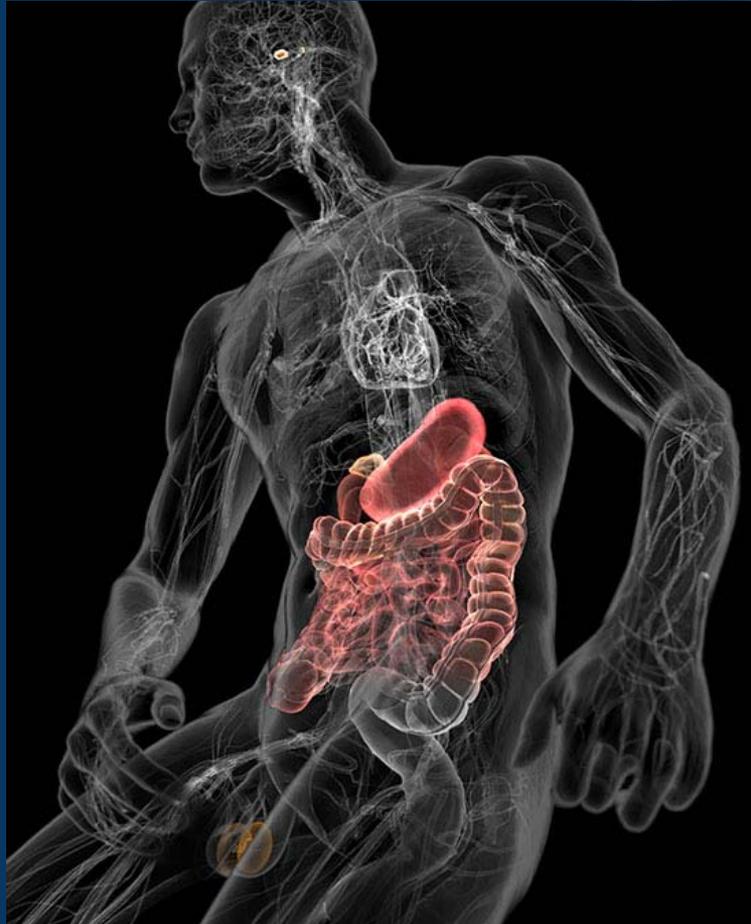


STOMACH AND DUODENUM



Qais K.Baqer

FCABS FICMS FICS

Consultant Gastrointestinal & Hepatobiliary Surgeon

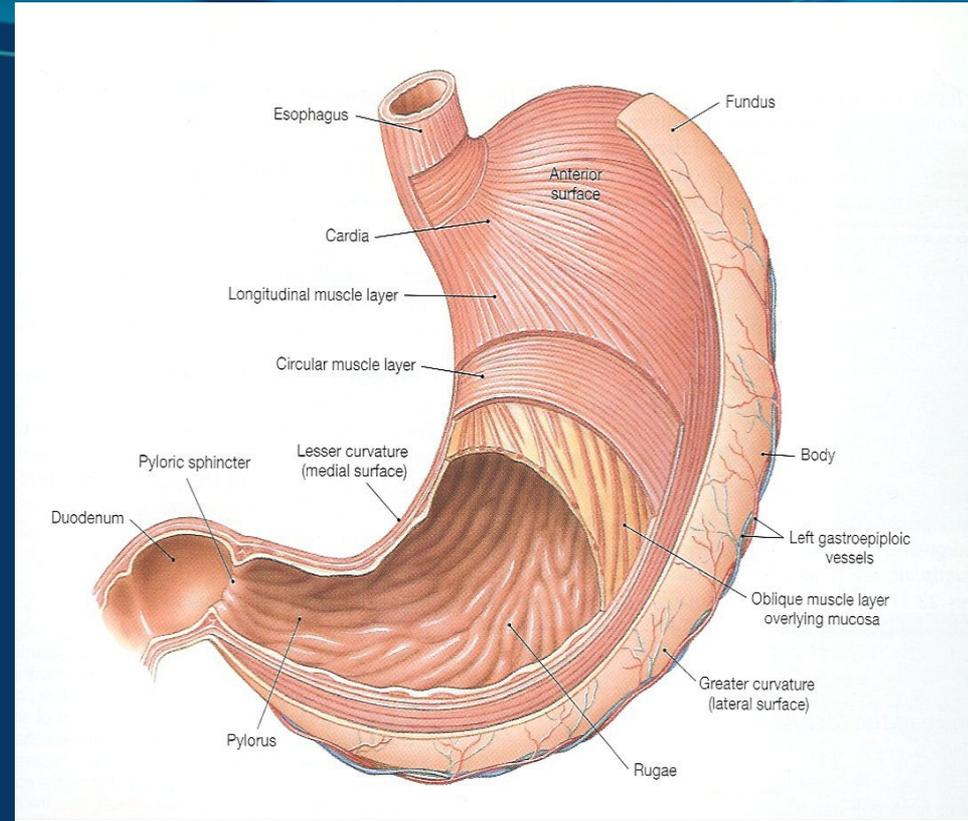
Objectives

- Recognize and understand:
 - The anatomy & the physiology.
 - the most appropriate investigations.
 - the *Helicobacter pylori*.
- The gastritis & peptic ulcer diseases.
- The presentation of gastric cancer.
- Duodenal obstruction and tumours.

Surgical anatomy

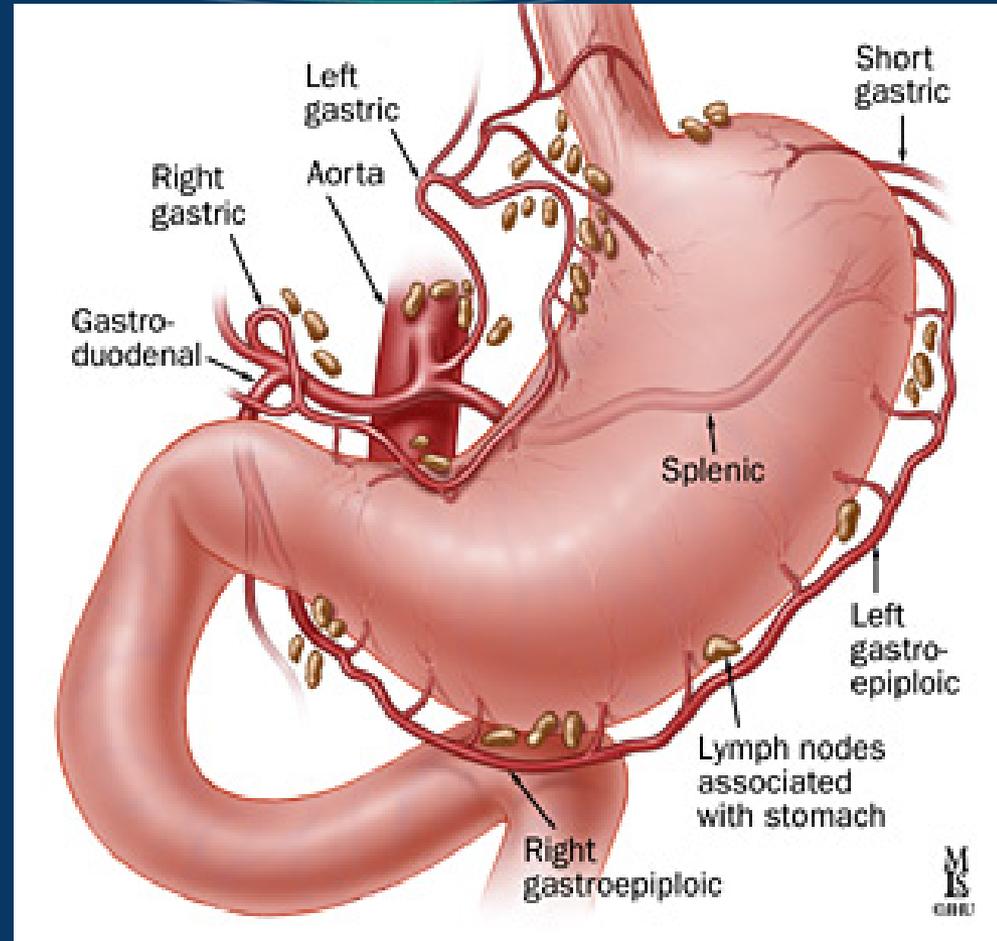
- **Function:**
- **Reservoir .**
- **Mechanical breakdown of food.**

- **Parts:**
- **Layers:**

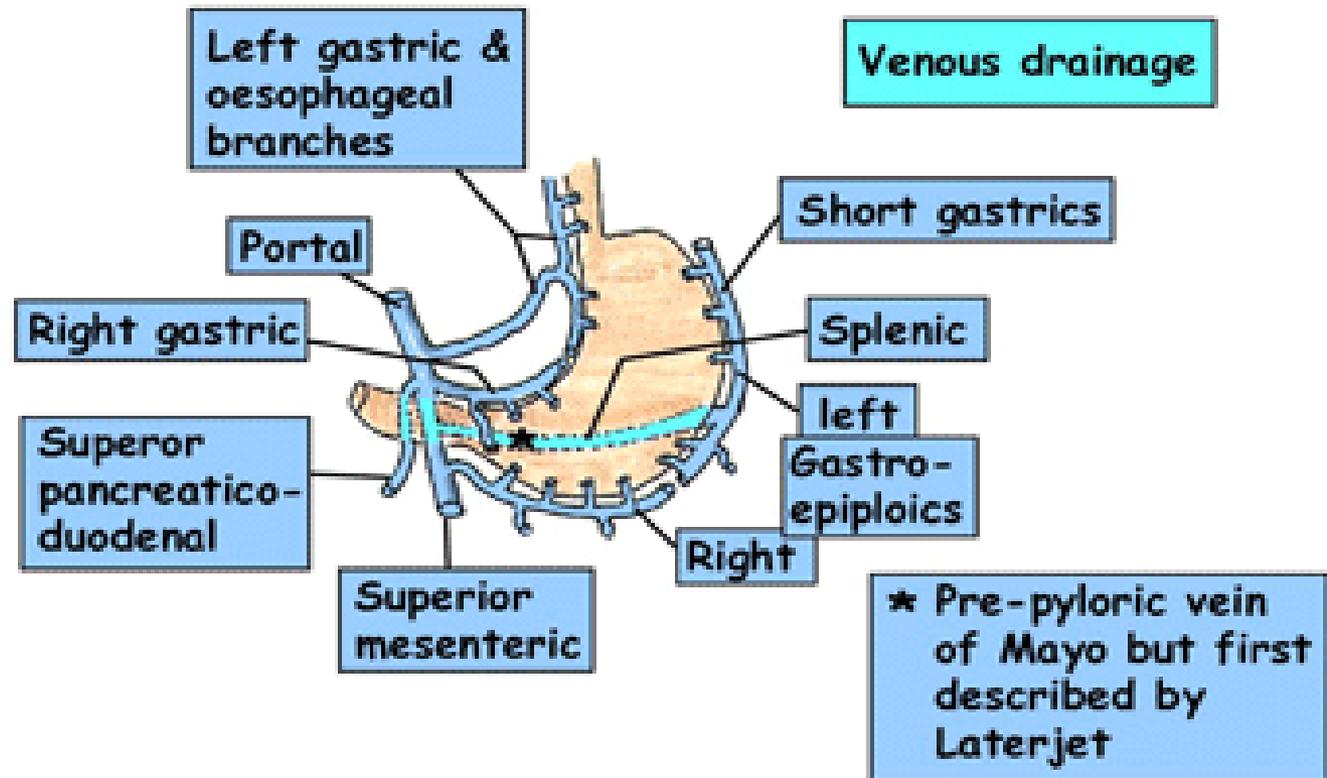


Blood supply

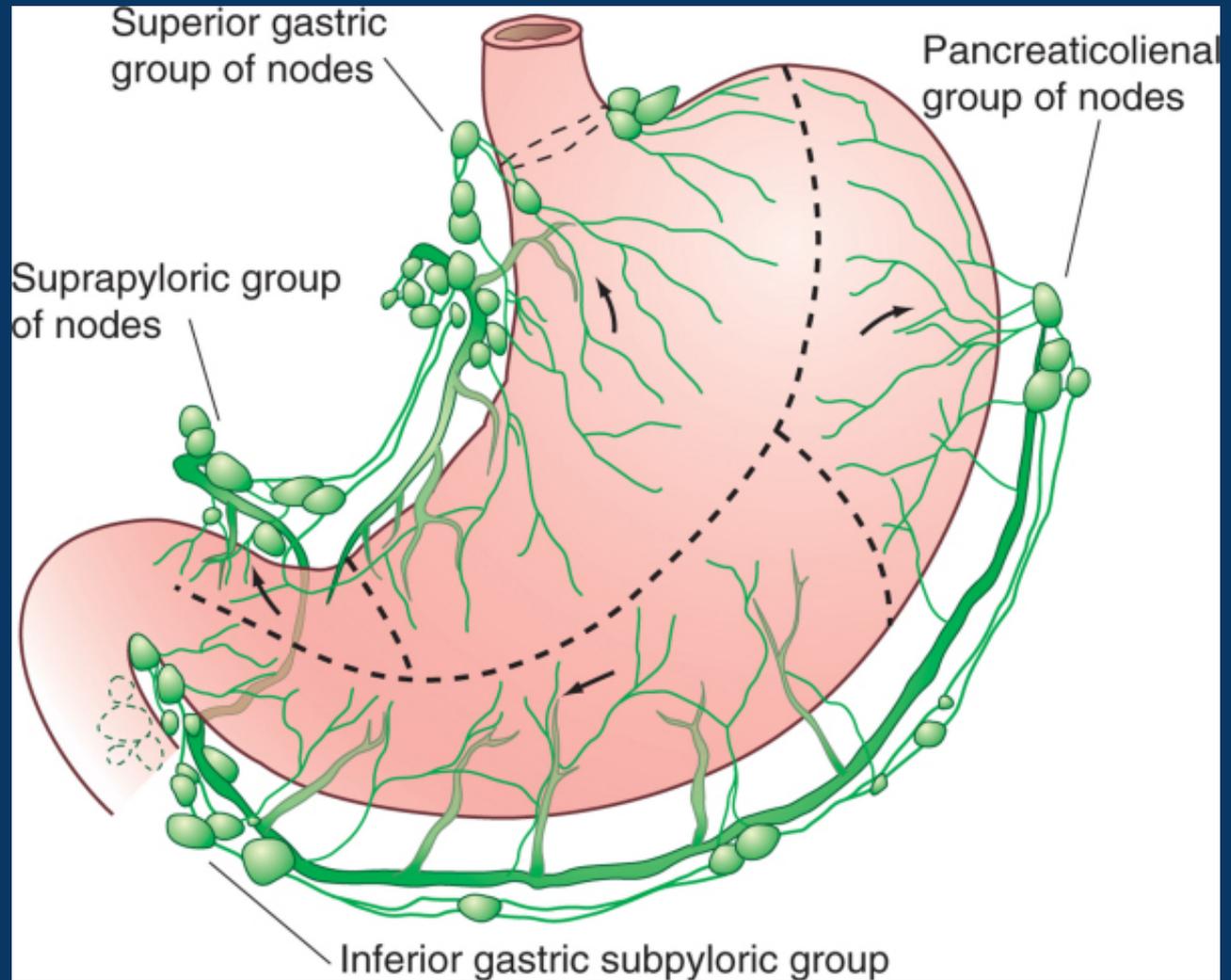
- From coeliac axis:
 - Lt Gastric a.
 - Rt Gastric a.
 - Rt Gastroepiploic a.
 - Lt Gastroepiploic a.
 - short Gastric aa.
(vasa brevia)



Venous drainage



Lymphatic



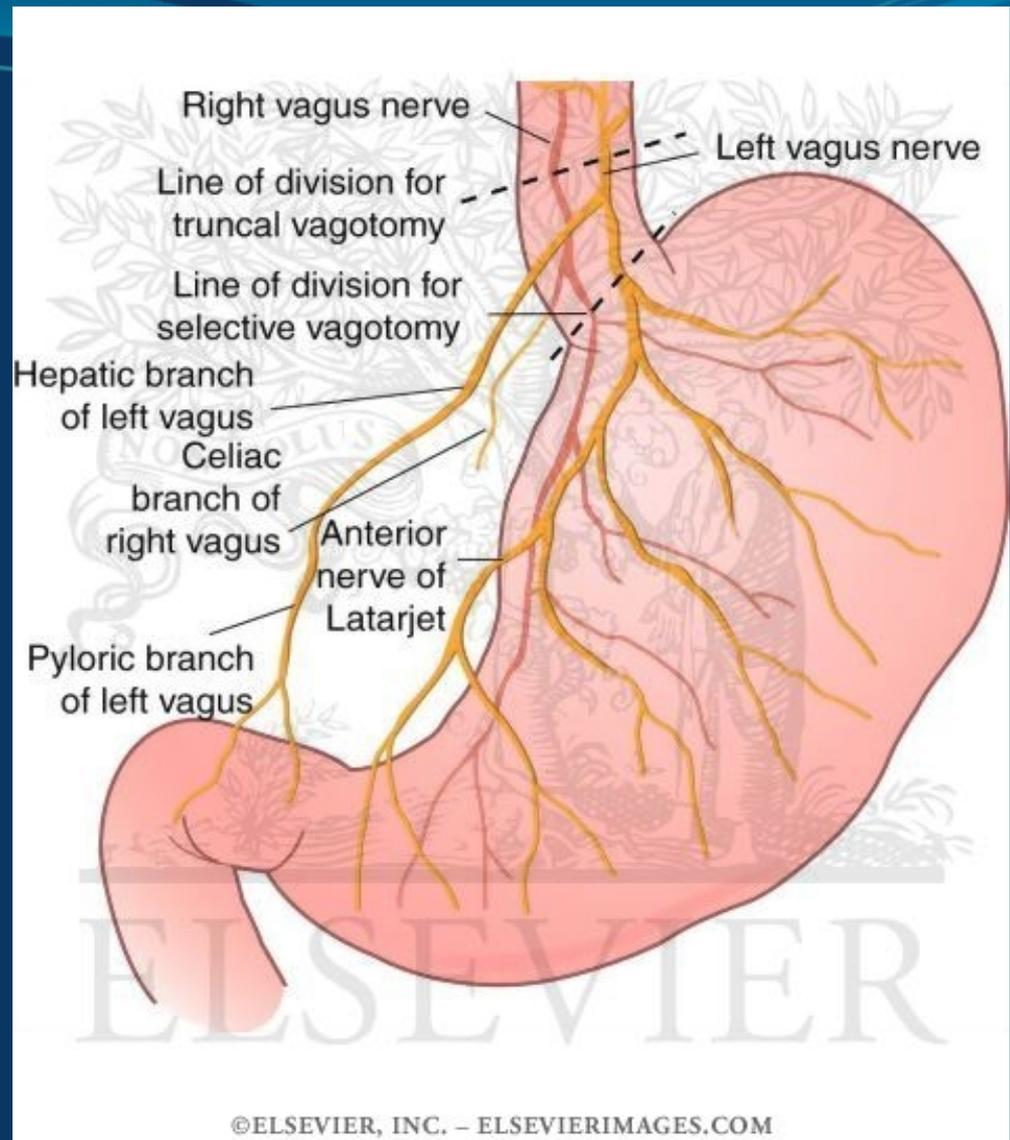
Nerve supply

- **Intrinsic N:**

- Myenteric plexus (Auerbach).
- Submucosal plexis (Meissner),

- **Extrinsic N:**

- Ant. Vagus.
- post. Vagus.



Gastric epith. Mucus producing Cells...Mucous (Visid mucopolysacccharide).

Parietal cells HCl, IF.

Chief cells pepsinogen I, II.... Pepsin.

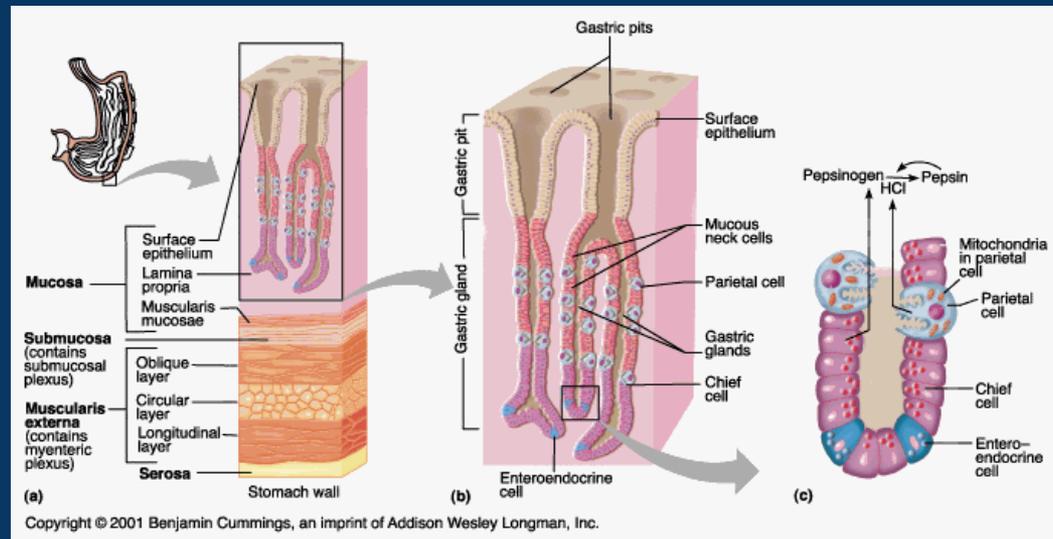
Endocrine cells: G cells.... Gastrin.

D cells.... Somatostatin

Enterochromaffin – like cells: Histamin.

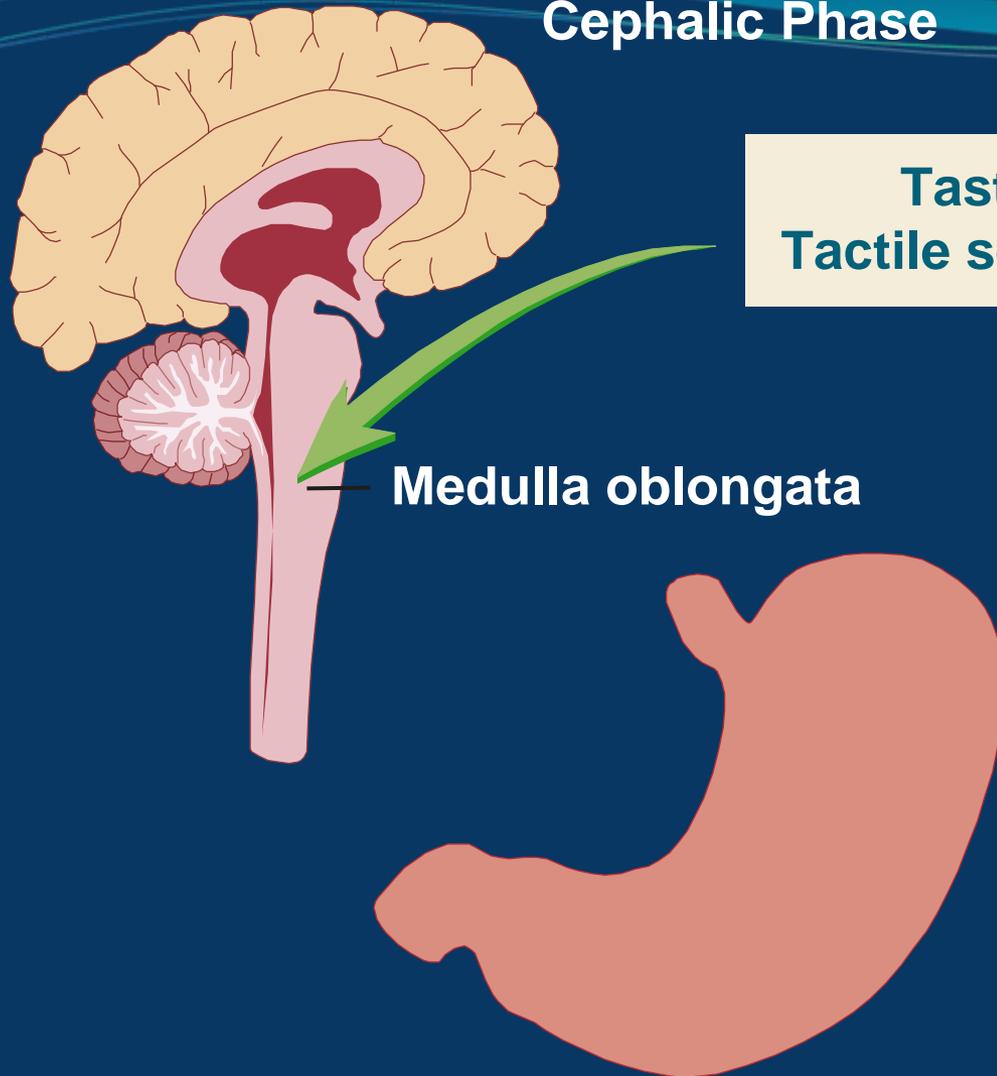
Duodenum: Brunner's glands...mucous .

Endocrin cells...CCK, Secretin.



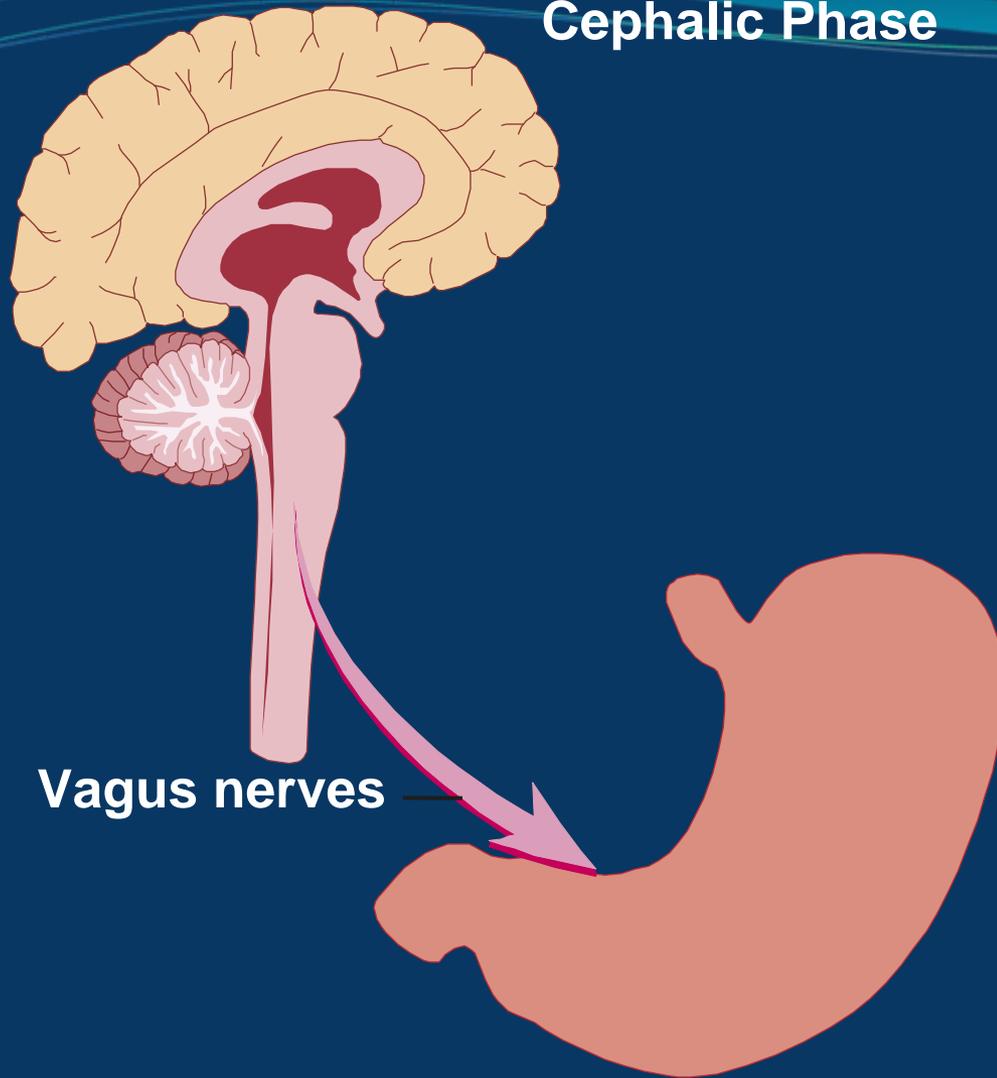
Cephalic Phase

Taste or smell of food
Tactile sensation in mouth



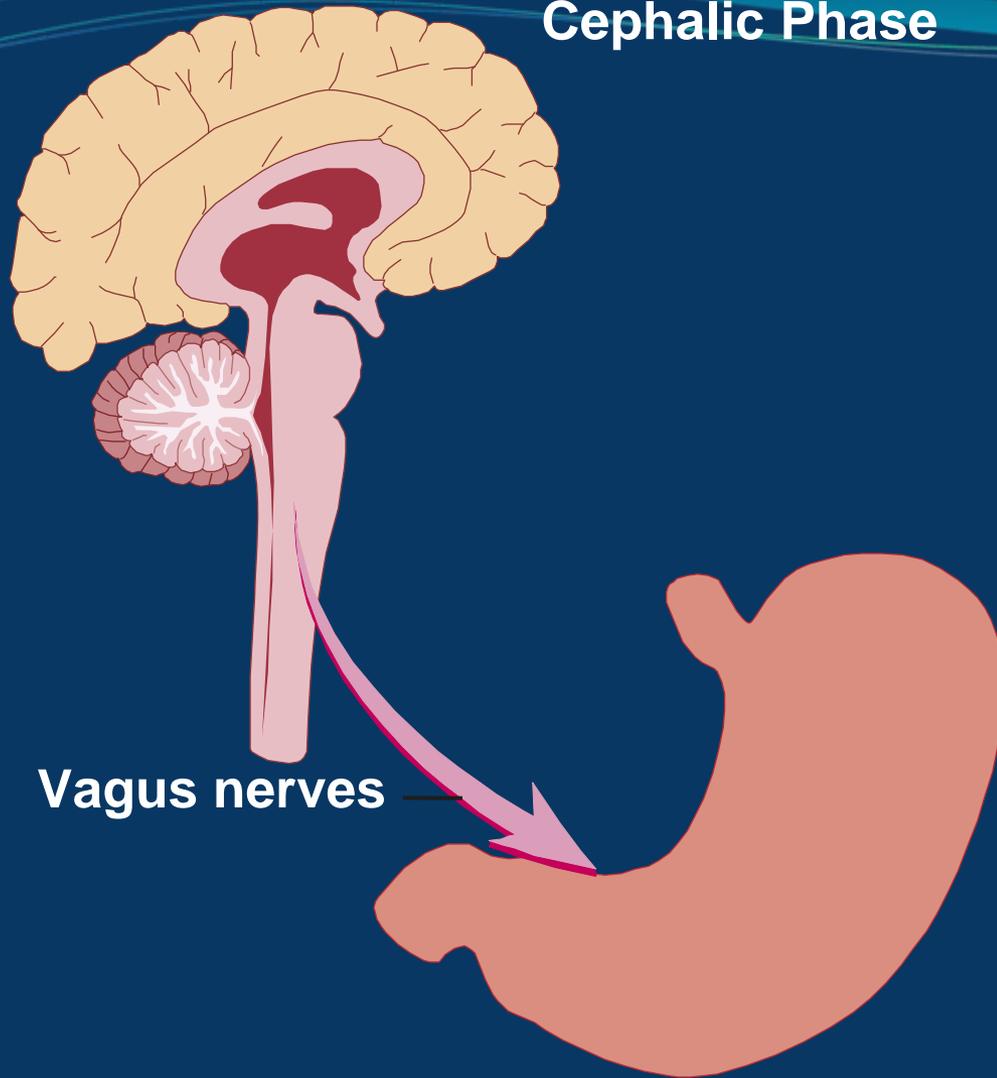
The taste or smell of food, tactile sensations of food in the mouth, or even thoughts of food stimulate the medulla oblongata (*green arrow*).

Cephalic Phase



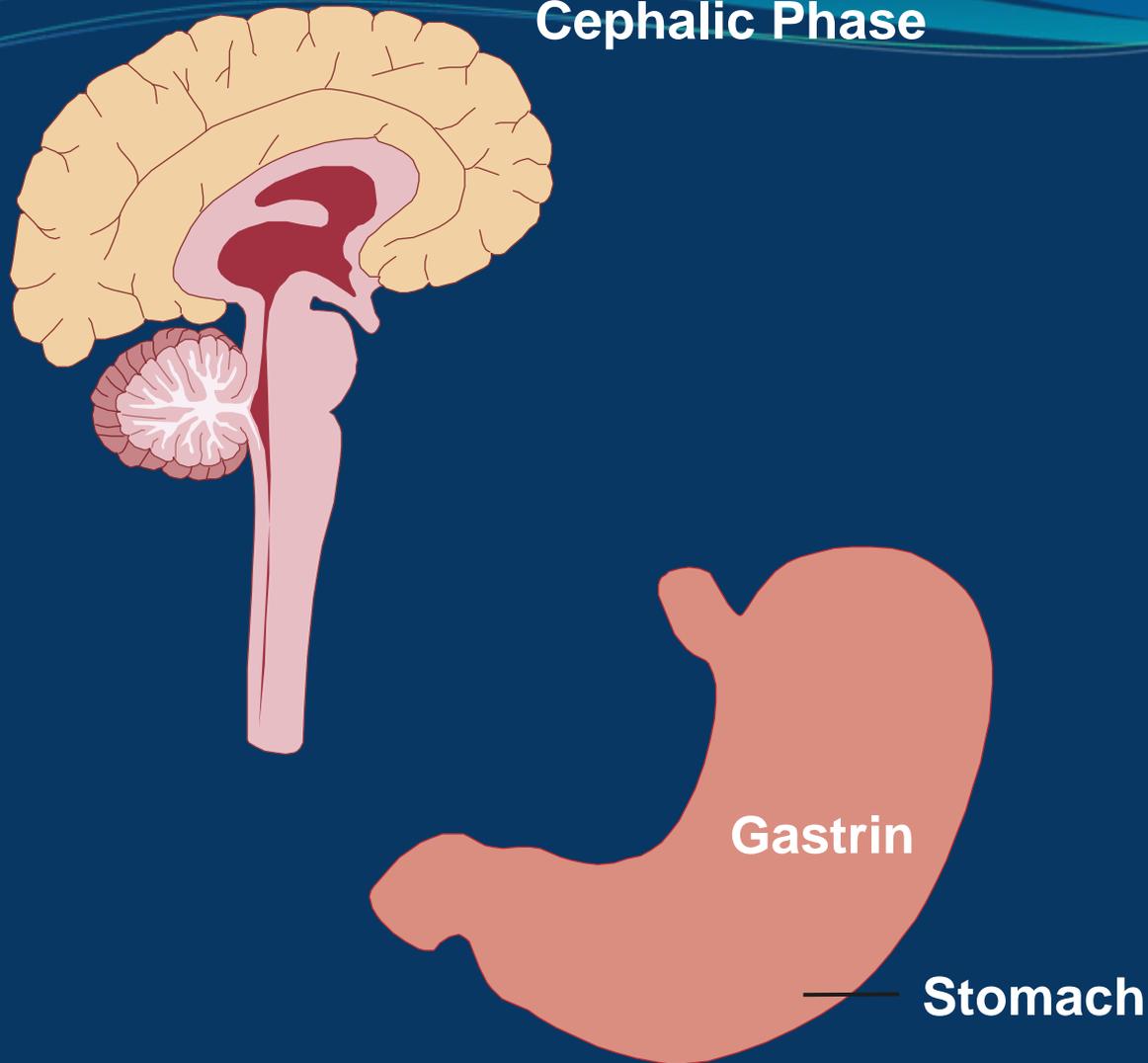
Parasympathetic action potentials are carried by the vagus nerves to the stomach (*pink arrow*).

Cephalic Phase



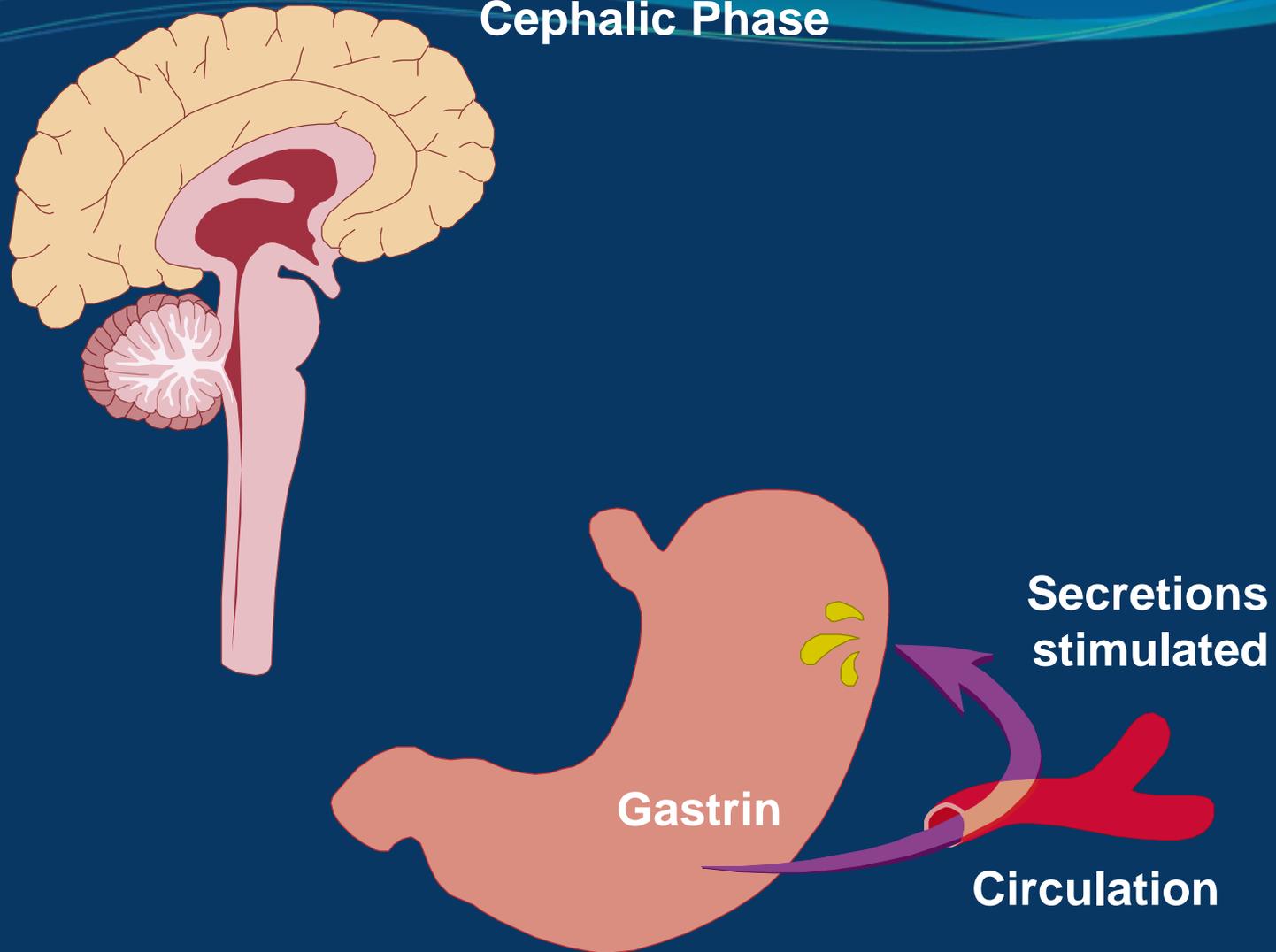
Preganglionic parasympathetic vagus nerve fibers stimulate postganglionic neurons in the enteric plexus of the stomach.

Cephalic Phase



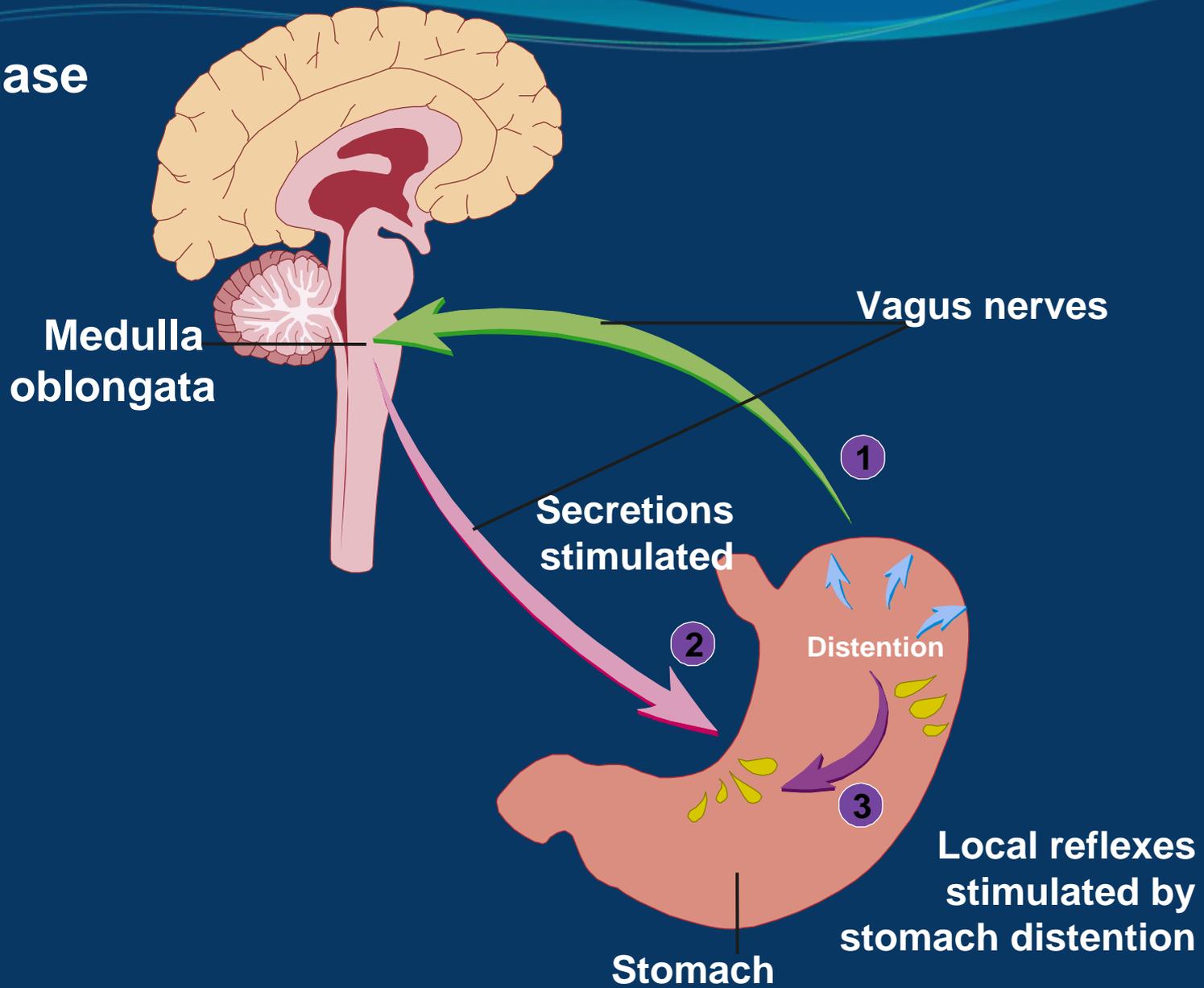
Postganglionic neurons stimulate secretion by parietal and chief cells and stimulate gastrin secretion by endocrine cells.

Cephalic Phase



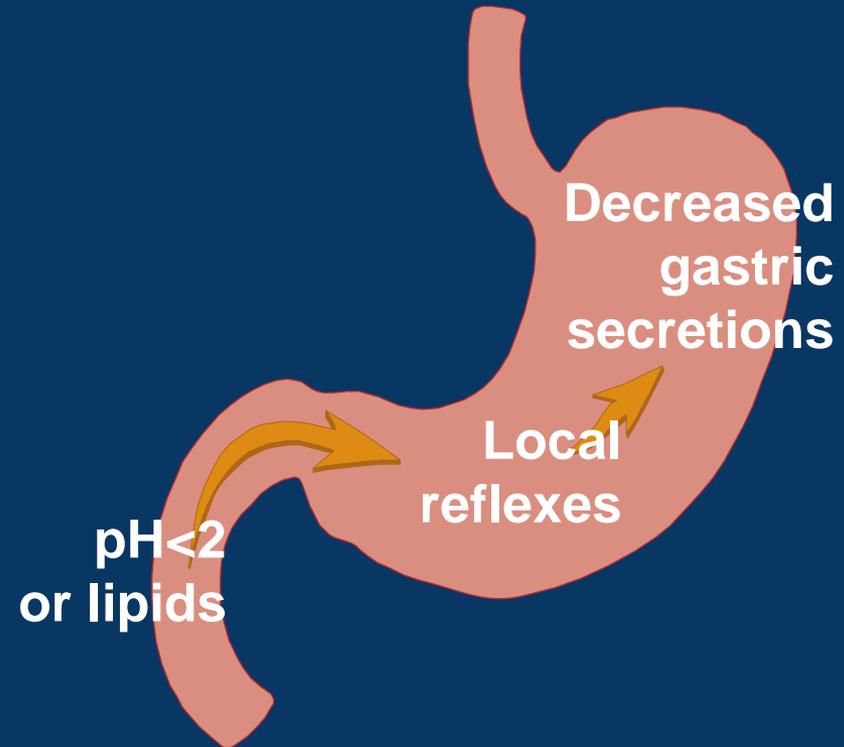
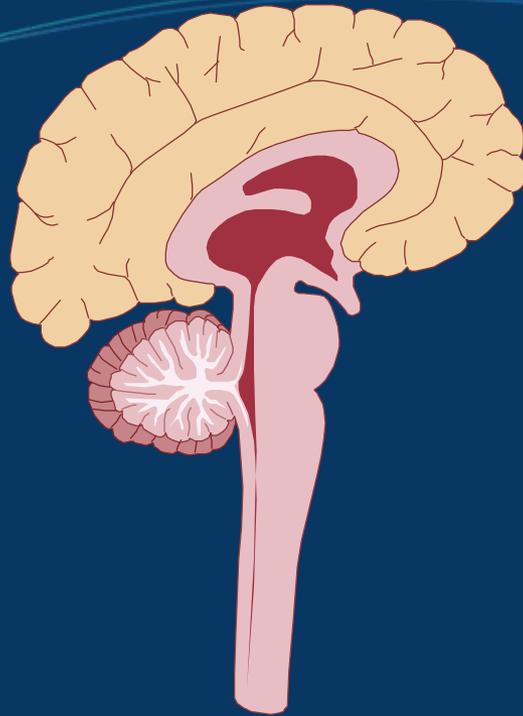
Gastrin is carried through the circulation back to the stomach (*purple arrow*), where it stimulates secretion by parietal and chief cells.

Gastric Phase



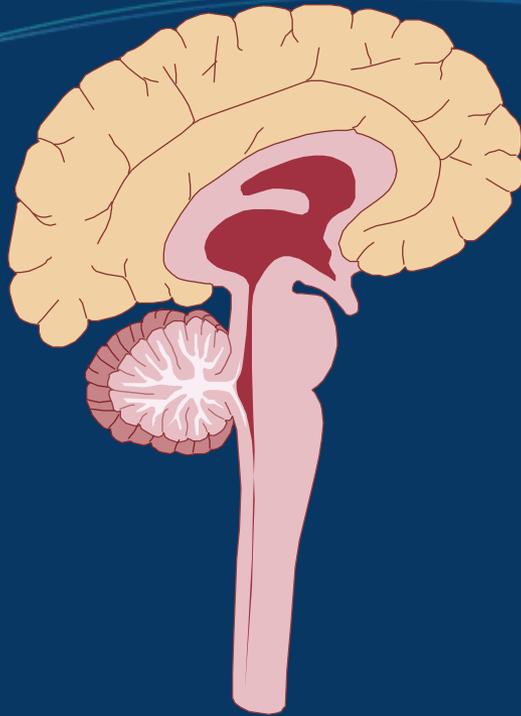
Intestinal Phase

Mechanism Two



Local reflexes inhibit gastric secretion (*orange arrows*).

Intestinal Phase

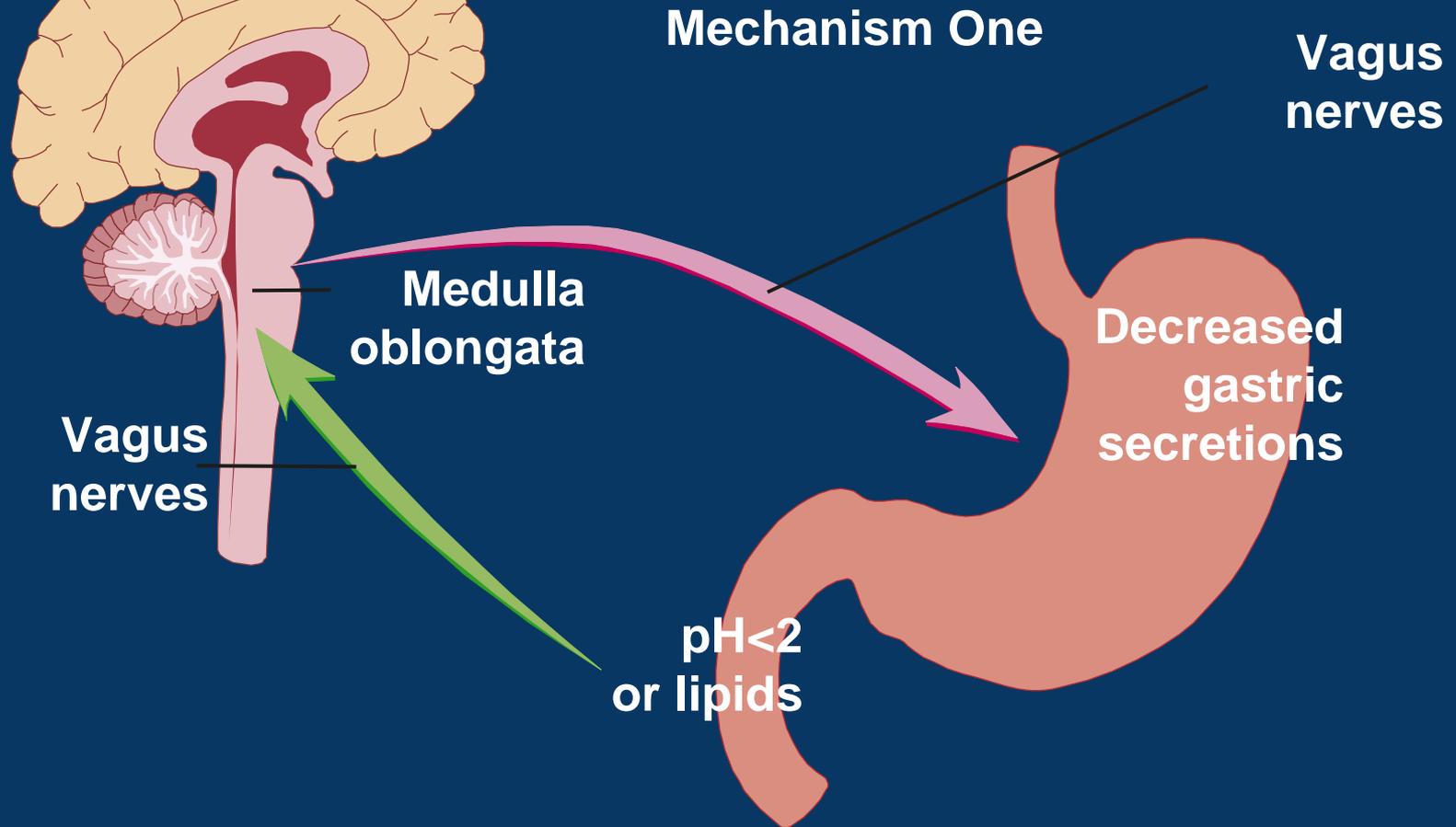


pH<2
or lipids



Chyme in the duodenum with a pH less than 2 or containing fat digestion products (lipids) inhibits gastric secretions by three mechanisms.

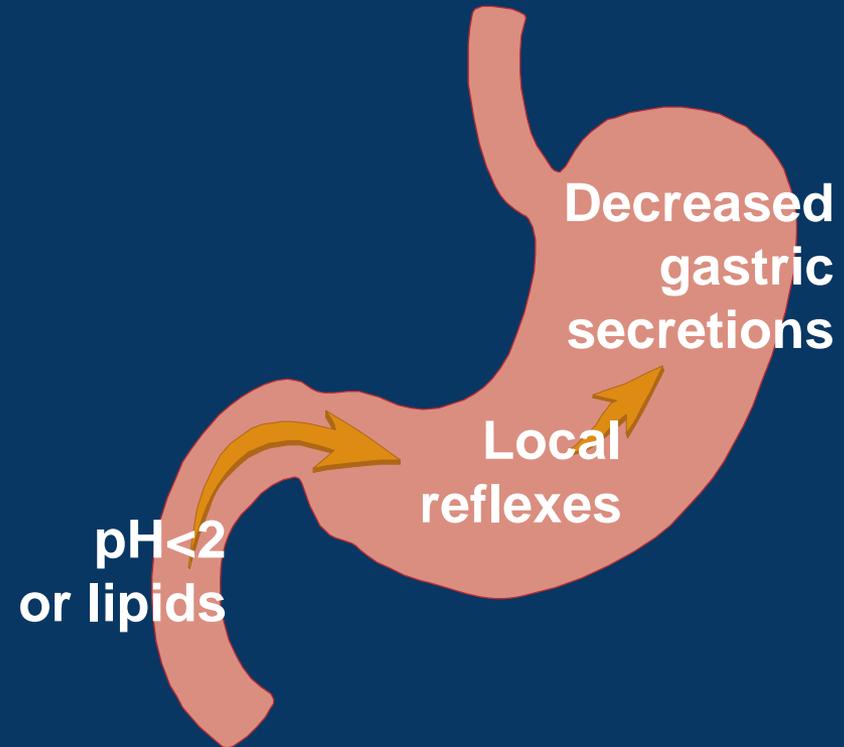
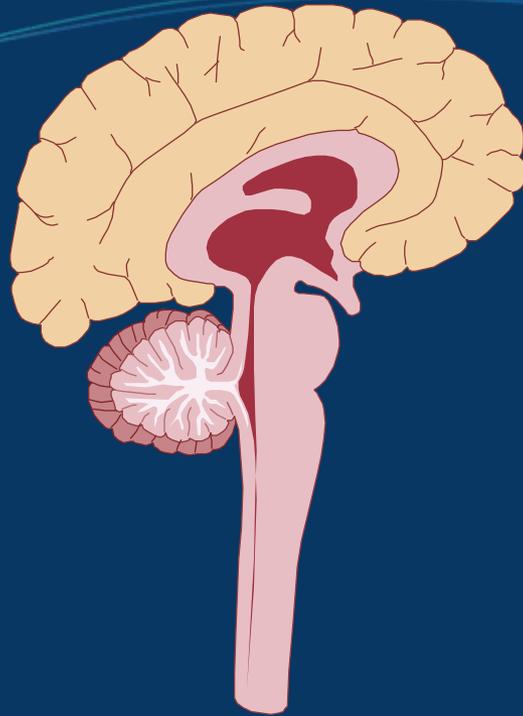
Intestinal Phase



Sensory vagal action potentials to the medulla oblongata (*green arrow*) inhibit motor action potentials from the medulla oblongata (*pink arrow*).

Intestinal Phase

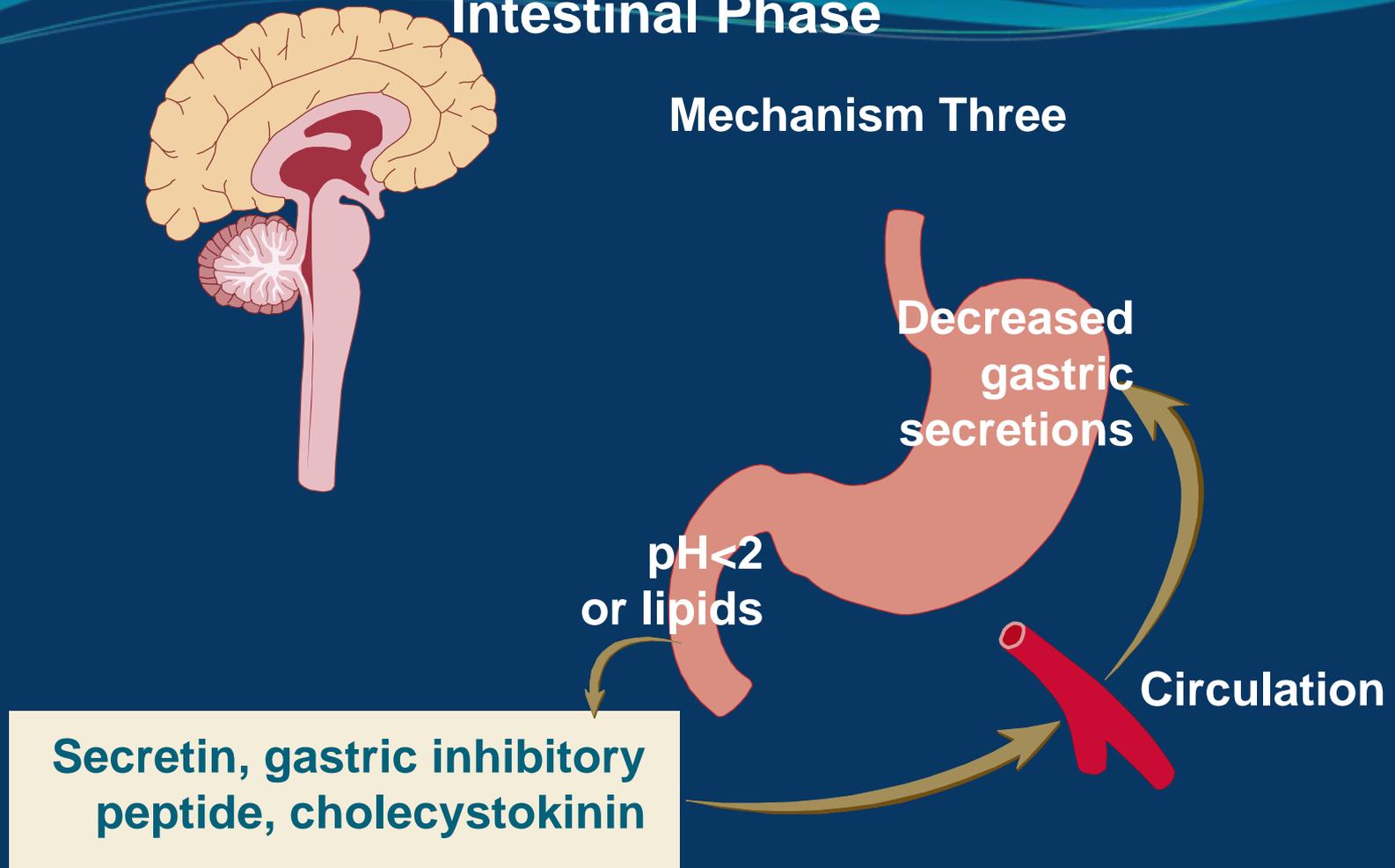
Mechanism Two



Local reflexes inhibit gastric secretion (*orange arrows*).

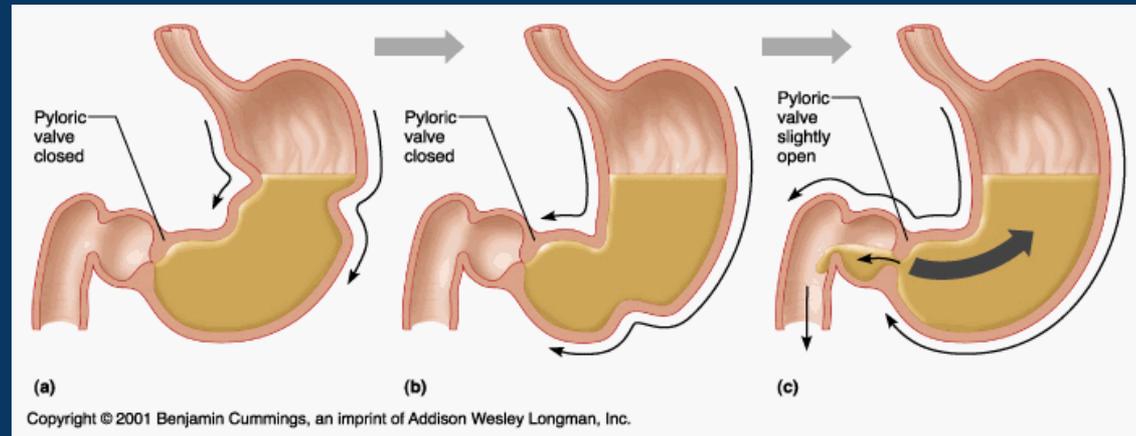
Intestinal Phase

Mechanism Three



Secretin, gastric inhibitory polypeptide, and cholecystokinin produced by the duodenum (*brown arrows*) inhibit gastric secretions in the stomach.

Gastric Emptying (antral pump or antral mil)



PHASE I: period of quiescence after clearance of food lasting(40min).

PHASE II: MMC from the fundus at rate of 3/min lasting (40 min).

PHASE III: duodenal slow waves at rate of 10/min lastiing (10min).

This 90 min cycle repeated

From Duodenum MMC move 5-10 cm/min reaching terminal ileum after 90 min.

Investigation

1- OGD:

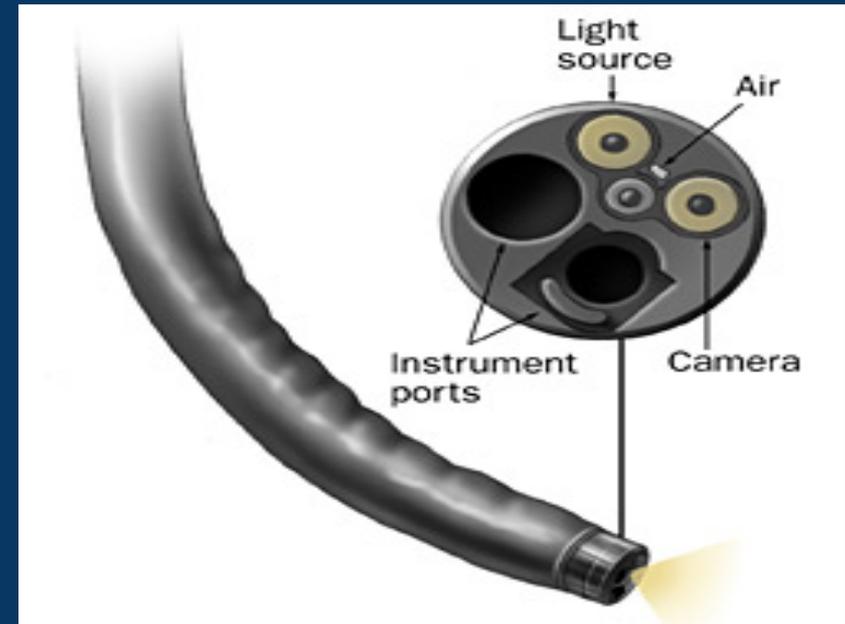
Use: Dx & RX.

Safe. but morb. mort # 0.

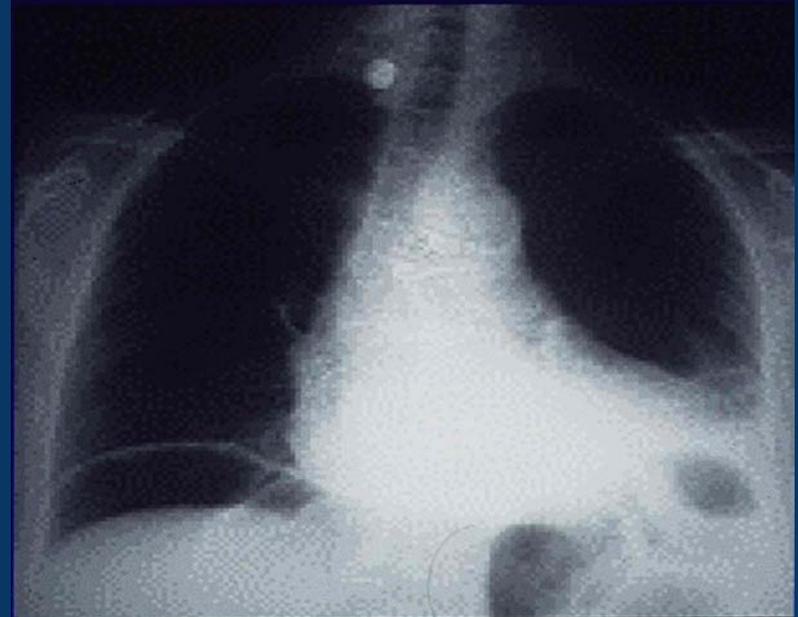
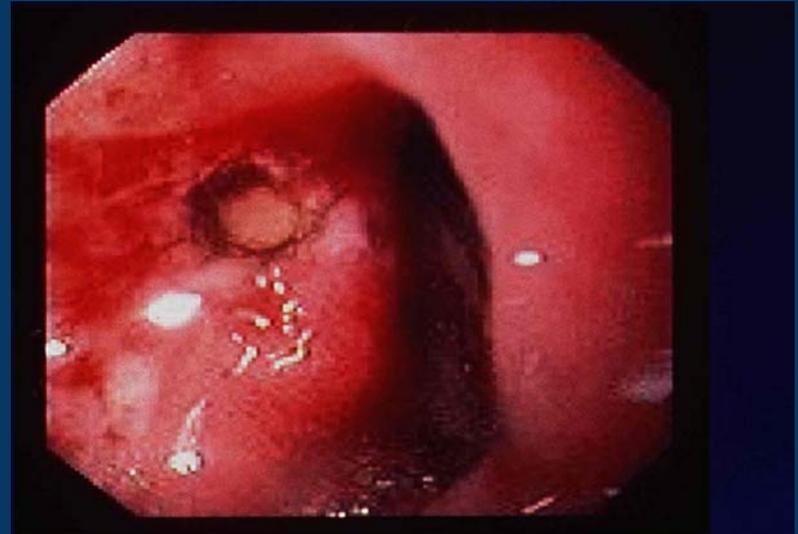
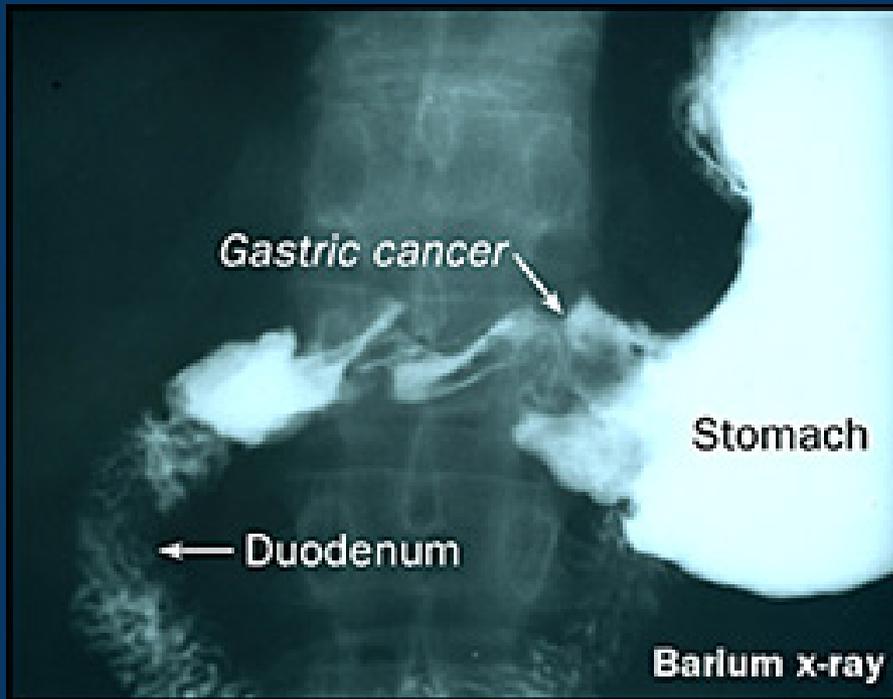
Needs Experience.

Under Sedation.

+ Resuscitation equip.



2- Radiology: plain & contrast



3- Ultrasound

- 1- conventional USS.
- 2-Endoscopic (EUS).

- Staging:

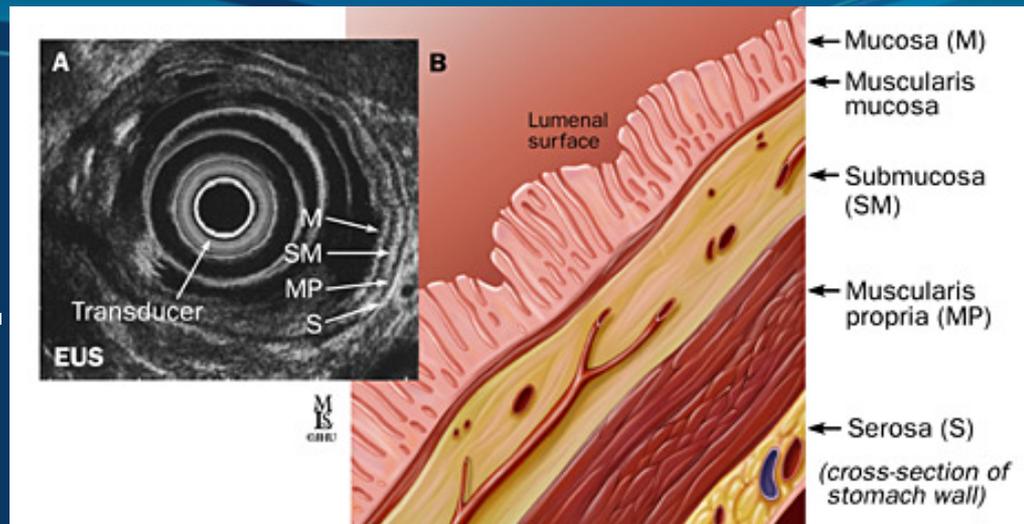
T: 90%.

N: 80%

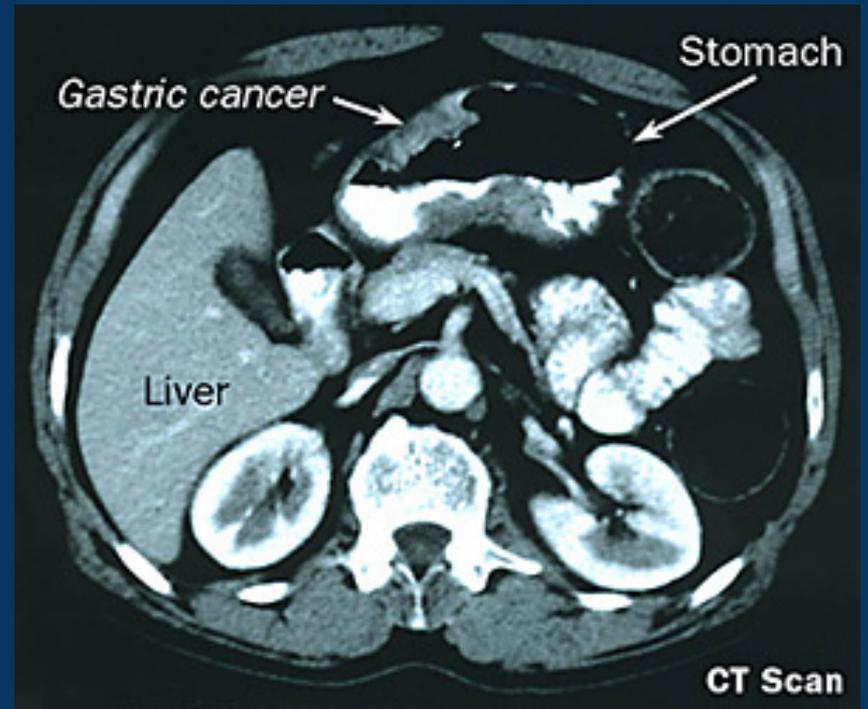
Can demonstrate hepatic secondries.

- Assess gastric emptying.

3- Laparoscopic US.

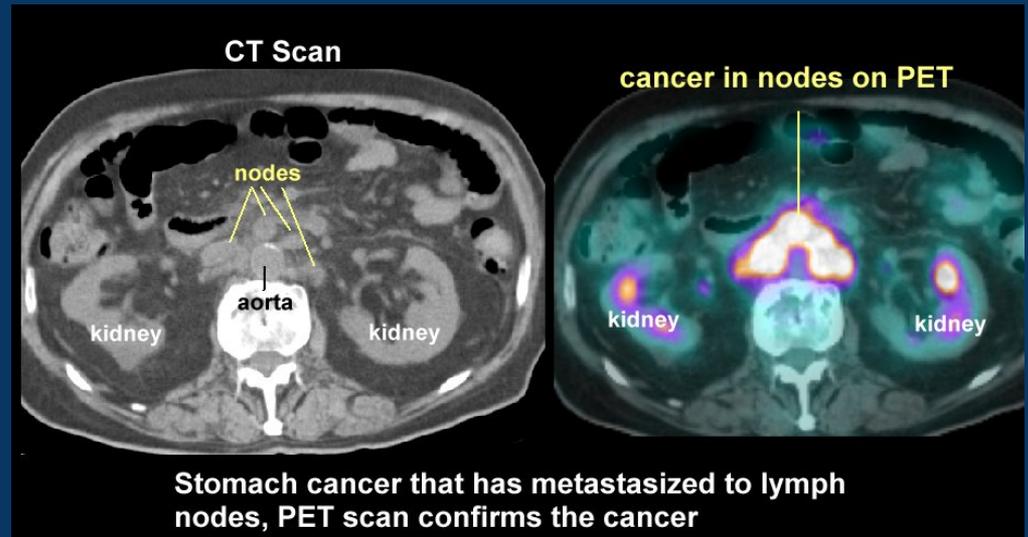
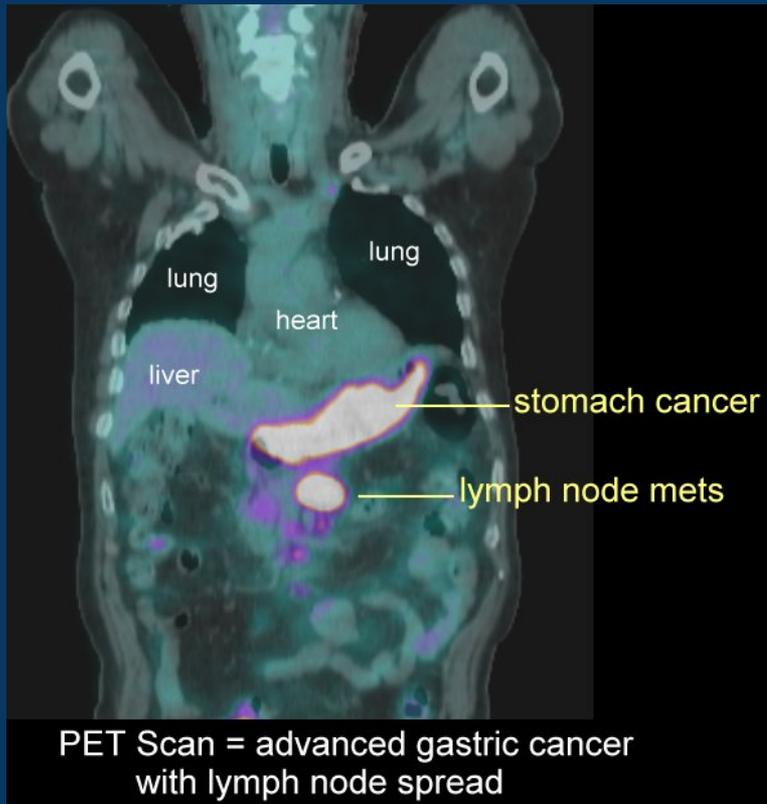


4- CTS & MRI



5- CTS/ PET Scan (Positron Emission Tomography).

Fluorodeoxy glucose as tracer.



6- Laparoscopy

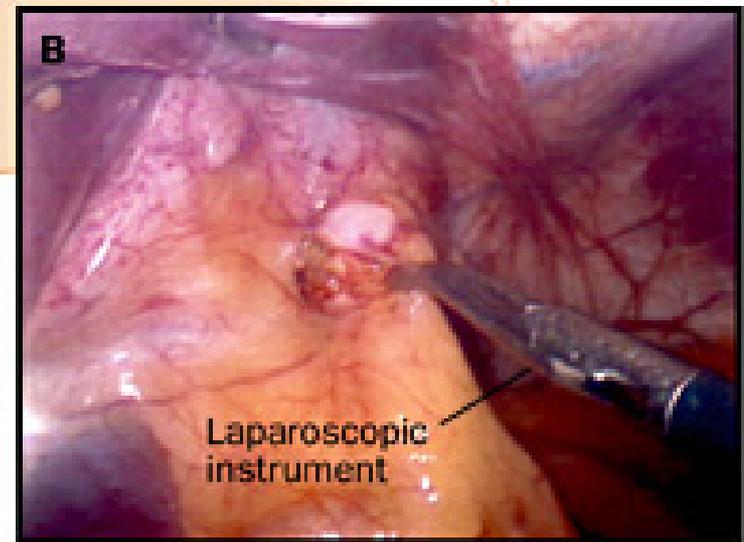
A Laparoscopic camera (for diagnosis of abdominal metastases)...

...enters through an incision in the abdominal wall.

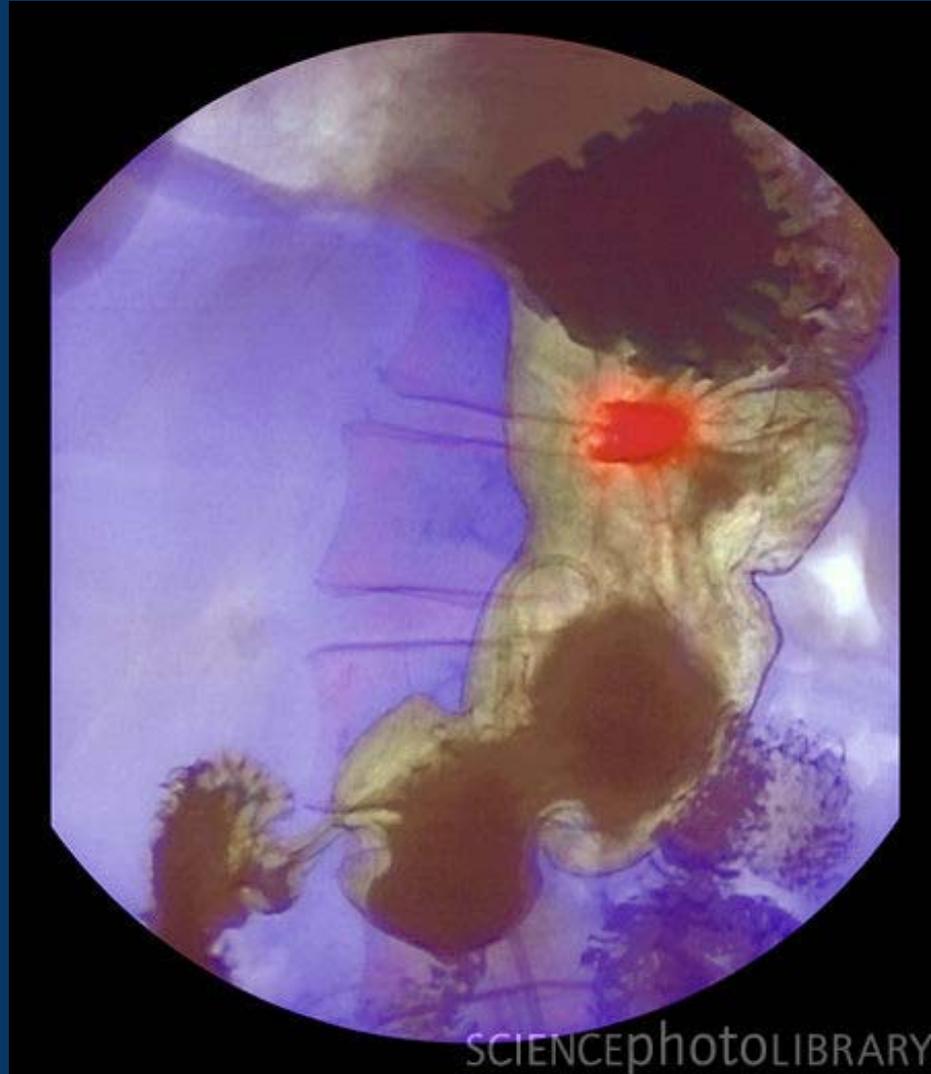
Abdominal cavity expanded with air

Abdominal organs

scope view



7- Gastric emptying study



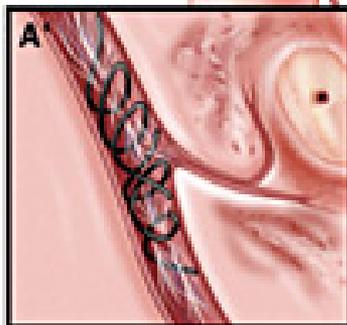
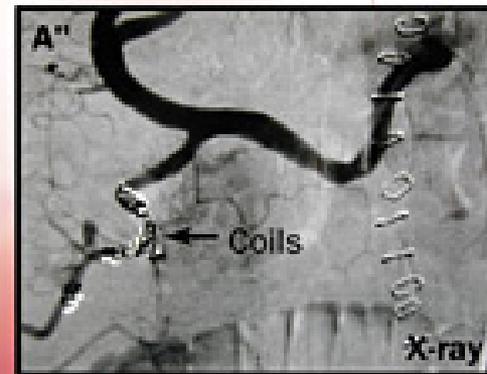
SCIENCEPHOTOLIBRARY

8- Angiography

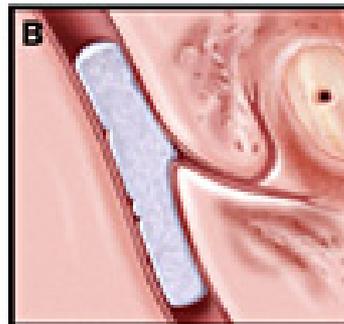
A Catheter inserting embolization coils into artery
(promotes thrombosis)

Catheter in artery

Ulcer
Aorta



Embolization coils in place
(blood flow obstructed)



Gelfoam® in place
(blood flow obstructed)



Test for *H. pylori* detection:

- Serology IgG.
- Rapid ureas test.
- Urea breath test.
- Histology, culture.

