margin
- 2-left lobe of the liver
- 3-left pleura and lung(not shown)
- 4-the diaphragm
- 5-anterior abdominal wall

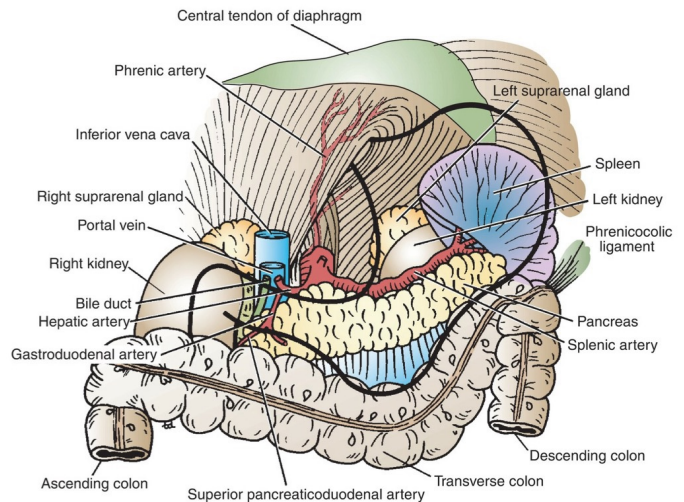
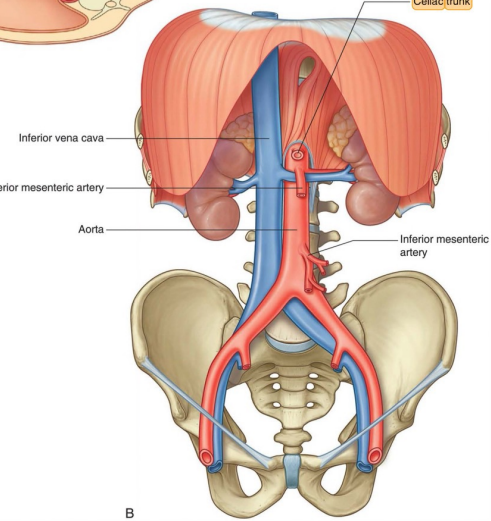


Figure 7.5 Structures situated on the posterior abdominal wall behind the stomach.



These pics show the arterial blood supply of stomach..

1- left gastric artery....from celiac trunk

2-right gastric artery....from hepatic artery

3-short gastric artery... from splenic artery

4-left gastroepiploic arteryfrom splenic artery

5-The right gastroepiploic artery.....from the gastroduodenal branch of the hepatic artery

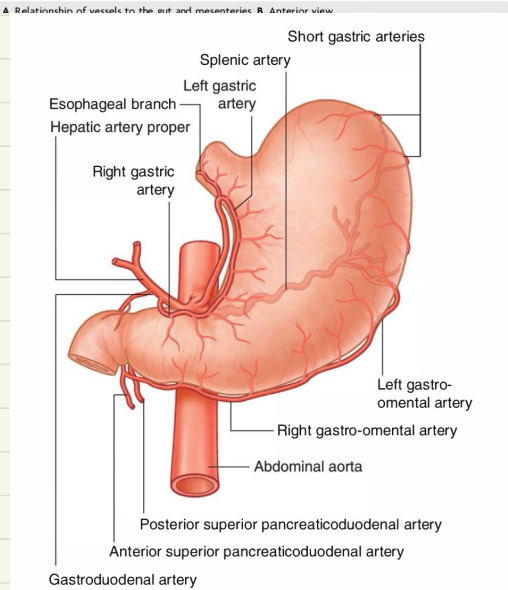


Fig. 4.60 Arterial supply to the abdominal esophagus and

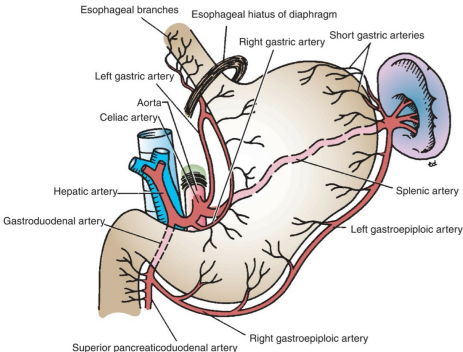
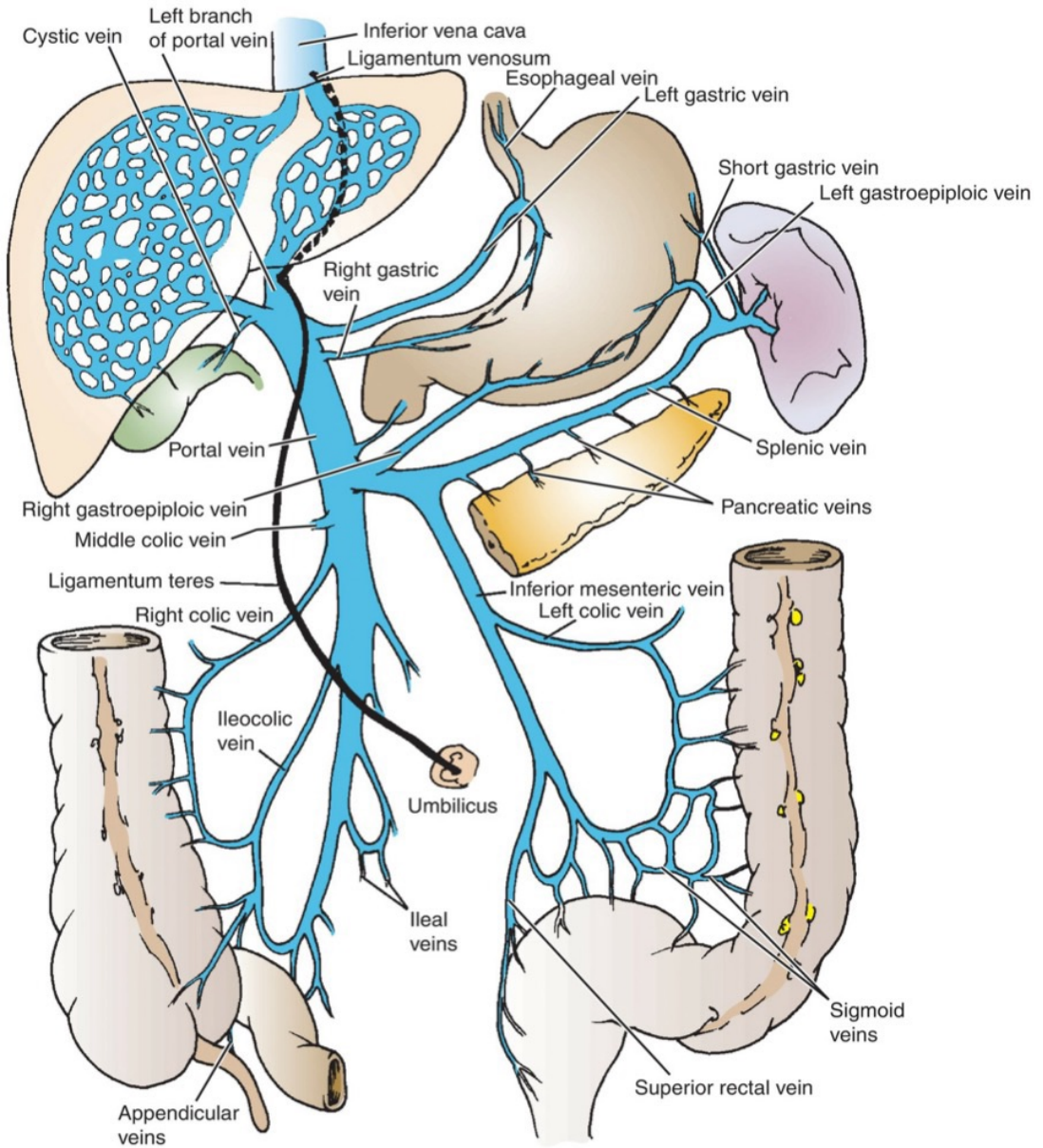


Figure 7.20 Arteries that supply the stomach. Note that all the arteries are derived from branches of the celiac artery.



The veins drain into the portal circulation (Fig. 7.22). The left and right gastric veins drain directly into the portal vein. The short gastric veins and the left gastroepiploic veins join the splenic vein. The right gastroepiploic vein joins the superior mesenteric vein.

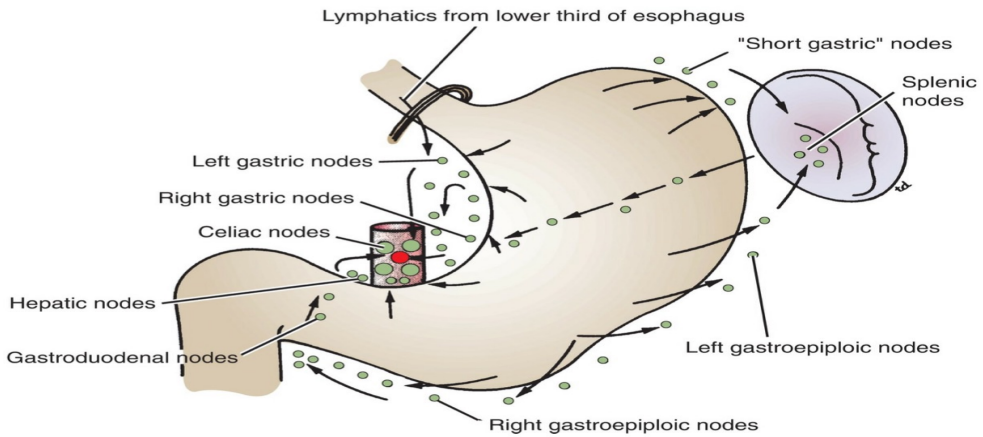


Figure 7.23 Lymph drainage of the stomach. Note that all the lymph eventually passes through the celiac lymph nodes.

The lymph vessels follow the arteries into the left and right gastric nodes, the left and right gastroepiploic nodes, and the short gastric nodes (Fig. 7.23). All lymph from the stomach eventually passes to the celiac nodes located around the root of the celiac artery on the posterior abdominal wall.

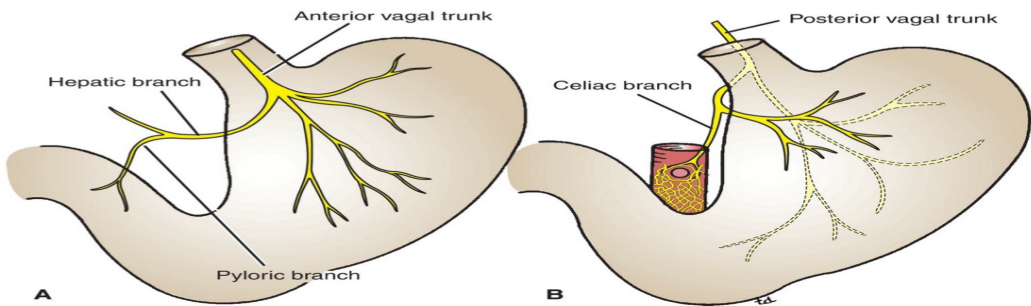


Figure 7.24 Distribution of the vagal trunks within the abdomen. **A.** Anterior vagus distribution. **B.** Posterior vagus distribution. Note that the celiac branch of the posterior vagal trunk is distributed with the sympathetic nerves as far down the intestinal tract as the left colic flexure.

The nerve supply includes sympathetic fibers derived from the celiac plexus and parasympathetic fibers from the right and left vagus nerves (Fig. 7.24).

The anterior vagal trunk, which is formed in the thorax mainly from the left vagus nerve, enters the abdomen on the anterior surface of the esophagus. The trunk, which may be single or multiple, then divides into branches that supply the anterior surface of the stomach. A large hepatic branch passes up to the liver, and from this, a pyloric branch passes down to the pylorus.

The posterior vagal trunk, which is formed in the thorax mainly from the right vagus nerve, enters the abdomen on the posterior surface of the esophagus. The trunk then divides into branches that supply mainly the posterior surface of the stomach. A large branch passes to the celiac and superior mesenteric plexuses and is distributed to the intestine as far as the splenic flexure and to the pancreas.

Gastric Ulcer

The mucous membrane of the body of the stomach and, to a lesser extent, that of the fundus produces **acid and pepsin**. The secretion of the antrum and pyloric canal is **mucoous** and weakly **alkaline** (Fig. 7.25). The secretion of acid and pepsin is controlled by two mechanisms: nervous and hormonal. The vagus nerves are responsible for the nervous control, and the hormone **gastrin**, produced by the antral mucosa, is responsible for the hormonal control. In the surgical treatment of chronic gastric and duodenal ulcers, attempts are made to reduce the amount of acid secretion by sectioning the vagus nerves (**vagotomy**) and by removing the gastrin-bearing area of mucosa, the antrum (**partial gastrectomy**).

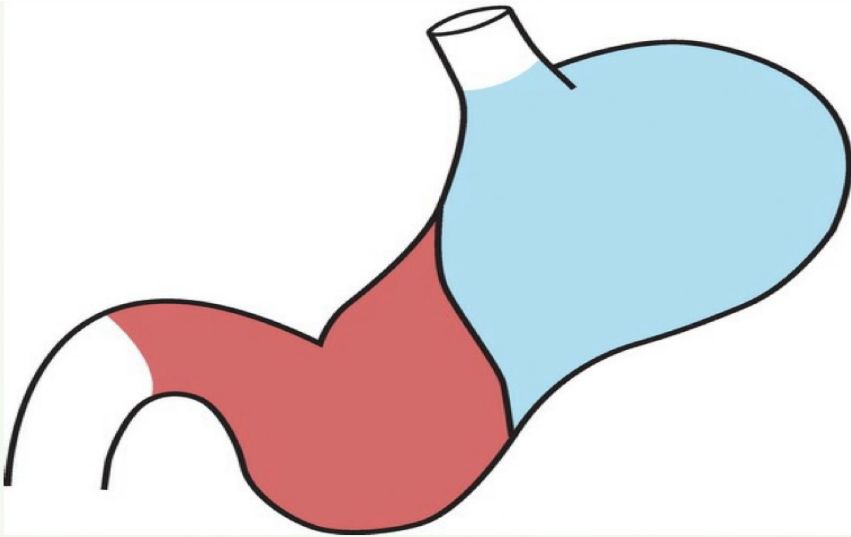


Figure 7.25 Areas of the stomach that produce acid and pepsin (*blue*) and alkali and gastrin (*red*).

Gastric ulcers occur in the alkaline-producing mucosa of the stomach, usually on or close to the lesser curvature. A chronic ulcer invades the muscular coats and, in time, involves the peritoneum so that the stomach adheres to neighboring structures. An ulcer situated on the posterior wall of the stomach may perforate into the lesser sac or become adherent to the pancreas. Erosion of the pancreas produces pain referred to the back. The splenic artery runs along the upper border of the pancreas, and erosion of this artery may produce fatal hemorrhage. A penetrating ulcer of the anterior stomach wall may result in the escape of stomach contents into the greater sac, producing diffuse peritonitis. The anterior stomach wall may, however, adhere to the liver, and the chronic ulcer may penetrate the liver substance.

Gastroscopy

Gastroscopy is the viewing of the mucous membrane of the stomach through an illuminated tube fitted with a lens system. The patient is anesthetized, and the **gastroscope** is passed into the stomach, which is then inflated with air. With a flexible fiber-optic instrument, direct visualization of different parts of the gastric mucous membrane is possible. It is also possible to perform a mucosal biopsy through a gastroscope.

Nasogastric Intubation

lumbar vertebra.

Duodenal Ulcer

As the stomach empties its contents into the duodenum, the acidic **chyme** is

squirted against the anterolateral wall of the first part of the duodenum. This is thought to be an important factor in the production of a duodenal ulcer at this site. An ulcer of the anterior wall of the first inch of the duodenum may perforate into the upper part of the greater sac, above the transverse colon. The transverse colon directs the escaping fluid into the right lateral paracolic gutter and thus down to the right iliac fossa. The differential diagnosis between a perforated duodenal ulcer and a perforated appendix may be difficult.

An ulcer of the posterior wall of the first part of the duodenum may penetrate the wall and erode the relatively large **gastrooduodenal artery**, causing a severe hemorrhage.

The gastrooduodenal artery is a branch of the hepatic artery, a branch of the celiac trunk (see [Figs. 7.5](#) and [7.20](#)).