

OESOPHAGUS (27cm long)

Nerves: Sensation and motor via vagus nerves

Lining: Stratified squamous (non-keratinising)
becoming columnar at stomach

Thick muscularis mucosae ++

Mucous glands in mucosa and submucosa

RELATIONS OF OESOPHAGUS

Slight
compression
from:

Cricoid
cartilage

Aorta
Left bronchus
left atrium

Diaphragmatic
hiatus

C6



Posterior: vertebrae, thoracic duct crosses to left at T5, hemiazygos/ accessory hemiazygos cross to right at T8/9, descending aorta, first 2 intercostal arteries from aorta

Anterior: trachea to T4/5, recurrent laryngeal nerves, left bronchus, left atrium, diaphragm

Left: thoracic duct, aorta, left subclavian artery, lung

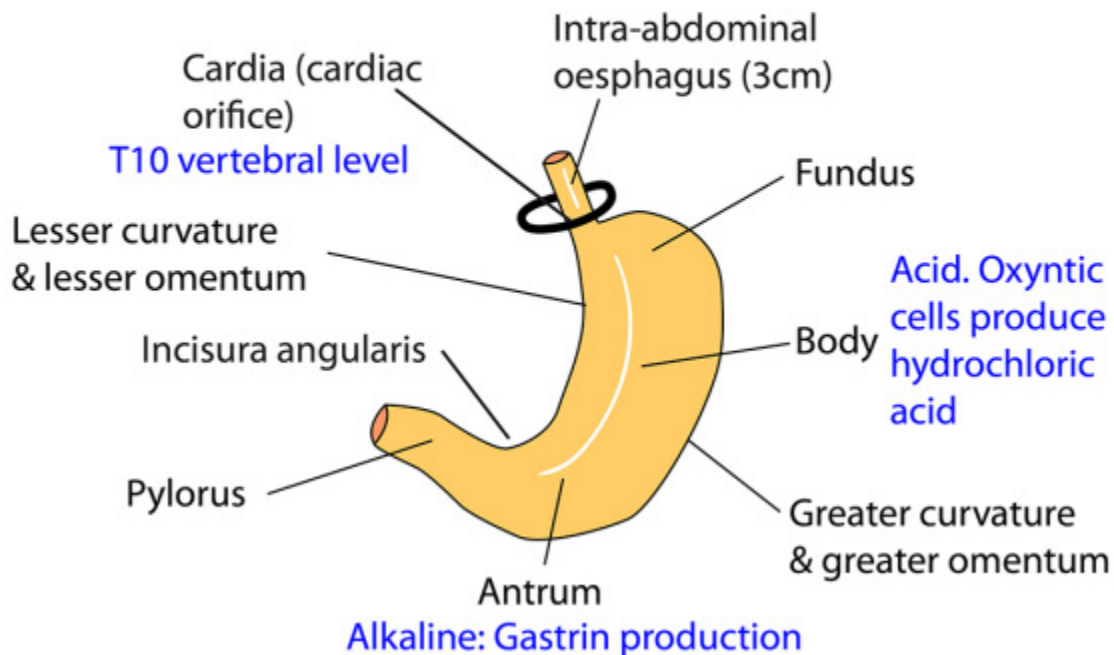
Right: lung, azygos vein (hence good side to approach the oesophagus surgically)

Endoscopic narrowings as above:
From mouth at 15cm, 27cm, 40cm

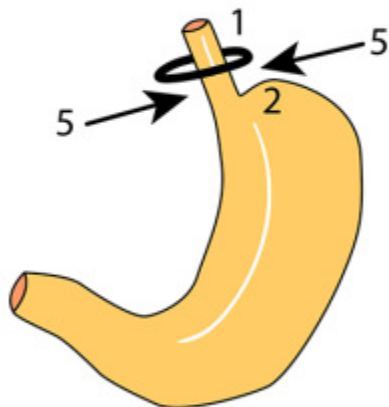
Note: 40-45cm is also the length of thoracic duct, vas, femur, spinal cord and transverse colon

1/3rds	MUSCLE	ARTERY	VEIN	LYMPH	LENGTH (27cm)
Upper	Striated	Inferior thyroid	Inferior thyroid	Deep cervical	9cm
Middle	Striated/ smooth	Aortic branches	Azygos branches	Mediastinal	9cm
Lower	Smooth	Left gastric	Left gastric	Gastric	9cm

STOMACH - TOPOGRAPHY & OESOPHAGOGASTRIC JUNCTION

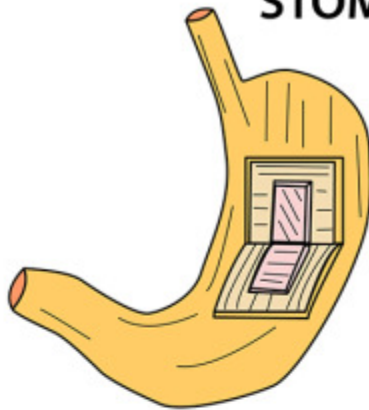


FACTORS PREVENTING GASTRO-OESOPHAGEAL REFLUX

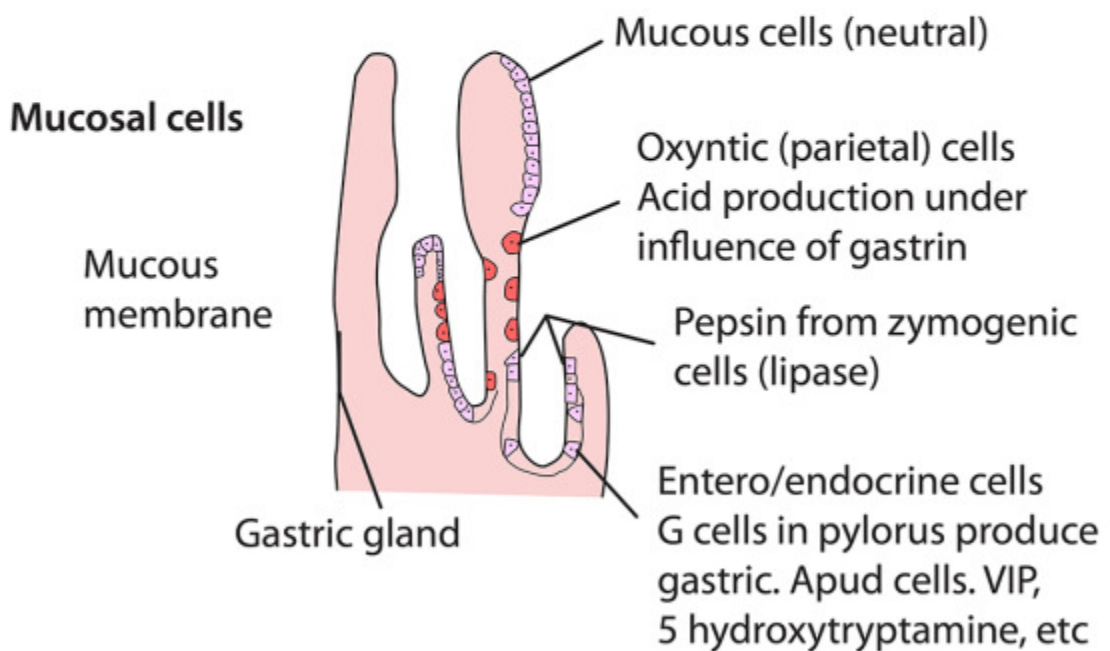


1. Crura. Mostly right but together giving effectively a circle of muscle
2. Angle of oesophagogastric junction
3. Apposition of mucosal folds
4. Phrenico-oesophageal ligament (a fold of connective tissue)
5. Intra-abdominal pressure acting laterally on small section of intra-abdominal oesophagus

STOMACH - MUSCLE COATS & CELLS

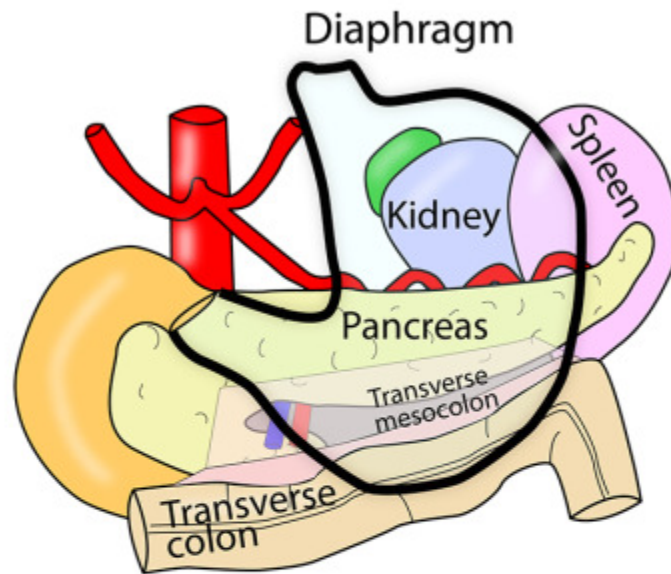


- Outer longitudinal
- Inner circular
- Incomplete oblique innermost
- Mucosal rugae caused by muscle fibres



Note: The following are produced from the cells of the stomach;
Pepsin, hydrochloric acid, gastrin, intrinsic factor, somatostatin, serotonin and endomorphin

STOMACH - RELATIONS



ANTERIOR

Abdominal wall
Left costal margin
Diaphragm
Left lobe of liver

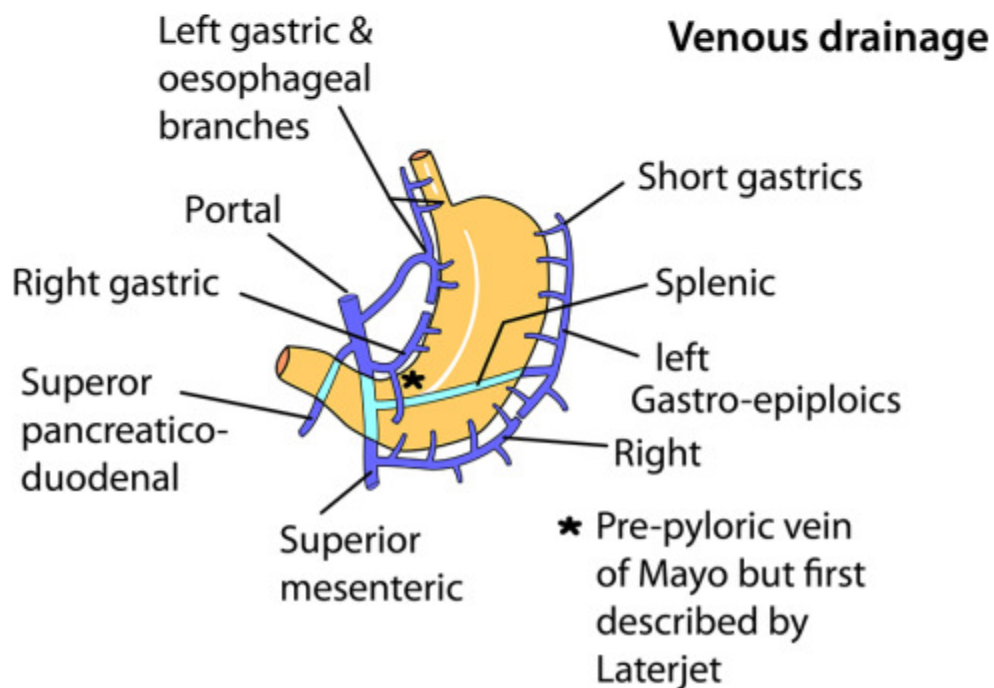
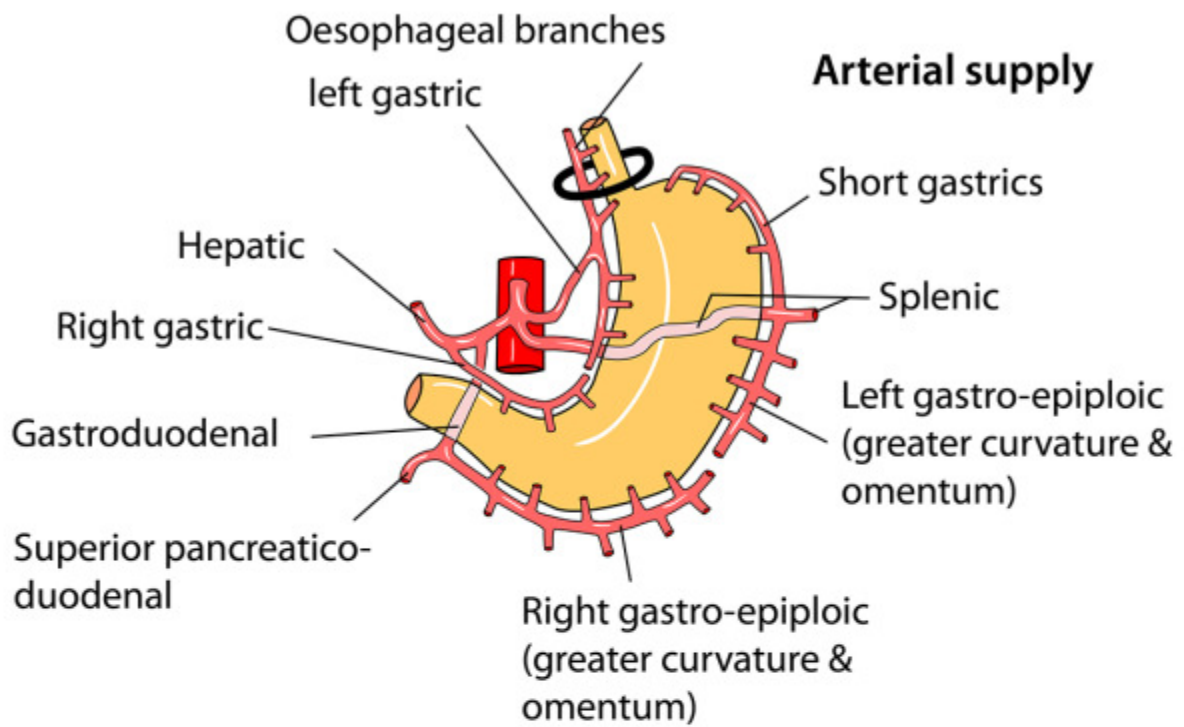
SUPERIOR

Left dome of diaphragm

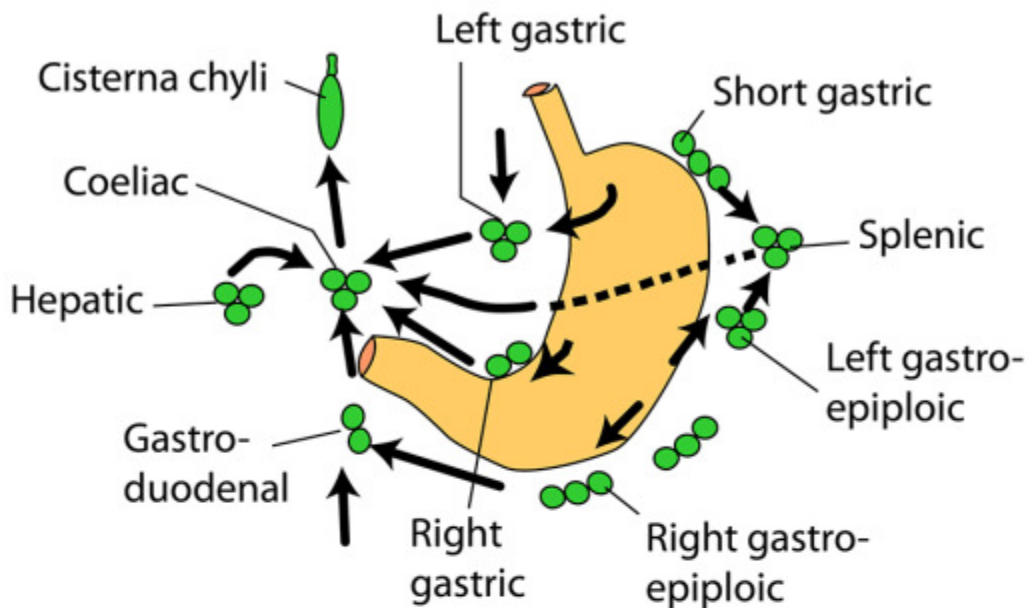
POSTERIOR

Lesser sac
Pancreas
Transverse mesocolon
Transverse colon
Left kidney/suprarenal gland
Spleen/splenic artery

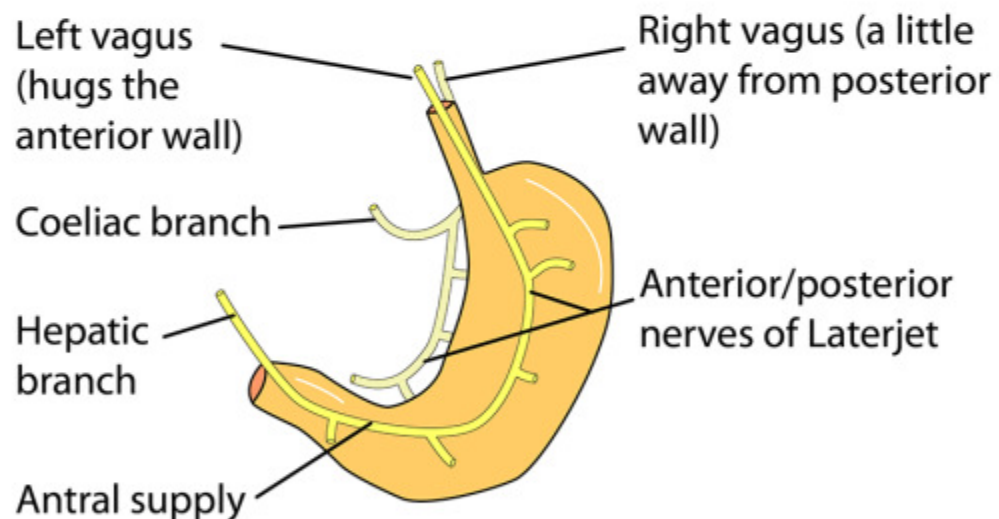
STOMACH - BLOOD SUPPLY & VENOUS DRAINAGE



STOMACH - LYMPHATIC DRAINAGE & NERVE SUPPLY



STOMACH NERVE SUPPLY



Vagus nerves are 80% sensory. 20% motor for increasing motility, opening pylorus & initiating secretions

Sympathetics
Greater splanchnic nerves (T5-9) for decreasing motility, vasoconstriction, closing pylorus & sensation

Note: Highly selective vagotomy destroys vagus to fundus & body but preserves nerve to antral pump

DUODENUM - GENERAL

10" (25cm) Greek for 12 fingers

SECOND PART (3" or 8cm)

- Retroperitoneal
- In transpyloric plane
- Downwards over hilum of right kidney
- Anterior: Gallbladder, hepatic flexure
- Medial: Pancreas, ampulla (posteromedial, 4" or 10cm from pylorus)
- Lateral: Ascending colon

Blood supply: Superior & inferior pancreatico-duodenal arteries, right gastric artery, right gastro-epiploic artery

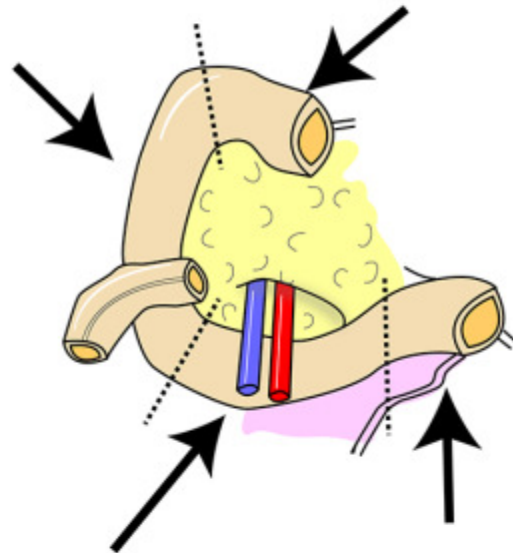
Veins: Splenic, superior mesenteric & portal

THIRD PART (4" or 10cm)

- Retroperitoneal
- Below subcostal plane
- Passes forwards & to left
- Anterior: Small bowel mesentery, superior mesenteric artery & vein
- Superior: head of pancreas
- Inferior: Jejunum

FIRST PART (2" or 5cm)

- 1st 1/2 with mesentery, 2nd 1/2 without.
- Slightly longer in female
- Just above transpyloric plane
- Passes to right, upwards, backwards
- Anterior: Liver & gallbladder
- Superior: Epiploic foramen
- Inferior: Pancreas

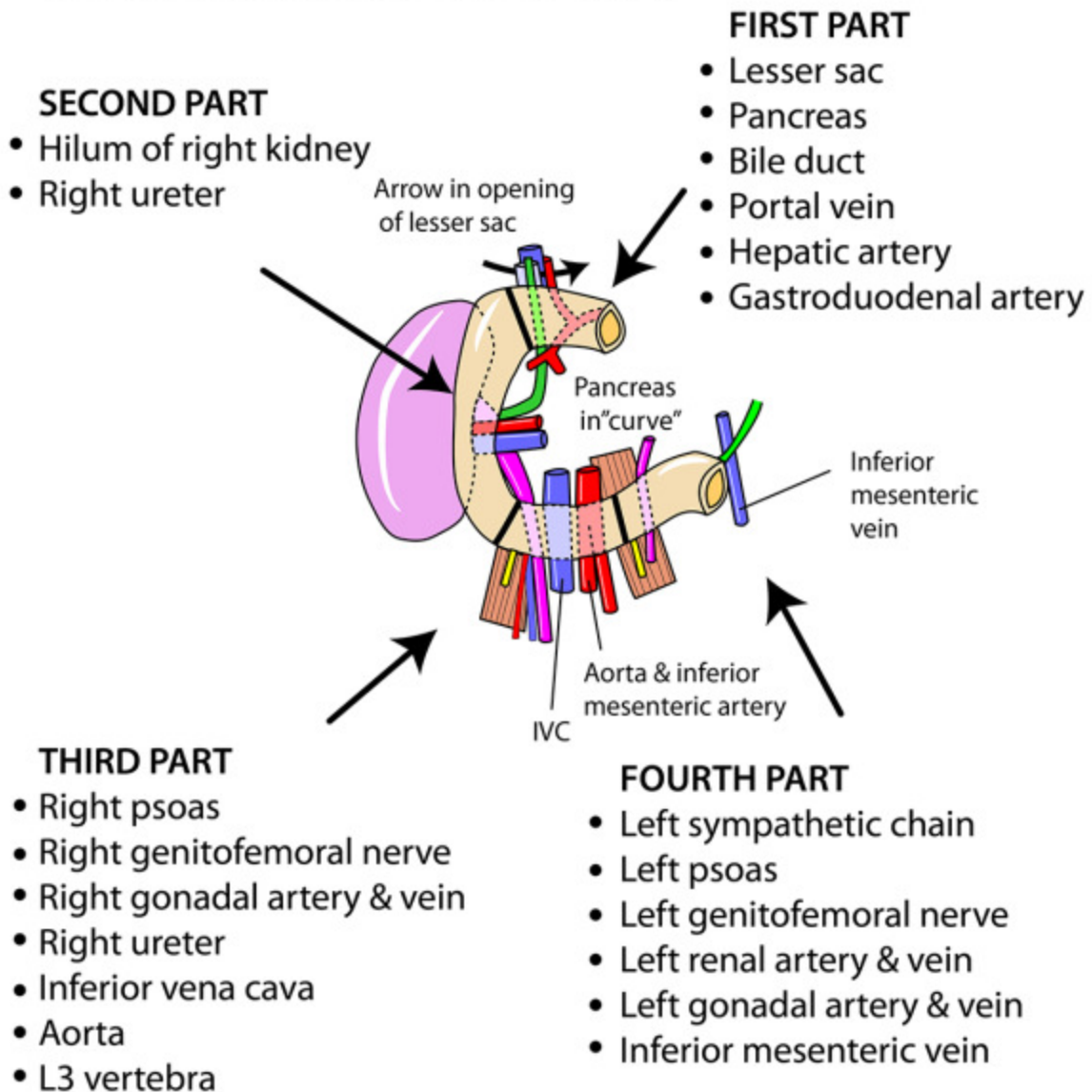


FOURTH PART (1" or 2.5cm)

- Mesentery begins
- Ascends to L2
- Ends as duodenojejunal junction
- Anterior: Transverse colon & mesocolon
- Left: Left kidney & ureter
- Superior: Body of pancreas

DUODENUM - POSTERIOR RELATIONS & LIGAMENT OF TREITZ

POSTERIOR RELATIONS OF DUODENUM



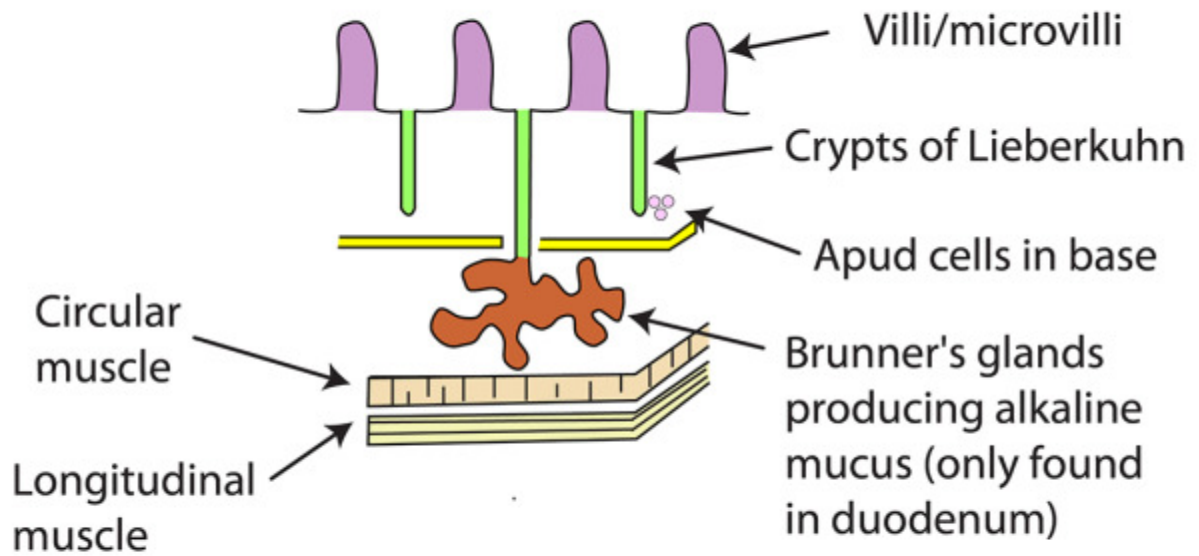
LIGAMENT OF TREITZ

2 parts, probably neither attached to crura

1. Slip of striated muscle from diaphragm at oesophageal opening, ending in connective tissue at coeliac artery
2. Fibromuscular (non striated) band from region of coeliac artery to duodenojejunal junction and 3th & 4th parts of duodenum

Referred pain via general visceral afferents in sympathetics to T8-10 (epigastrium & para-umbilical)

DUODENUM - HISTOLOGY



Note: Mucosa is thrown into folds called plicae circulares or valvulae conniventes