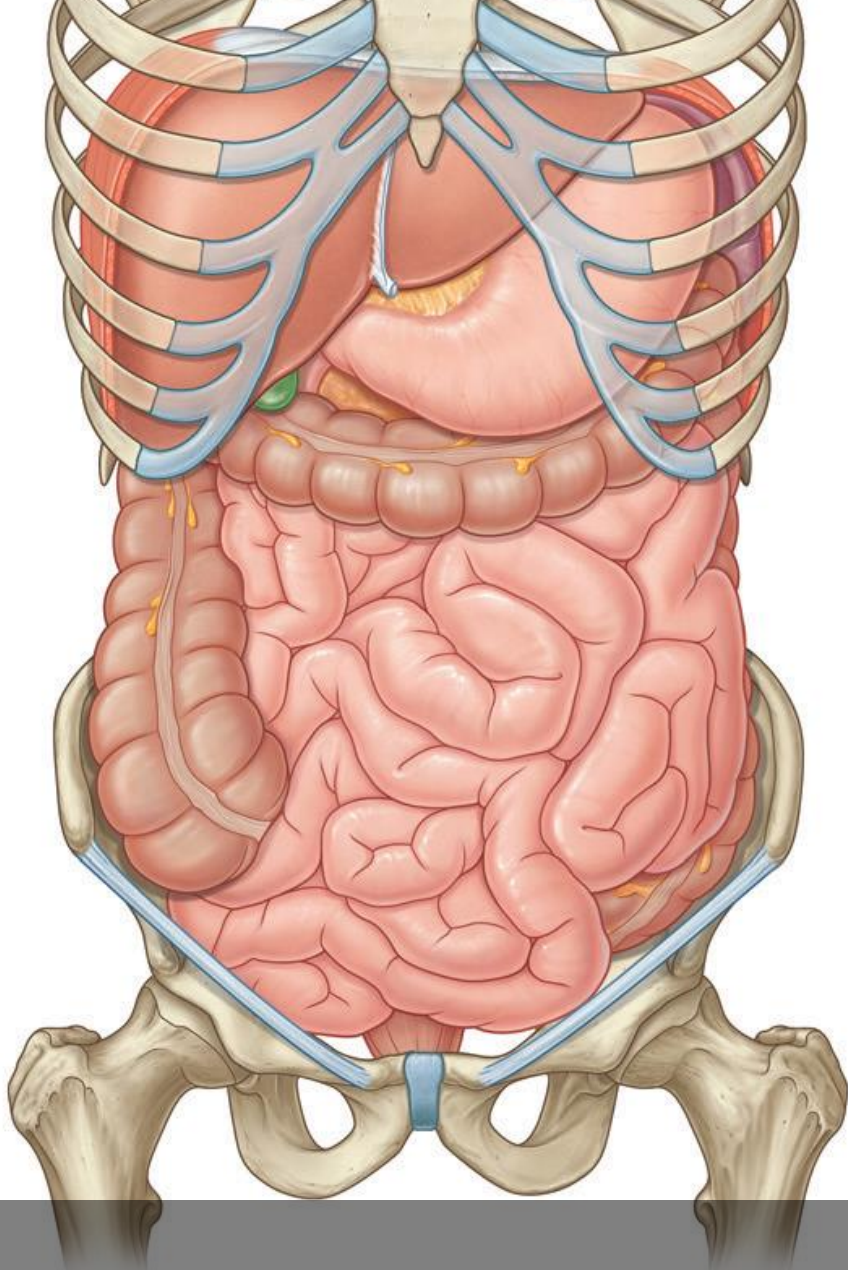


ABDOMEN - STOMACH, INTESTINE

Prof. MUDr. Jiří Ferda, Ph.D.



♦ **Oesophagus - pars abdominalis**

♦ **Ventriculus**

- ♦ Cardia
- ♦ Corpus
- ♦ Fundus
- ♦ Pylorus

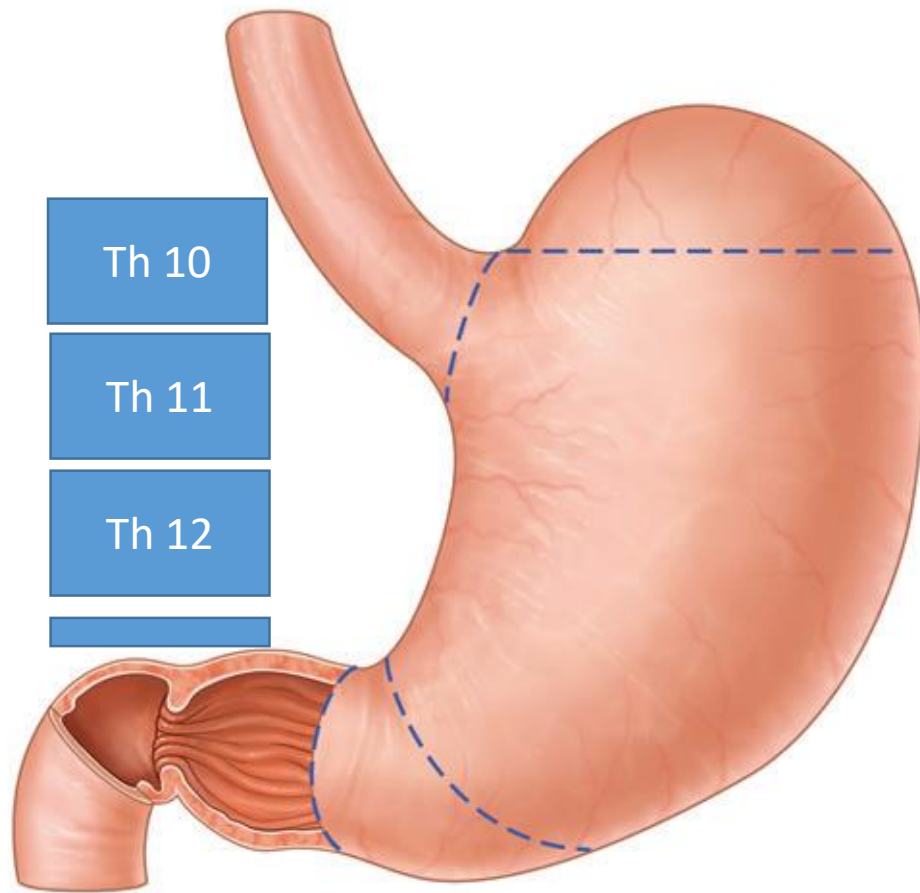
♦ **Intestinum tenue 3 - 5 m**

- ♦ Duodenum
- ♦ Jejunum
- ♦ Ileum

♦ **Intestinum crassum 1,5 m**

- ♦ Caecum, appendix vermicularis
- ♦ Colon ascendes
- ♦ Colon transversum
- ♦ Colon descendens
- ♦ Colon sigmoideum, rectum

VENTRICULUS, INTESTINUM



- Cardia
- Incissura cardialis
- Fundus
- Corpus
- Curvatura major
- Curvatura minor
- Angulus
- Antrum pylori
- Canalis pylori

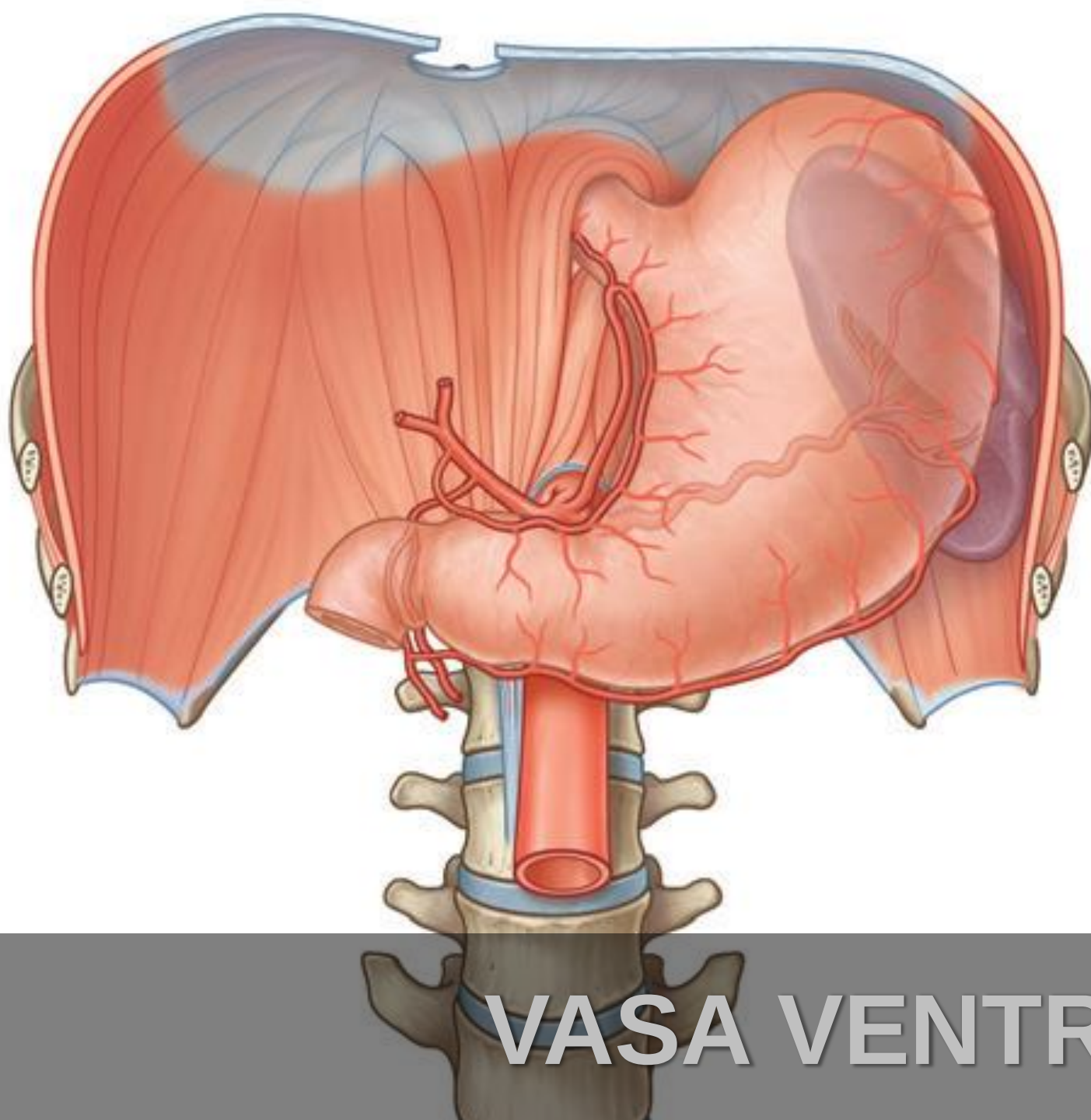
- **Pars digestoria**
 - Saccus cardiacus (fornix)
 - Tubus gastricus (corpus)
- **Pars egestoria**
 - Antrum pylori
 - Canalis pylori

VENTRICULUS



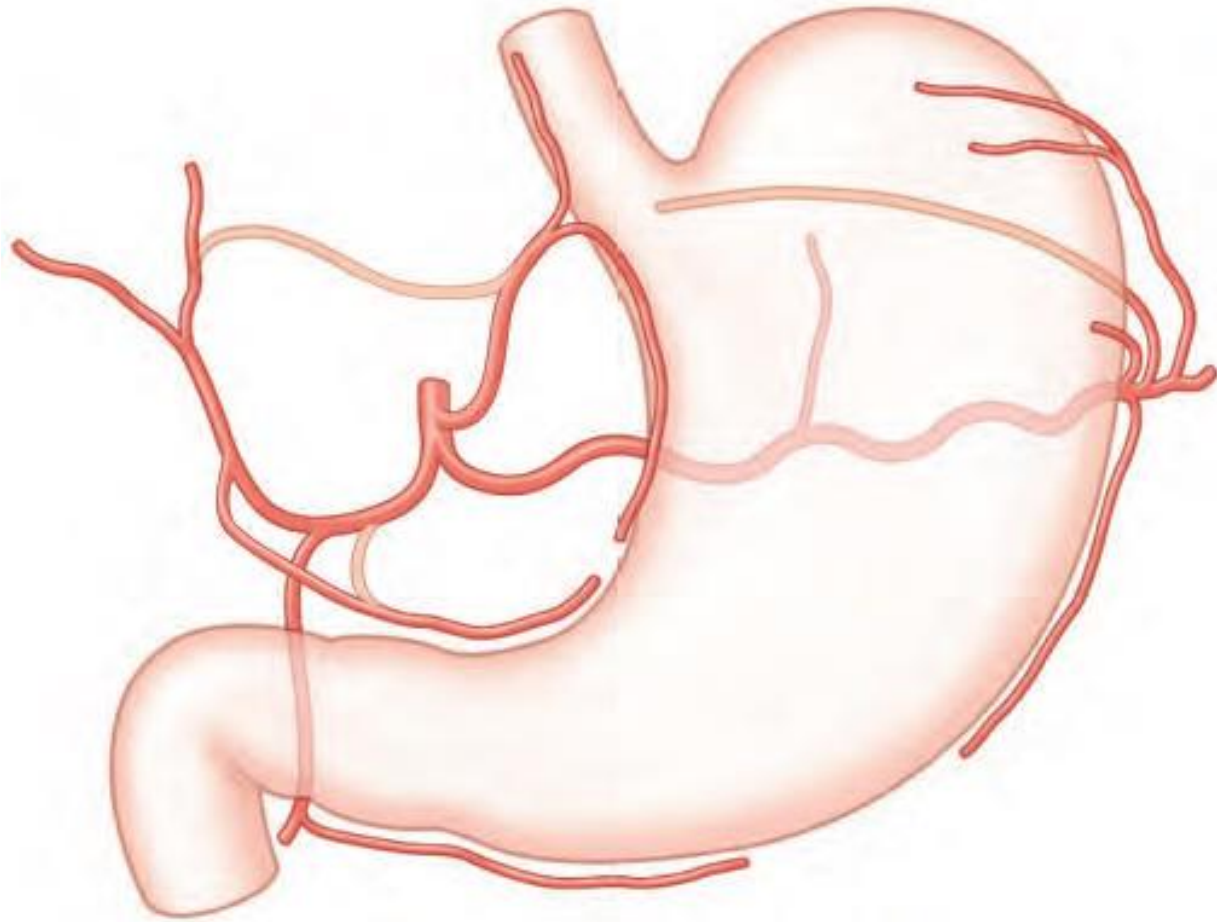
- ❖ Cardia
- ❖ Incissura cardialis
- ❖ Fundus
- ❖ Corpus
- ❖ Curvatura major
- ❖ Curvatura minor
- ❖ Angulus
- ❖ Antrum pylori
- ❖ Canalis pylori

VENTRICULUS



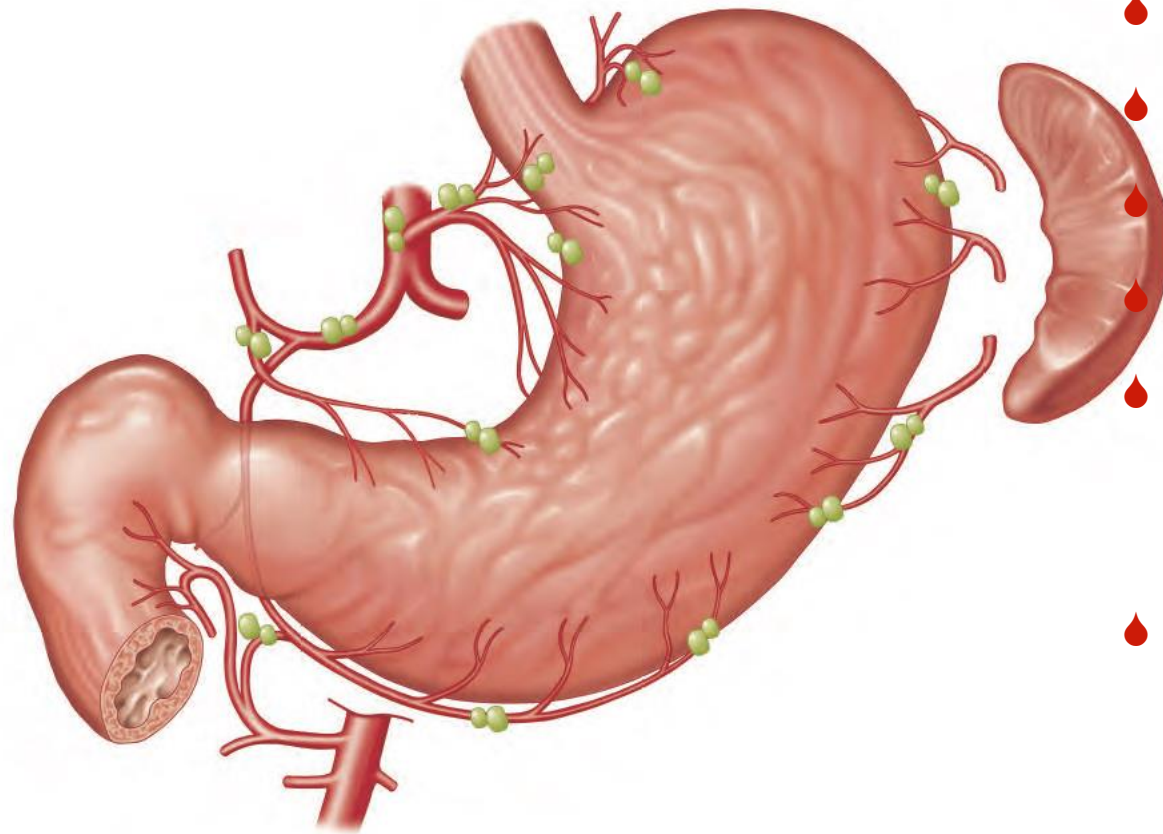
- ♦ **A. gastrica sinistra**
- ♦ **A. gastrica dextra**
- ♦ **A. gastromentalis dextra**
- ♦ **A. gastromentalis sinistra**
- ♦ **A. gastriace breves**
- ♦ **V. gastrica sinistra**
- ♦ **V. gastrica dextra**
- ♦ **V. gastromentalis dextra**
- ♦ **V. gastromentalis sinistra**
- ♦ **V. gastriace breves**

VASA VENTRICULI



- ♦ **A. gastrica sinistra**
- ♦ **A. gastrica dextra**
- ♦ **A. gastromentalis dextra**
- ♦ **A. gastromentalis sinistra**
- ♦ **A. gastriace breves**
- ♦ **V. gastrica sinistra**
- ♦ **V. gastrica dextra**
- ♦ **V. gastromentalis dextra**
- ♦ **V. gastromentalis sinistra**
- ♦ **V. gastriace breves**

VASA VENTRICULI



- Nodi paracardiales dx., sin.
- Nodi curvaturae minoris
- Nodi suprapylorici
- Nodi hepatici communes
- Nodi coeliaci
- Nodi gastromentales
 - gastroepiploici
 - Sin., dx.
- Nodi infrapylorici



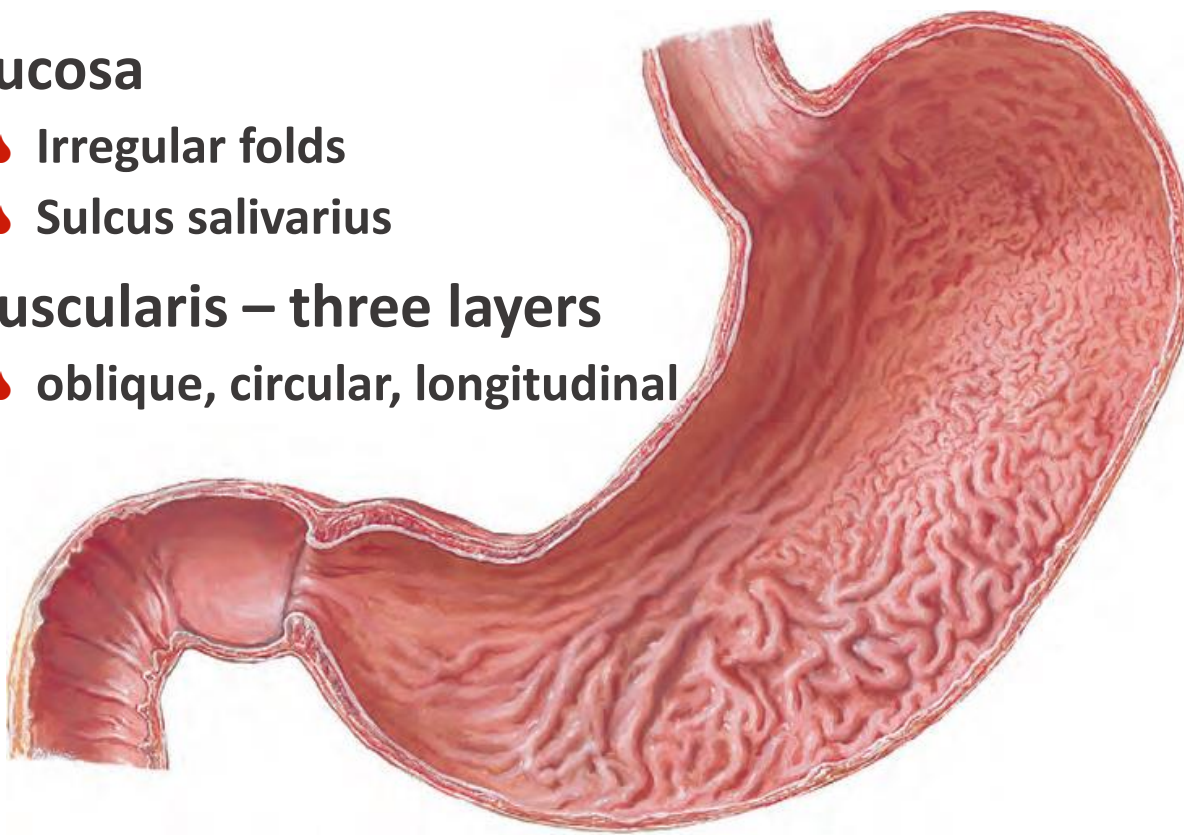
NODI LYMPHATICI VENTRICULI

- ♦ **mucosa**

- ♦ Irregular folds
- ♦ Sulcus salivarius

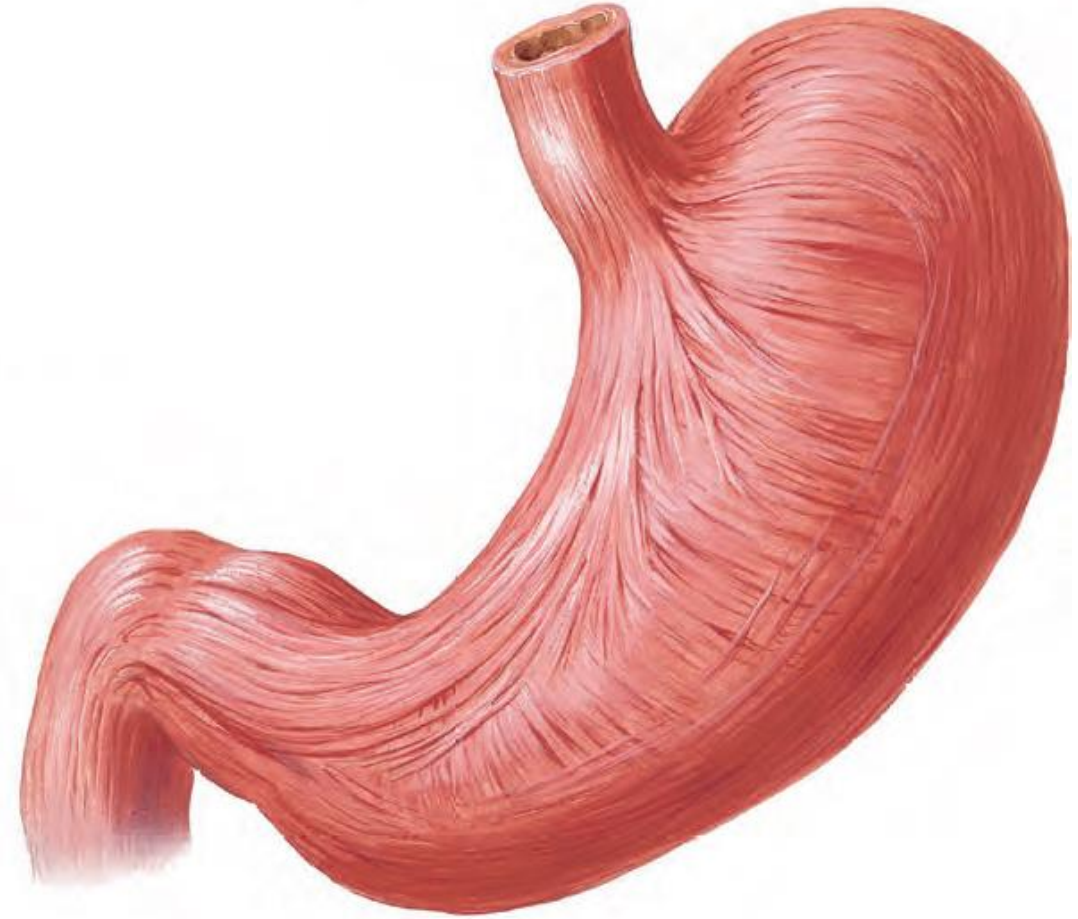
- ♦ **Muscularis – three layers**

- ♦ oblique, circular, longitudinal



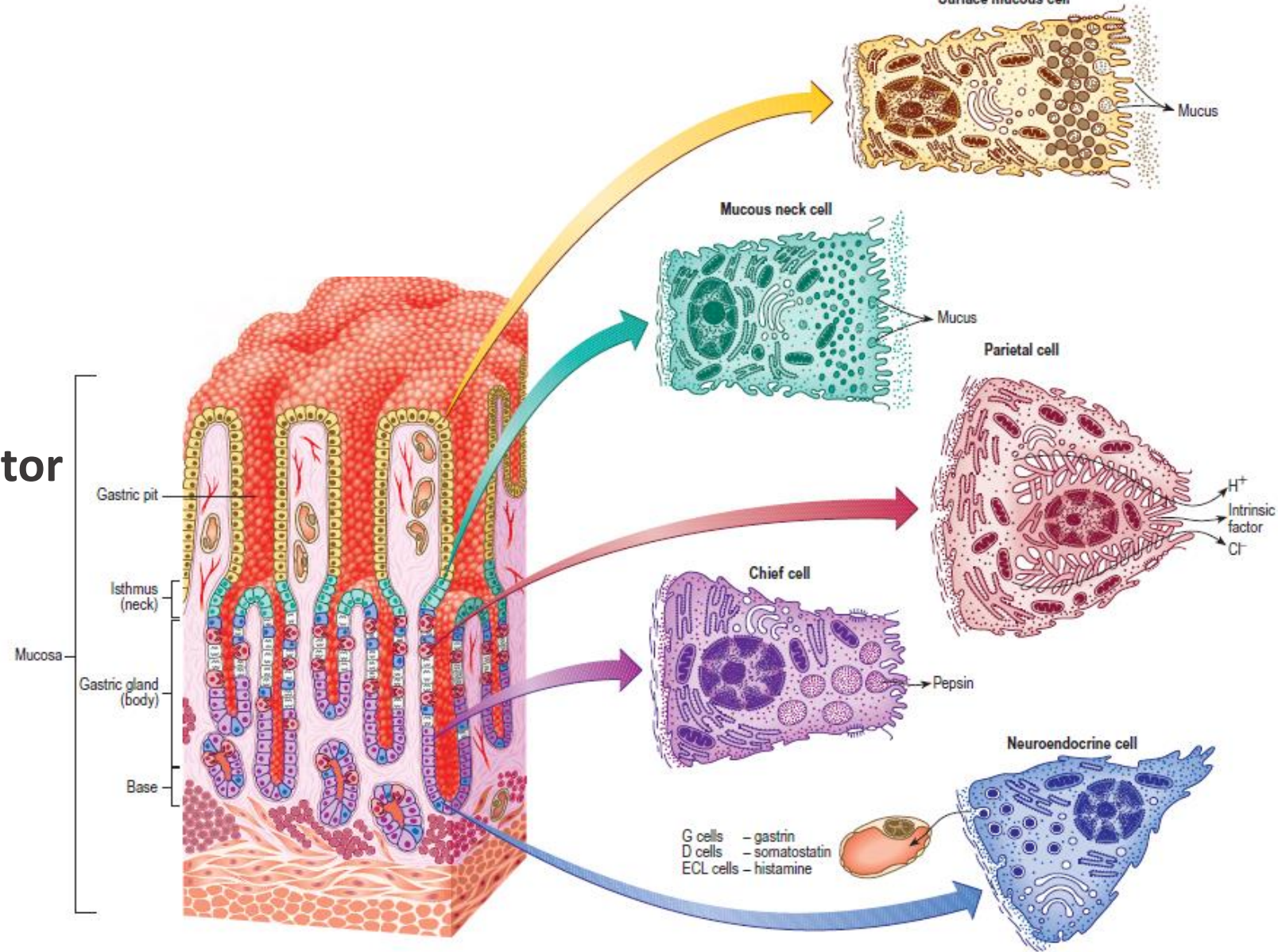
- ♦ **serose**

- ♦ Peritoneum viscerale
- ♦ Anterior and dorsal peritoneal sheath of mesenterium

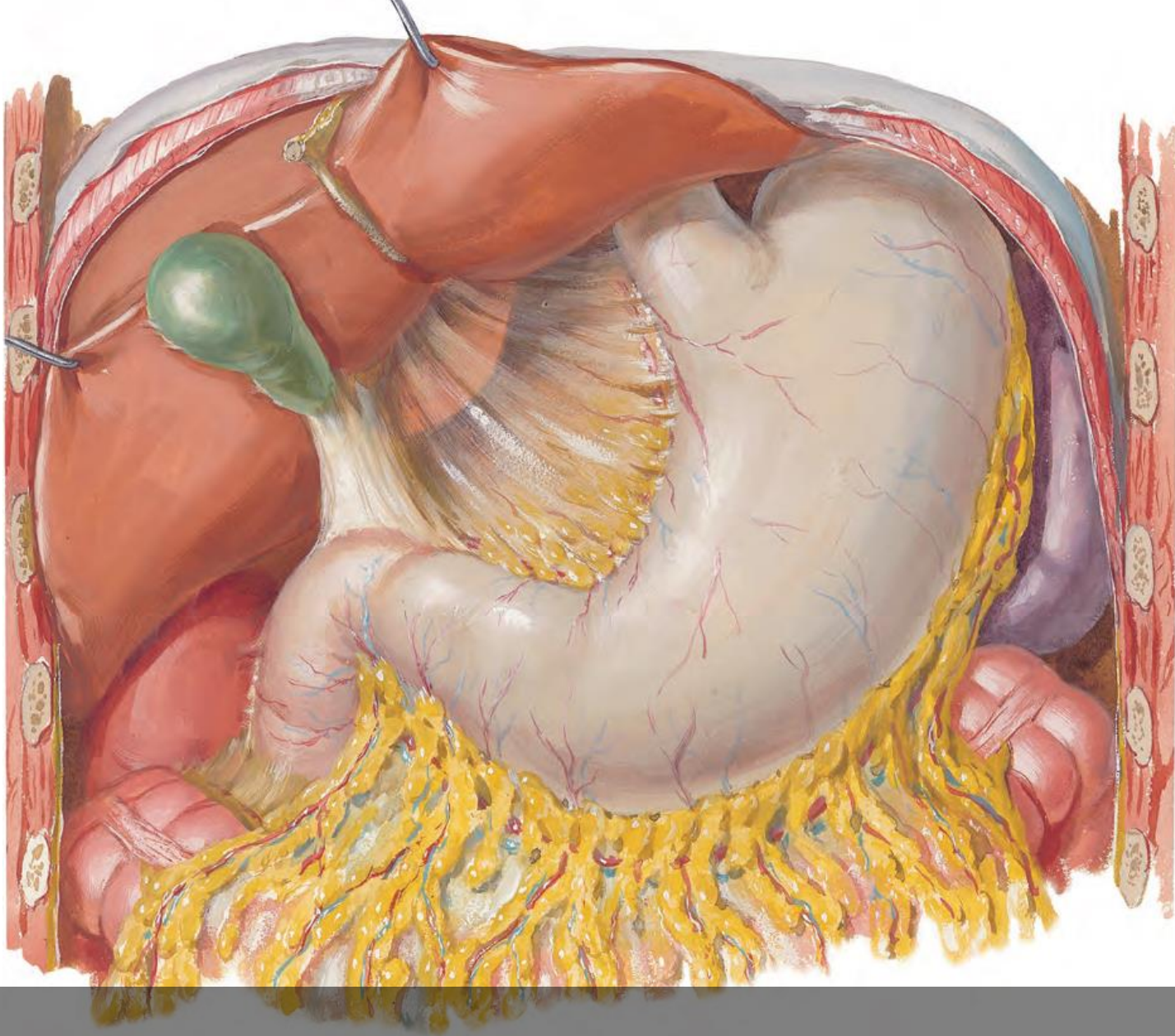


WALL OF STOMACH

- Cylindric epithelium
- Foveola
- Mucinous cells - mucin
 - superficial
 - neck
- Chief cells - pepsinogen
- Parietal cells HCl + intrinsic factor
- Neuroendocrine
 - D - somatostatin
 - G - gastrin
 - ECL - histamin



FOVEOLA GASTRICA



♦ **Pars hepatooesophagica**

♦ **Pars hepatogastrica**

♦ *lig. hepatogastricum*

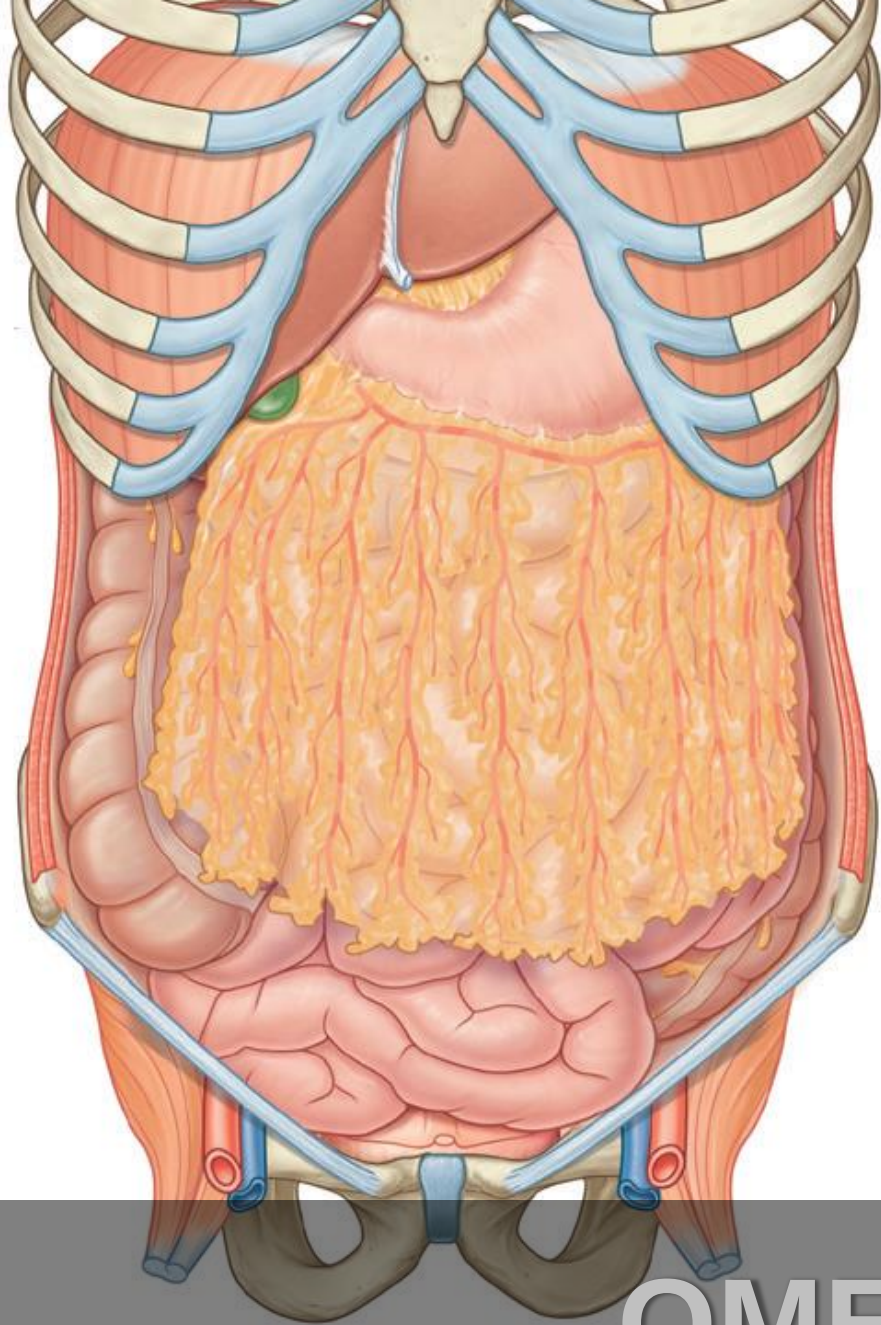
♦ *a. gastrica dx. et sinistra, v. gastrica dx. et sinistra*

♦ **Pars hepatoduodenalis**

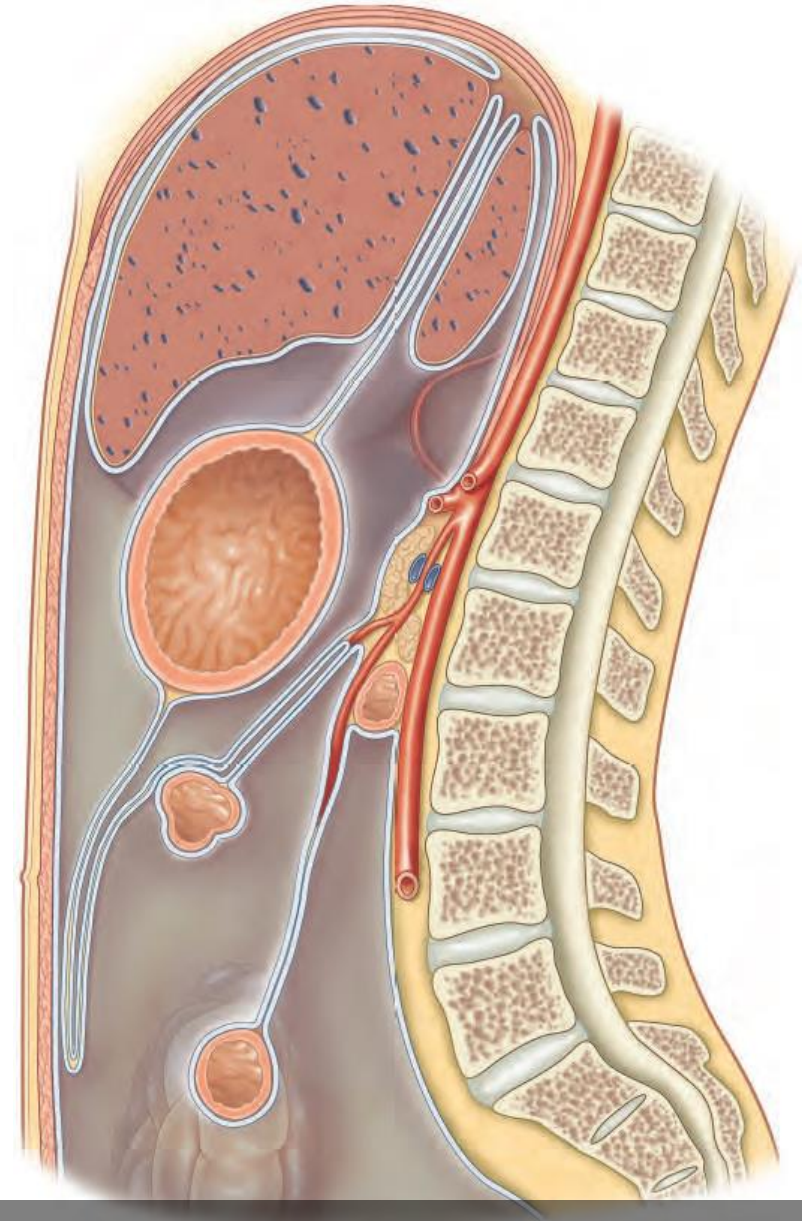
♦ *lig. Hepatoduodenale*

♦ *a. hepatica propria, dc. choledochus, v. portae*

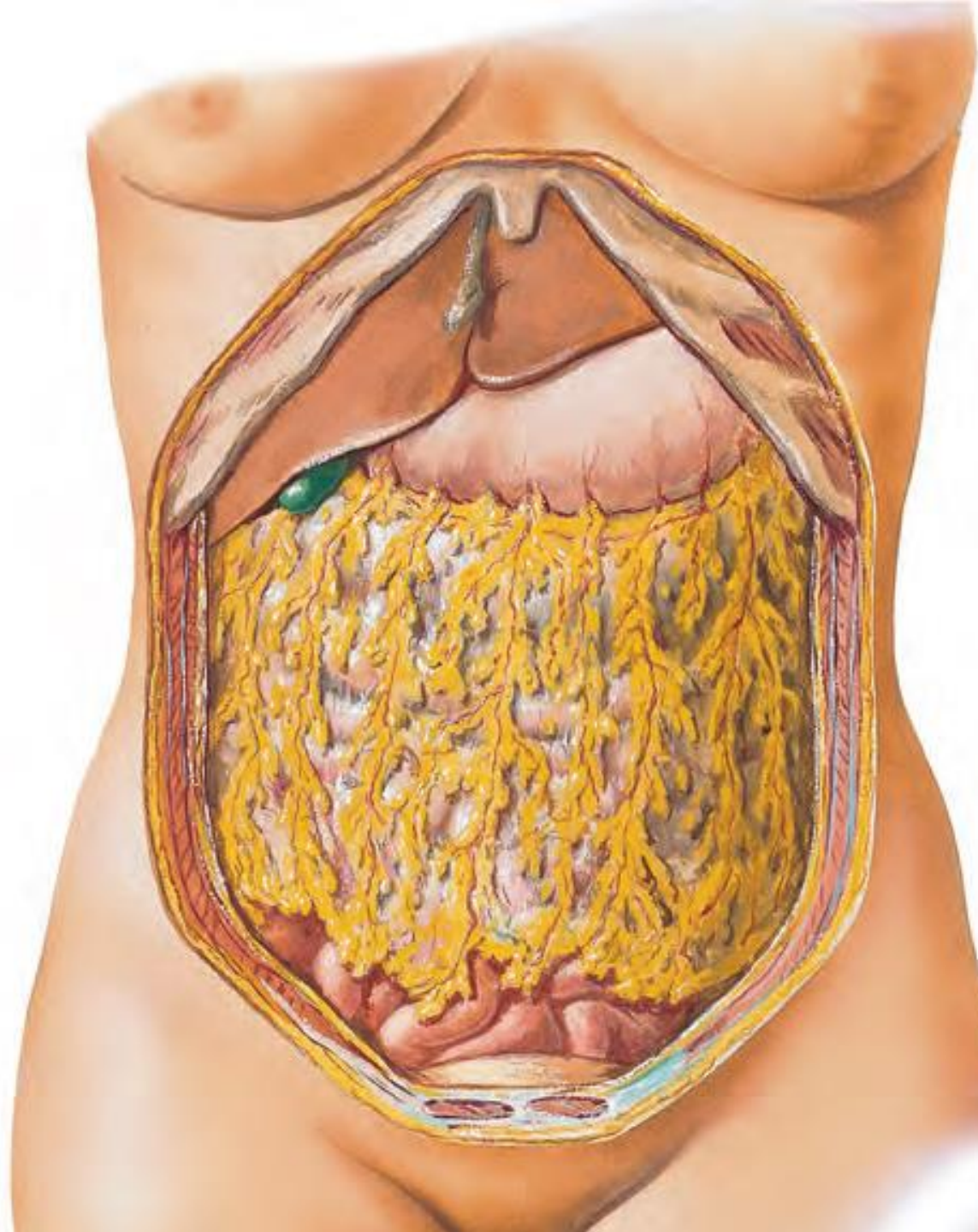
OMENTUM MINUS

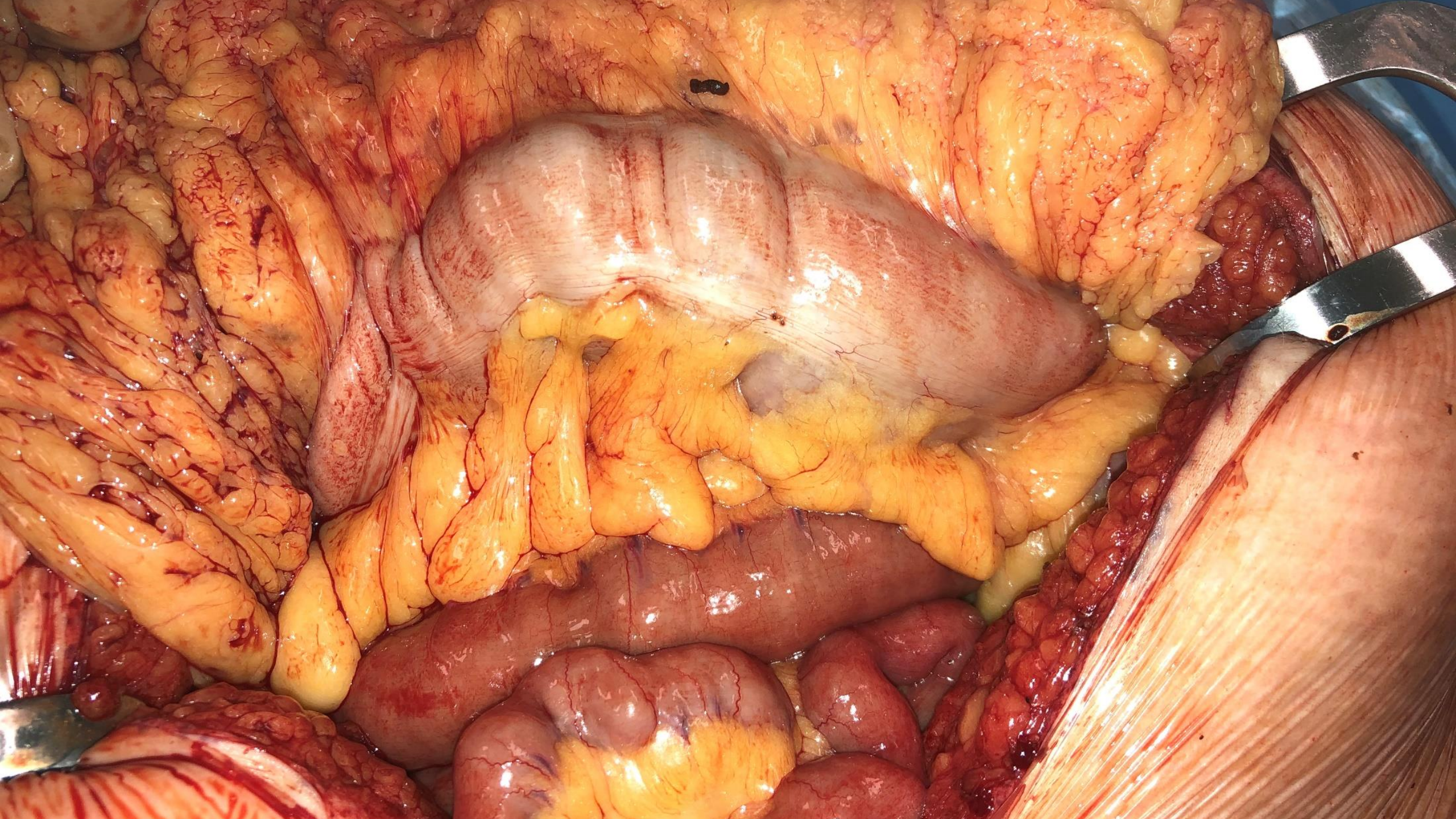


- ♦ Duplicature of peritoneum
- ♦ **Dorsal mesenterium**
- ♦ Anterior sheath
- ♦ Posterior sheath
- ♦ Omental vessels
- ♦ Fatty tissue
- ♦ **Curvatura major**
- ♦ **Omentum majus**
- ♦ Colon transversum
- ♦ Mesocolon transversum
- ♦ Lig. gastrocolicum



OMENTUM MAJUS

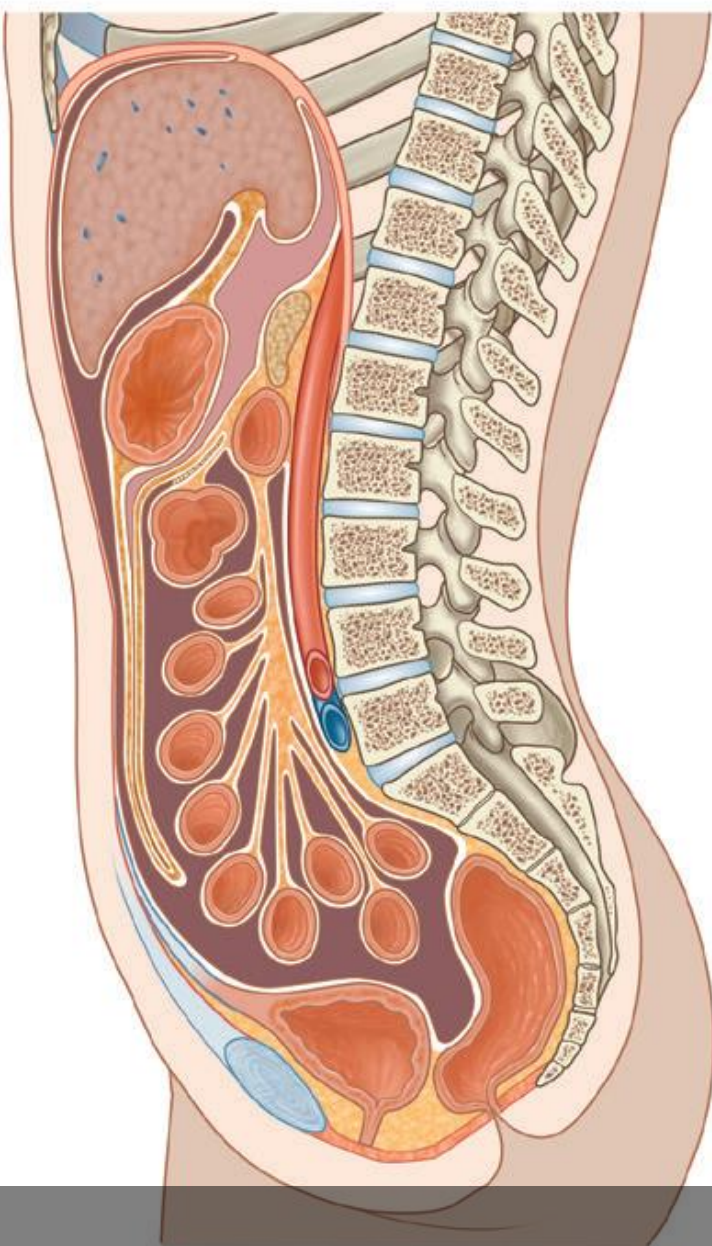








ILEUS

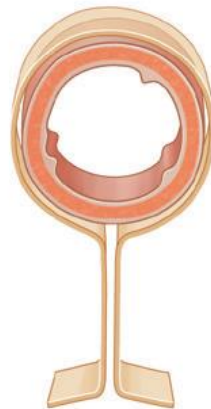


• Radix mesenterii

• L2

• L3

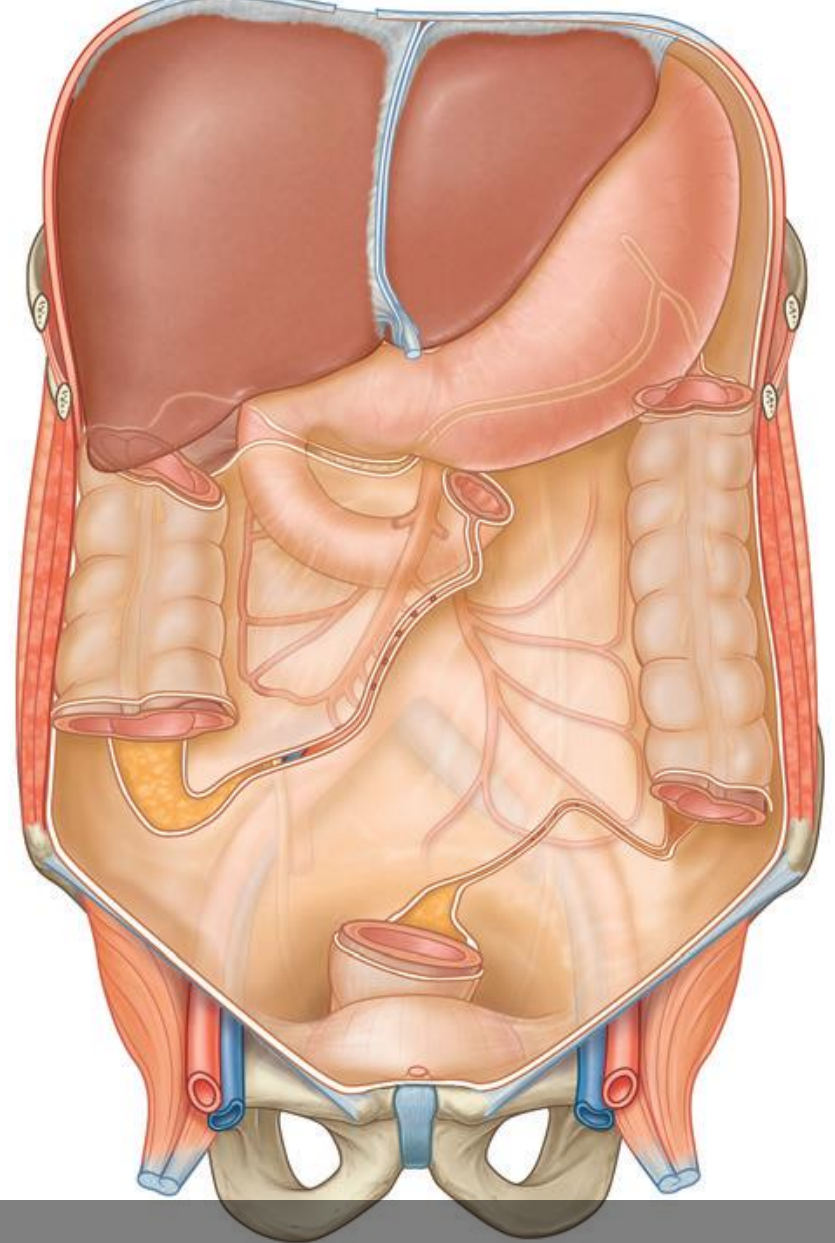
• L4



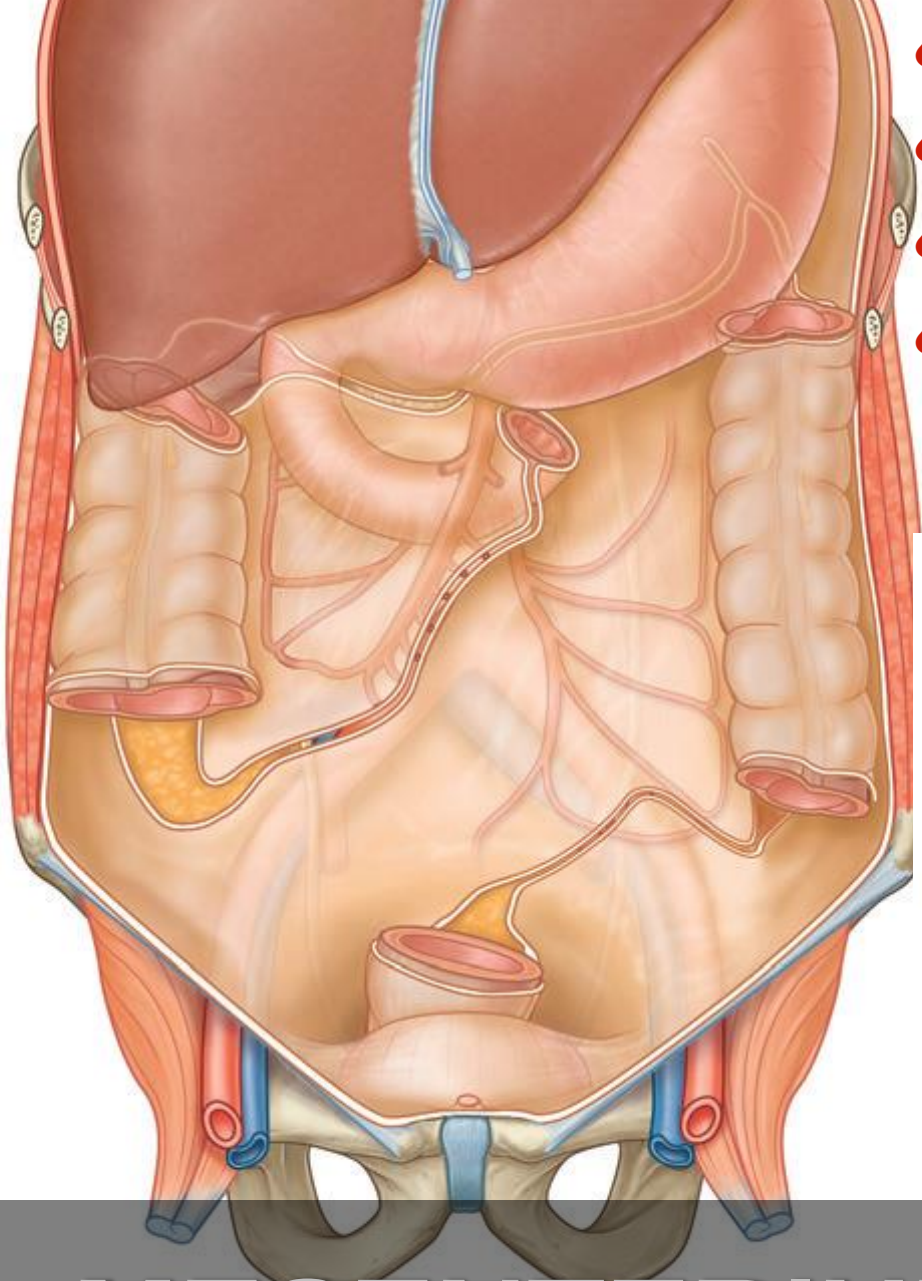
L2

L3

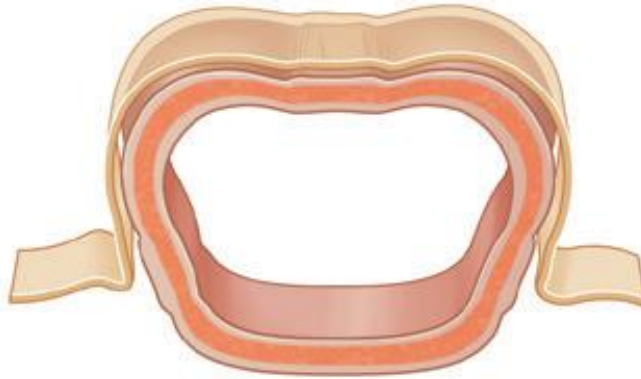
L4



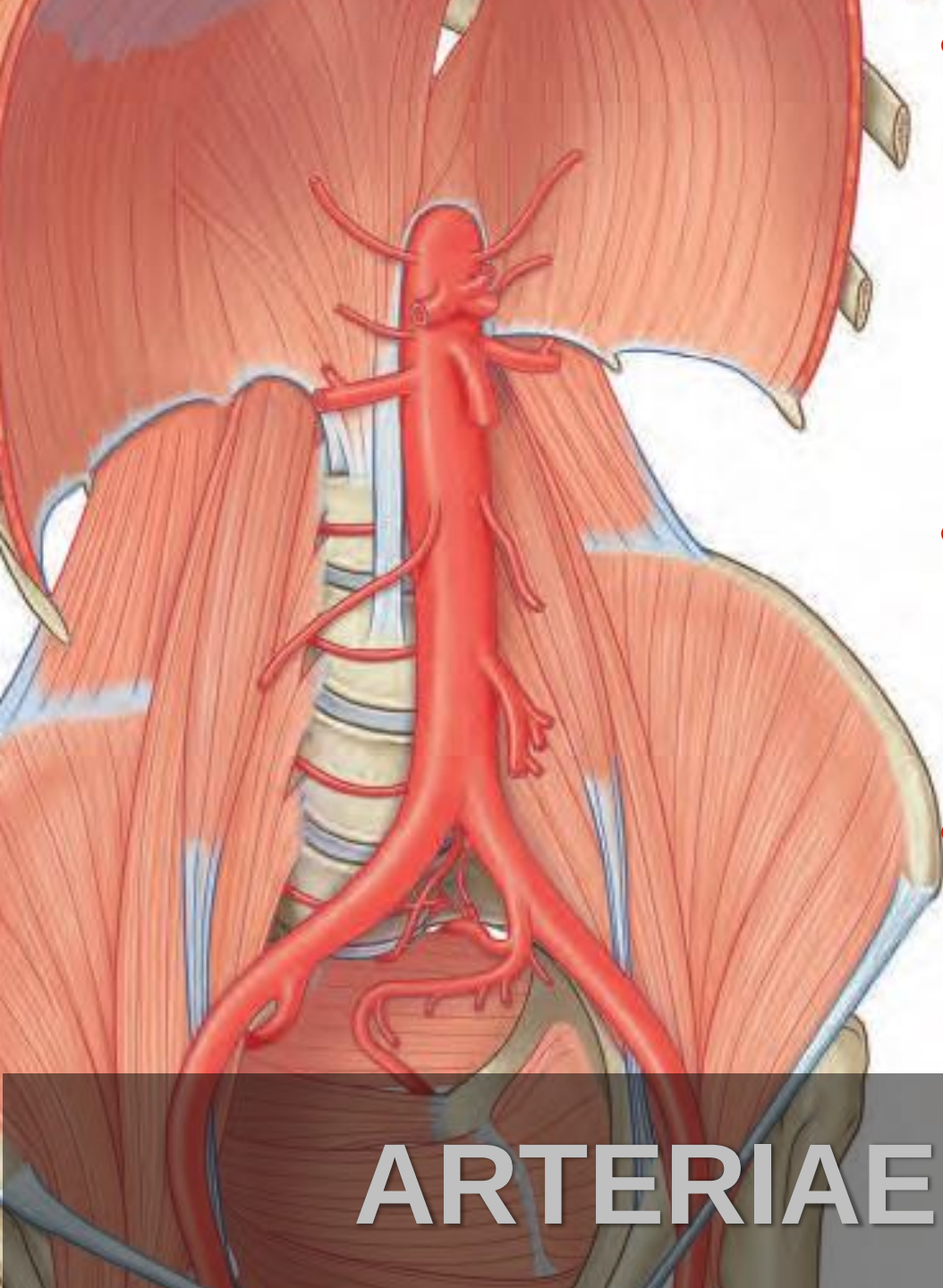
MESENTERIUM OF SMALL INTESTINE



- Mesenterium appedicis
- Mesocaecum
- Mesocolon transversum
- Mesosigmoideum



MESENTERIUM OF LARGE INTESTINE



♦ Truncus coeliacus

♦ A. gastrica sinistra

♦ A. hepatica communis

♦ A. gastrica dextra

♦ A. pancreatoduodenalis

♦ A. gastroomentalis dextra

♦ A. lienalis

♦ A. gastroomentalis sinistra

♦ A. mesenterica superior

♦ Rami jejunales et. ileales

♦ A. ileocolica

♦ A. colica dextra

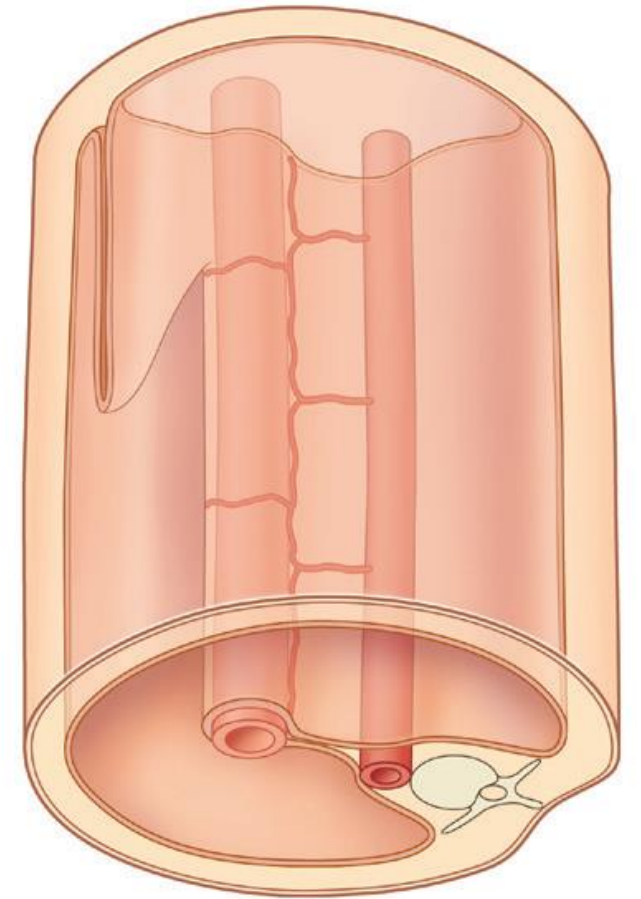
♦ A. colica media

♦ A. mesenterica inferior

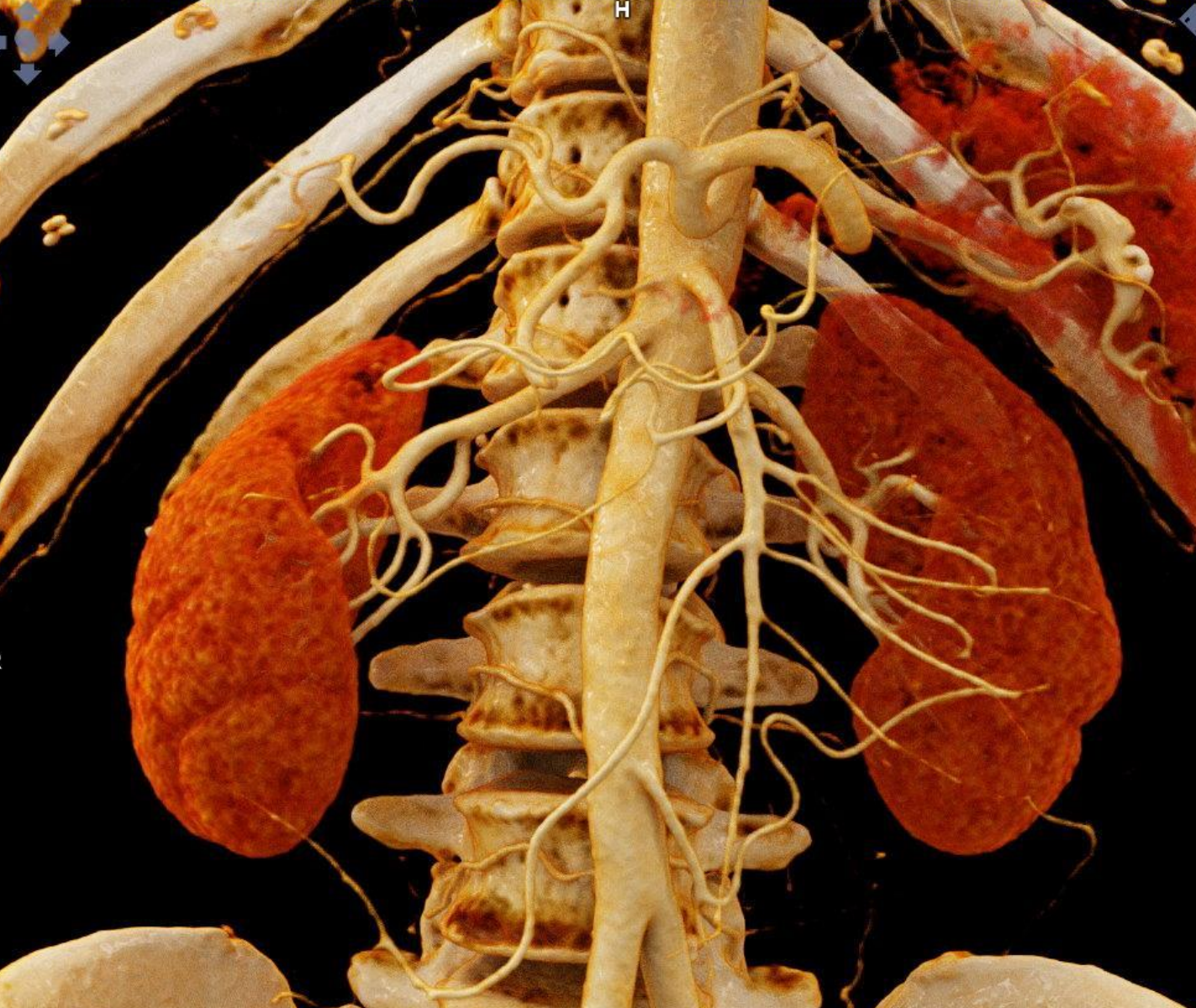
♦ A. colica sinistra

♦ A. sigmoidea

♦ A. rectalis superior



ARTERIAE MESENTERIALES



ARTERIAE MESENTERIALES

♦ Truncus coeliacus

- ♦ A. gastrica sinistra

- ♦ A. hepatica communis

 - ♦ A. gastrica dextra

 - ♦ A. pancreatoduodenalis

 - ♦ A. gastromentalis dextra

- ♦ A. lienalis

 - ♦ A. gastromentalis sinistra

♦ A. mesenterica superior

- ♦ Rami jejunaes et. ileales

- ♦ A. ileocolica

- ♦ A. colica dextra

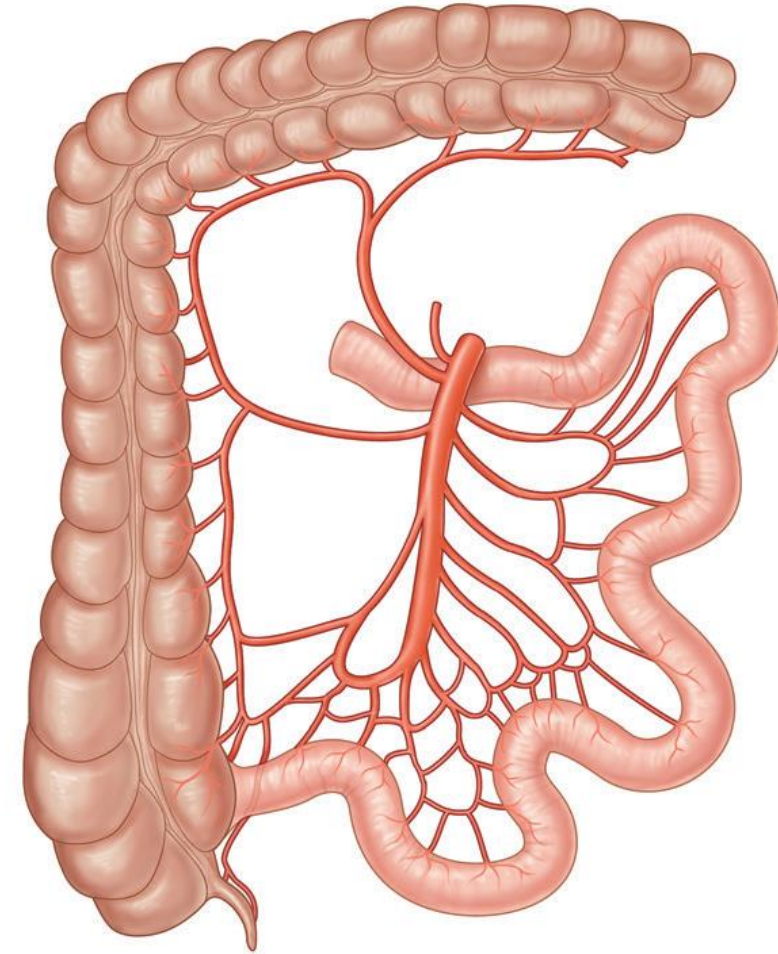
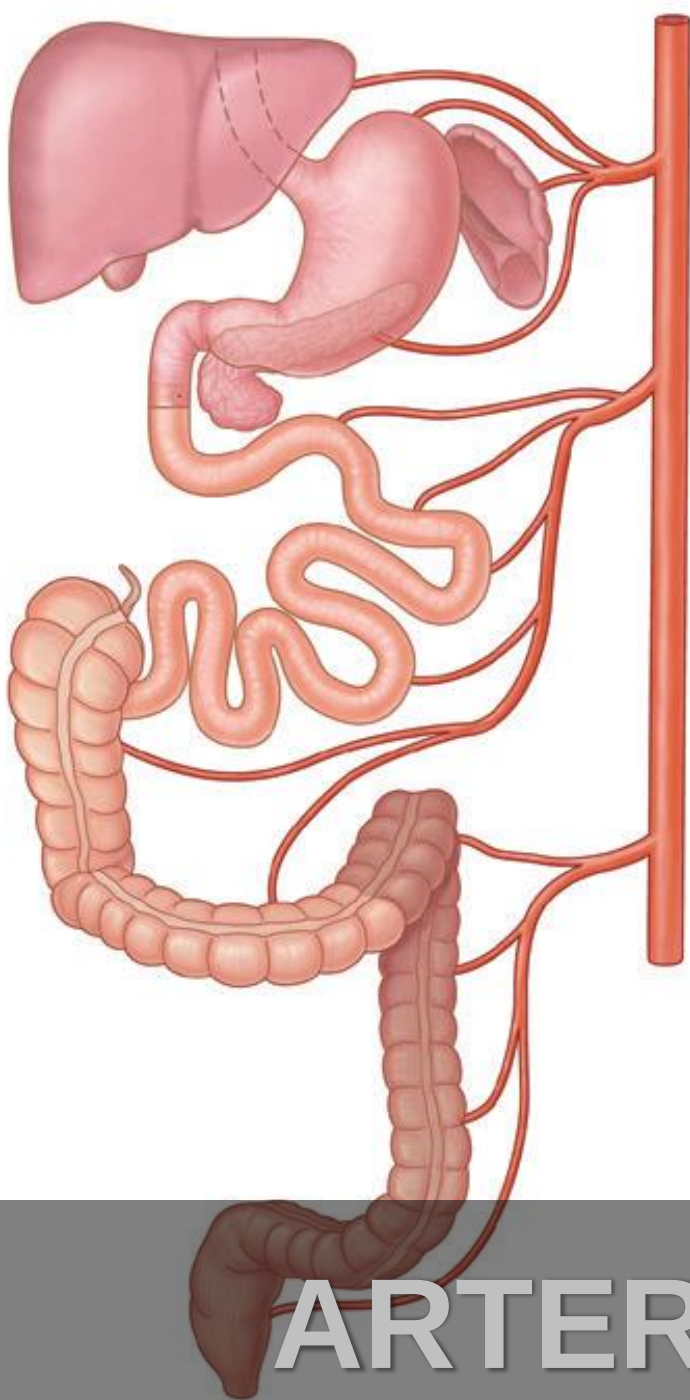
- ♦ A. colica media

♦ A. mesenterica inferior

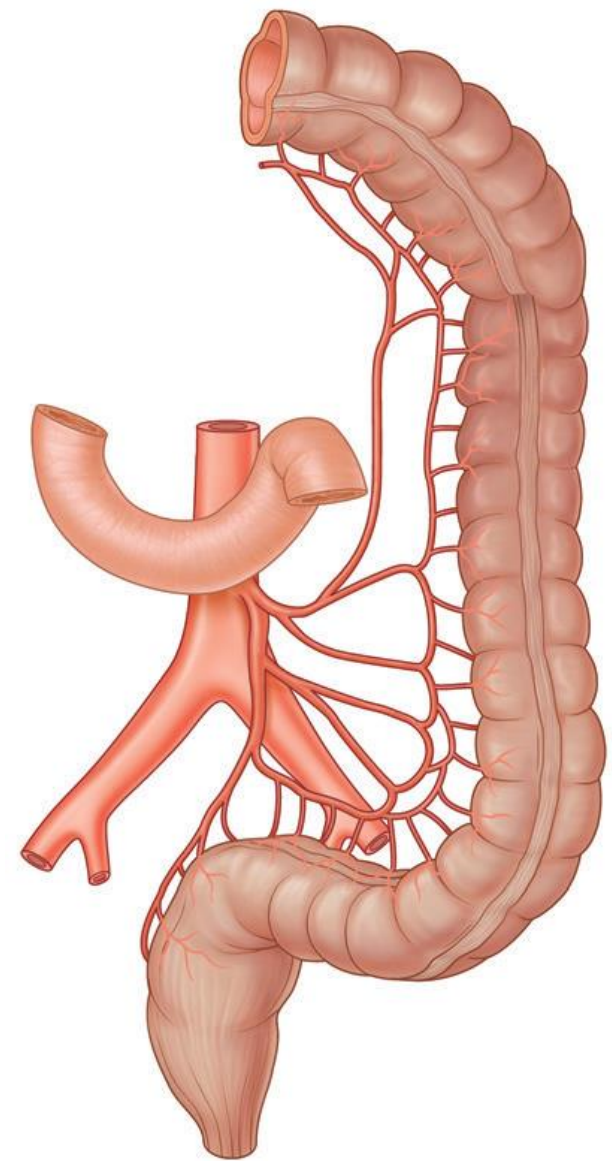
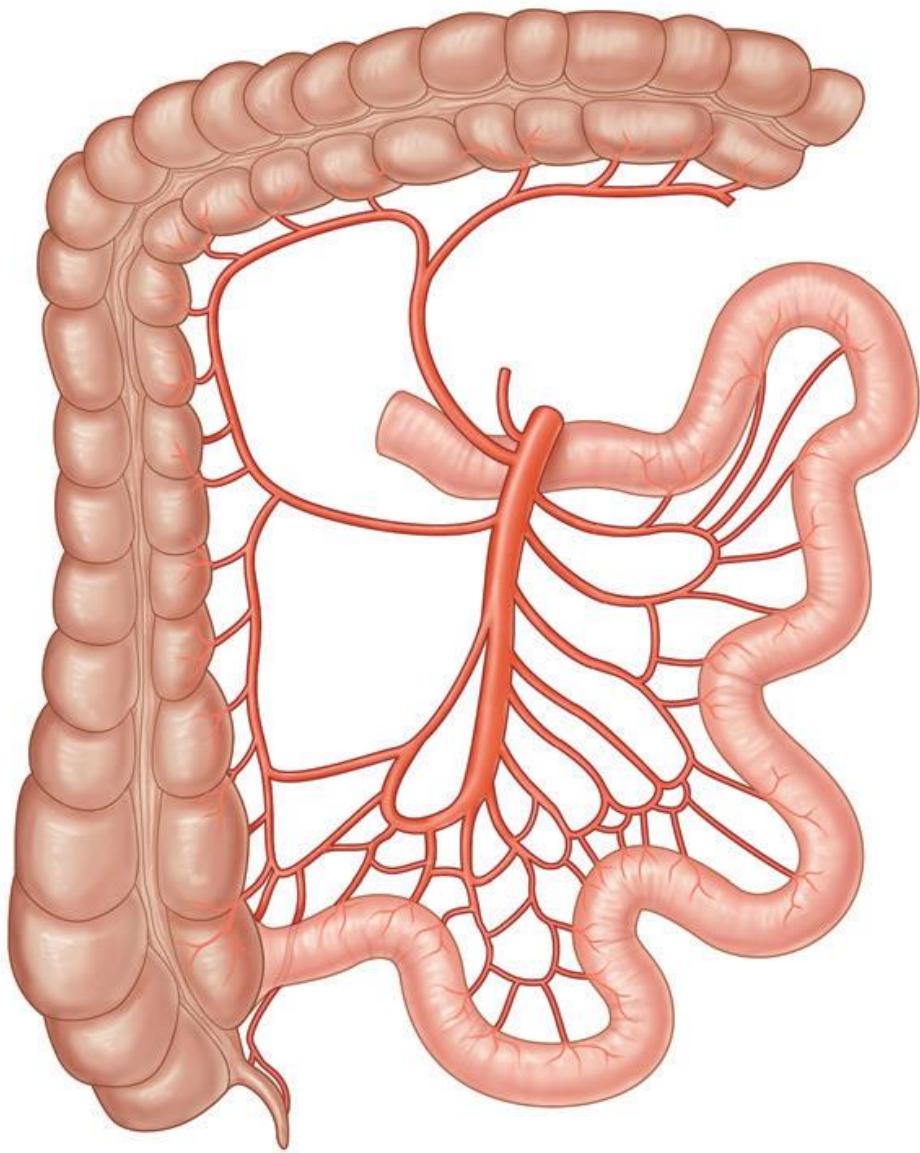
- ♦ A. colica sinistra

- ♦ A. sigmoidea

- ♦ A. rectalis supúerior



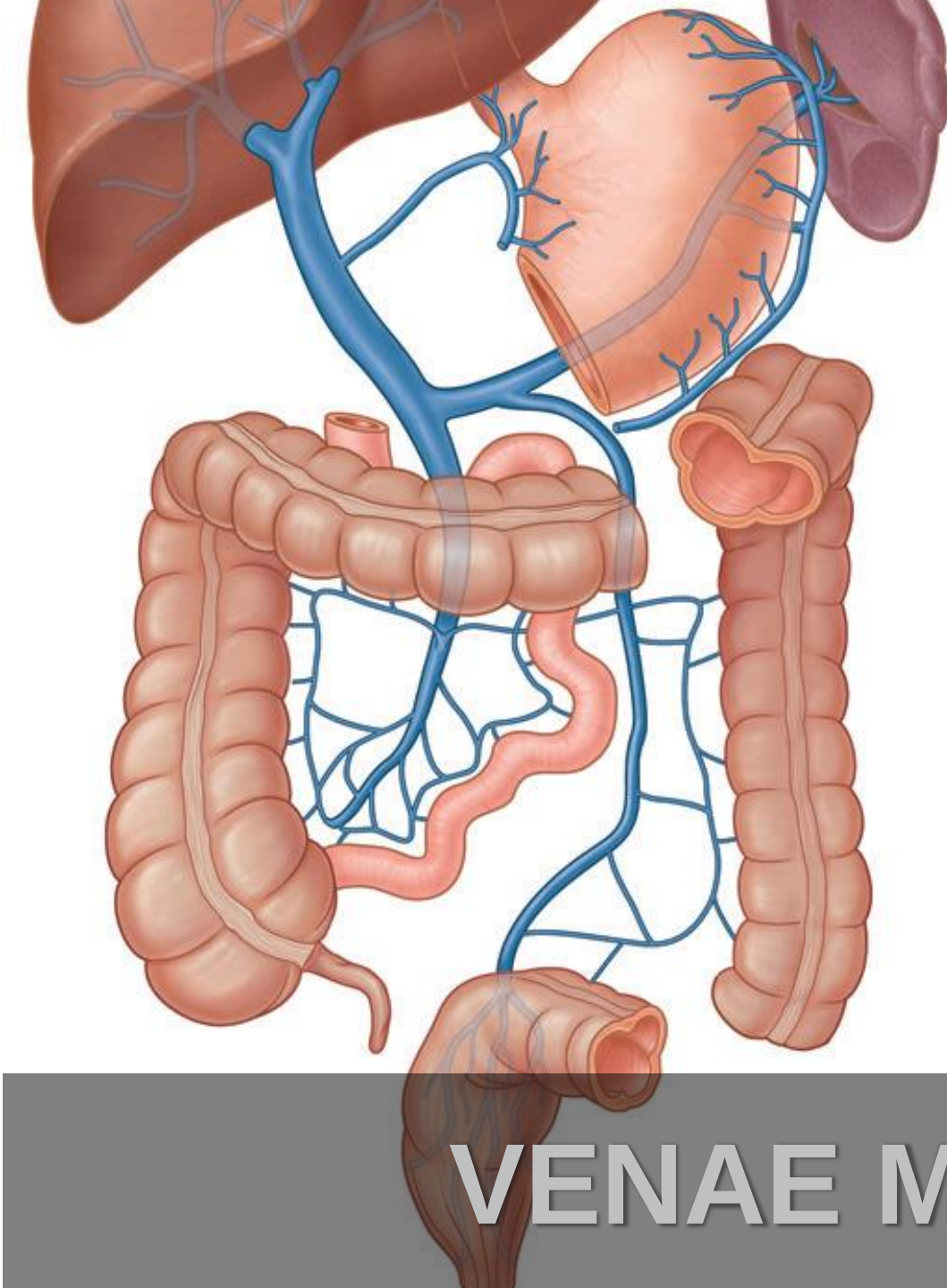
ARTERIAE MESENTERIALES



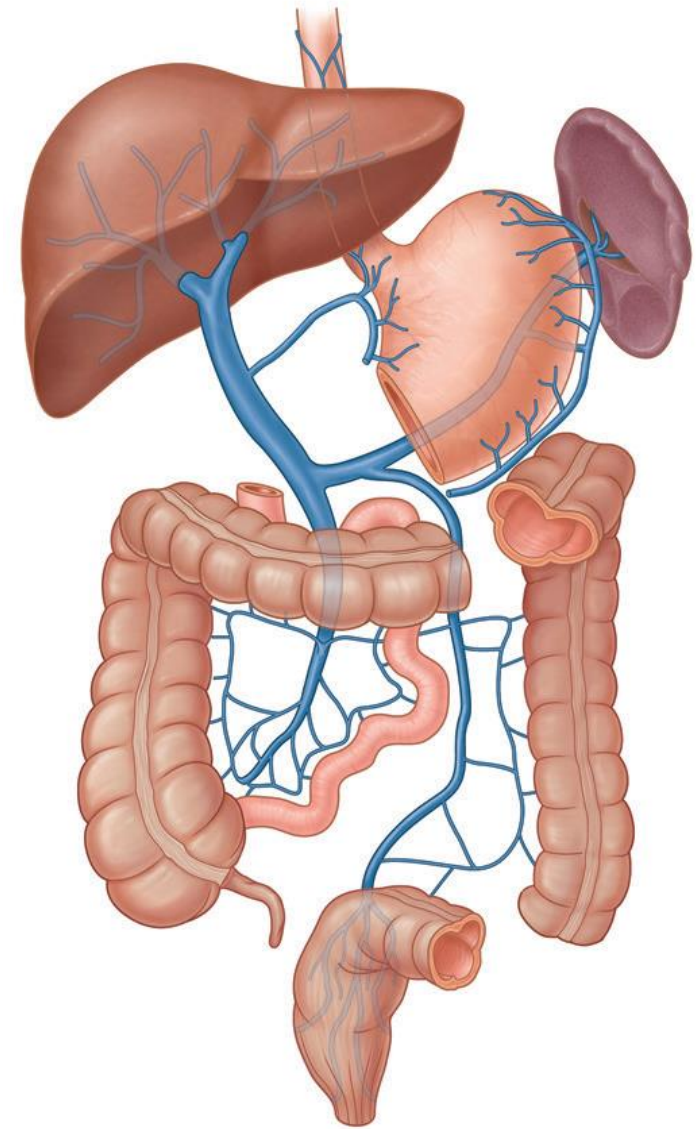
A. MESENTERICA SUP. ET INF.



ISCHAEMIA MESENTERIALIS

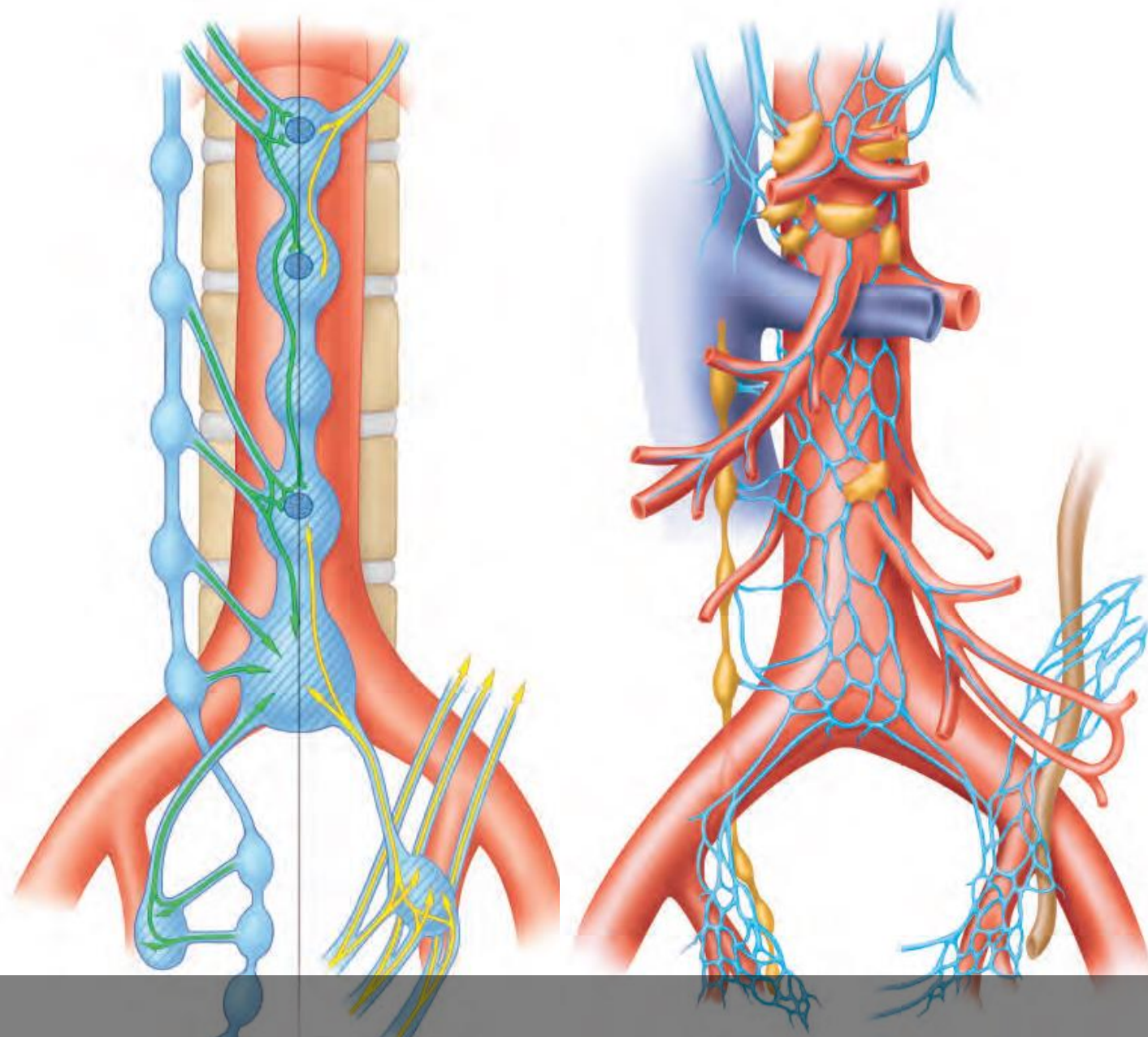


- V. portae hepatis
- V. gastrica dextra
- V. gastrica sinistra
- V. mesenterica superior
- V. mesenterica inferior
- V. lienalis



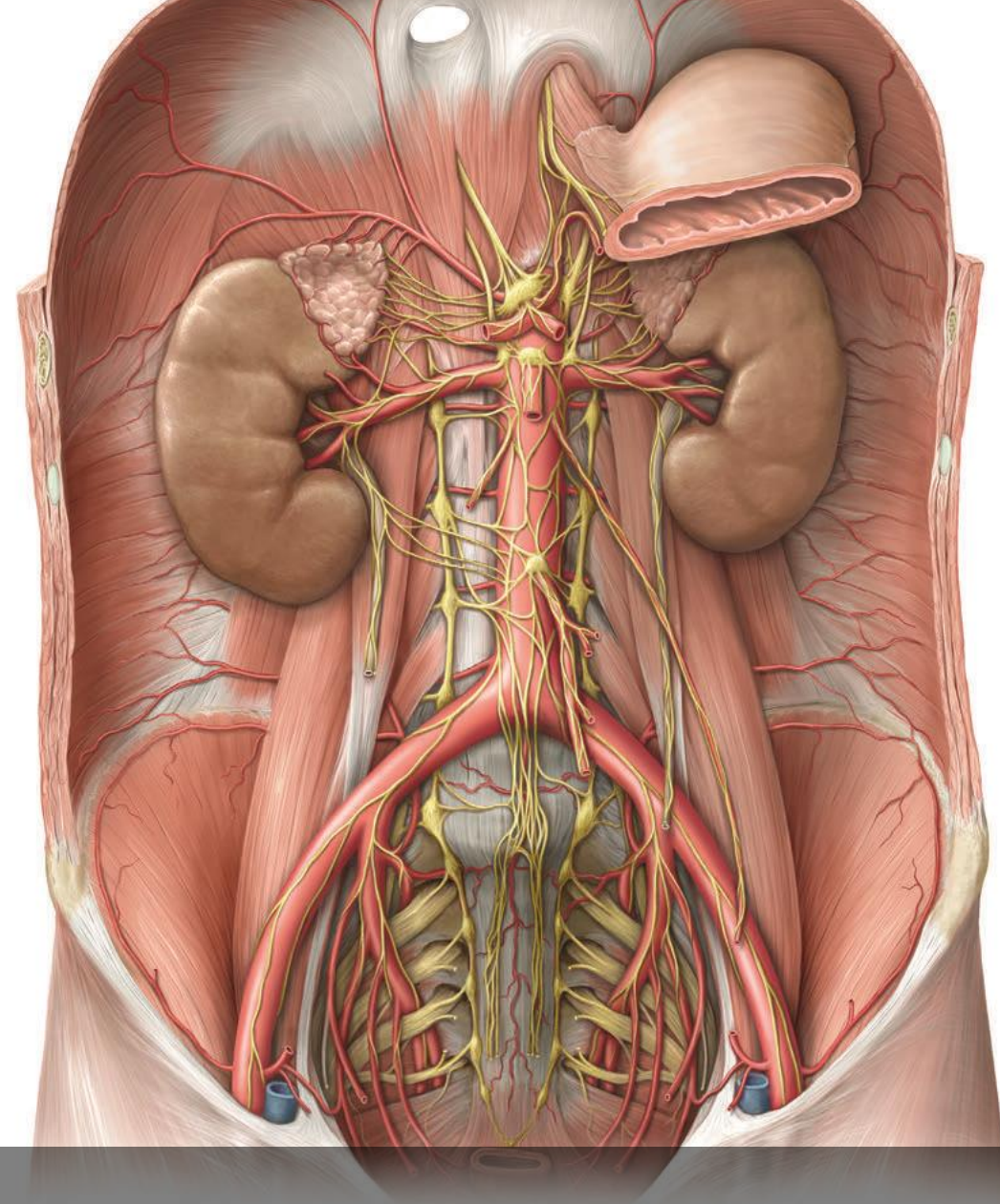
VENAE MESENTERIALES

- ♦ **N. vagus (N. X)**
- ♦ **Ganglion pelvinum (S2-4)**
 - ♦ *Difusní ggl., postgangliová vlákna podél cév*
- ♦ **N. splanchnicus major (ggl. Th 6 - 9)**
- ♦ **N. splanchnicus minor (ggl. Th 10, 11)**
- ♦ *N. splanchnicus minimus (Th 12)*
- ♦ **Nn. splanchnici lumbales (L1, 2, 3, 4)**
- ♦ **Nn. splanchnici sacrales (S1,2)**
- ♦ **Ggl. coeliaca dx/sin, plexus solaris (Th12/L1)**
- ♦ **Ggl. mesentericum superius + plexus (L1/2)**
- ♦ **Plexus aorticus (L2)**
- ♦ **Ganglion mesentericum inferius + plexus (L3)**
- ♦ **Plexus hypogastricus superior (L5)**
- ♦ **Plexus hypogastricus inferior (S)**

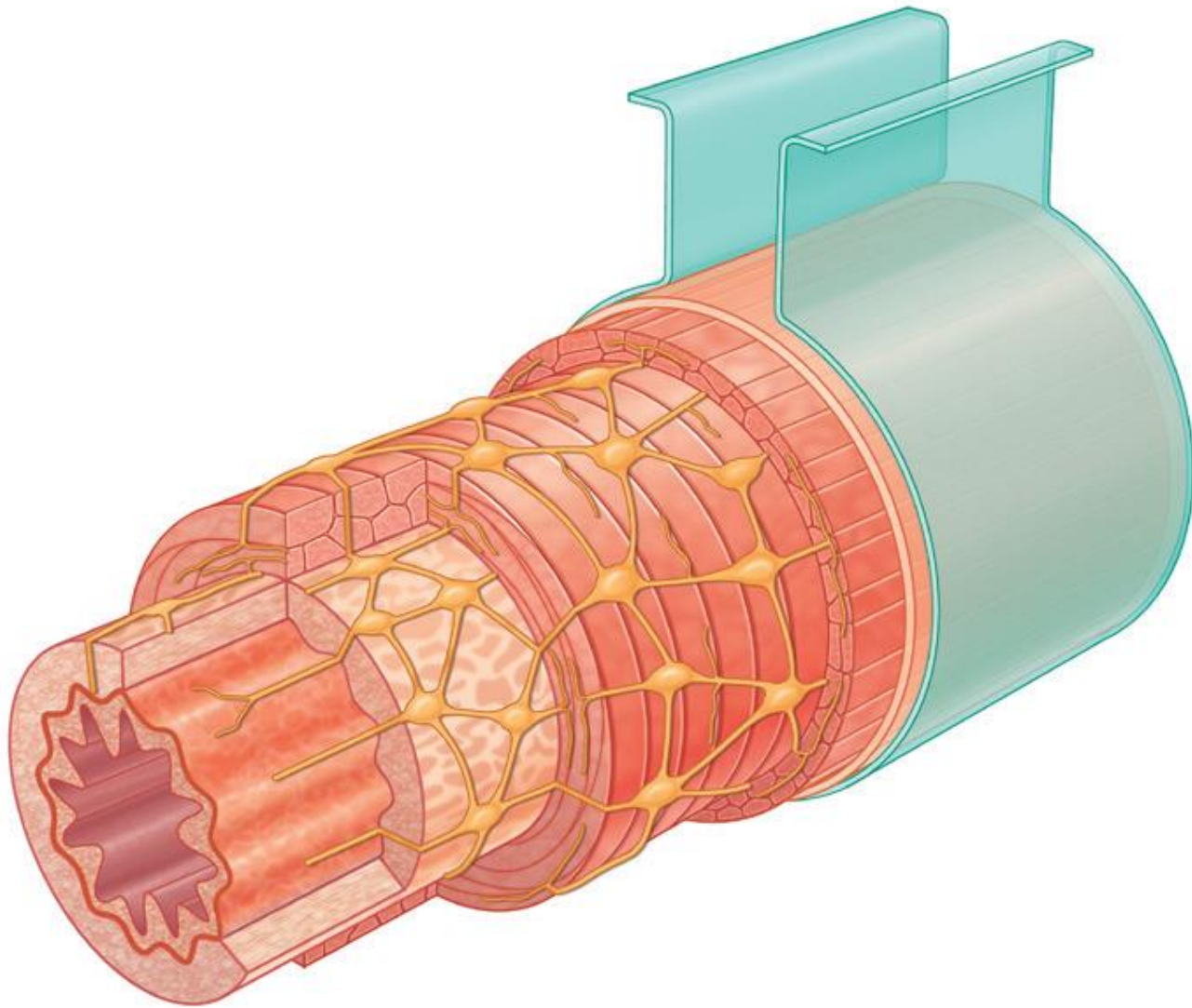


NERVI INTESTINI

- ♦ **N. vagus (N. X)**
- ♦ **Ganglion pelvinum (S2-4)**
 - ♦ *Difusní ggl., postgangliová vlákna podél cév*
- ♦ **N. splanchnicus major (ggl. Th 6 - 9)**
- ♦ **N. splanchnicus minor (ggl. Th 10, 11)**
- ♦ *N. splanchnicus minimus (Th 12)*
- ♦ **Nn. splanchnici lumbales (L1, 2, 3, 4)**
- ♦ **Nn. splanchnici sacrales (S1,2)**
- ♦ **Ggl. coeliaca dx/sin, plexus solaris (Th12/L1)**
- ♦ **Ggl. mesentericum superius + plexus (L1/2)**
- ♦ **Plexus aorticus (L2)**
- ♦ **Ganglion mesentericum inferius + plexus (L3)**
- ♦ **Plexus hypogastricus superior (L5)**
- ♦ **Plexus hypogastricus inferior (S)**



NERVI INTESTINI

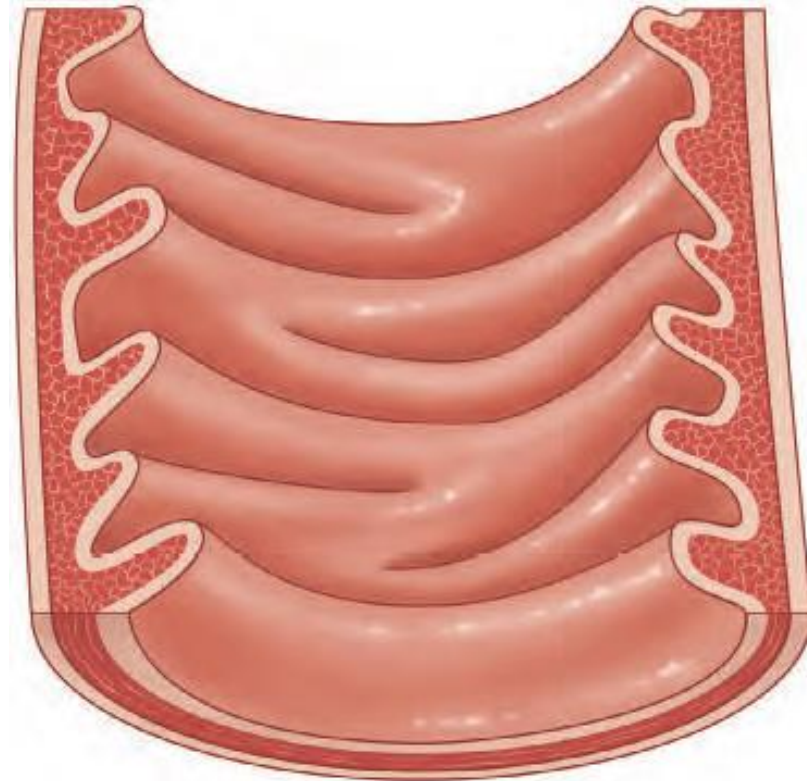


- ♦ Lamina propria
 - ♦ Plexus periglandularis
- ♦ Muscularis mucosae
- ♦ Tela submucosa
 - ♦ Plexus submucosus Meisneri
- ♦ Stratum circulare
 - ♦ Plexus intramuscularis circularis
- ♦ Thin layer of connective tissue
 - ♦ Plexus myentericus Auerbachi
- ♦ Stratum longitudinale
 - ♦ Plexus intramuscularis longitudinalis
 - ♦ Plexus subserosus
- ♦ Serosa

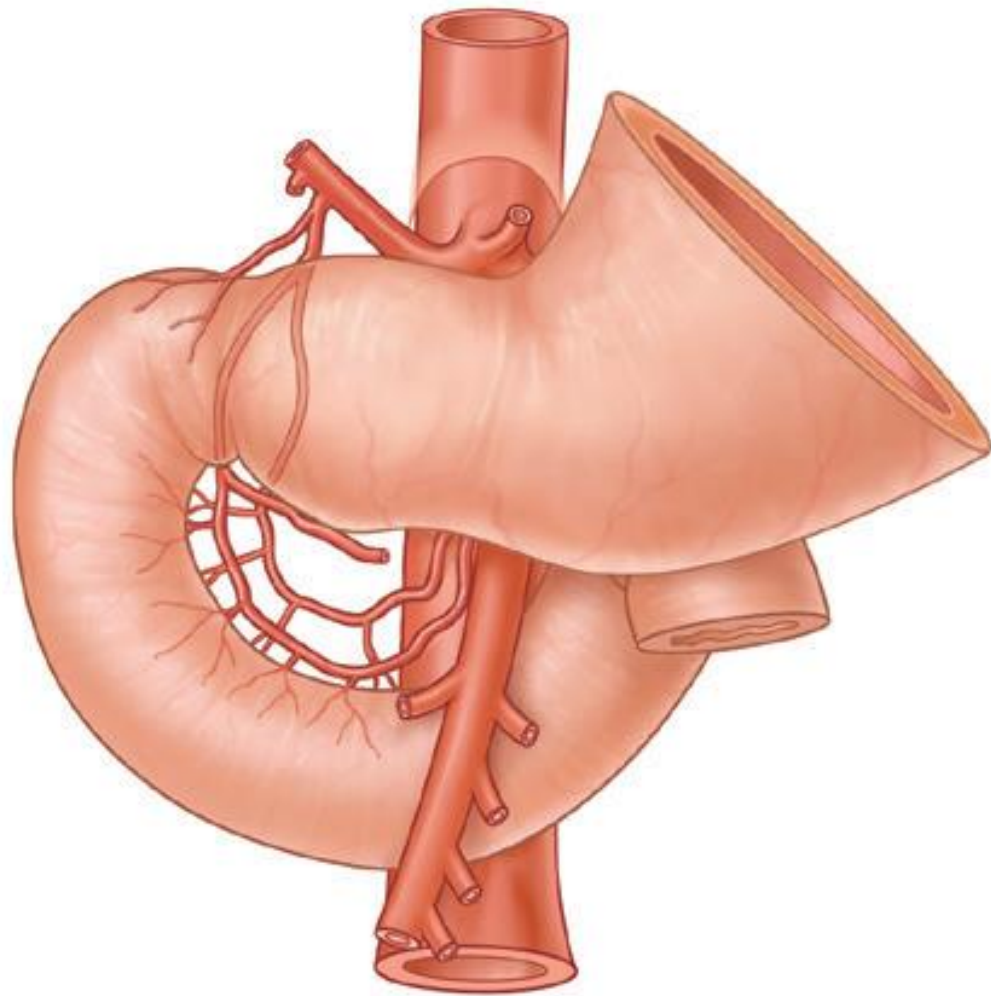
STAVBA STĚNY



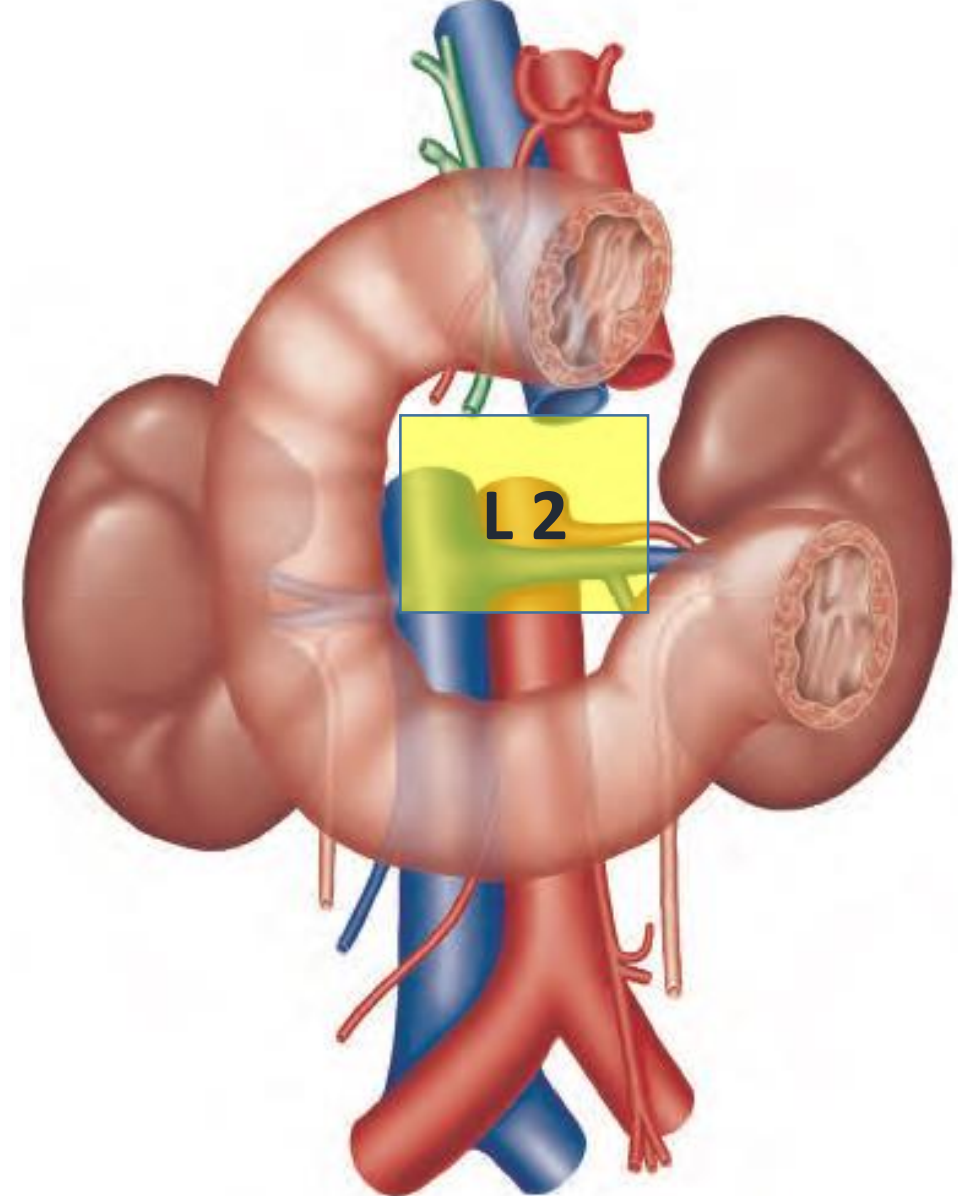
- ♦ Duodenum - dvanáctník - 30 cm (12 inches)
 - ♦ Secondary in retroperitoneum
- ♦ Jejunum - 3/5
- ♦ Ileum - 2/5



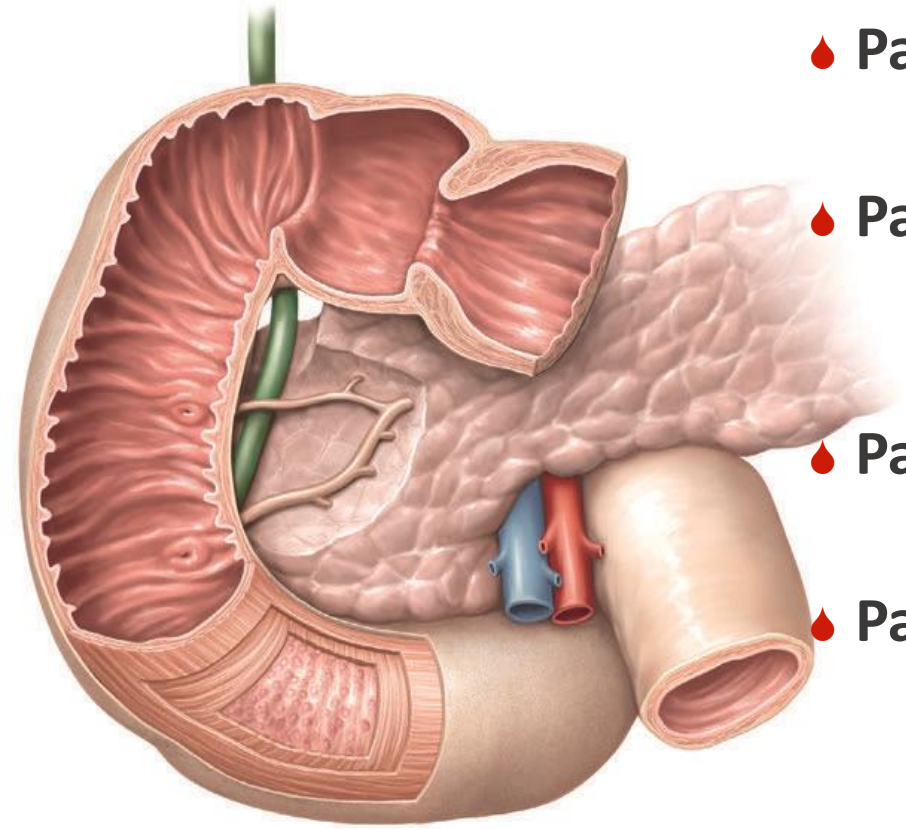
INTESTINUM TENUE



- ♦ *vertebra L2*
- ♦ **Pars superior**
 - ♦ bulbus
- ♦ **Pars descendens**
 - ♦ Papilla major
 - ♦ Papilla minor
- ♦ **Pars inferior**
 - ♦ horizontalis
- ♦ **Pars ascendens**



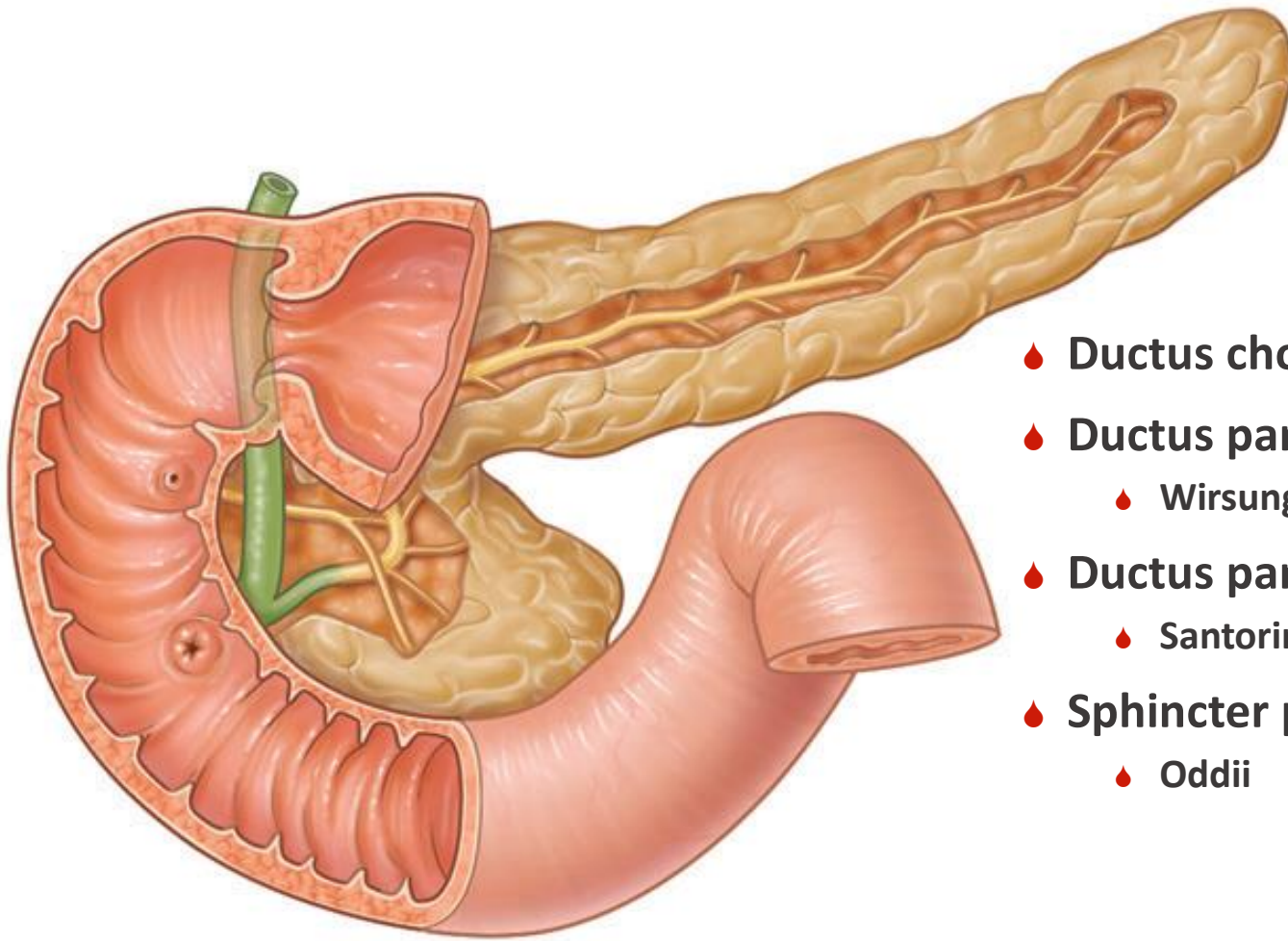
DUODENUM



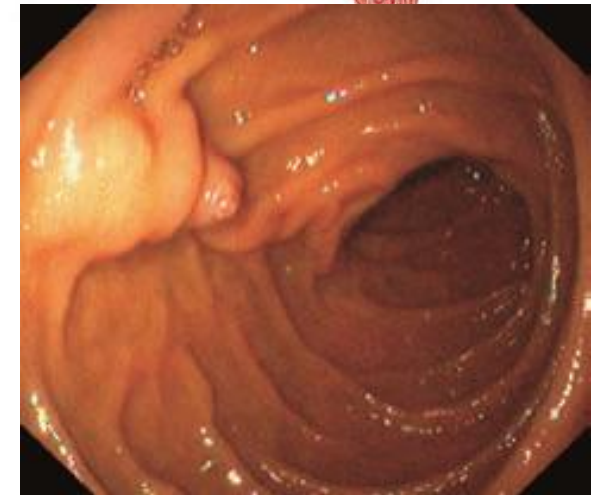
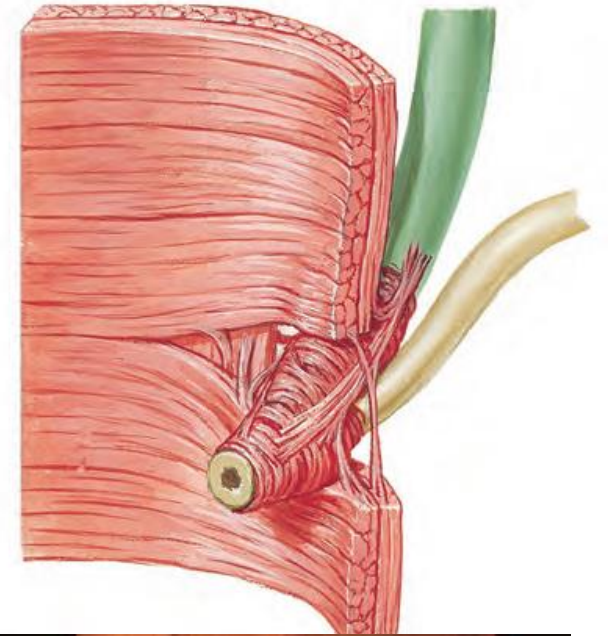
- ♦ *vertebra L2*
- ♦ **Pars superior**
 - ♦ bulbus
- ♦ **Pars descendens**
 - ♦ Papilla major
 - ♦ Papilla minor
- ♦ **Pars inferior**
 - ♦ horizontalis
- ♦ **Pars ascendens**



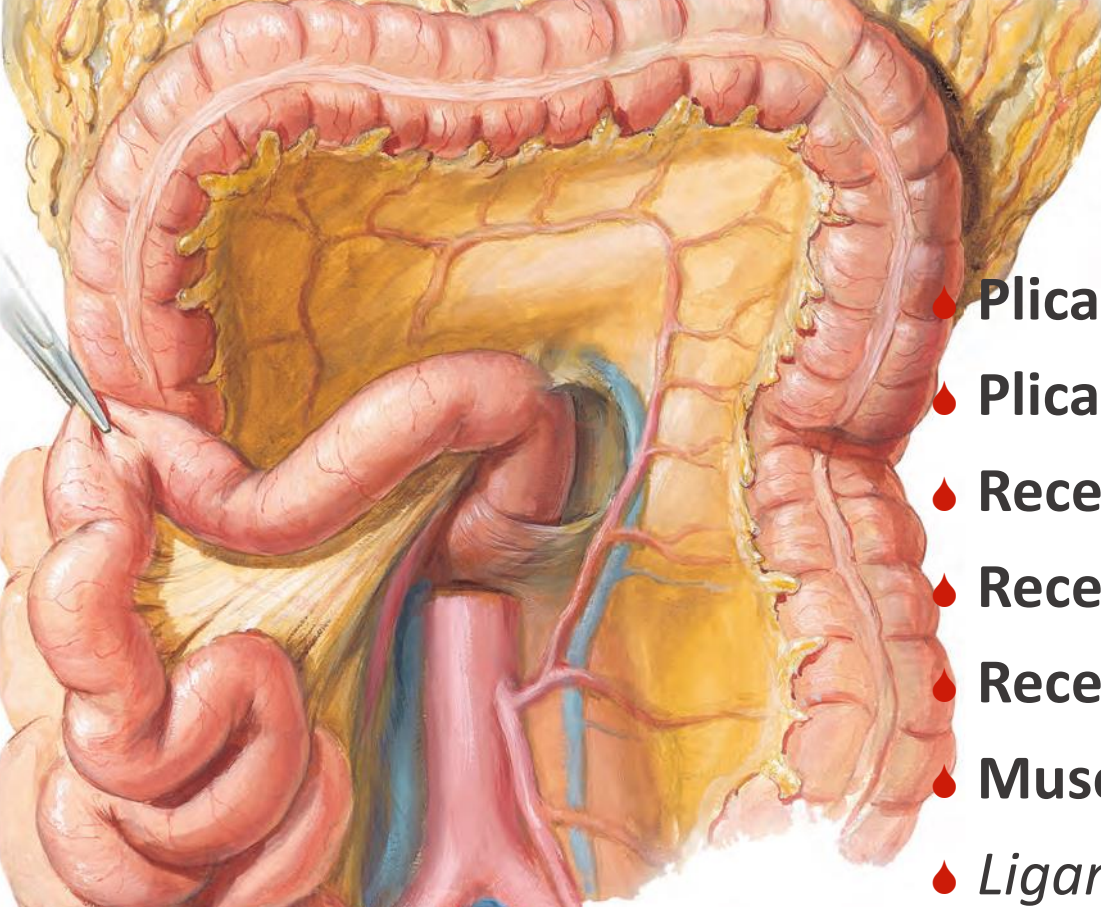
DUODENUM



- ♦ **Ductus choledochus**
- ♦ **Ductus pancreaticus major**
 - ♦ Wirsungi
- ♦ **Ductus pancreaticus minor**
 - ♦ Santorini
- ♦ **Sphincter papillae**
 - ♦ Oddii



PAPILLA DUODENI



- ♦ **Plica duodenalis superior**
- ♦ **Plica duodenalis inferior**
- ♦ **Recessus duodenalis superior**
- ♦ **Recessus duodenalis inferior**
- ♦ **Recessus paraduodenalis**
- ♦ **Musculus suspensorius duodeni**
- ♦ *Ligamentum Treitzi*



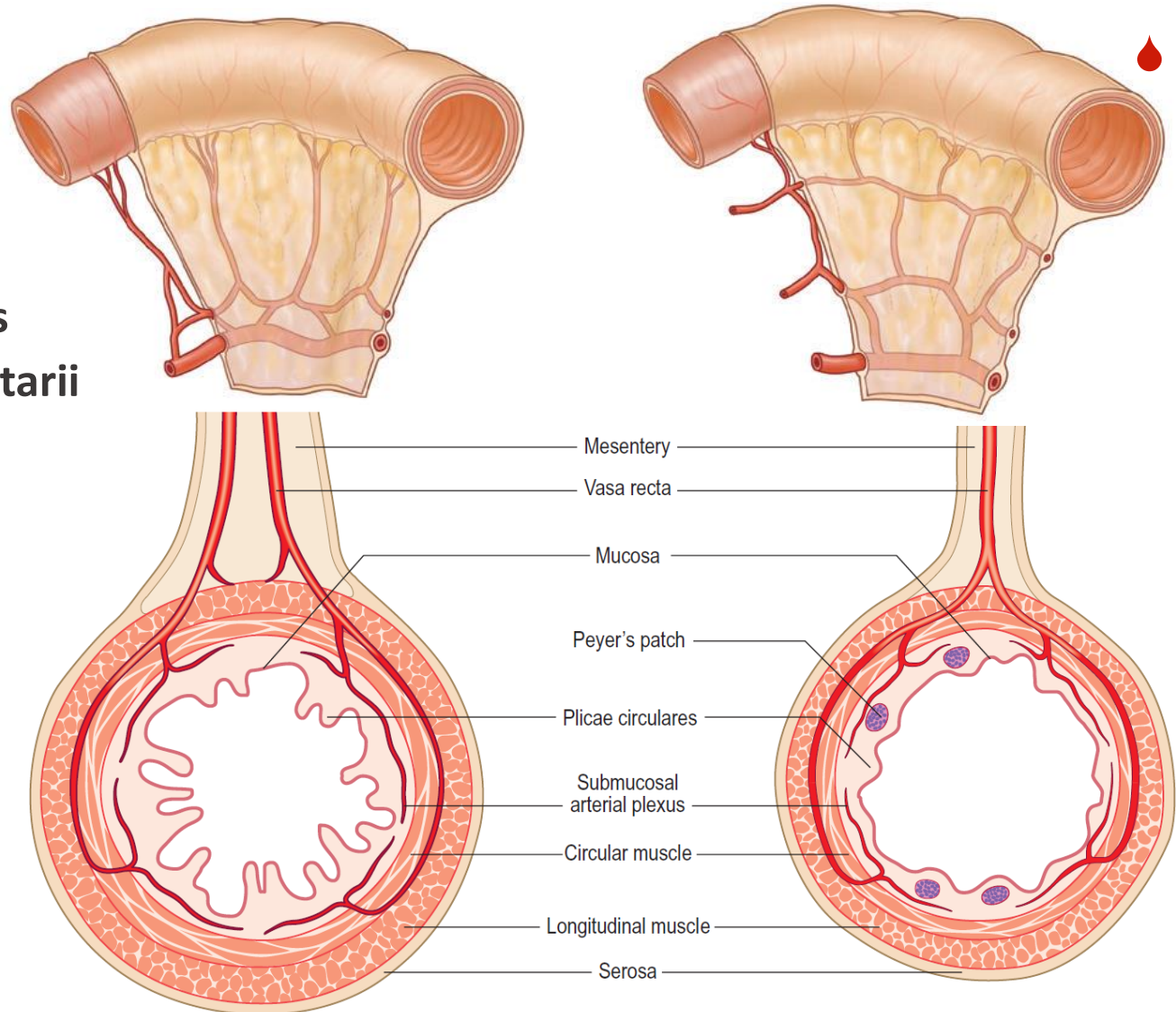
DUODENUM/JEJUNUM

🔥 **Jejunum**

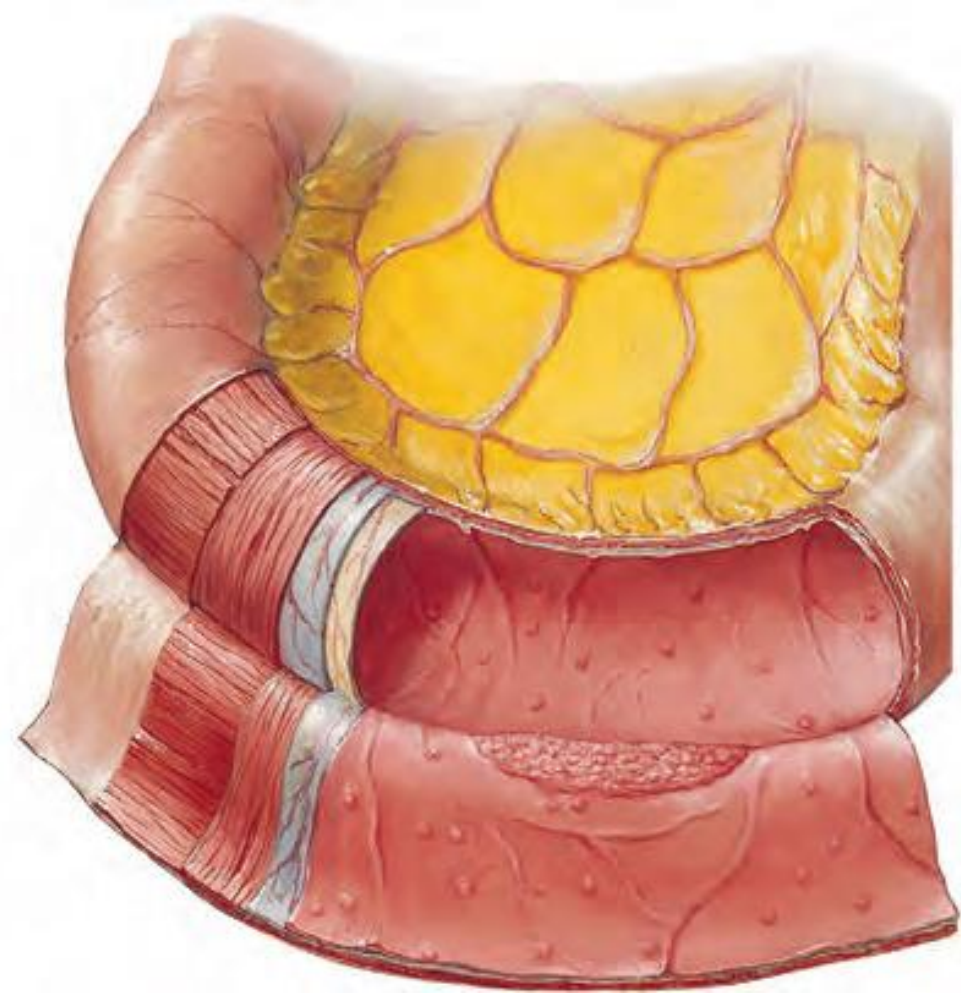
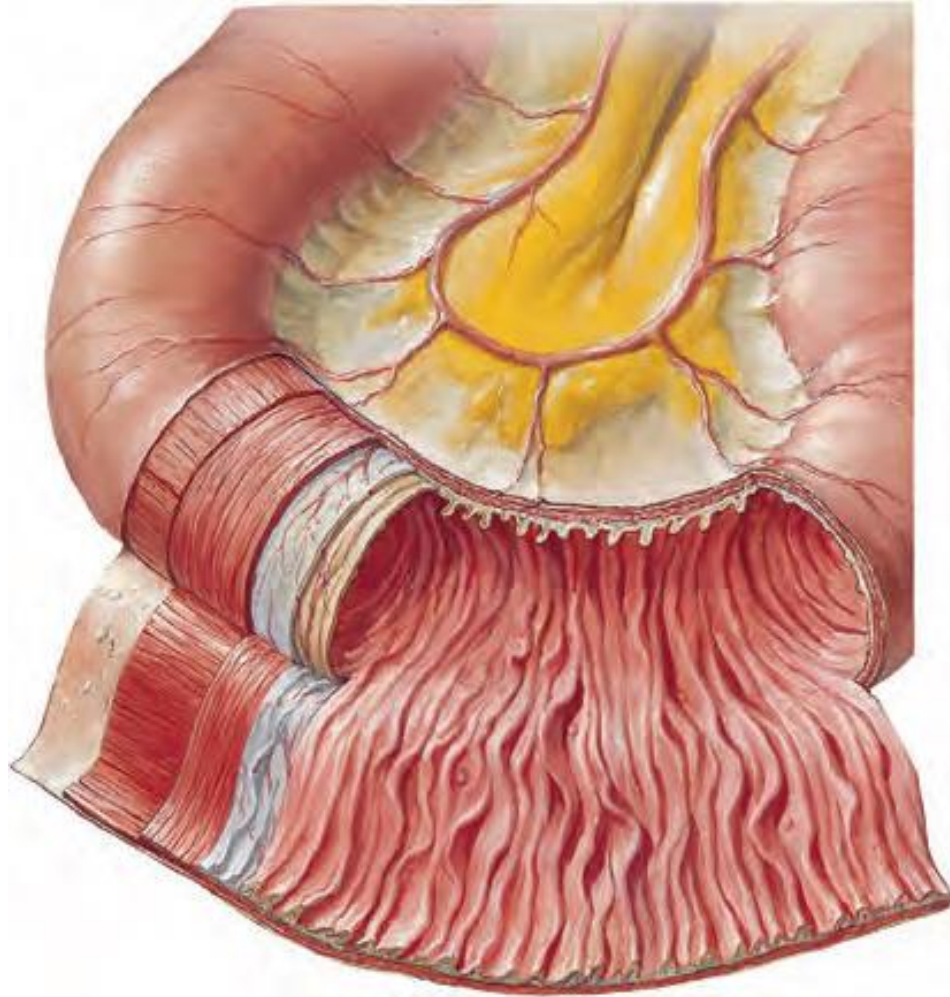
- 🔥 Left upper
- 🔥 Larger, pinky
- 🔥 Thicker wall
- 🔥 Multiple deep folds
- 🔥 Folliculi lymph. solitarii
- 🔥 1 - 2 arcades
- 🔥 Aa. rectae cca 5 cm
- 🔥 duplicated

🔥 **Ileum**

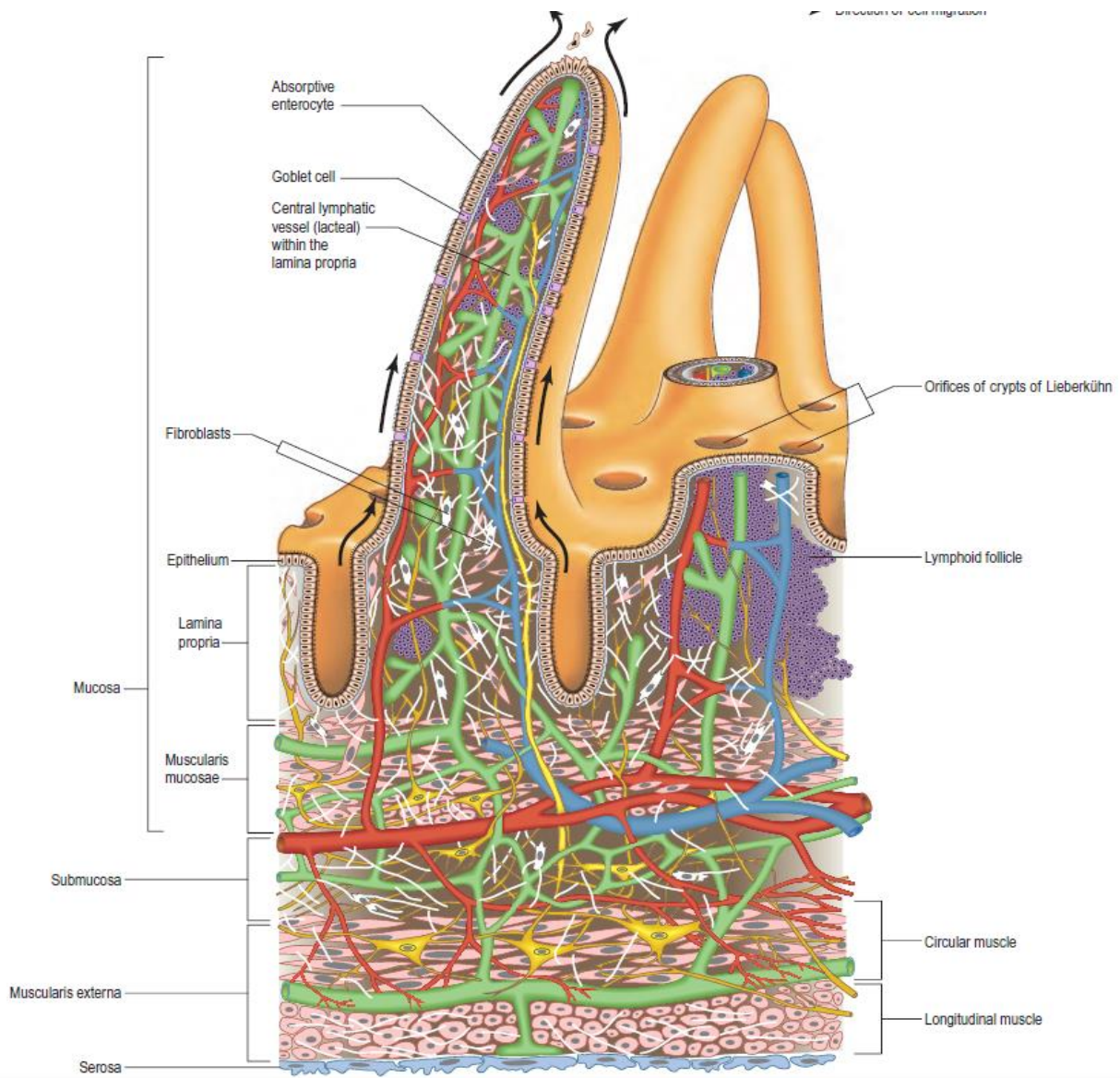
- 🔥 Right lower
- 🔥 Less folds
- 🔥 Folliculi lymph. aggregati
- 🔥 3 - 4 arcades
- 🔥 Aa. rectae 1-2 cm
- 🔥 single



JEJUNUM AND ILEUM

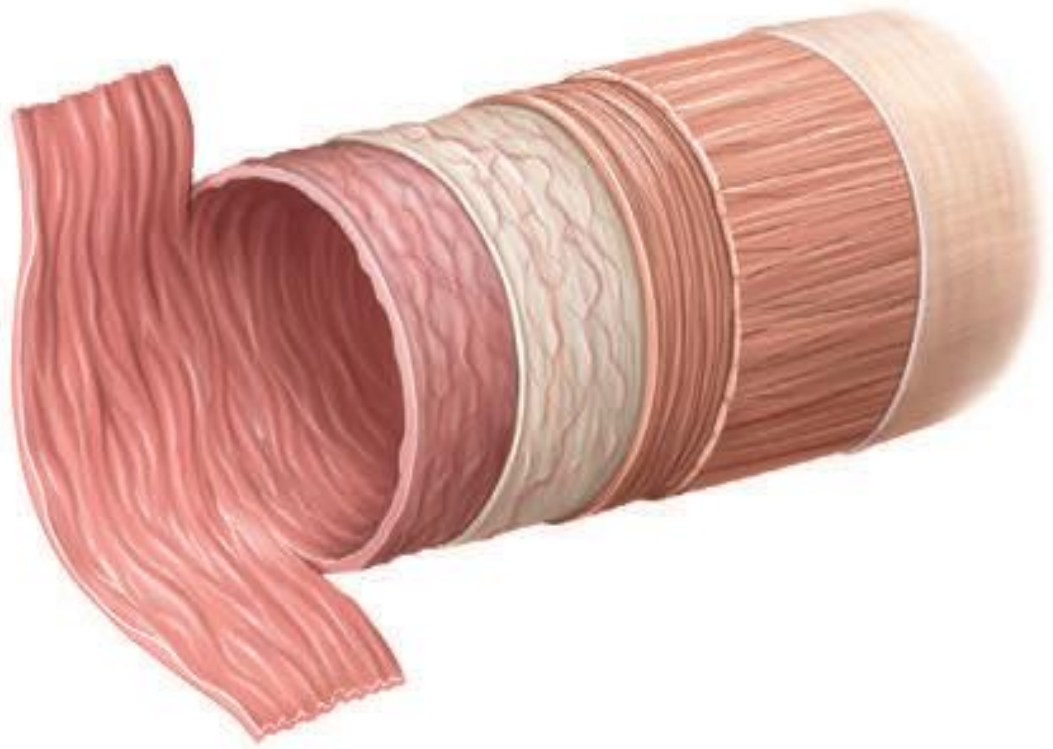
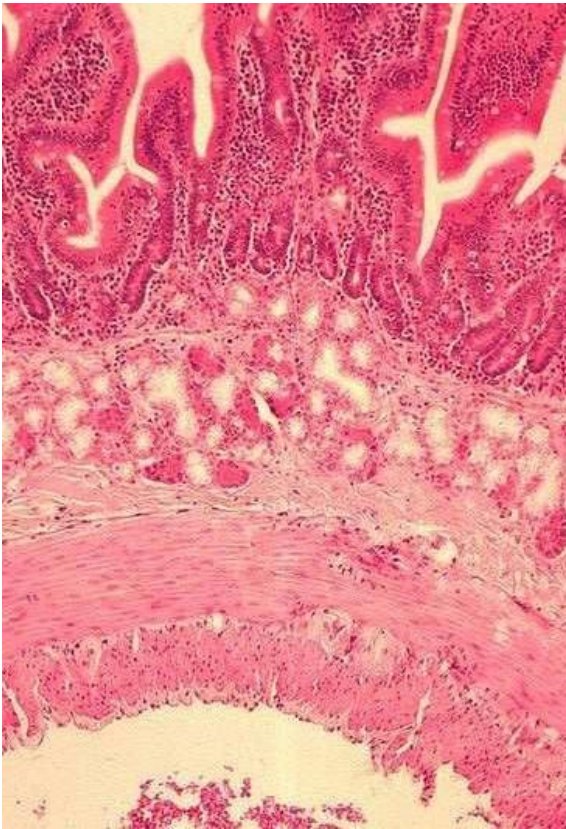


JEJUNUM AND ILEUM



- villi intestinales
- plicae circulares Kerckringi
- Brunner's glands
 - Alcalic mucinous secret
 - neutralization
 - mucinase
- Lieberkühn's crypts – all small intestine
- Lymphatic tissue
- Tela submucosa
- Tela muscularis
- Serosa
- Succus entericus

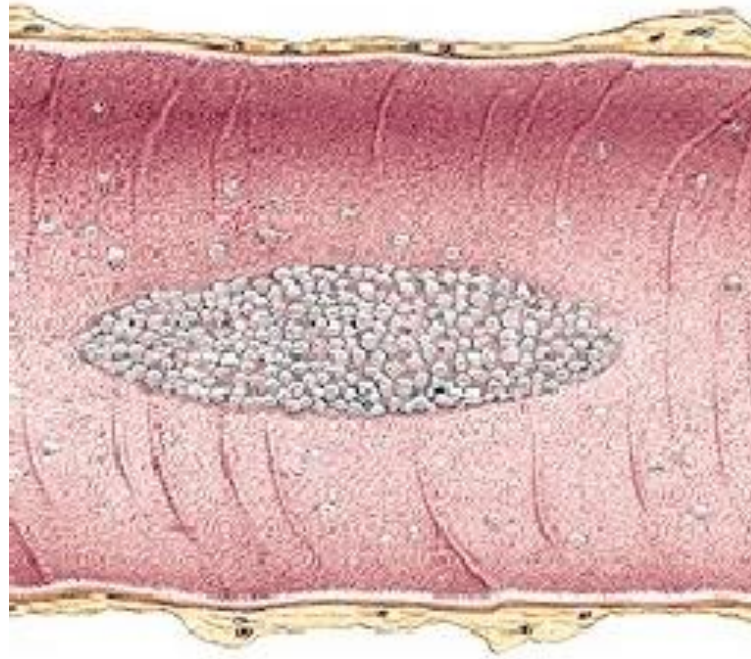
WALL



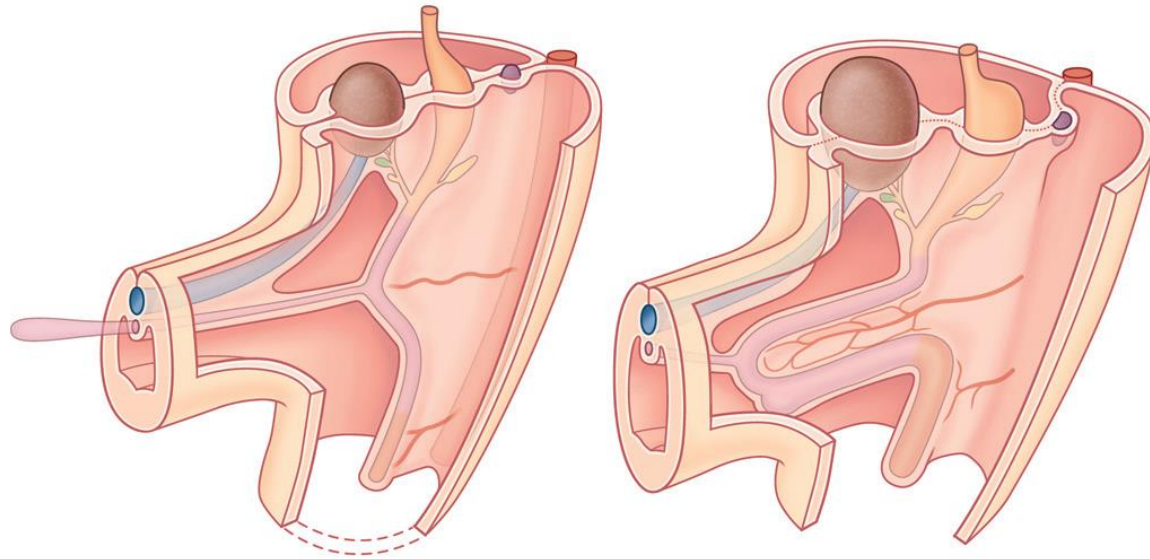
INTESTINUM TENUE

🔥 Folliculi lymphatici intestinales solitarii - jejunum and ileum

🔥 Folliculi lymphatici intestinales aggregati – Payer's plaques - ileum



FOLLICULI LYMPHATICI



- ♦ **Diverticulum Meckeli**
- ♦ **ileum**
- ♦ **Gastric mucosa**
 - ♦ ulcer
 - ♦ bleeding
- ♦ **80 cm orally from ileocaecal valve**
- ♦ **Ductus omphaloentericus**
 - ♦ *Bridge*
 - ♦ *Cyst*
 - ♦ *Fistula*
 - ♦ *Diverticulum*

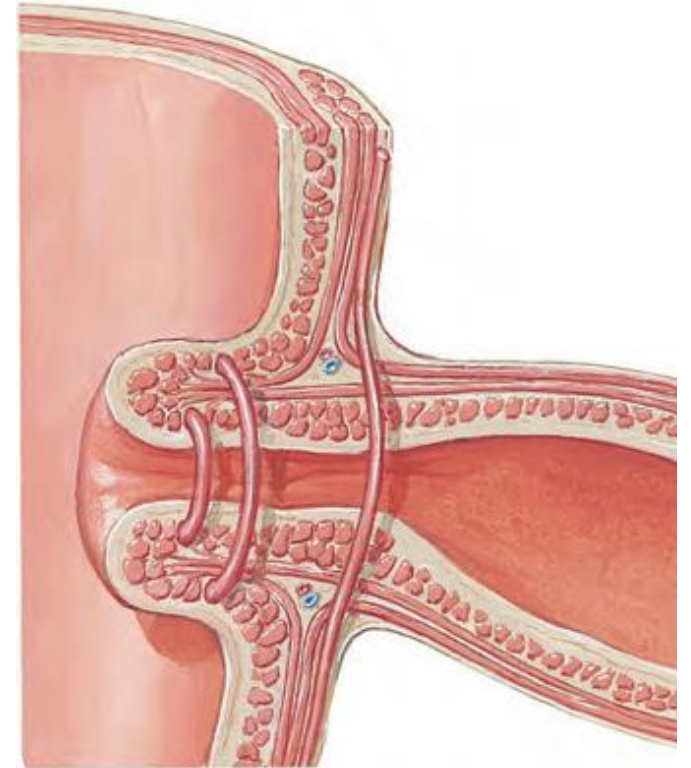
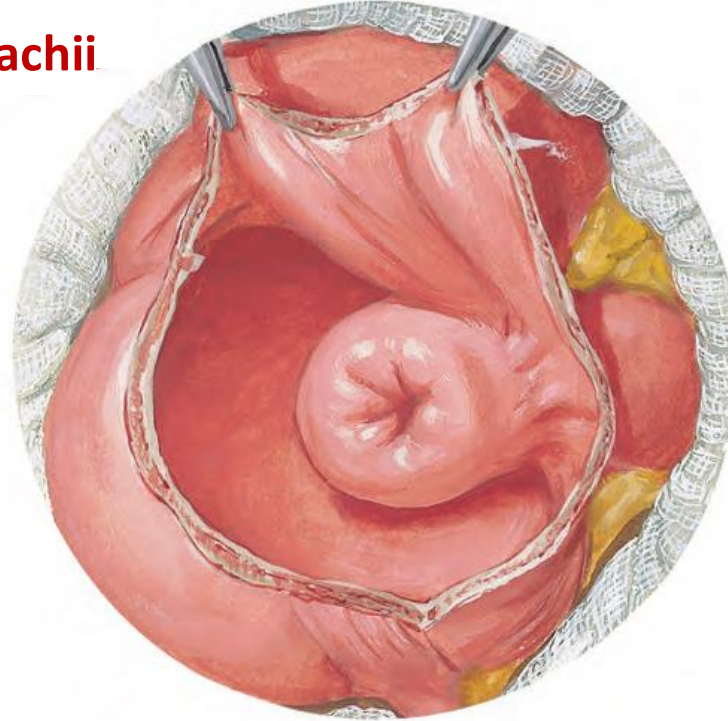
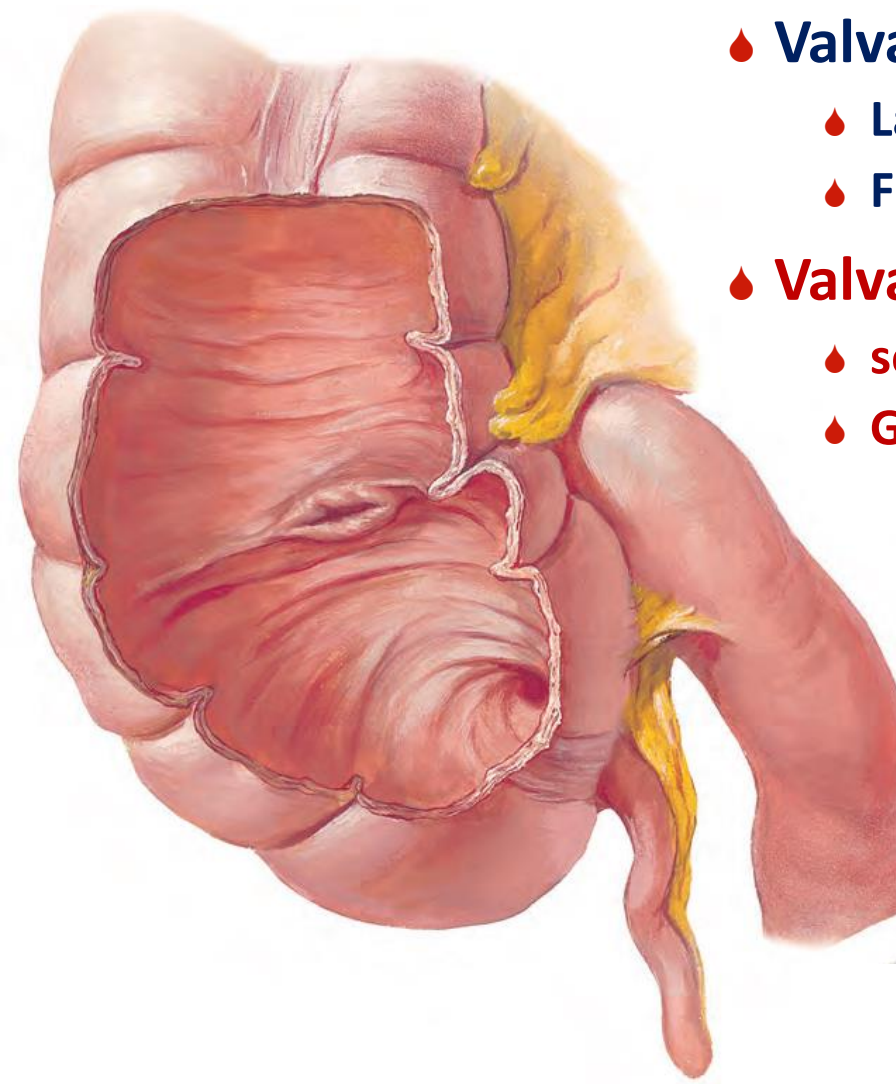
DIVERTICULUM MECKELI

♦ Valva ileocaecalis

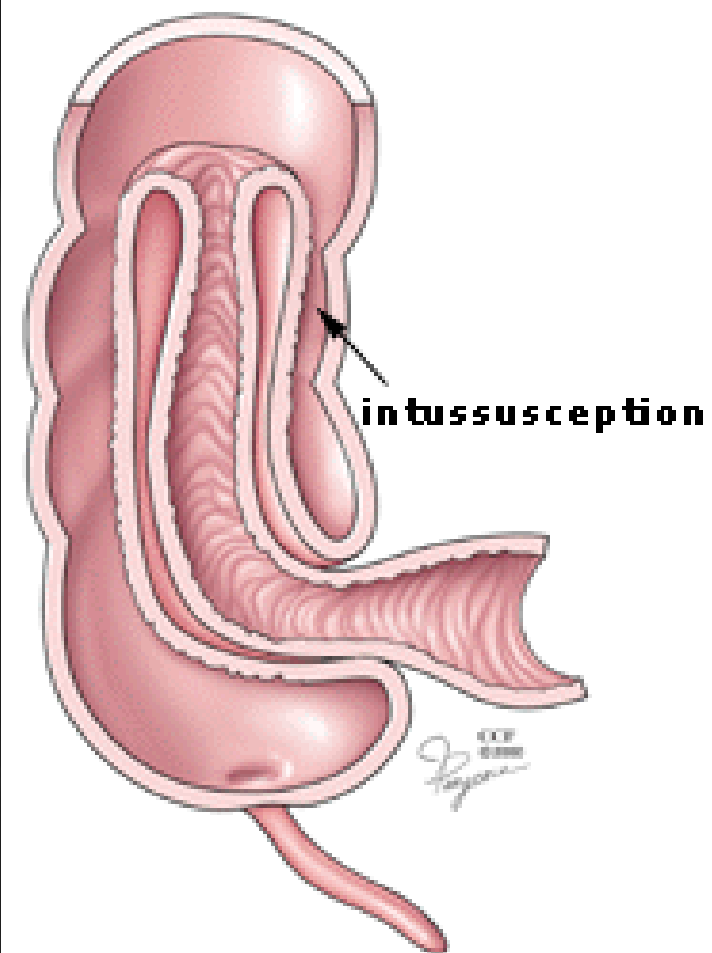
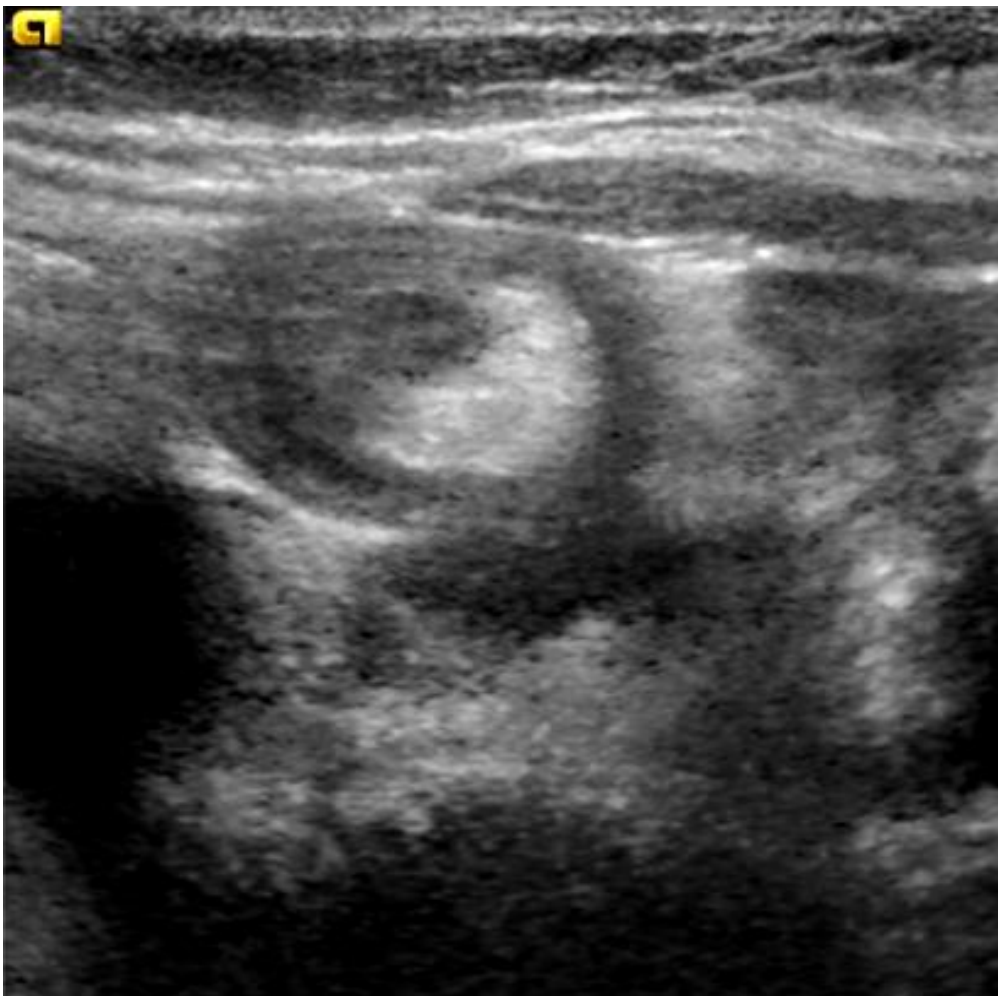
- ♦ Labium superius, labium inferius
- ♦ Frenulum labiorum

♦ Valva appendicis vermiformis

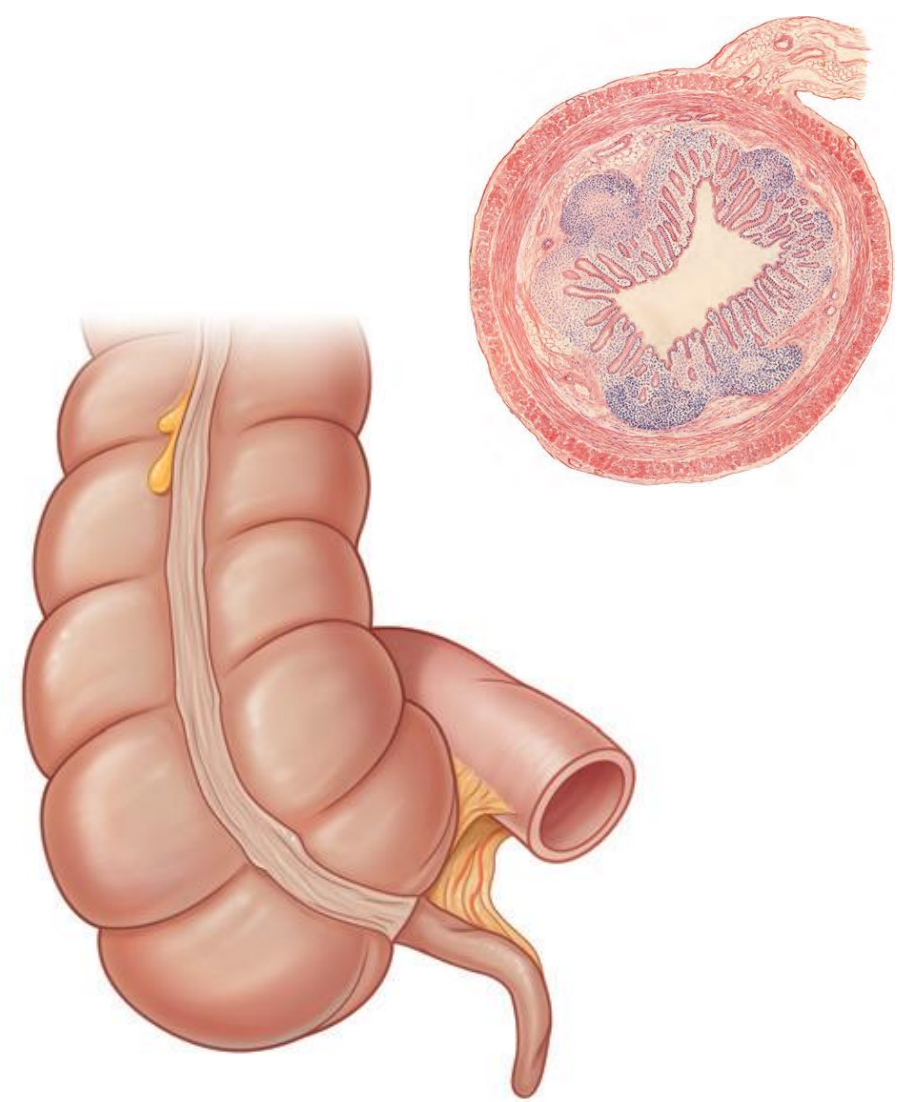
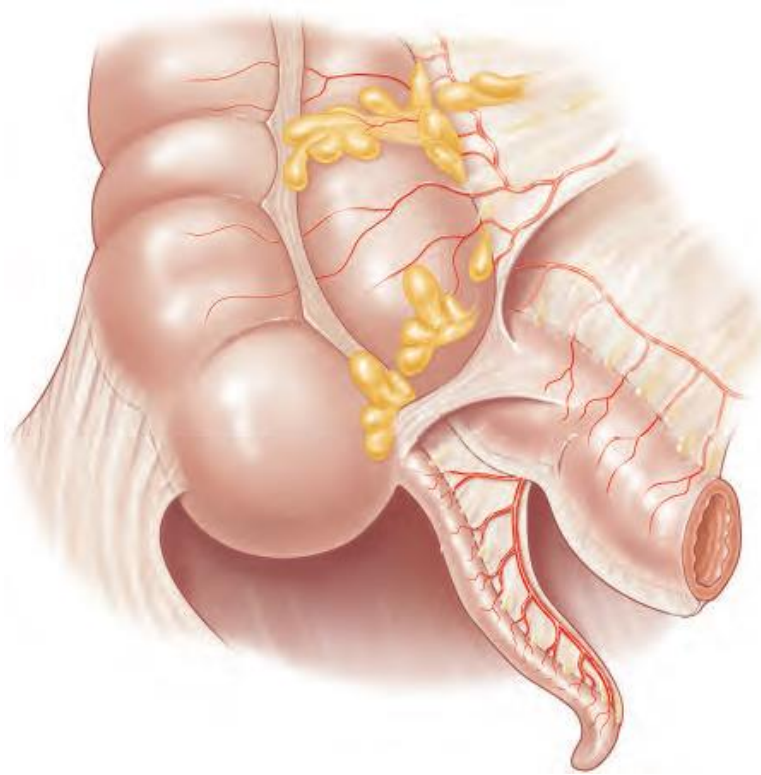
- ♦ semilunaris
- ♦ Gerlachii



REGIO ILEOCAECALIS



INTUSSUSCEPTION/INVAGINACE

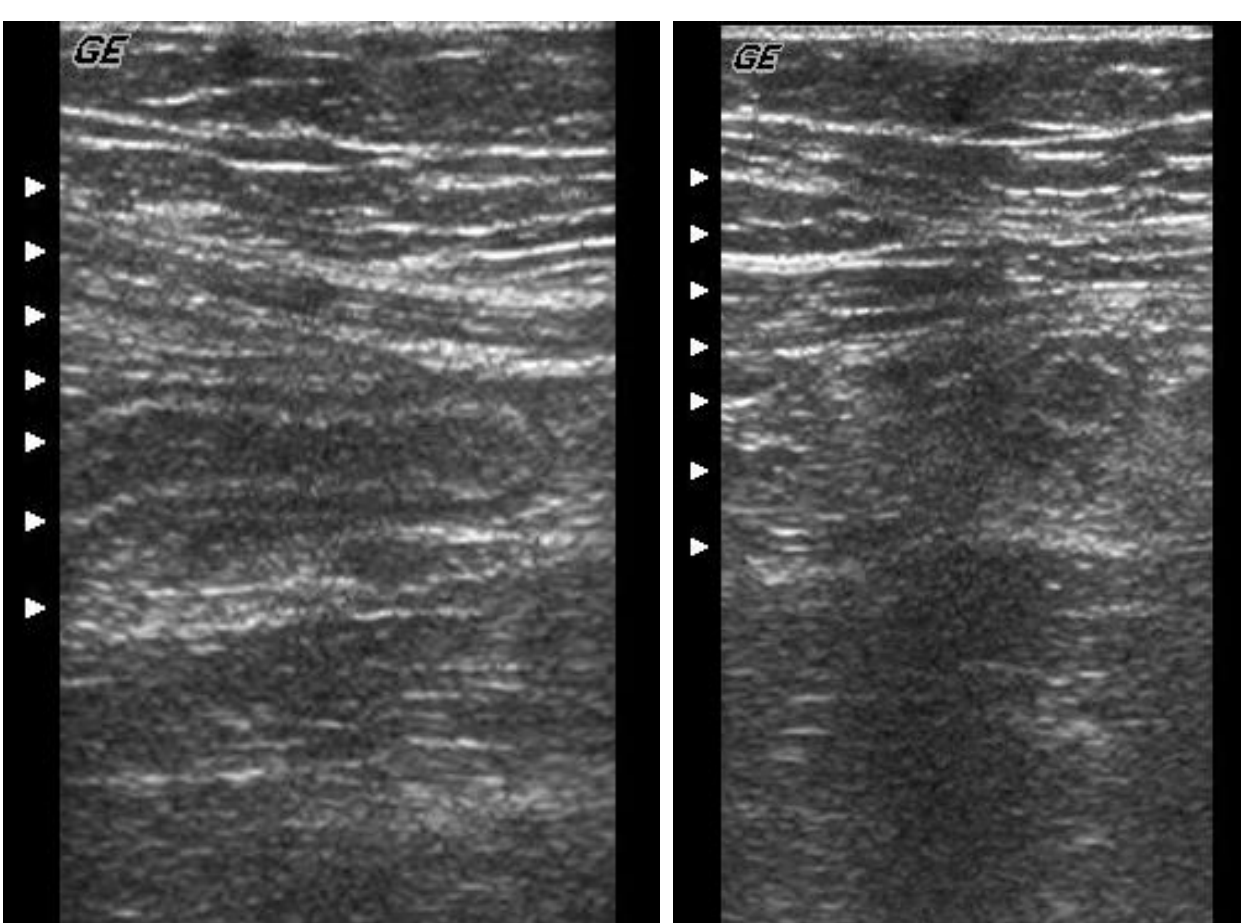


- ◆ Appendix vermicularis
- ◆ **McBurney point**
 - ◆ line of Monroo umbilicus/spina iliaca anterior superior
 - ◆ 6-7 cm apart from spine
- ◆ **Lanz point – in pelvic**
 - ◆ Bicristal line 1/3 right

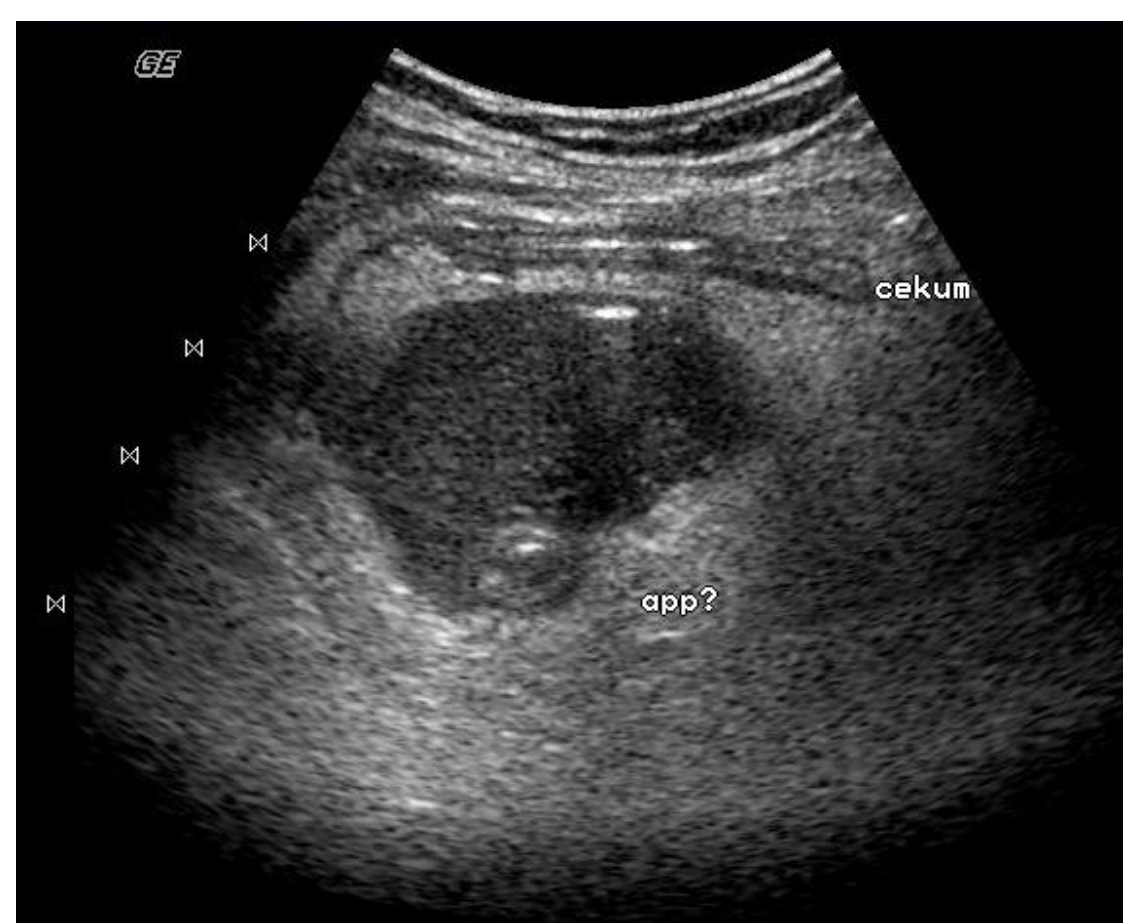
APPENDIX VERMIFORMIS



APPENDIX VERMIFORMIS



Appendicitis phlegmonosa



Abscessus periappendicalis

APPENDICITIS ACUTA

- **Fusions of taeniae**

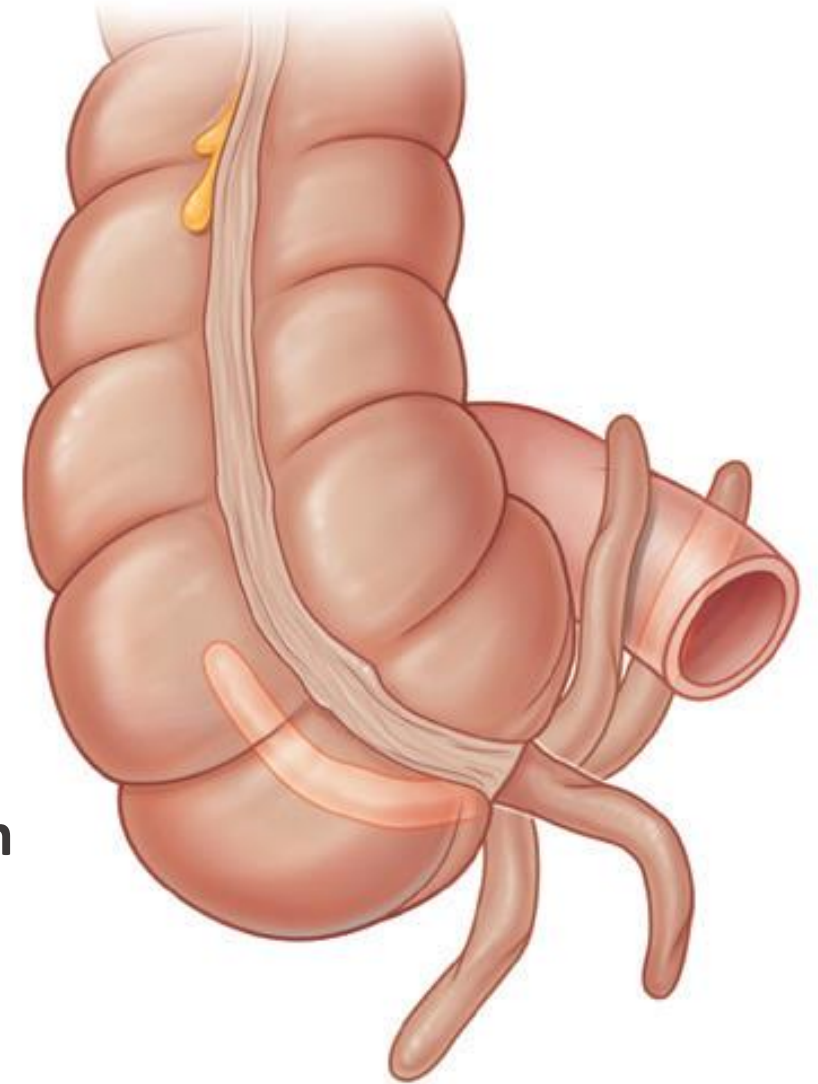
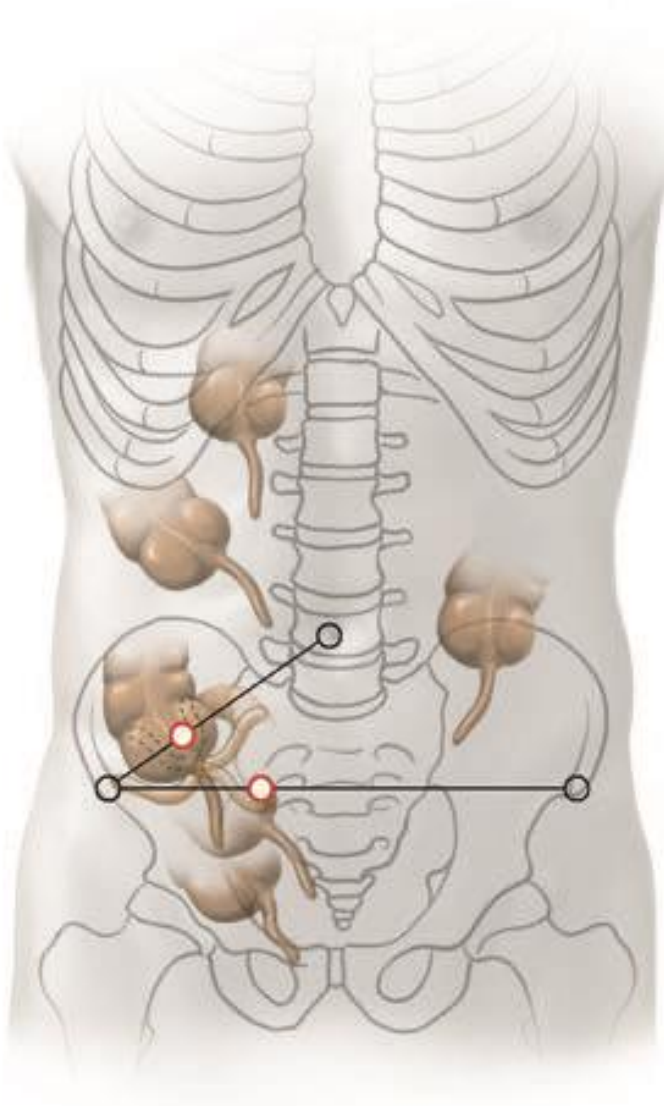
- **Positiones**

- *Pelvica*
- *Paracaecalis*
- *Subcaecalis*
- *Retrocaecalis*
- *Preilealis*
- *Retroilealis/postilealis*
- *Subhepatica*
- *Sinistra*

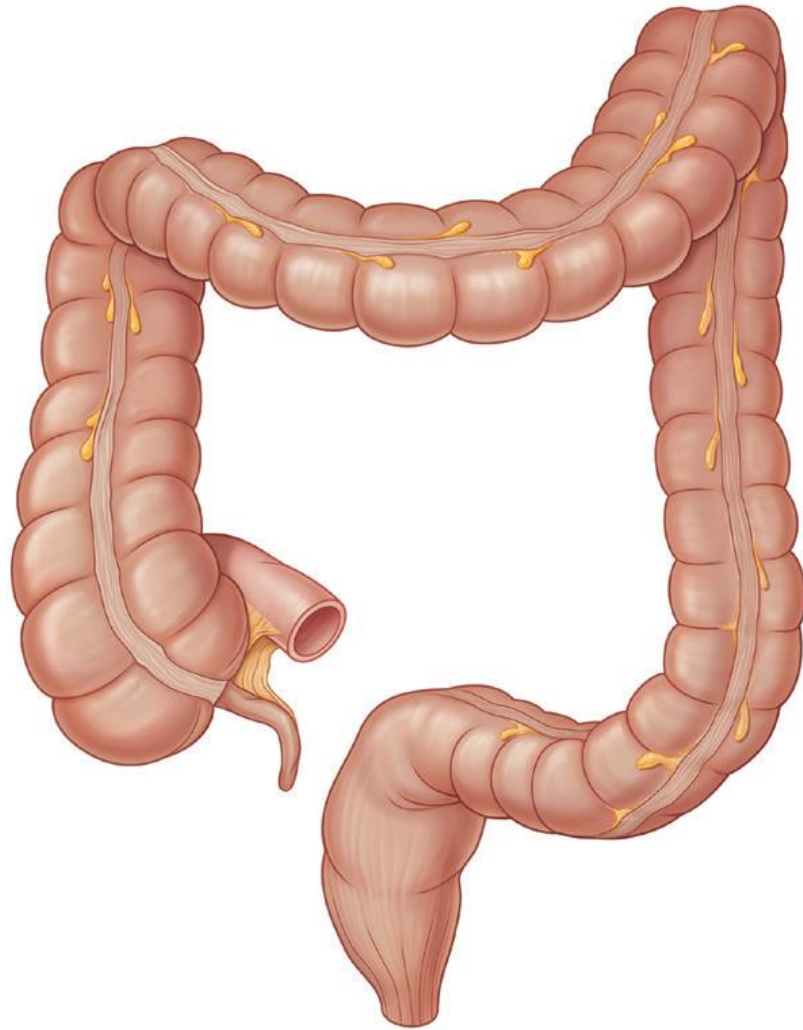
- **„tonsilla“ abdominalis**

- **Lig. appendiculoovaricum**

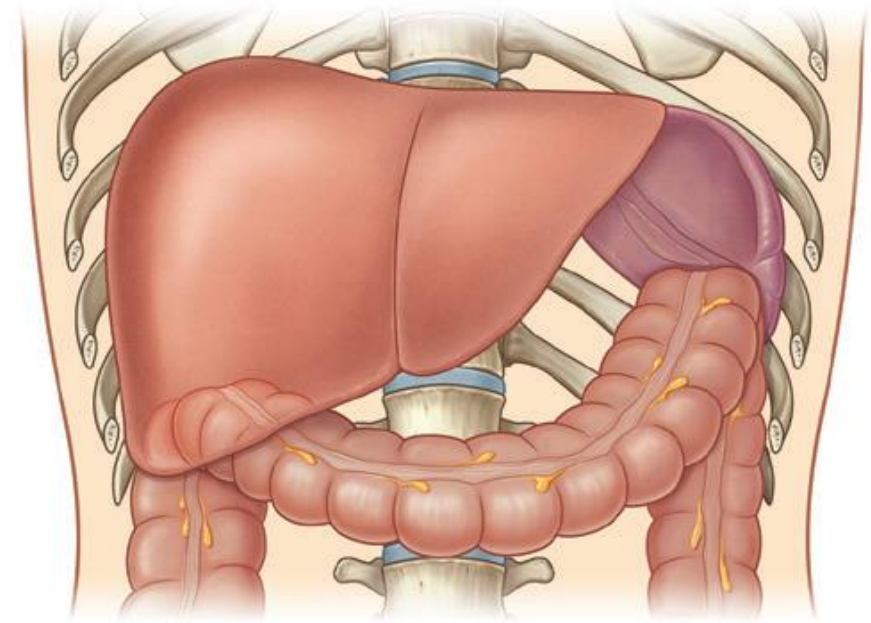
- **Lymphatic connections**



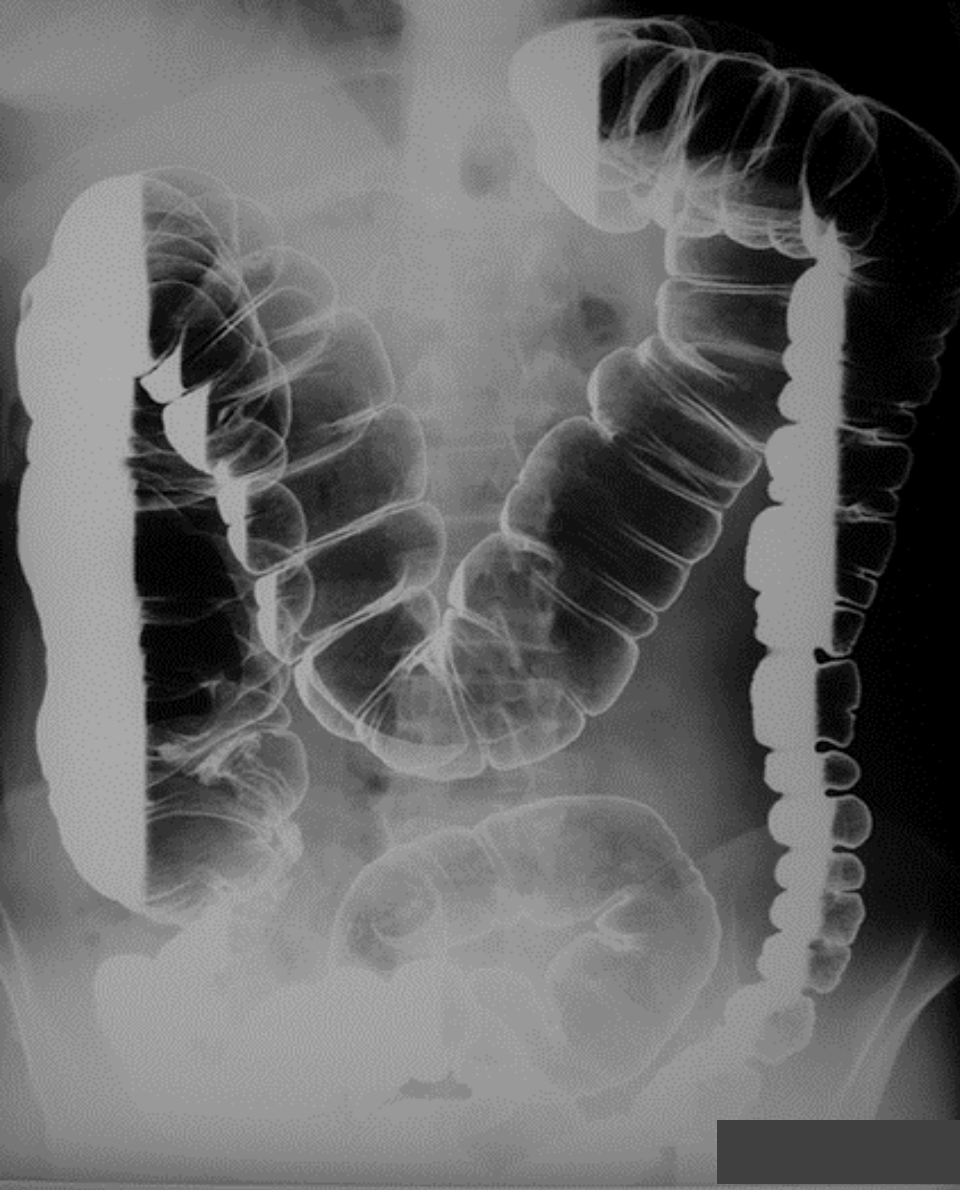
APPENDIX VERMIFORMIS



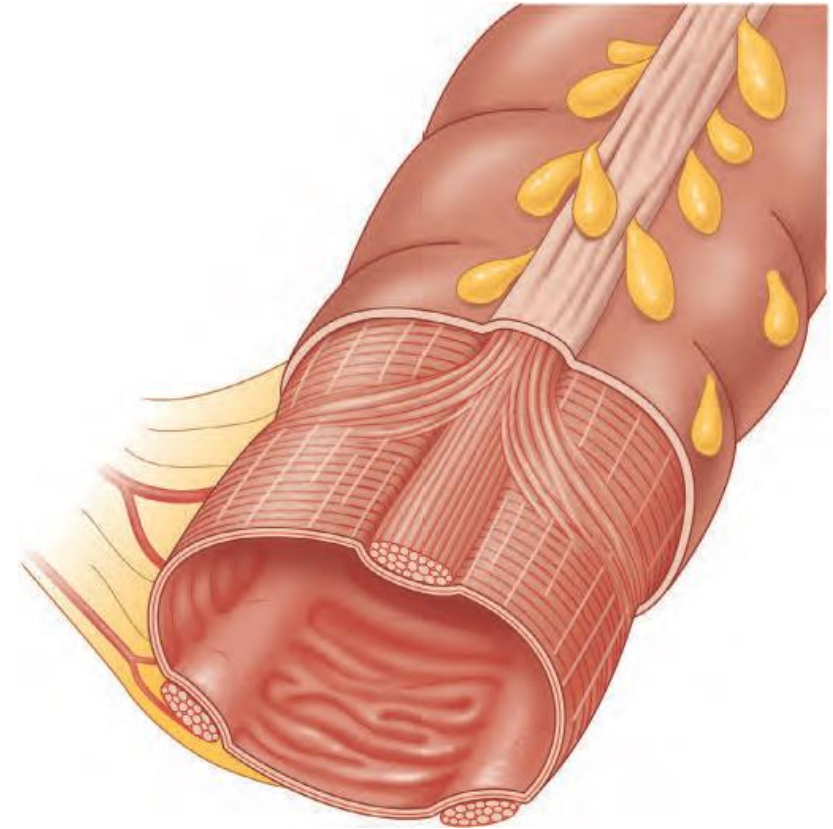
- ♦ **Caecum**
 - ♦ Appendix vermicularis
- ♦ **Colon ascendens**
- ♦ **Flexura dextra**
 - ♦ hepatica
- ♦ **Colon transversum**
- ♦ **Flexura sinistra**
 - ♦ lienalis
- ♦ **Colon descendens**
- ♦ **Colon sigmoideum**
- ♦ **Rectum**
- ♦



INTESTINUM CRASSUM

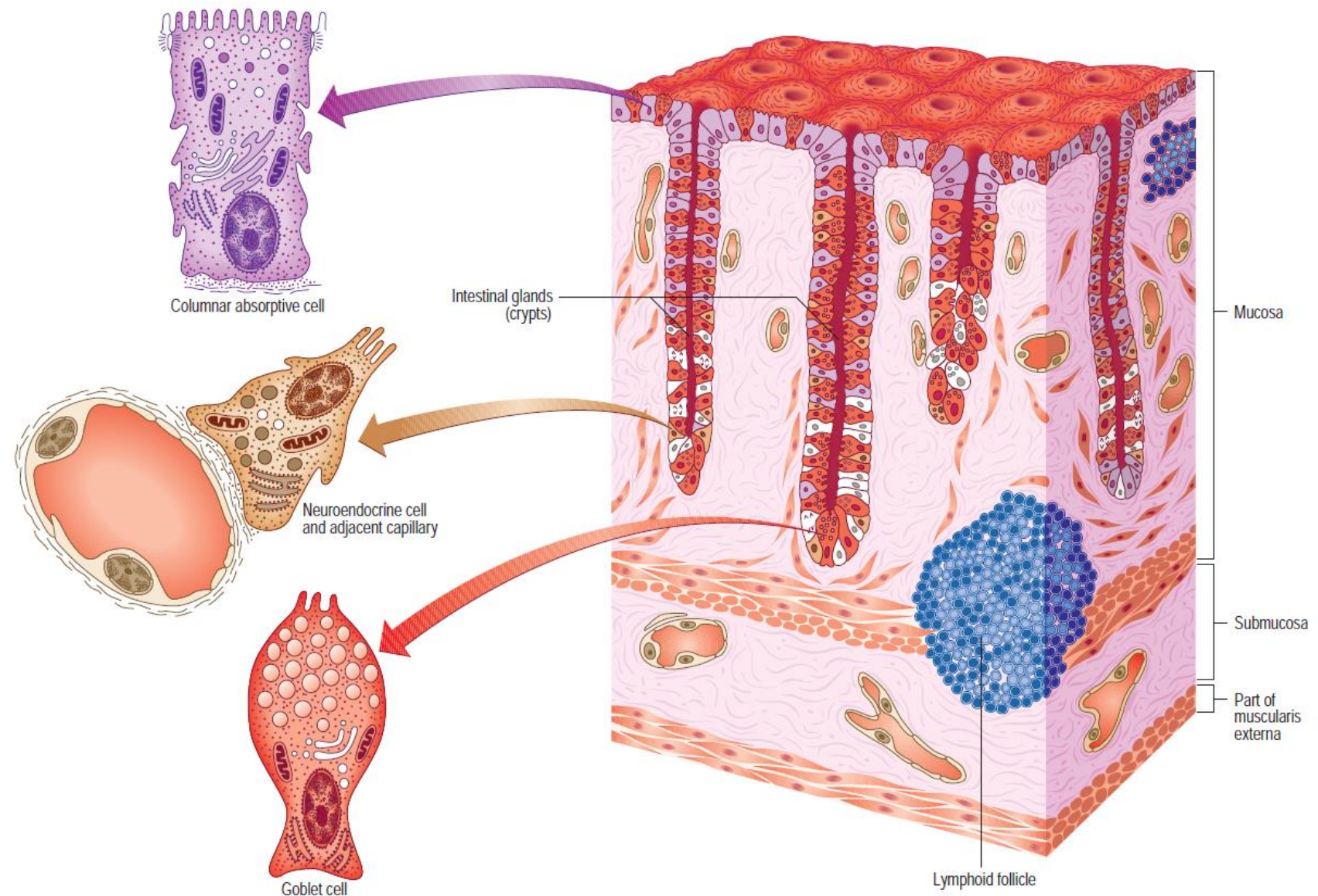


- ♦ **Haustra**
- ♦ **Taenia – thickened longitudinal bands of muscle**
- ♦ **Taeniae not present on appendix and rectum**
 - ♦ **Uniform longitudinal layer**
- ♦ **Taenia libera**
- ♦ **Taenia mesocolica**
- ♦ **Taenia omentalis**
- ♦ **Appendices epiploicae**
 - ♦ **Fatty tissue**



INTESTINUM CRASSUM

- ♦ Sliznimososa
- ♦ No villi
- ♦ Plicae semilunares coli
 - ♦ (1/3 of circumference)
- ♦ Glandulae Lieberkühni
- ♦ Goblett cells - mucus
 - ♦ Goblet cell
- ♦ Tela submucosa
- ♦ Tela muscularis
 - ♦ Circularis
 - ♦ Longitudinalis - taeniae

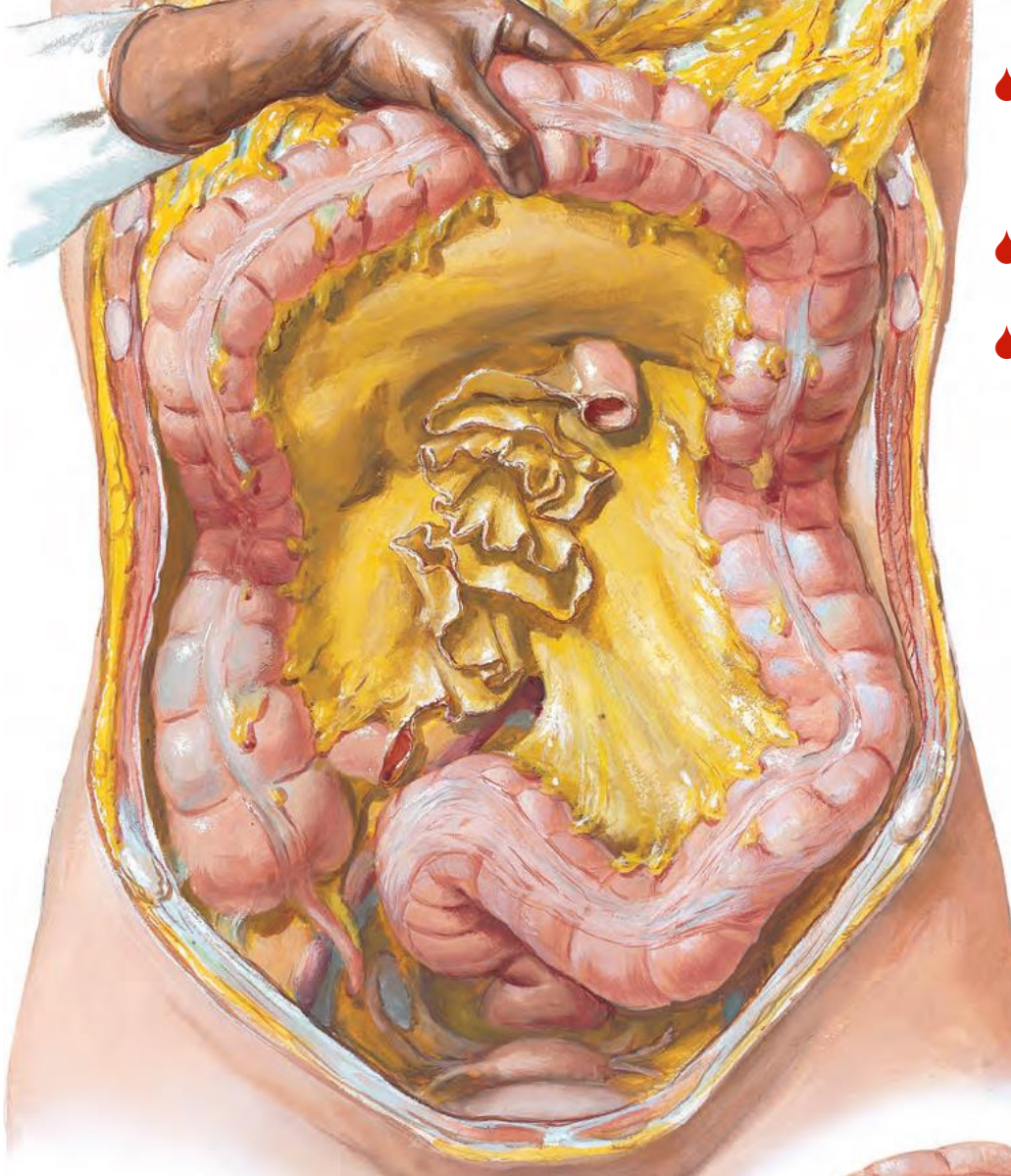


INTESTINUM CRASSUM

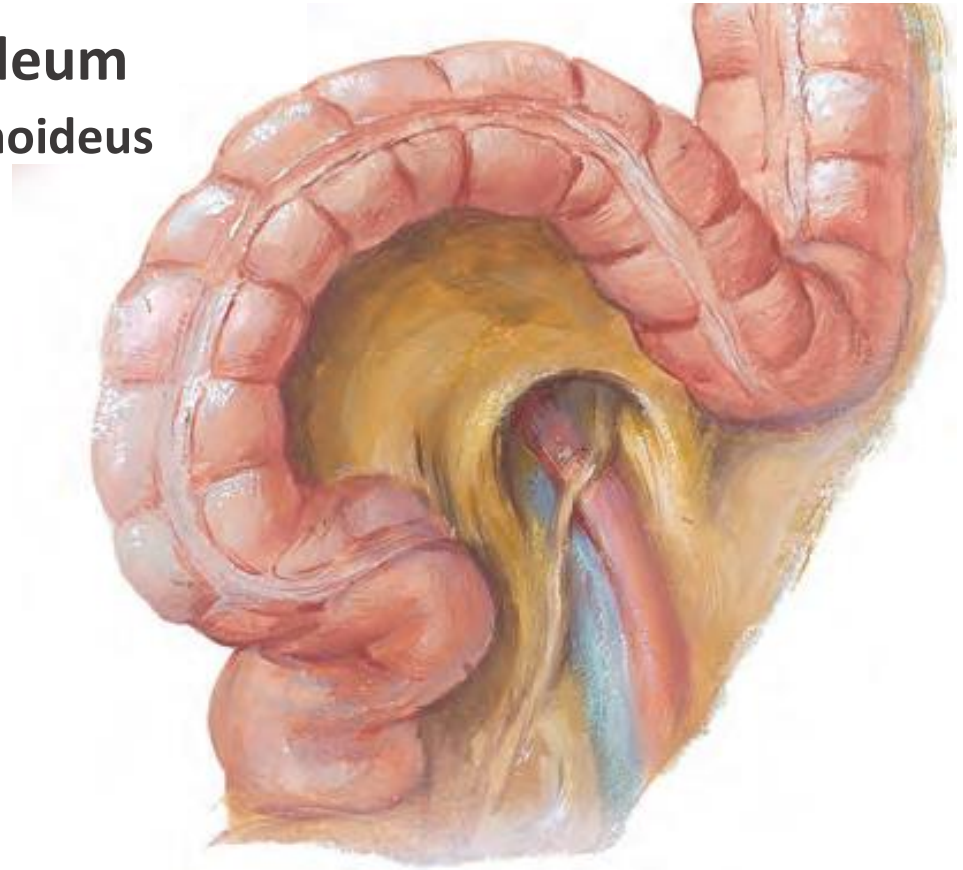


- ♦ Taenia – thickened longitudinal bands of muscle
- ♦ Taeniae not present on appendix and rectum
 - ♦ Uniform longitudinal layer
- ♦ Taenia libera
- ♦ Taenia mesocolica
- ♦ Taenia omentalis

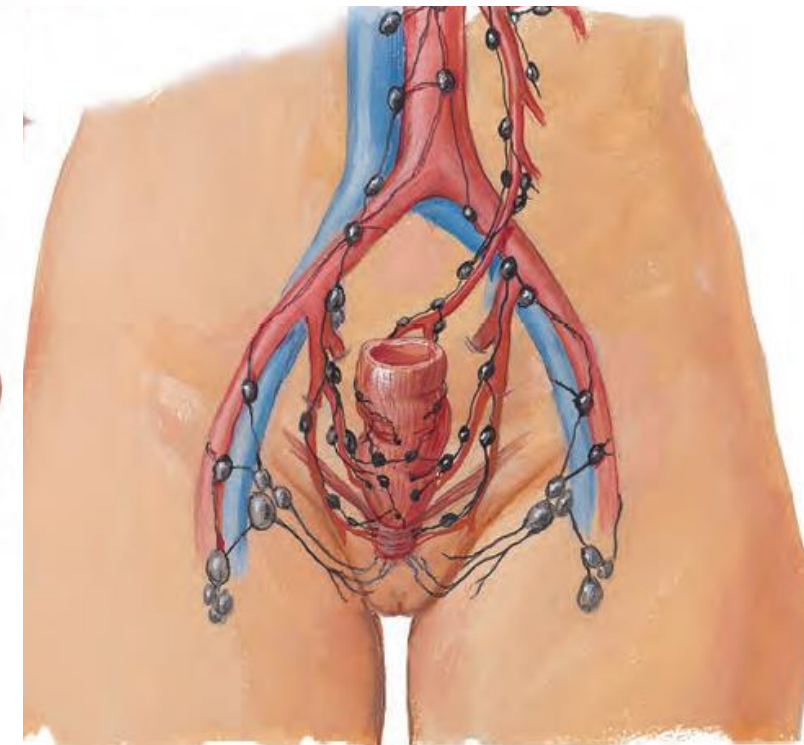
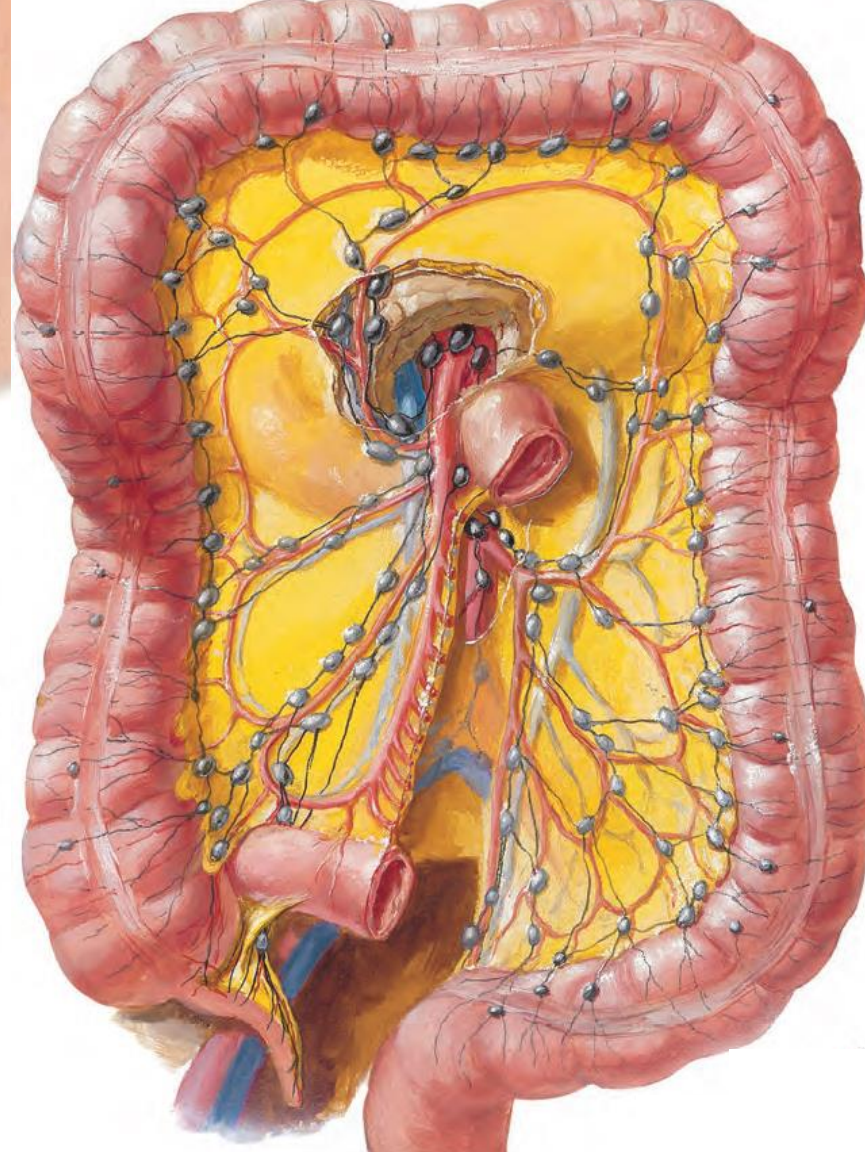
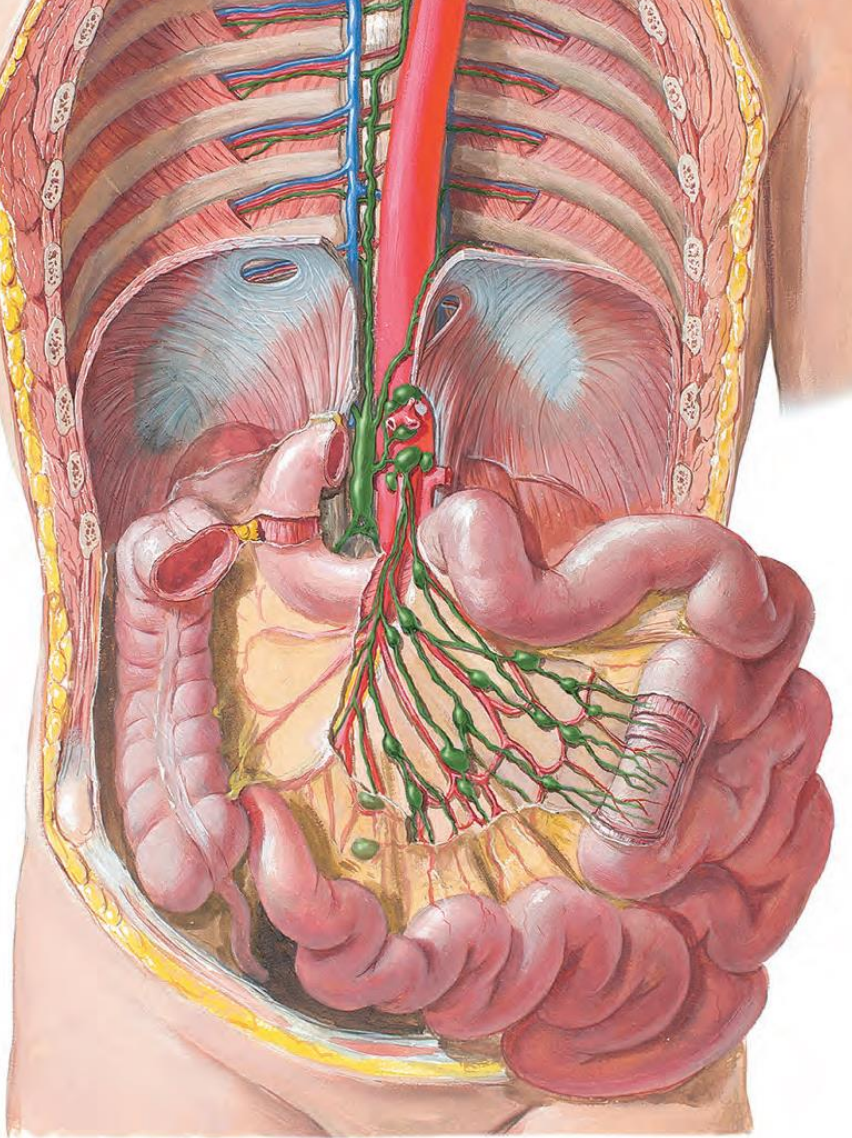
TAENIAE



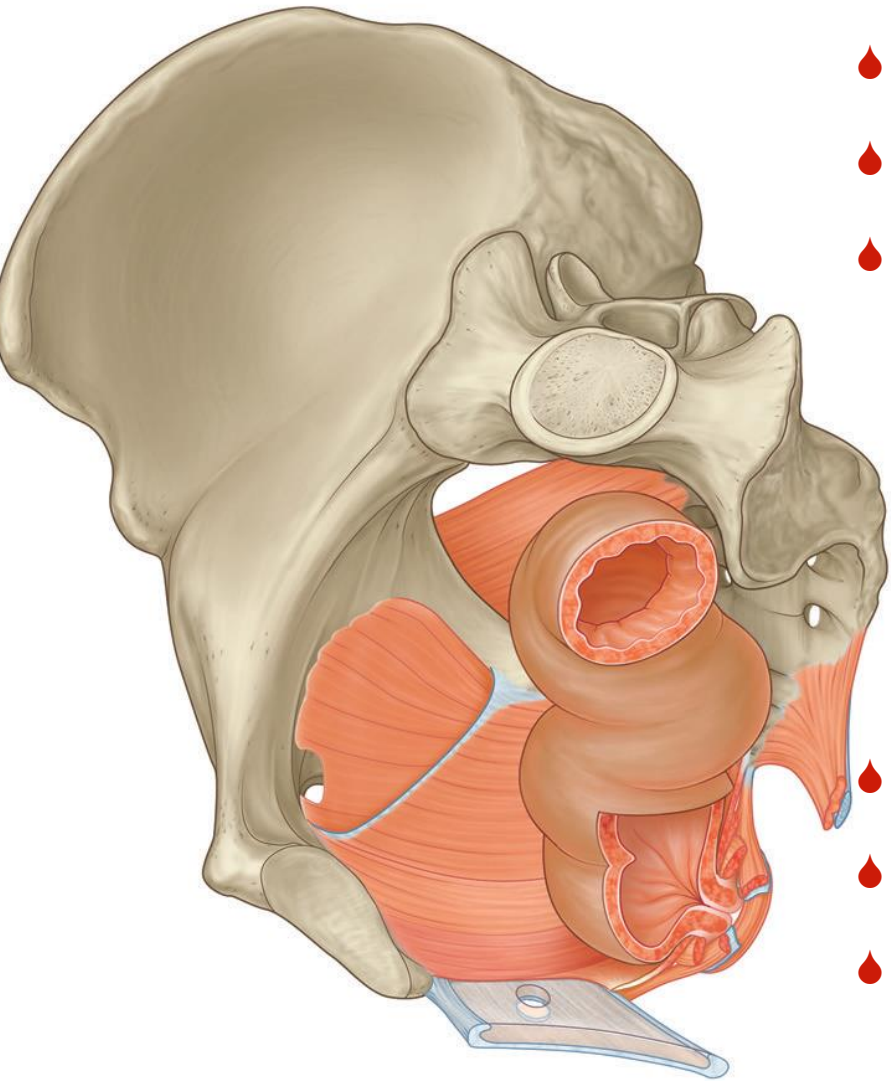
- ♦ **Mesocaecum**
 - ♦ Mesoappendix
- ♦ **Mesocolon transversum**
- ♦ **Mesocolon sigmoideum**
 - ♦ Recessus intersigmoideus



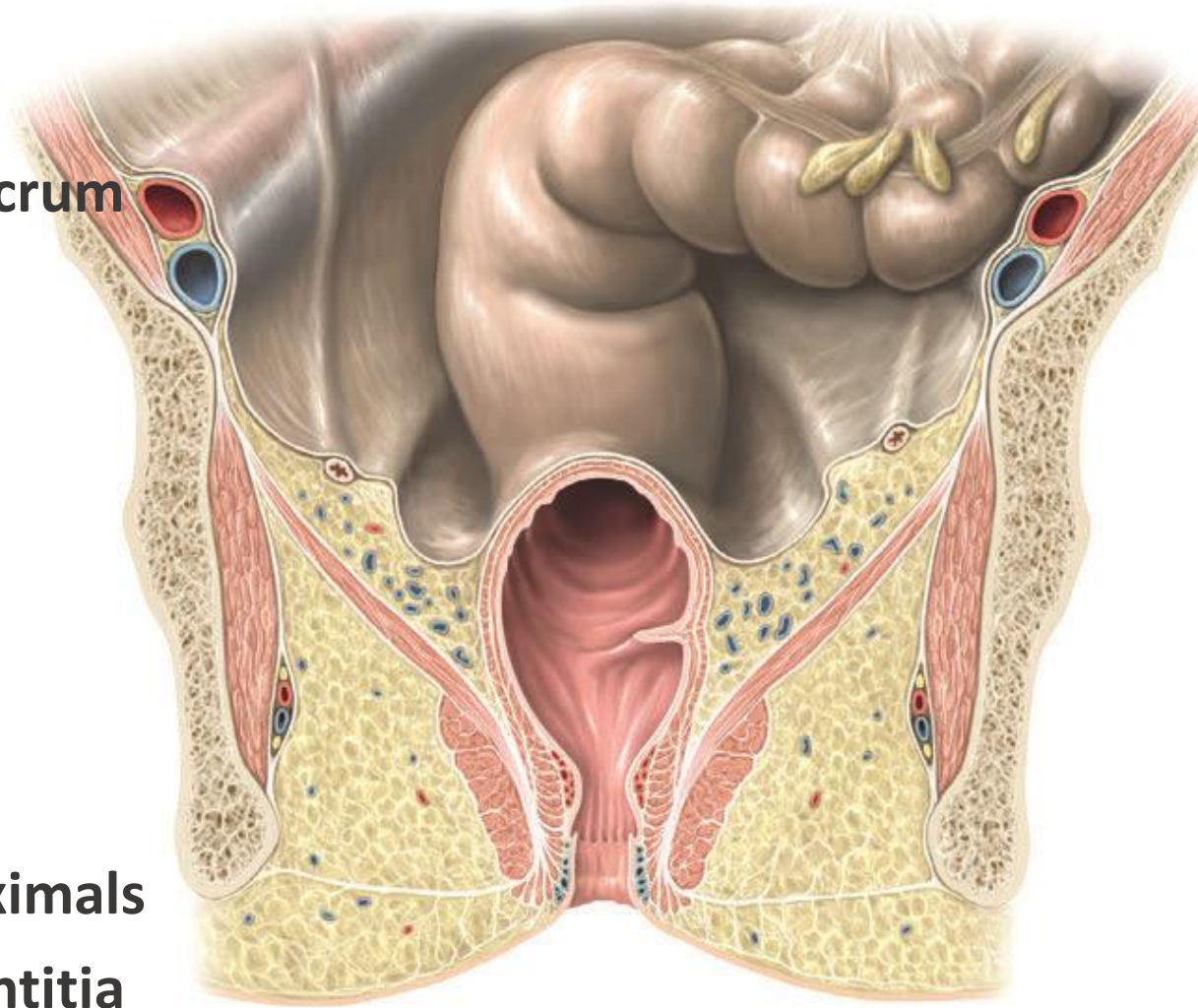
MESOCOLON



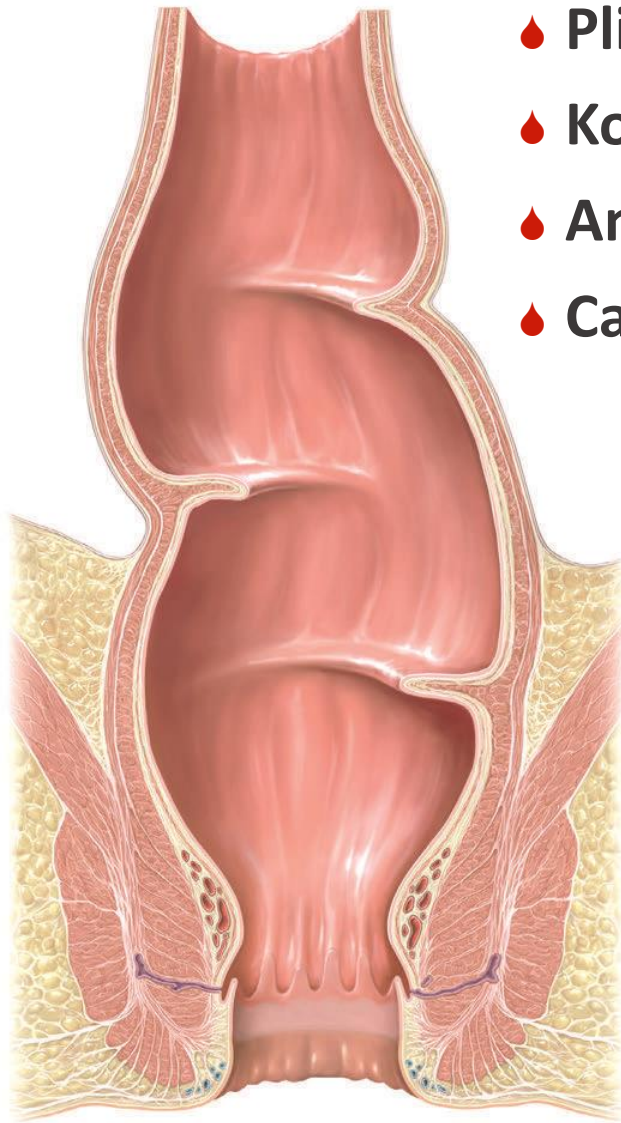
NODI LYMPHATICI INTESTINI



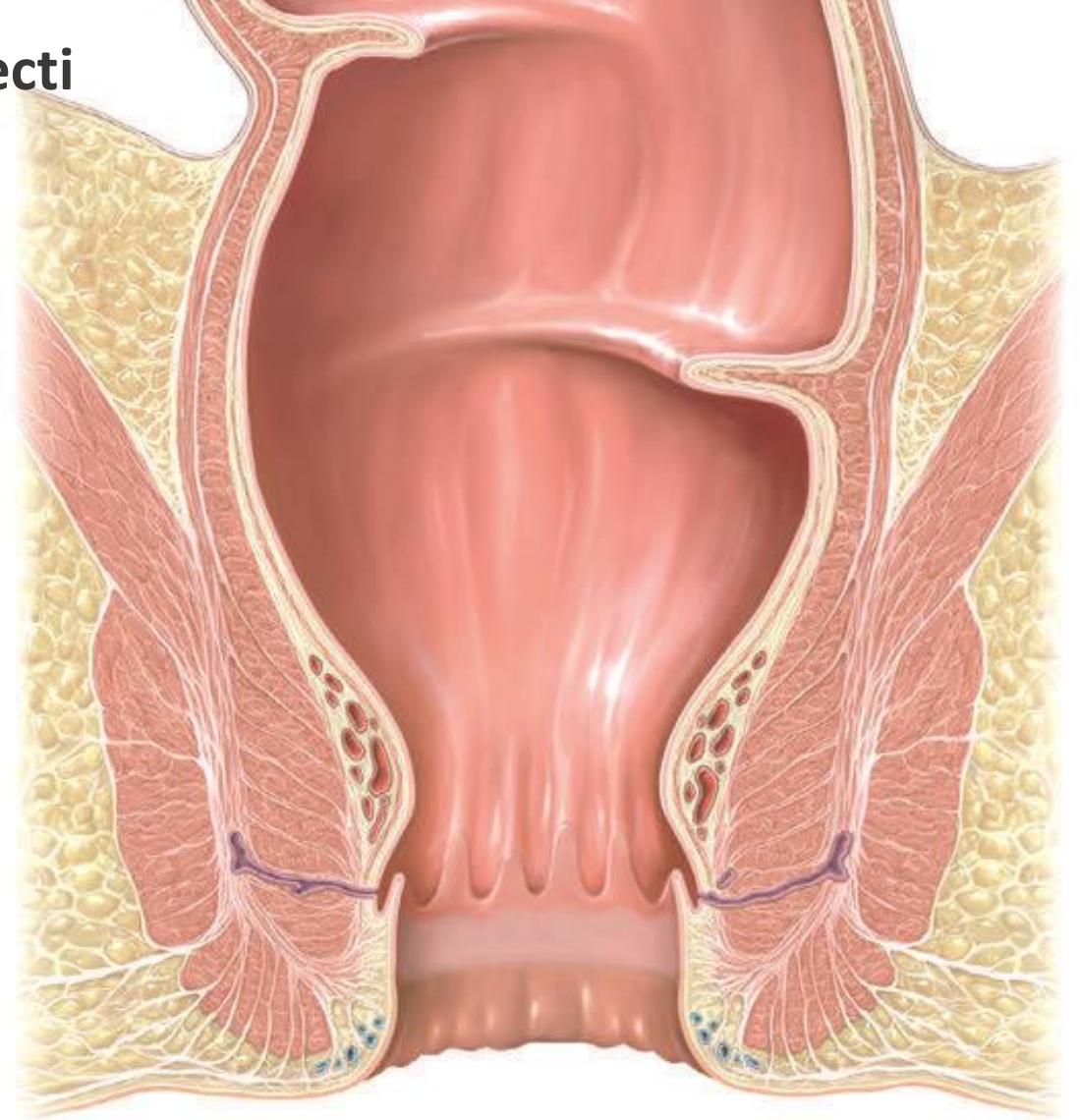
- ♦ 10 - 12 cm
- ♦ anterior to os sacrum
- ♦ bowed
 - ♦ frontal
 - ♦ sagittal
- ♦ Surface lining
 - ♦ peritoneum proximals
 - ♦ distal 7 cm adventitia
 - ♦ (to Kohlrausch fold)



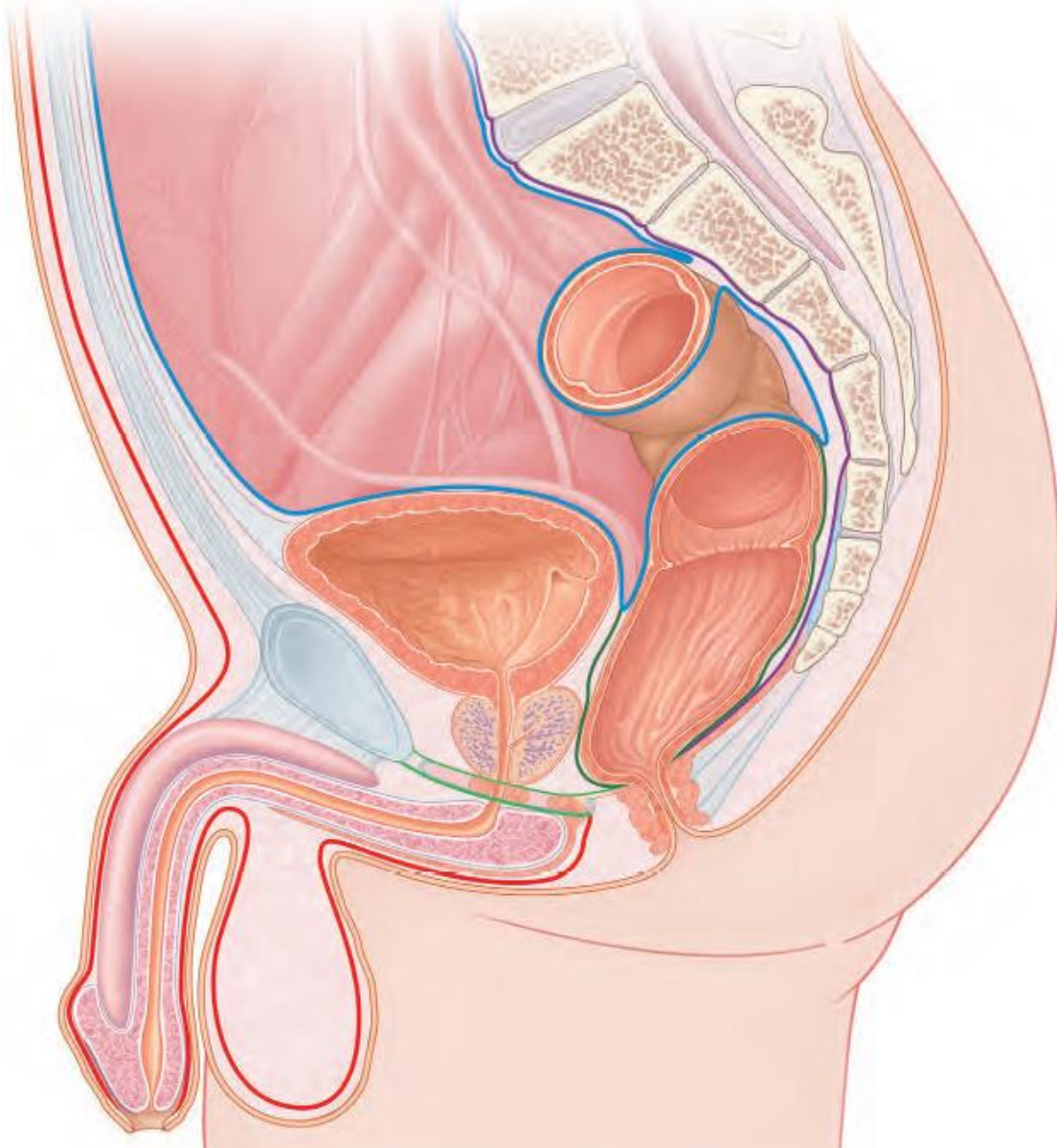
RECTUM



- Plicae transversae recti
- Kohlrausch fold
- Ampula recti
- Canalis analis



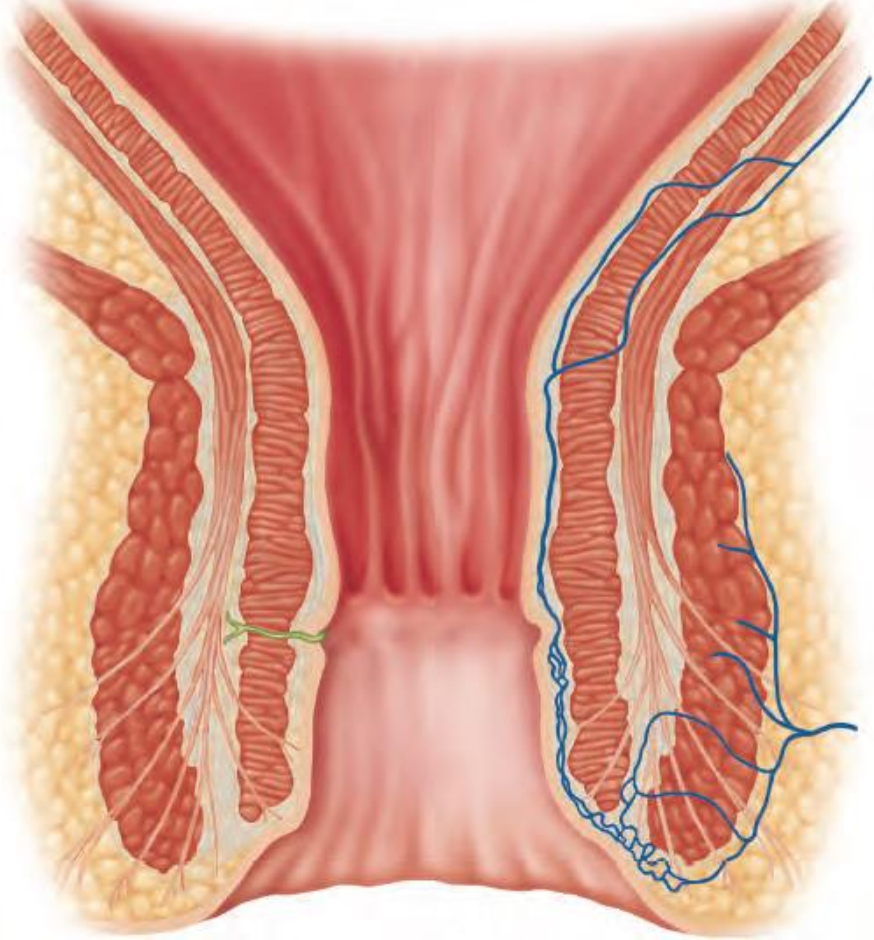
RECTUM



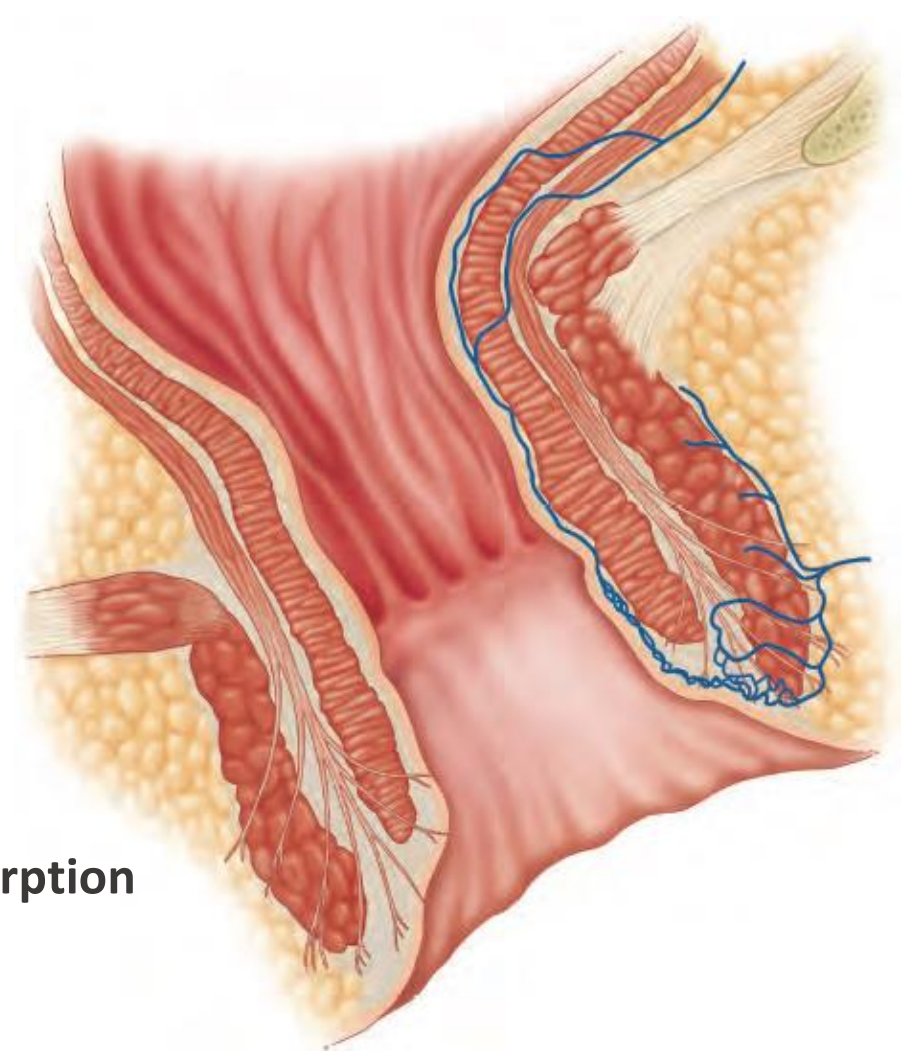
- ♦ „hanging“ of rectum
- ♦ Vasa recti superiores
- ♦ Fascia mesorectalis anterior
- ♦ Mesorectum anterior
- ♦ Fascia mesorectalis posterior
- ♦ Mesorectum posterior

- ♦ Presacral space

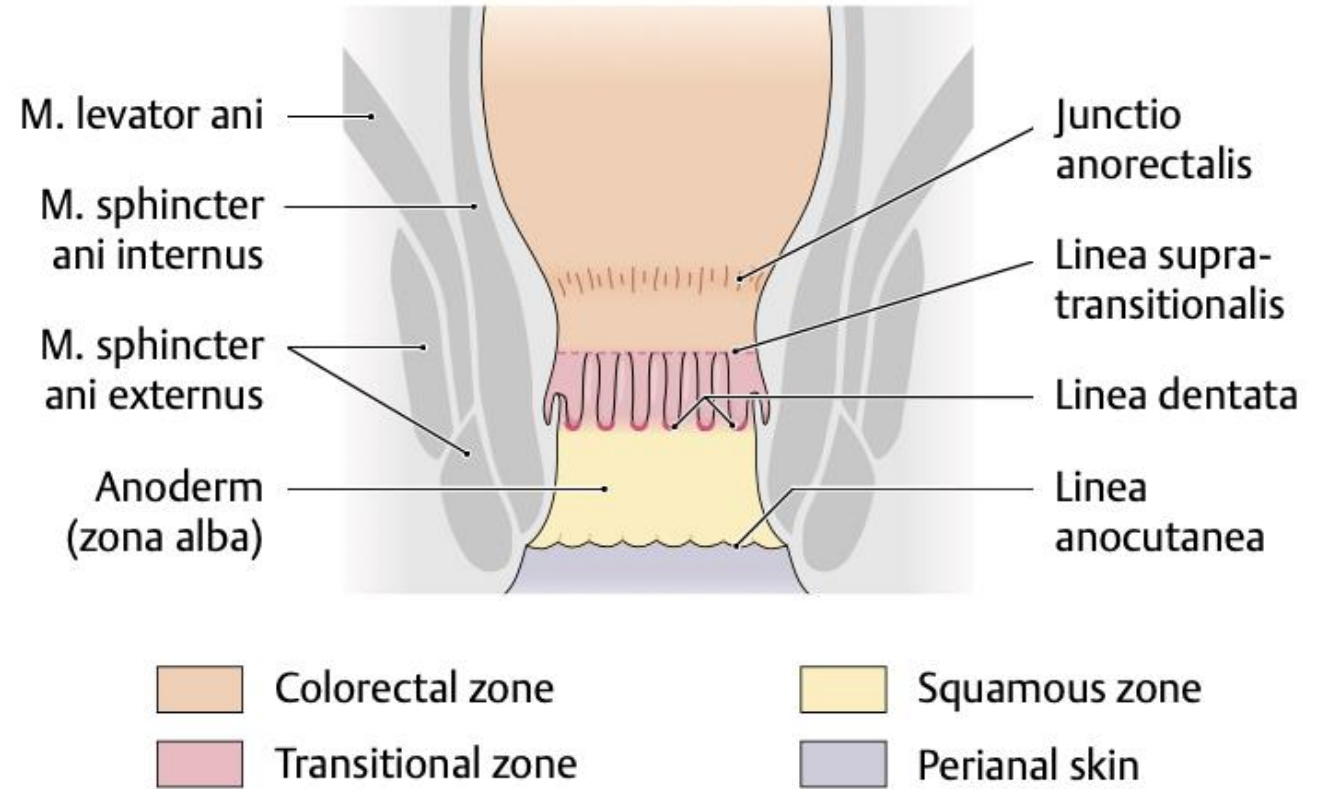
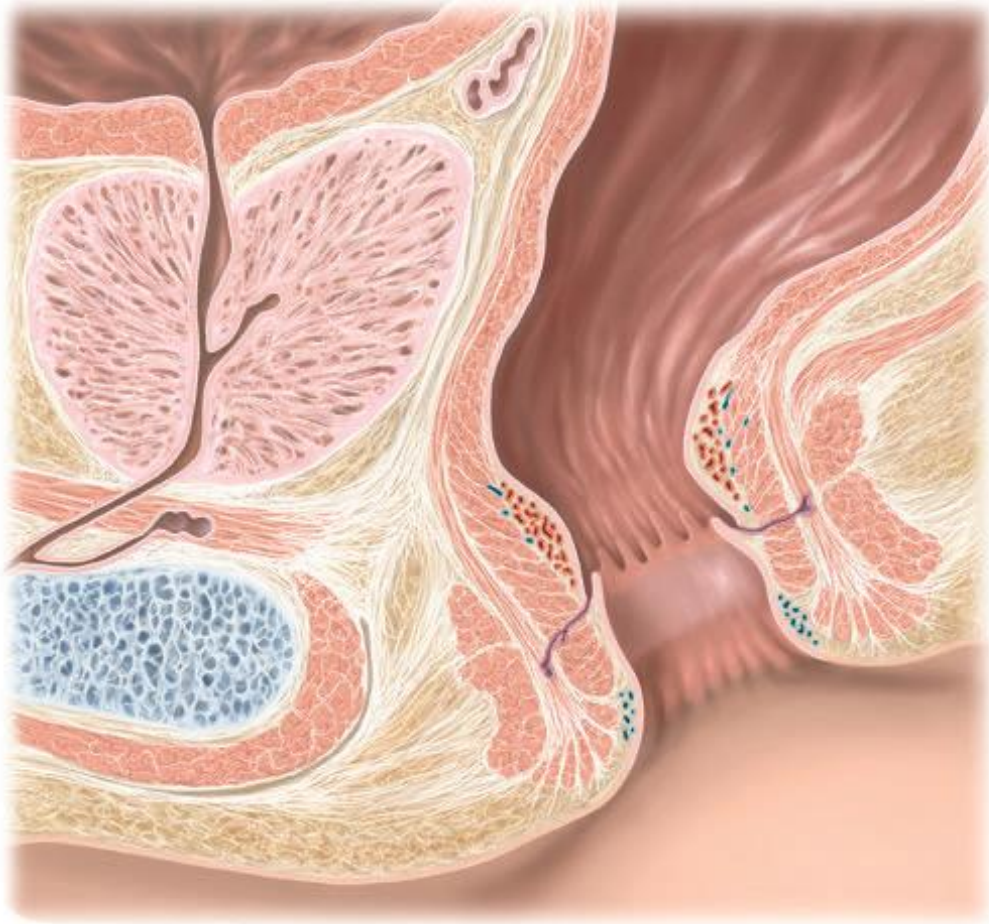
„MESORECTUM“



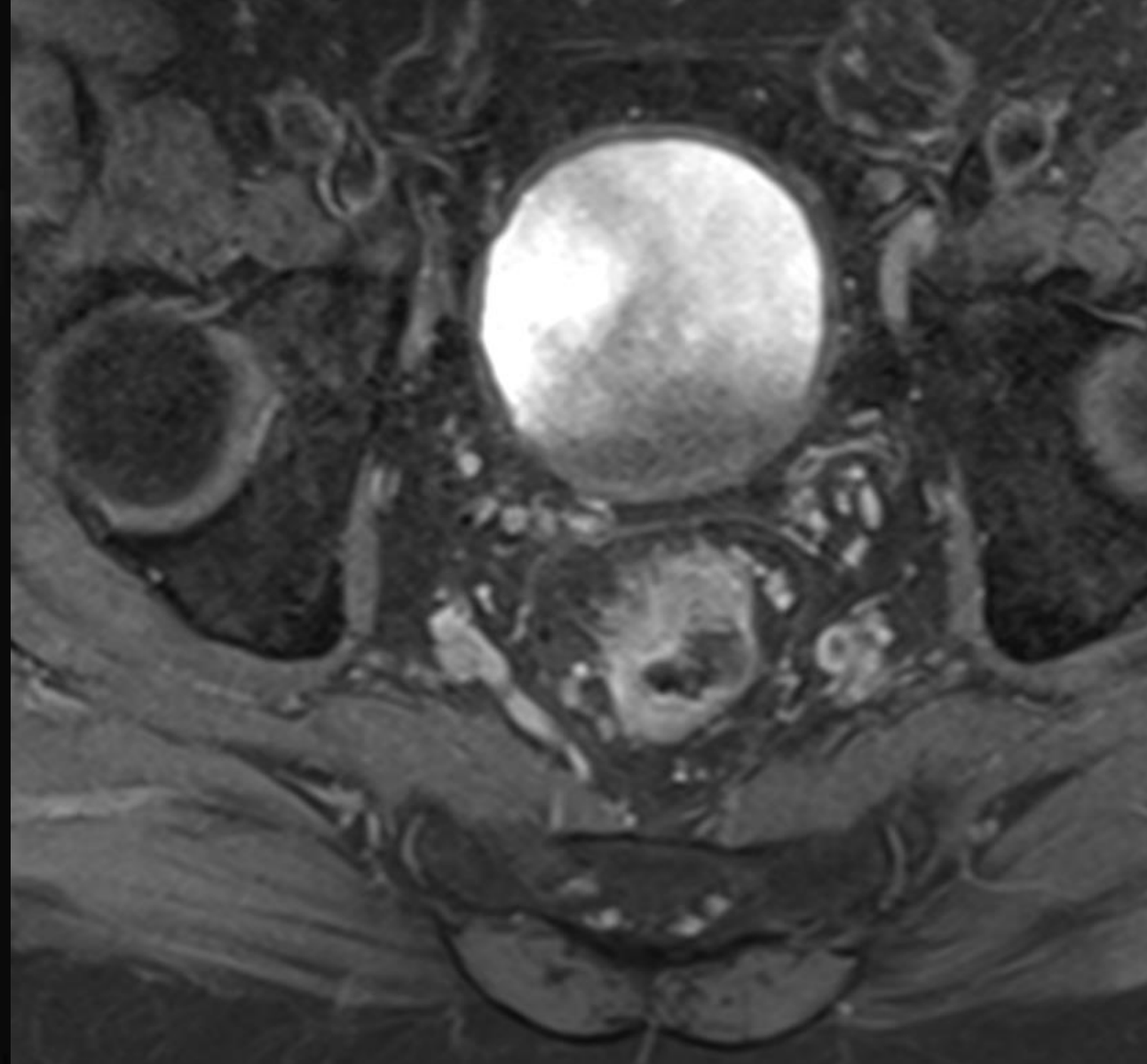
- ♦ Columnae anales
- ♦ Sinus anales
- ♦ Valvulae anales
- ♦ Linea pectinea
- ♦ Recessus rectales
 - ♦ parasites
- ♦ Zona haemorrhoidalis
- ♦ Tela mucosa
- ♦ *Over valvulas*
- ♦ Cylindric epithelium - resorption
- ♦ *Linea alba*
- ♦ Nonkeratinized squamous



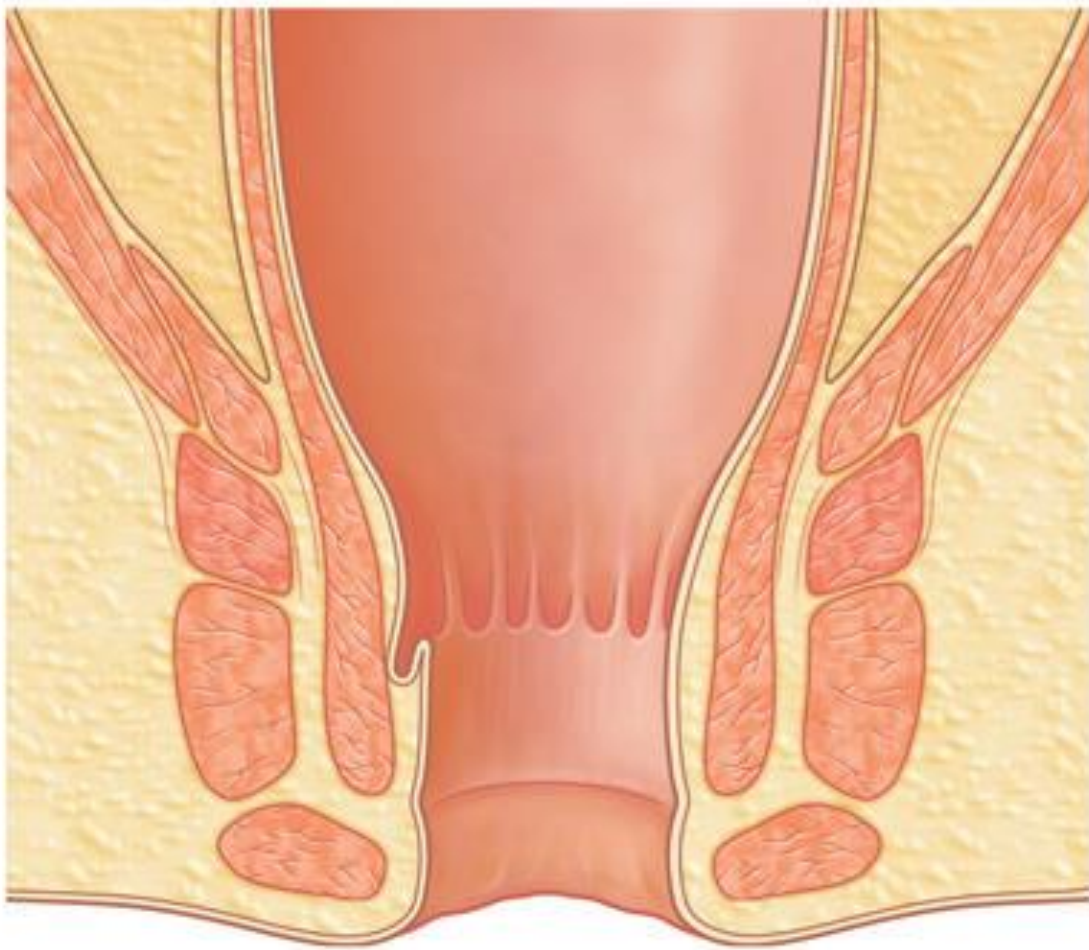
CANALIS ANALIS



CANALIS ANALIS



CARCINOMA RECTI



- ♦ **M. sphincter ani internus**

- ♦ *smooth*

- ♦ *Plexus sacralis - parasympathetic*

- ♦ **M. sphincter ani externus**

- ♦ *stripped*

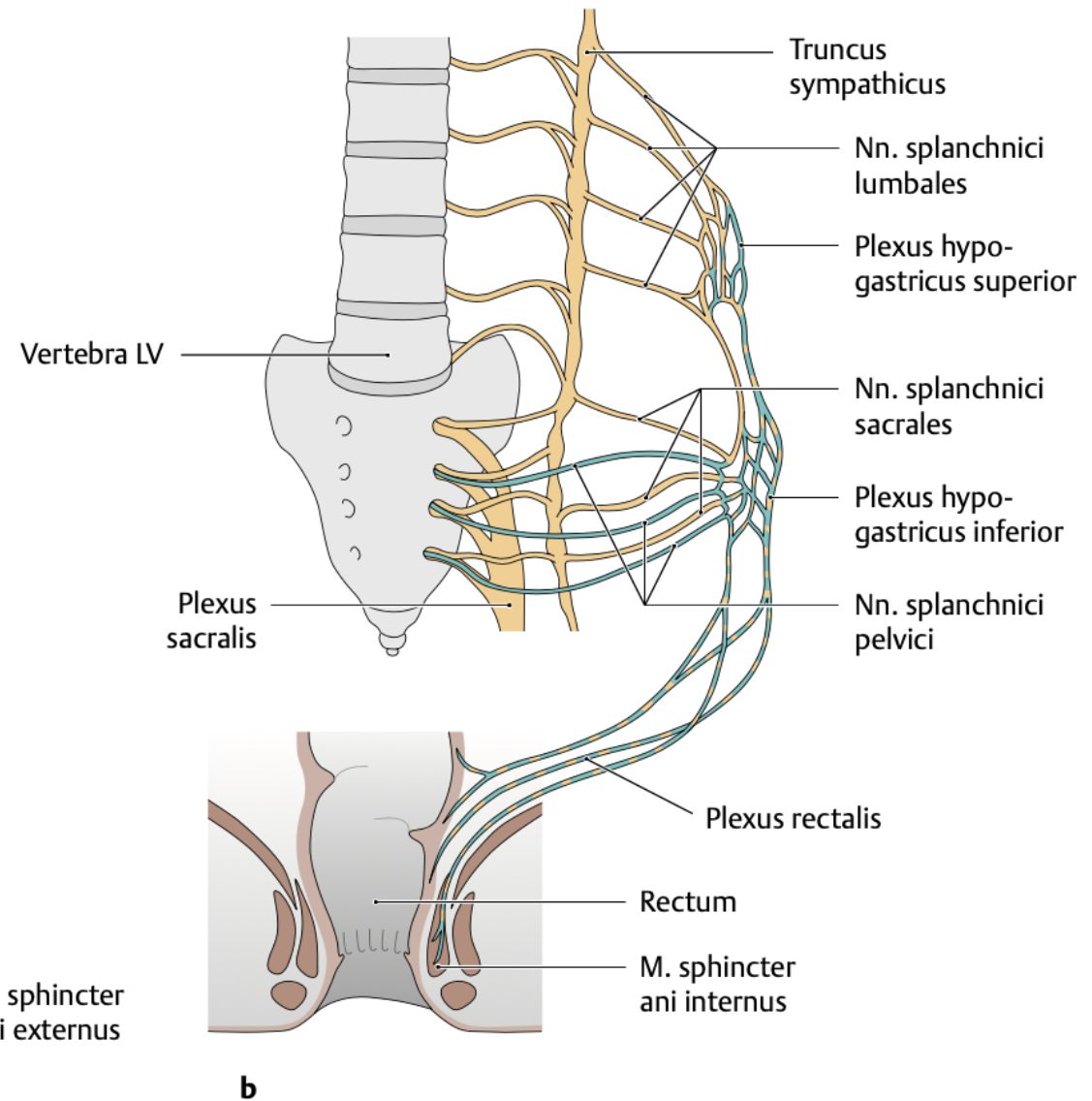
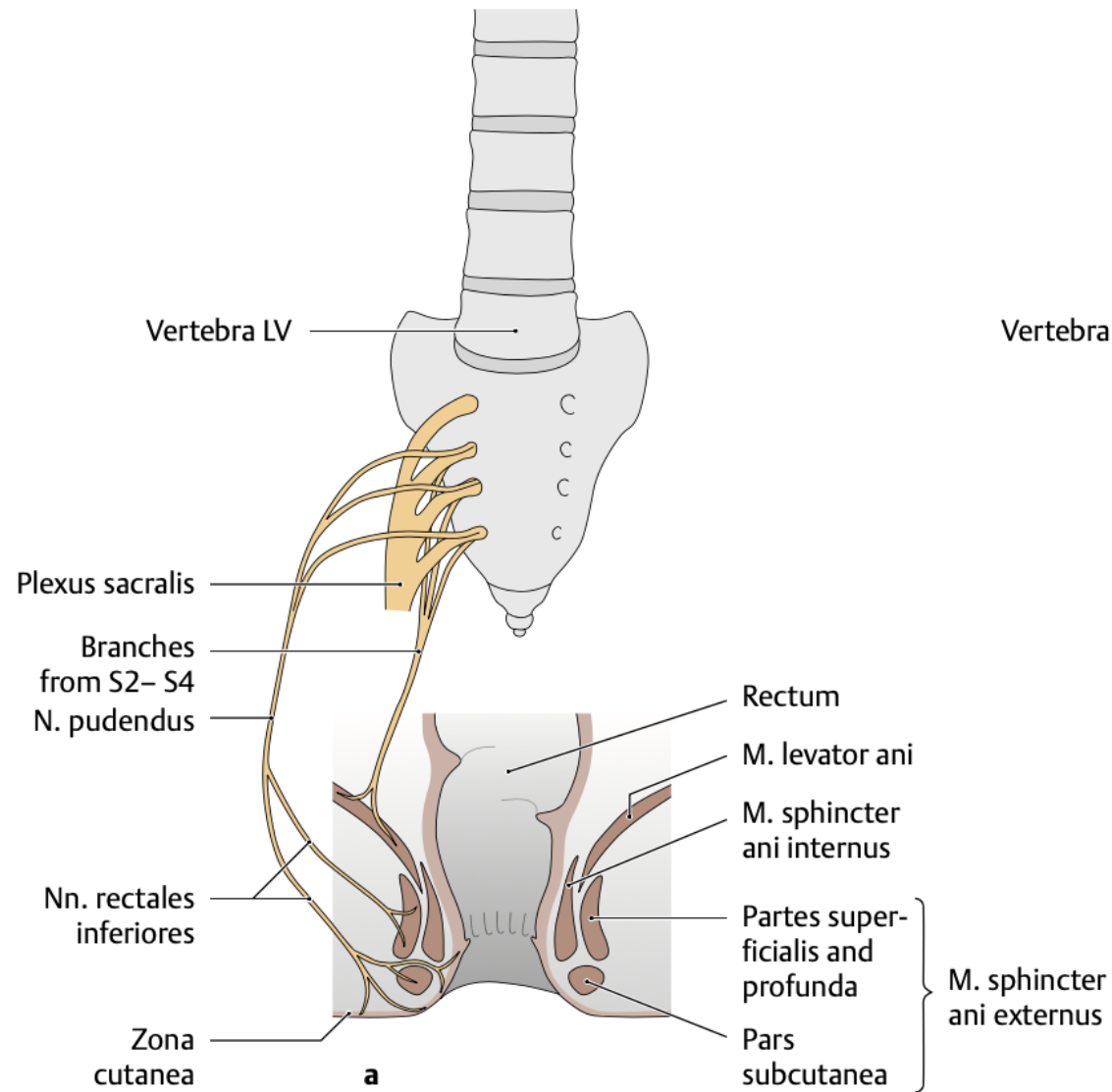
- ♦ *N. pudendus*

- ♦ **Pars profunda**

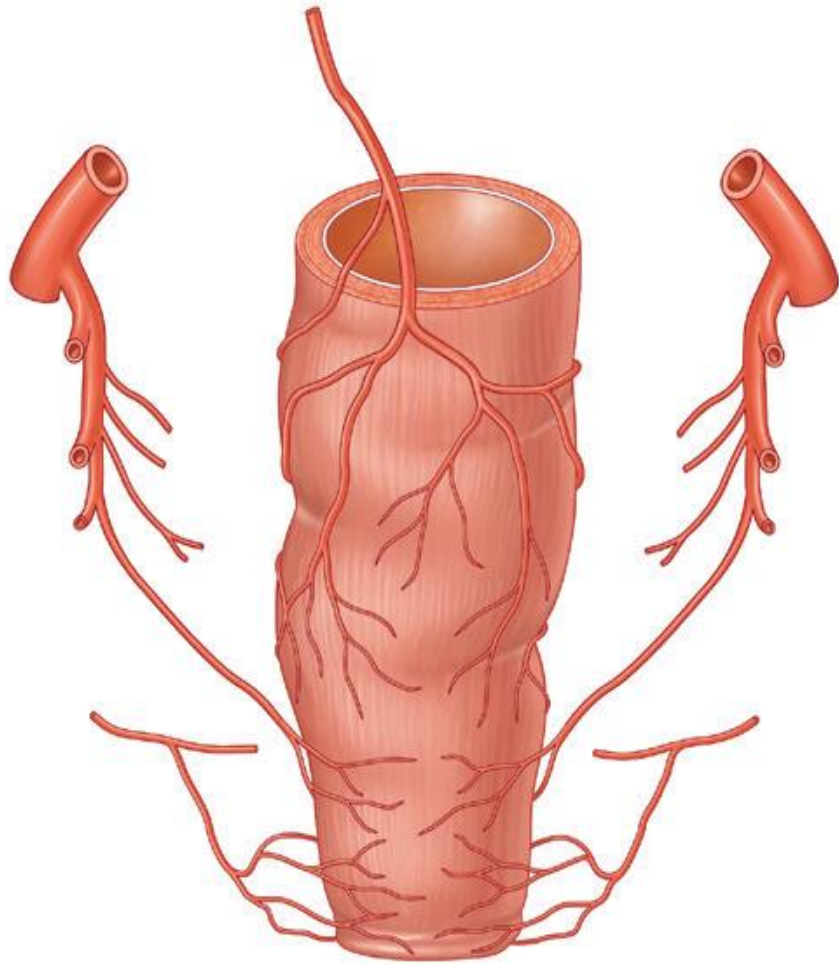
- ♦ **Pars superficialis**

- ♦ **Pars subcutanea**

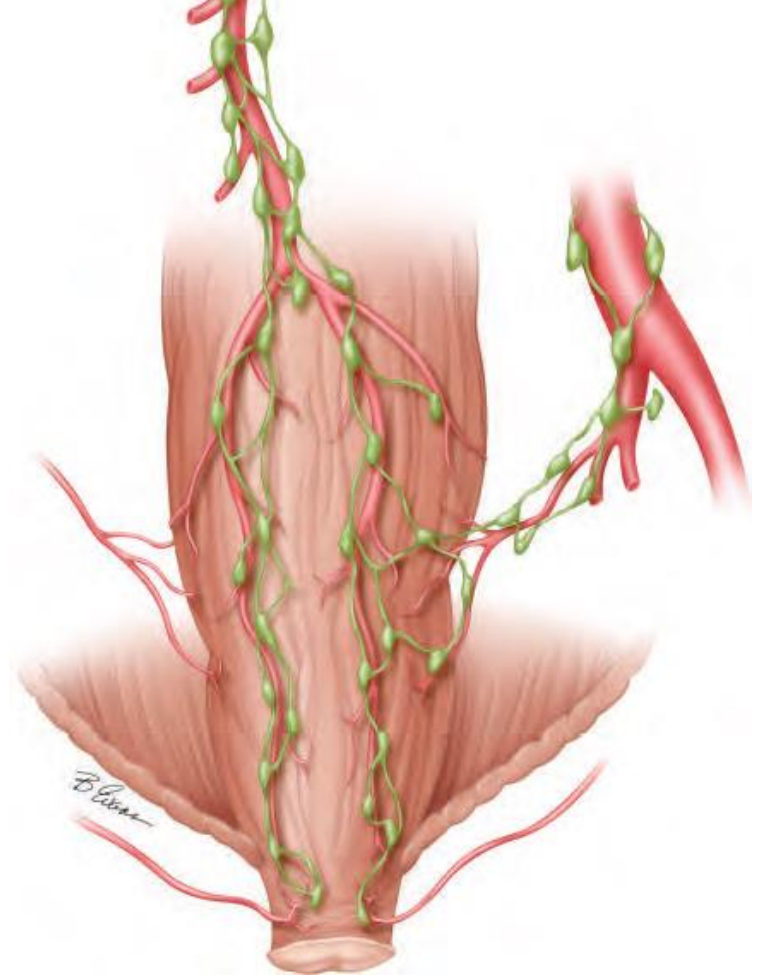
SPHINCTER ANI INTERNUS



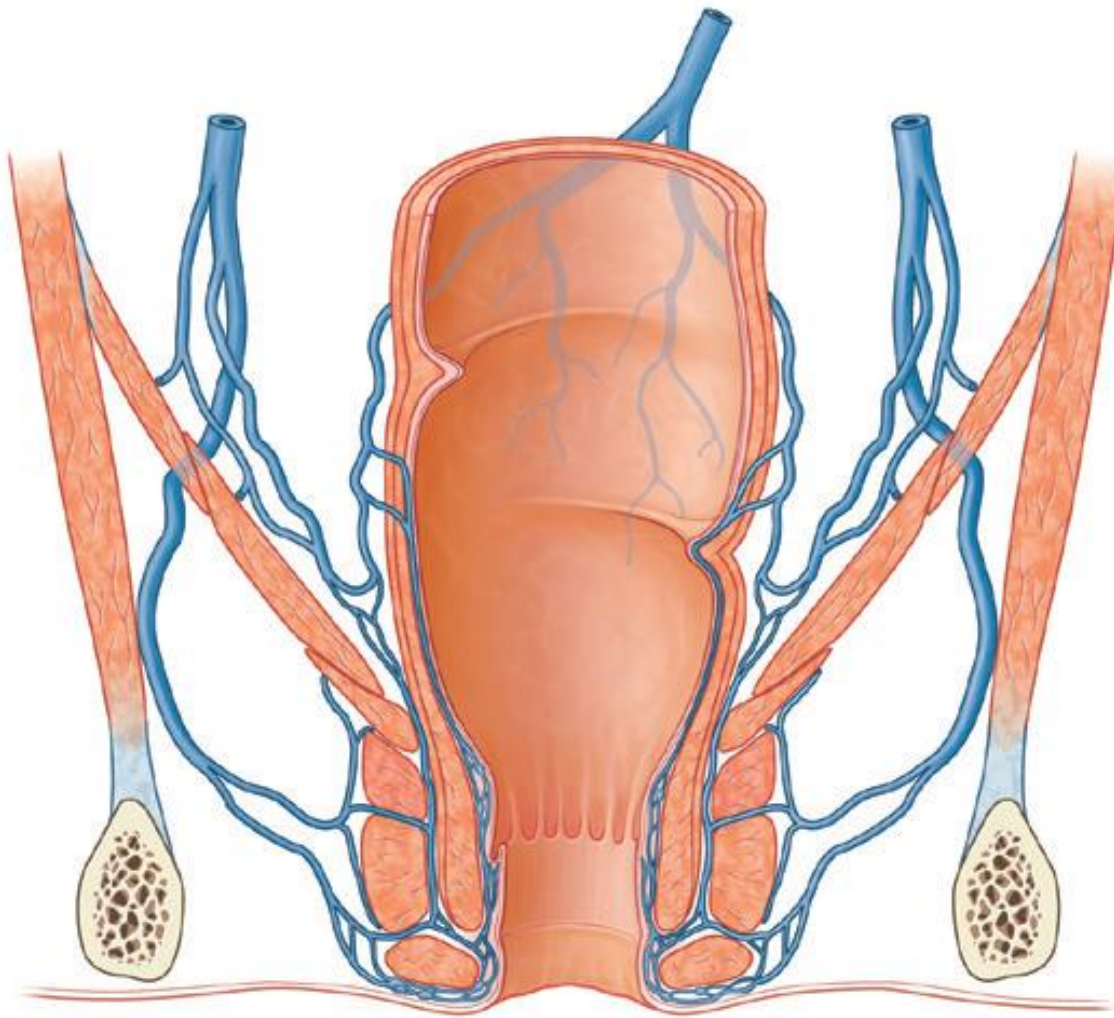
SPHINCTER ANI EXTERNUS



- ♦ **A. rectalis superior**
- ♦ *A. mesenterica inferior*
- ♦ **Nn. rectales superiores**
- ♦ **A. rectalis media**
- ♦ *A. iliaca interna*
- ♦ **Nn. iliaci interni**
- ♦ **A. rectalis inferior**
- ♦ *A. pudenda interna*
- ♦ *A. iliaca interna*
- ♦ **Nn. inguinales**



VASA ET NODI LYPHATICI RECTI

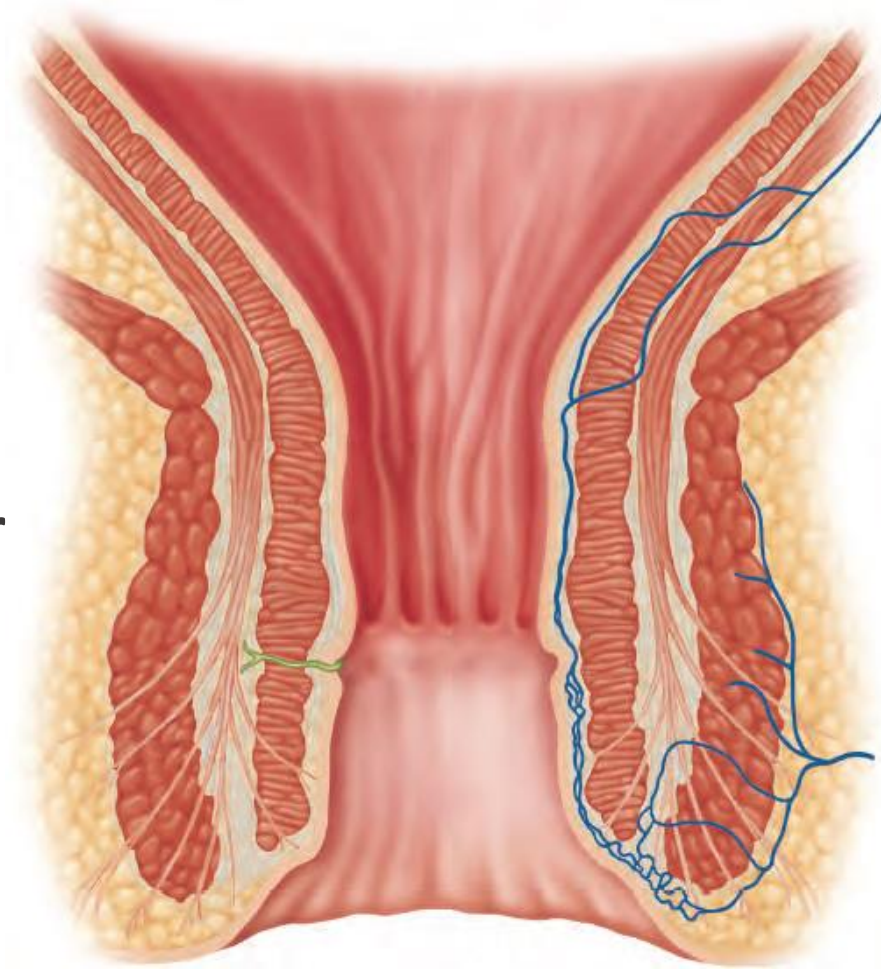


• V. rectalis superior

• V. iliaca interna

• V. rectalis media

• V. rectalis inferior



PLEXUS HAEMORRHOIDEALIS

ABDOMEN 2

Prof. MUDr. Jiří Ferda, Ph.D.