

Digestive system II.

Morphology

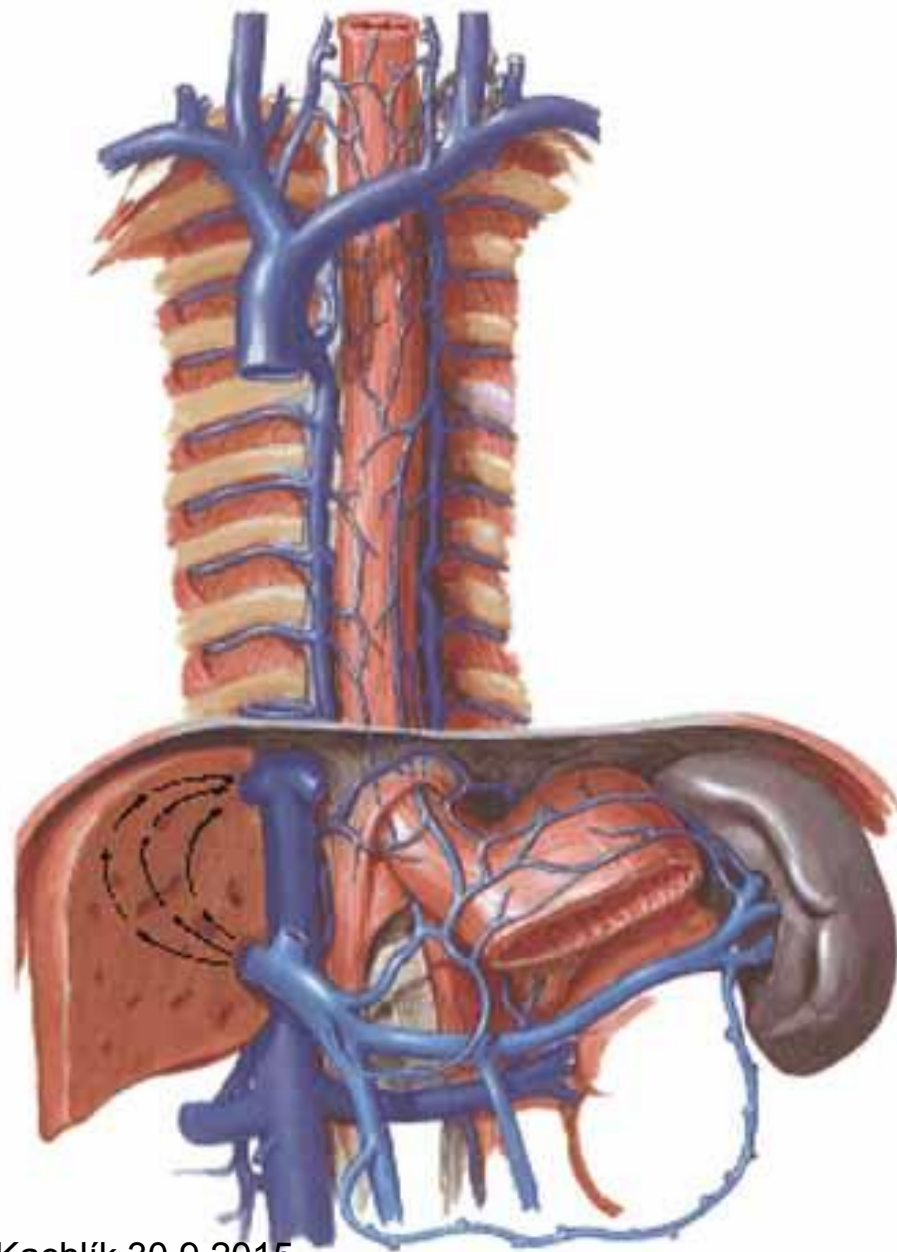
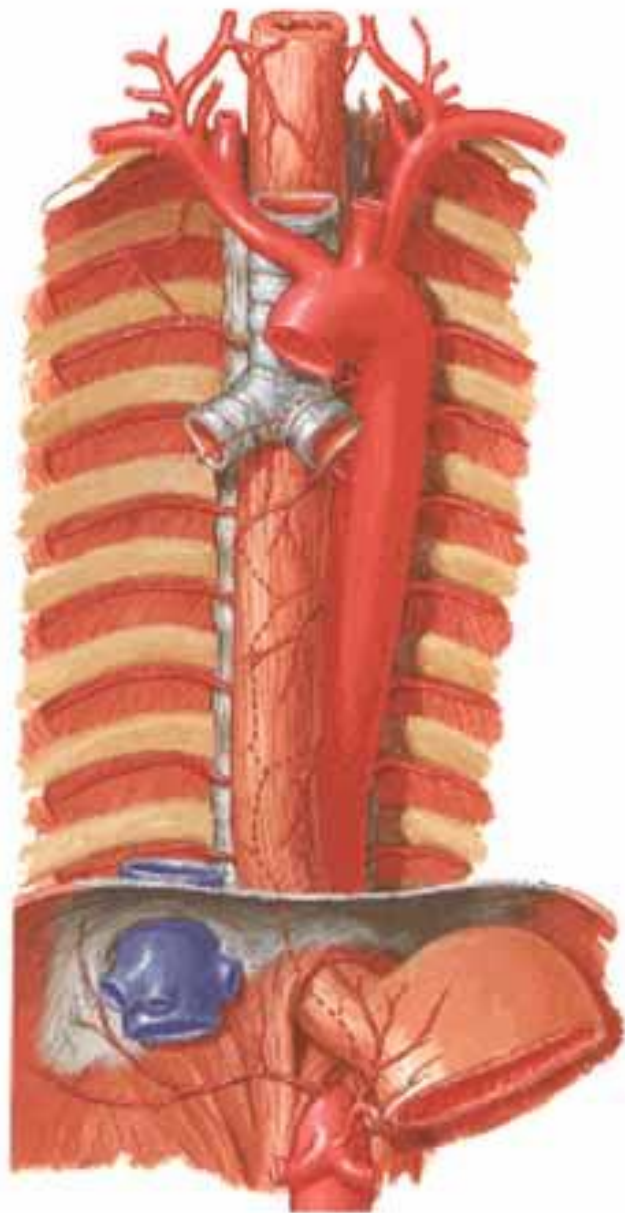
Digestive tube

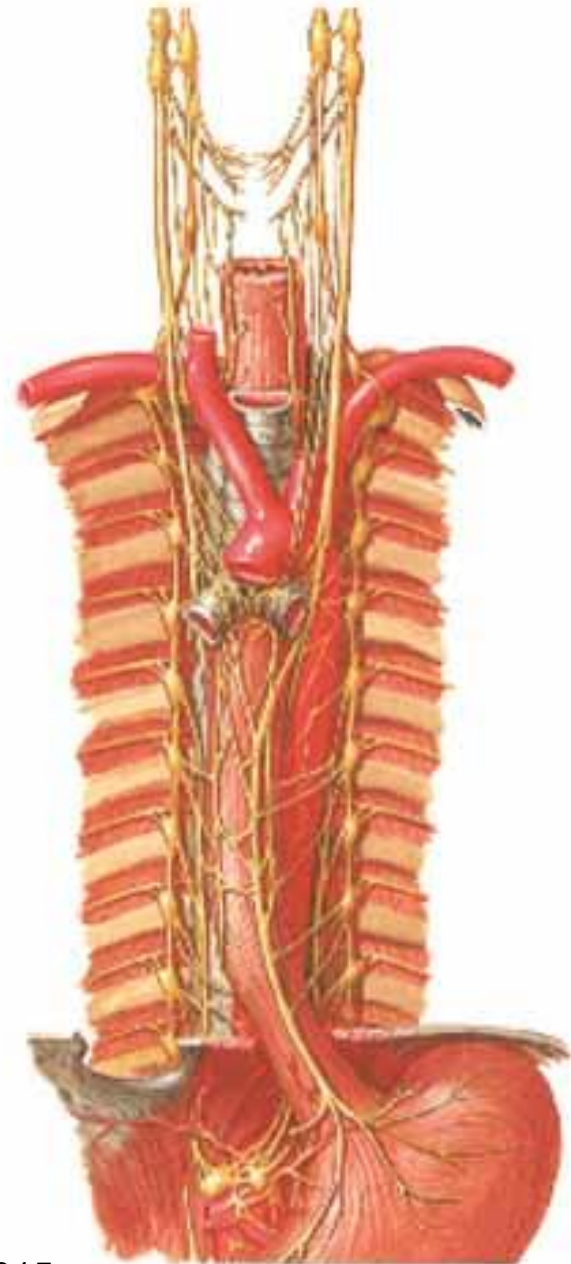
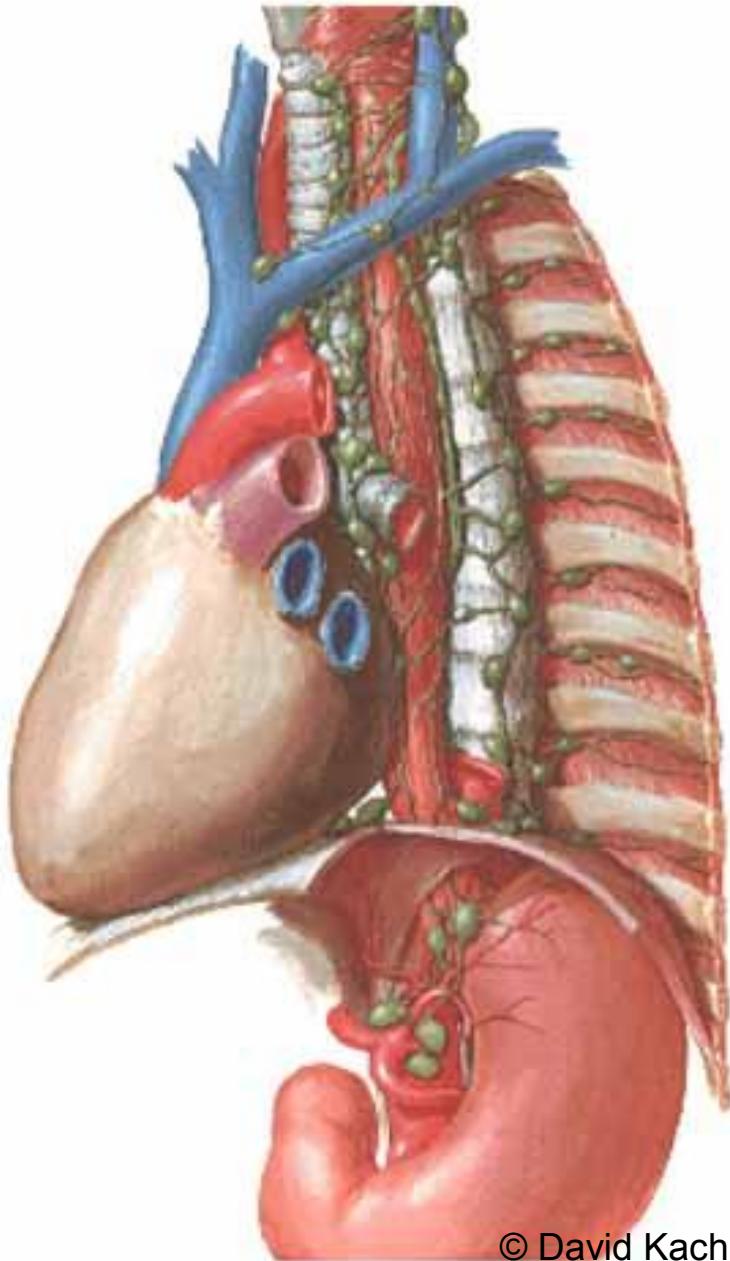
- Oesophagus
- Stomach
- Small intestine
- Large intestine
- Rectum
- Anus

Oesophagus

- pars cervicalis, thoracica, abdominalis
- constictions: 3 permanent + 2 temporary
- position: relation to trachea, aorta, vertebral column, ductus thoracicus
- topography: superior + posterior mediastinum









Oesophagus – *examination*

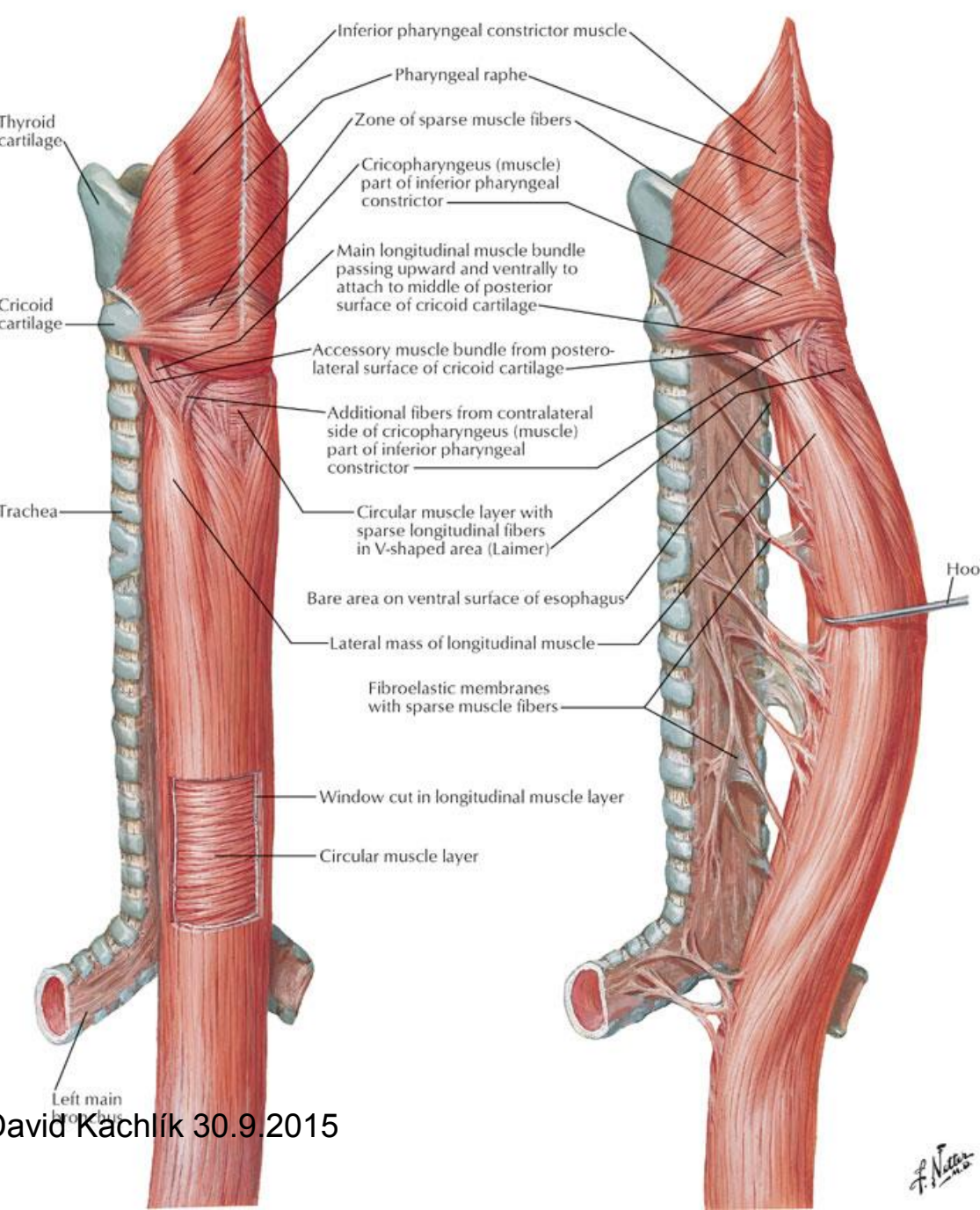
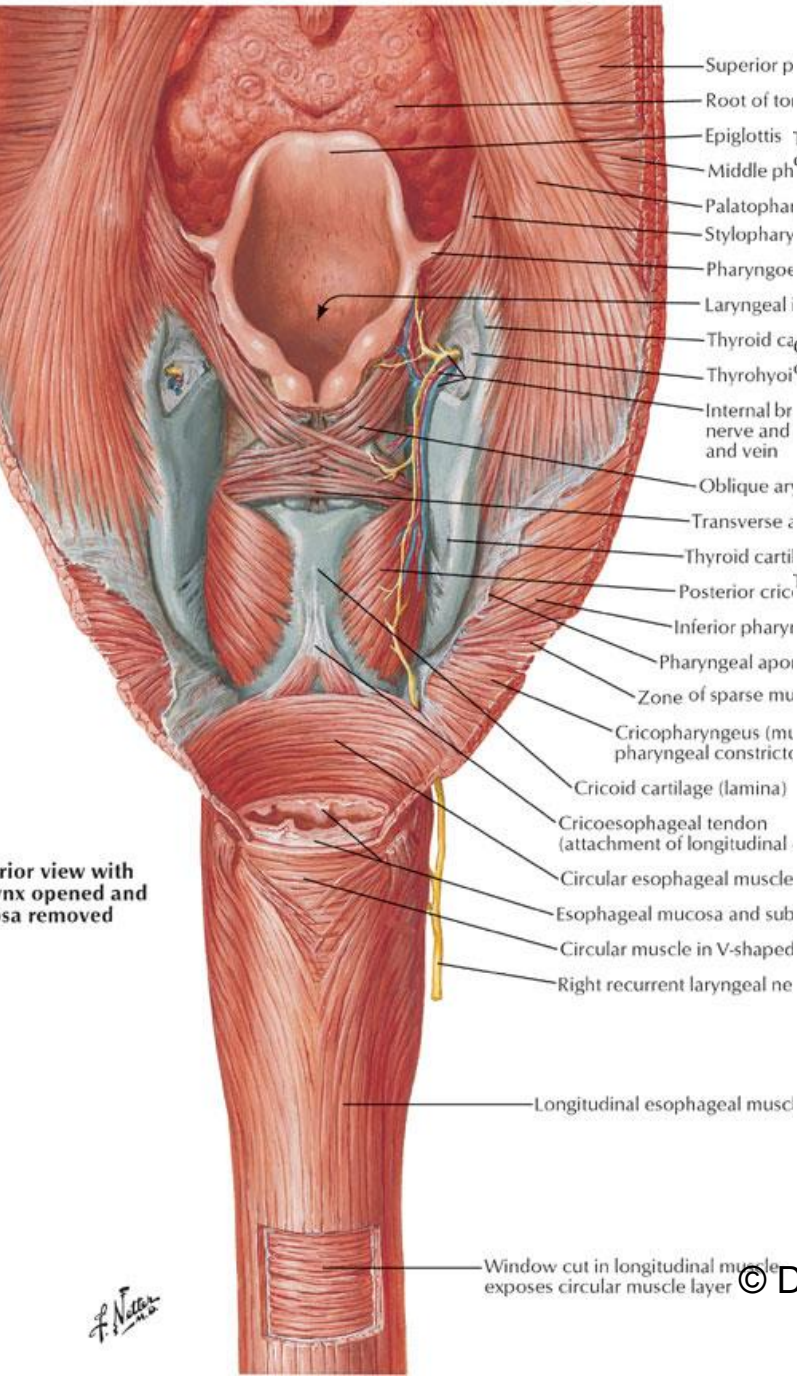
- endoscopy – rigid and flexible
 - Kilian's – 15 cm from teeth
 - transition to stomach - 40 cm from teeth
- X-ray – contrast with baryum
- oesophageal manometry
- pH-metry
- oesophageal echocardiography

Sites with weakened wall

- trigonum Killiani
 - *cranially*: m. thyropharyngeus (m. constrictor ph. inf.)
 - *caudally*: m. cricopharyngeus (m. constrictor ph. inf.)
 - *diverticulum of Zenker (= pharyngo-oesophageal diverticle; dehiscence of Killian)*
- trigonum Laimeri
 - *cranially*: m. cricopharyngeus
 - *caudally*: upper oblique fibres of longitudinal muscle layer of oesophagus
- area Killian-Jamieson
 - at lateral side of oesophagus
 - *diverticulum of Killian-Jamieson*

Pharyngoesophageal Junction

Musculature of Esophagus

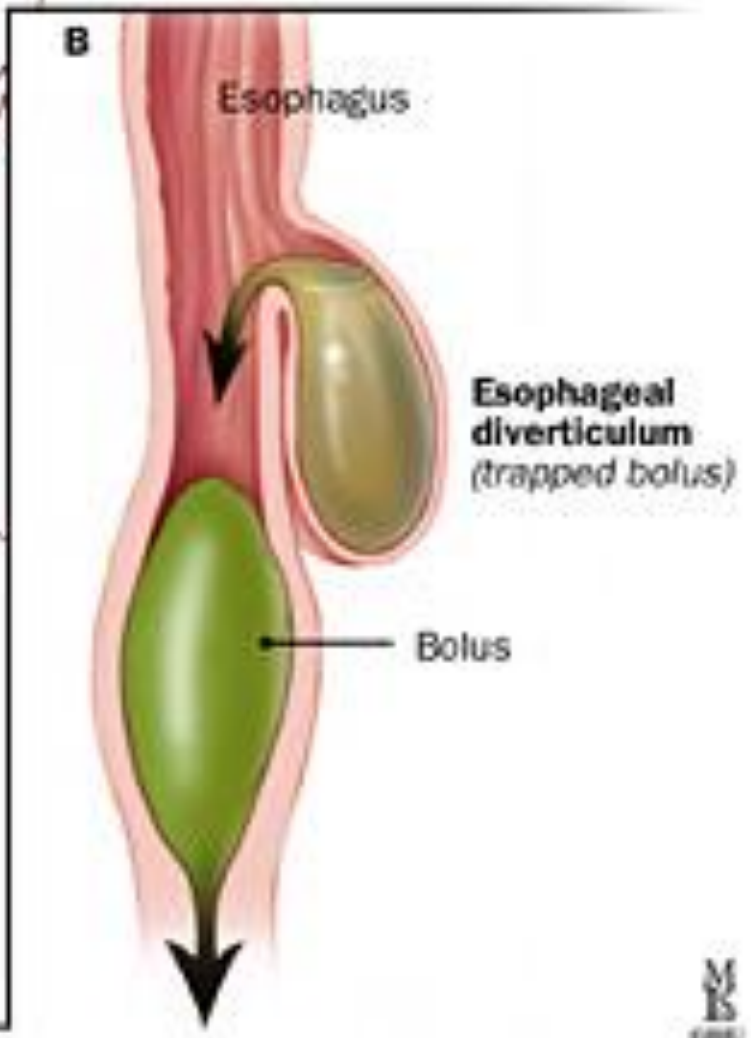
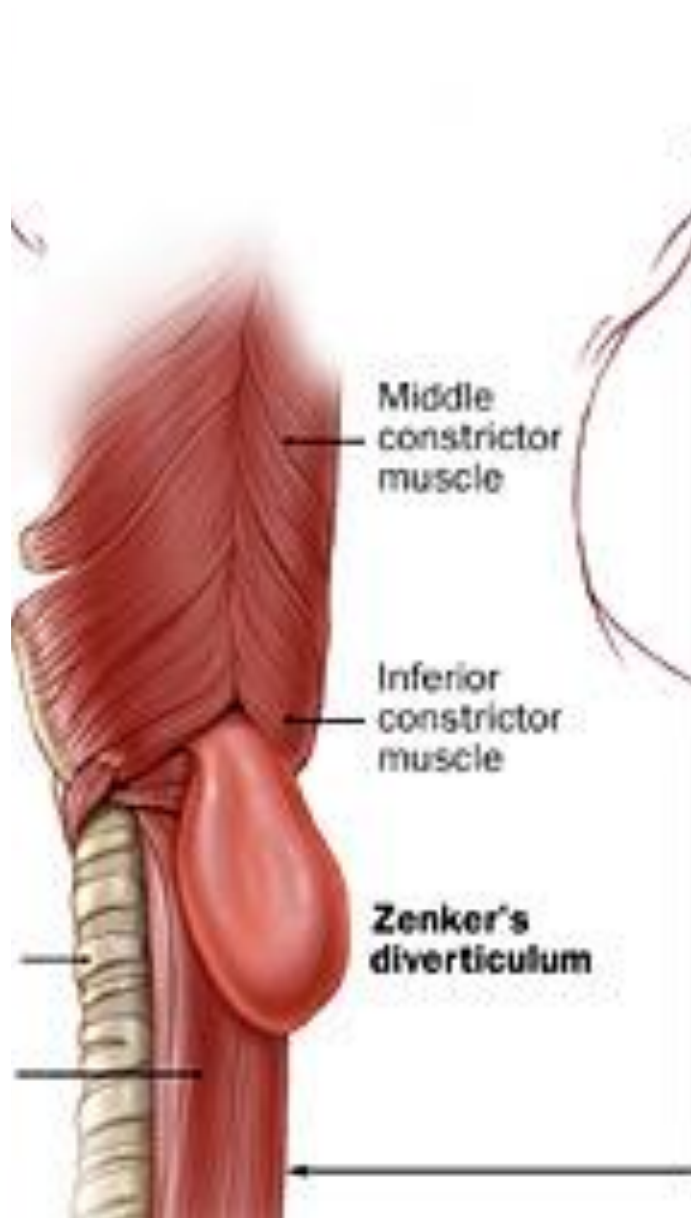


Anterior view with larynx opened and cricoid cartilage removed

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F. Netter

F. Netter





Oesophagus – di.

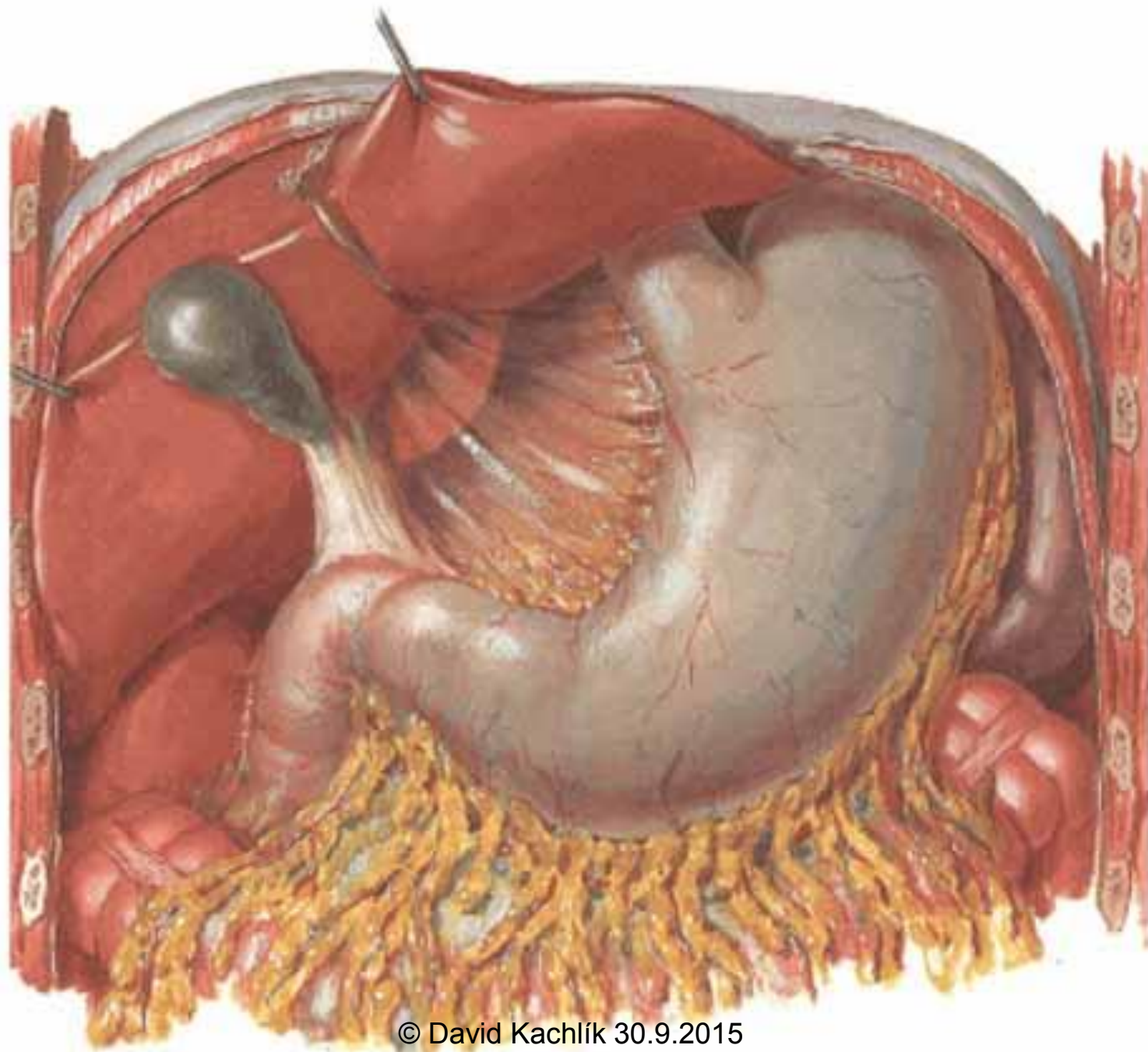
- *gastroesophageal reflux*
- *hernia in hiatus oesophage*
- *varices*
- *diverticles – pulsatory (of Z (of Rokitansky)*
- *tumors – stent, colon repos*
- *lye/acid – mediastinitis*





This histological image shows a cross-section of the uterine wall. The top portion is the endometrium, which is divided into the functionalis (upper, darker, and more cellular layer) and the basalis (lower, lighter, and less cellular layer). The middle portion is the myometrium, composed of smooth muscle fibers arranged in a complex, interlacing pattern. The bottom portion is the external os, which is the opening of the uterus into the vagina. The overall structure is characterized by a dense network of smooth muscle fibers and a rich vascular supply.

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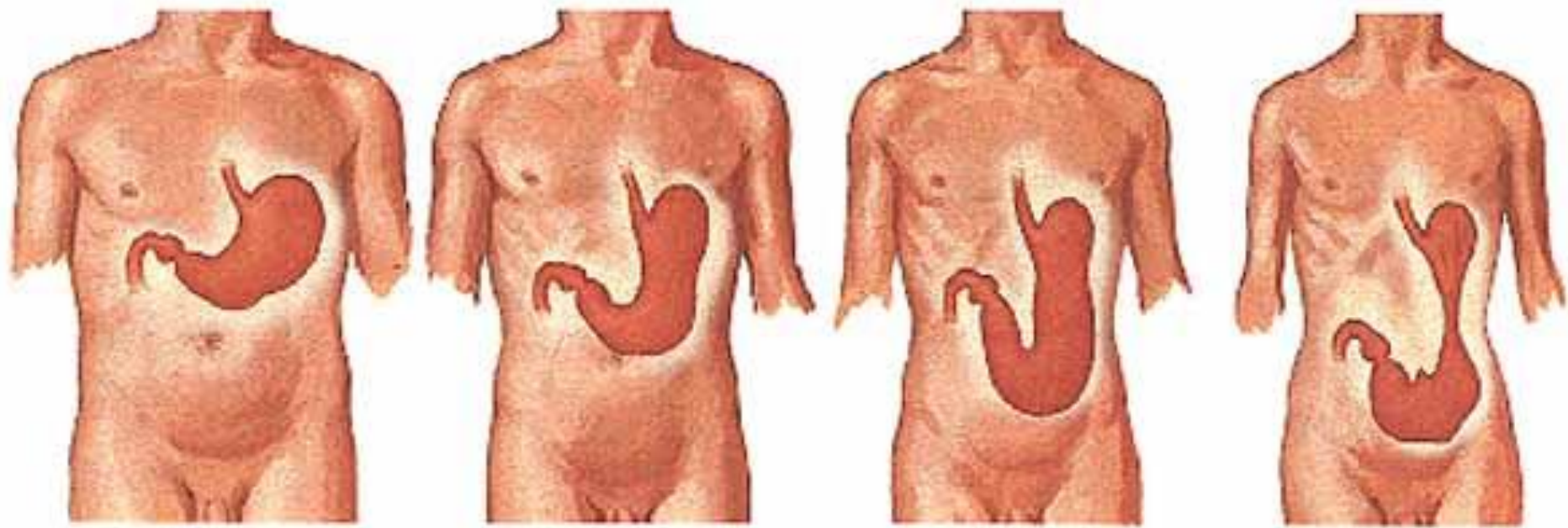
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STOMACH - RELATIONS

Diaphragm

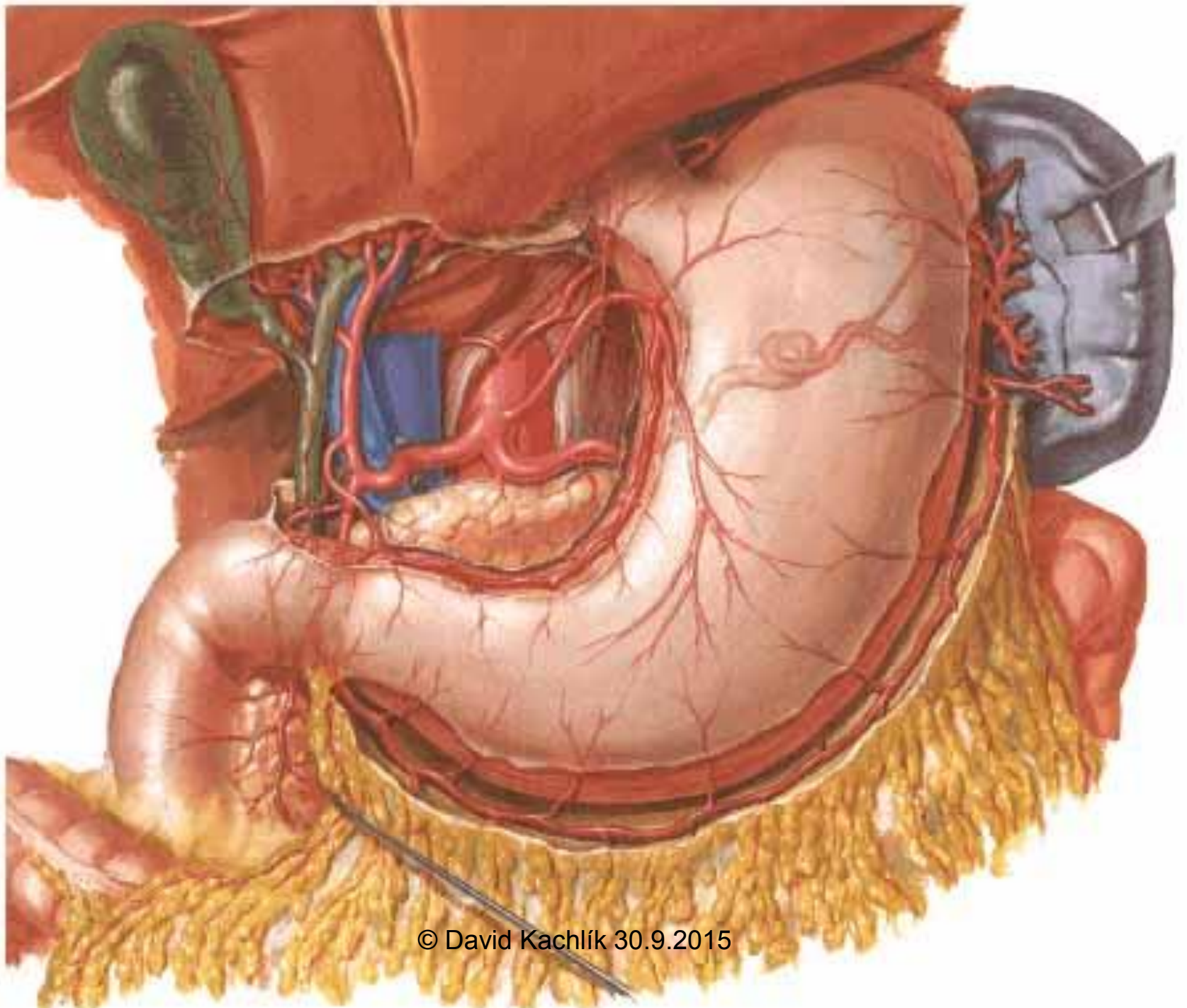
Stomach

Variations in Position and Contour

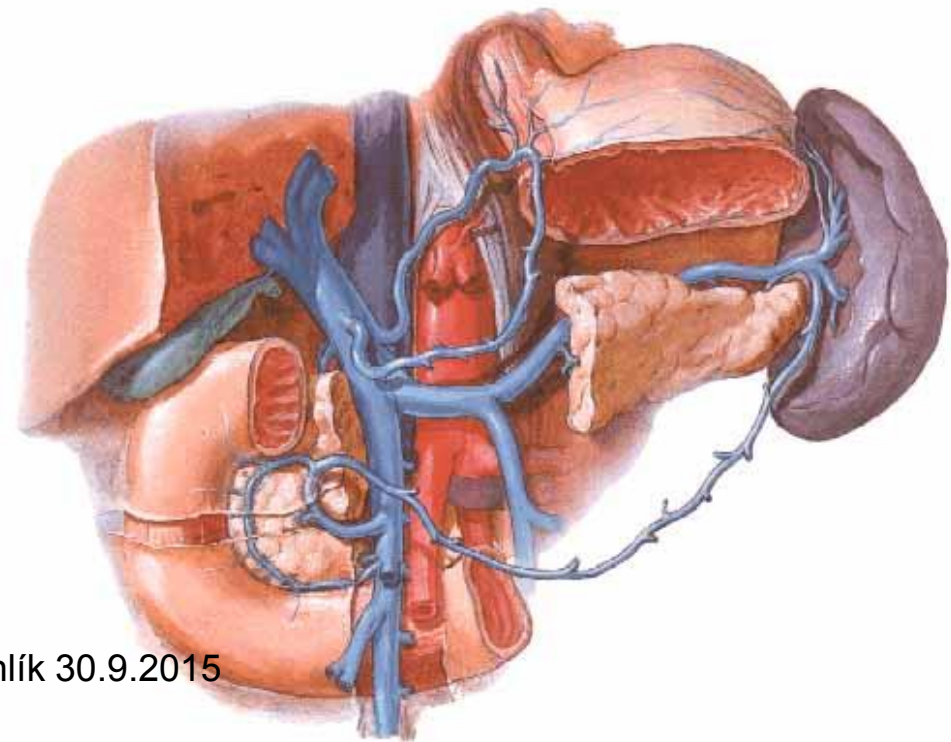
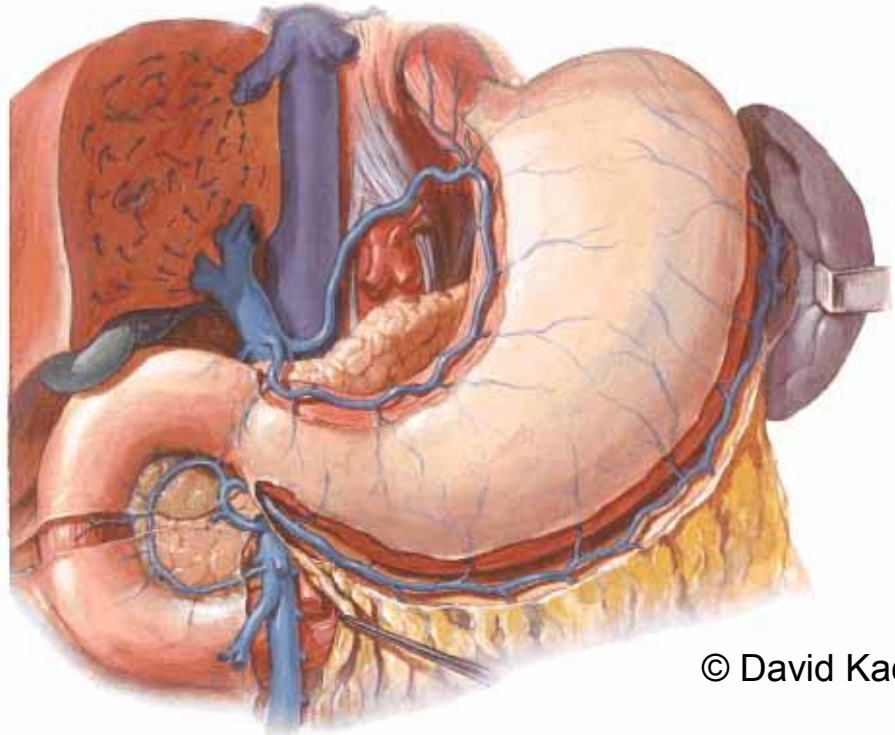
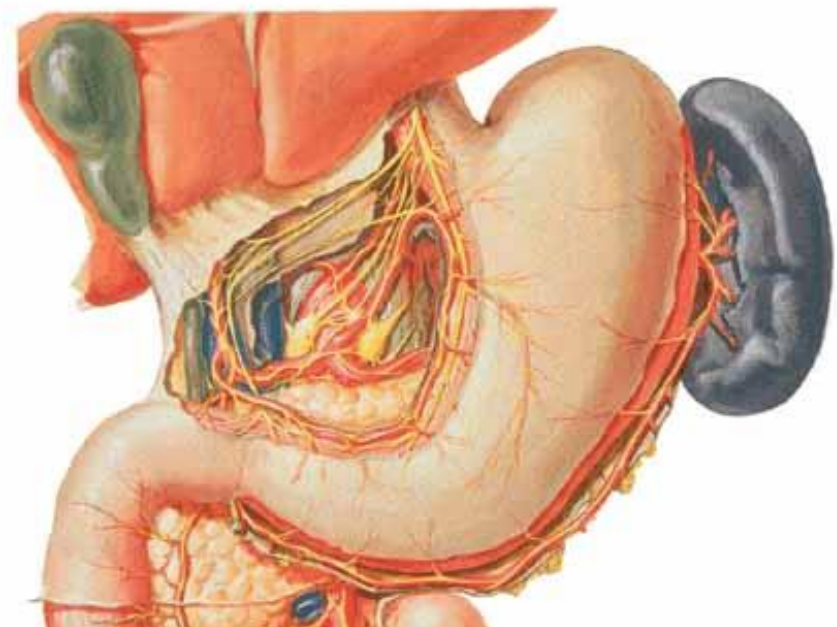
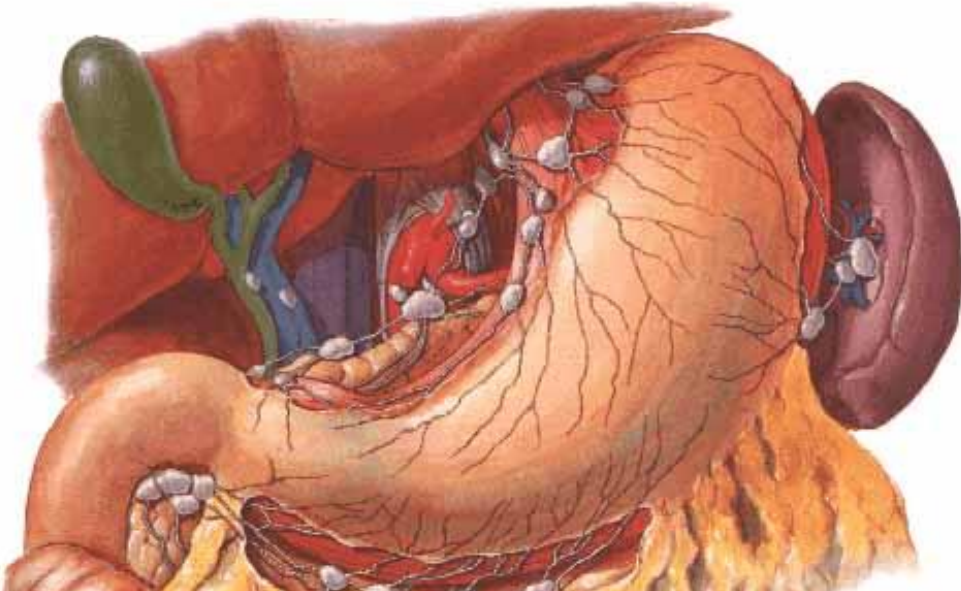


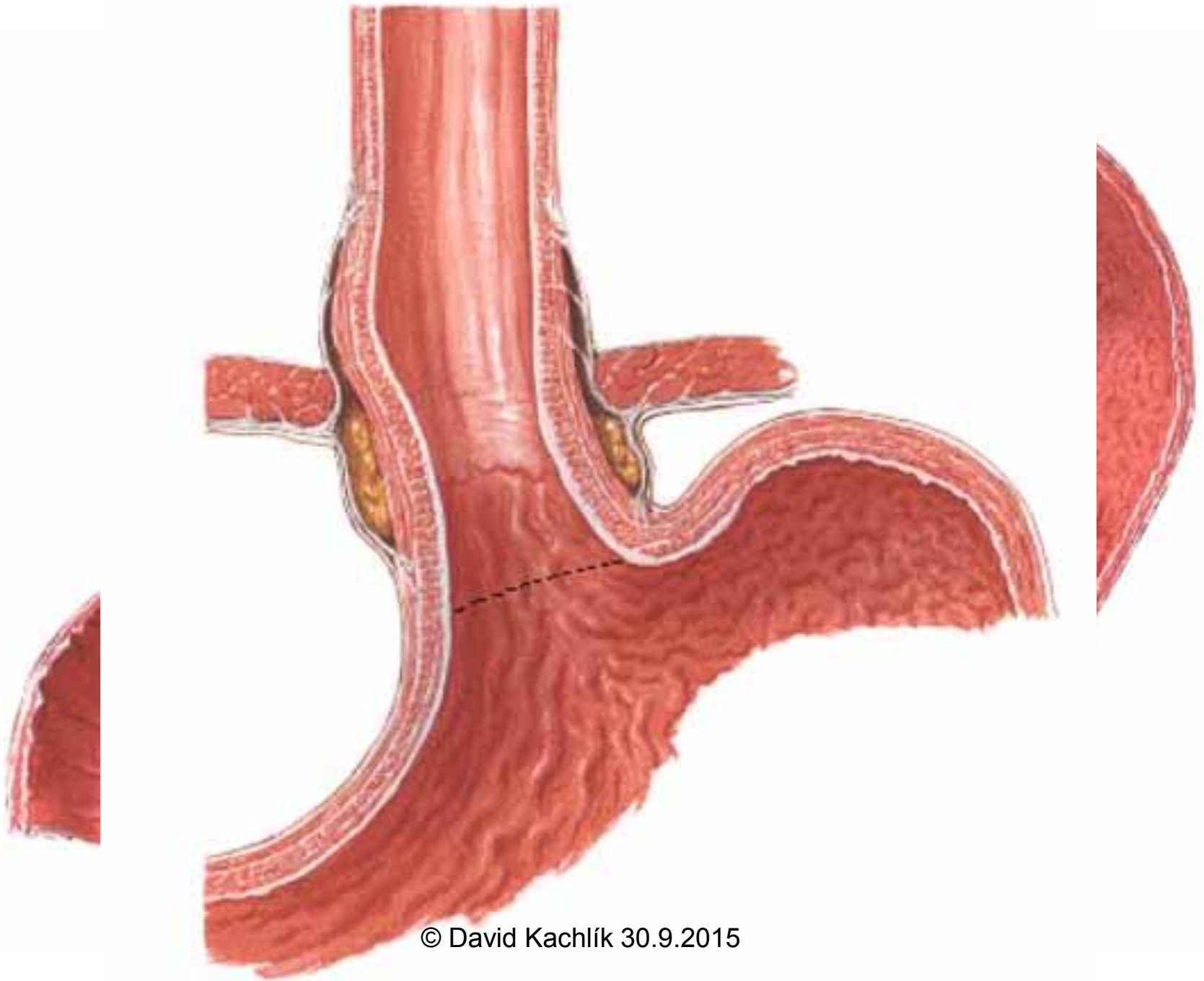
SUPERIOR
Left dome of diaphragm

Spleen/splenic artery

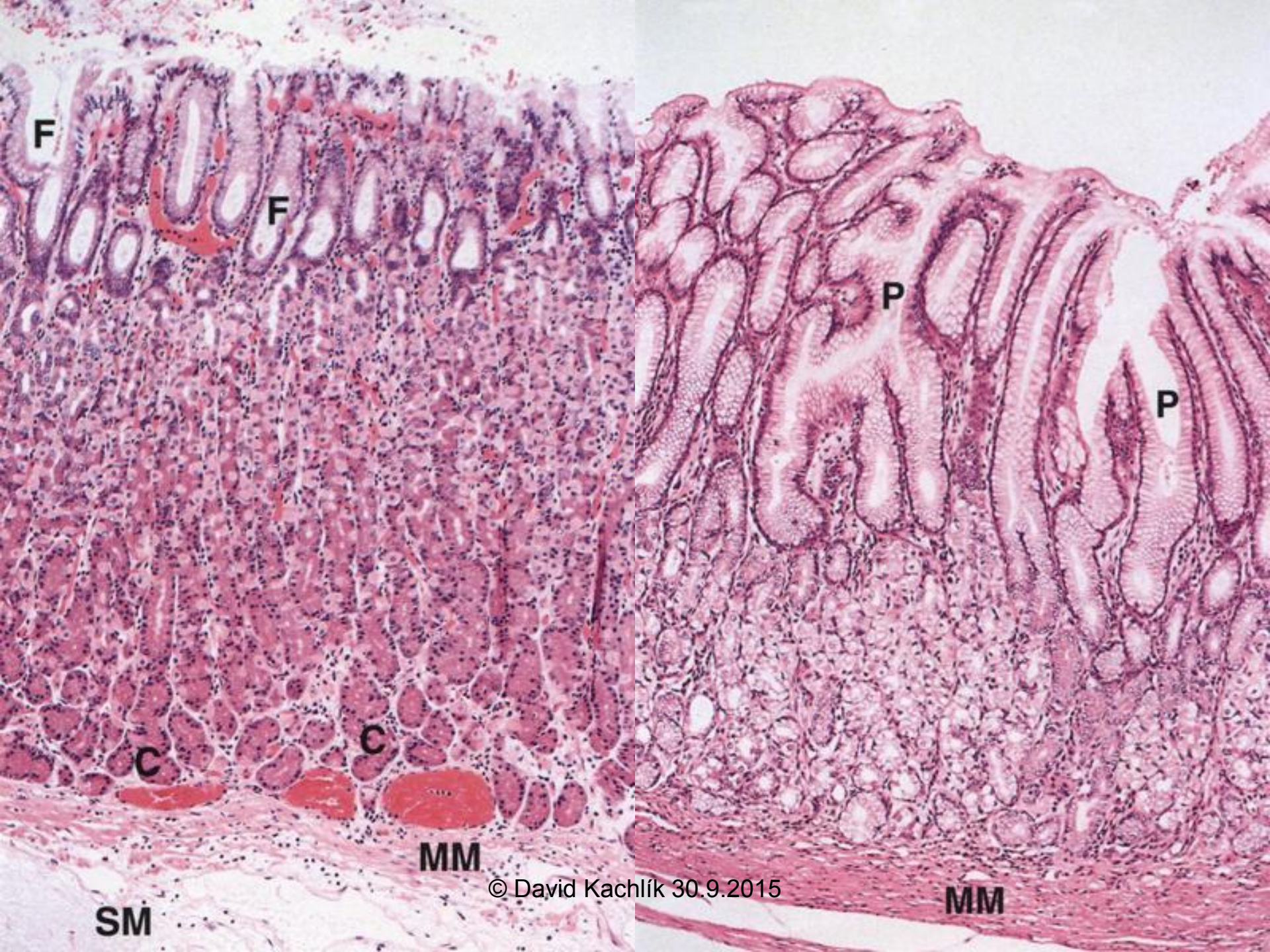


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F

F

P

P

C

C

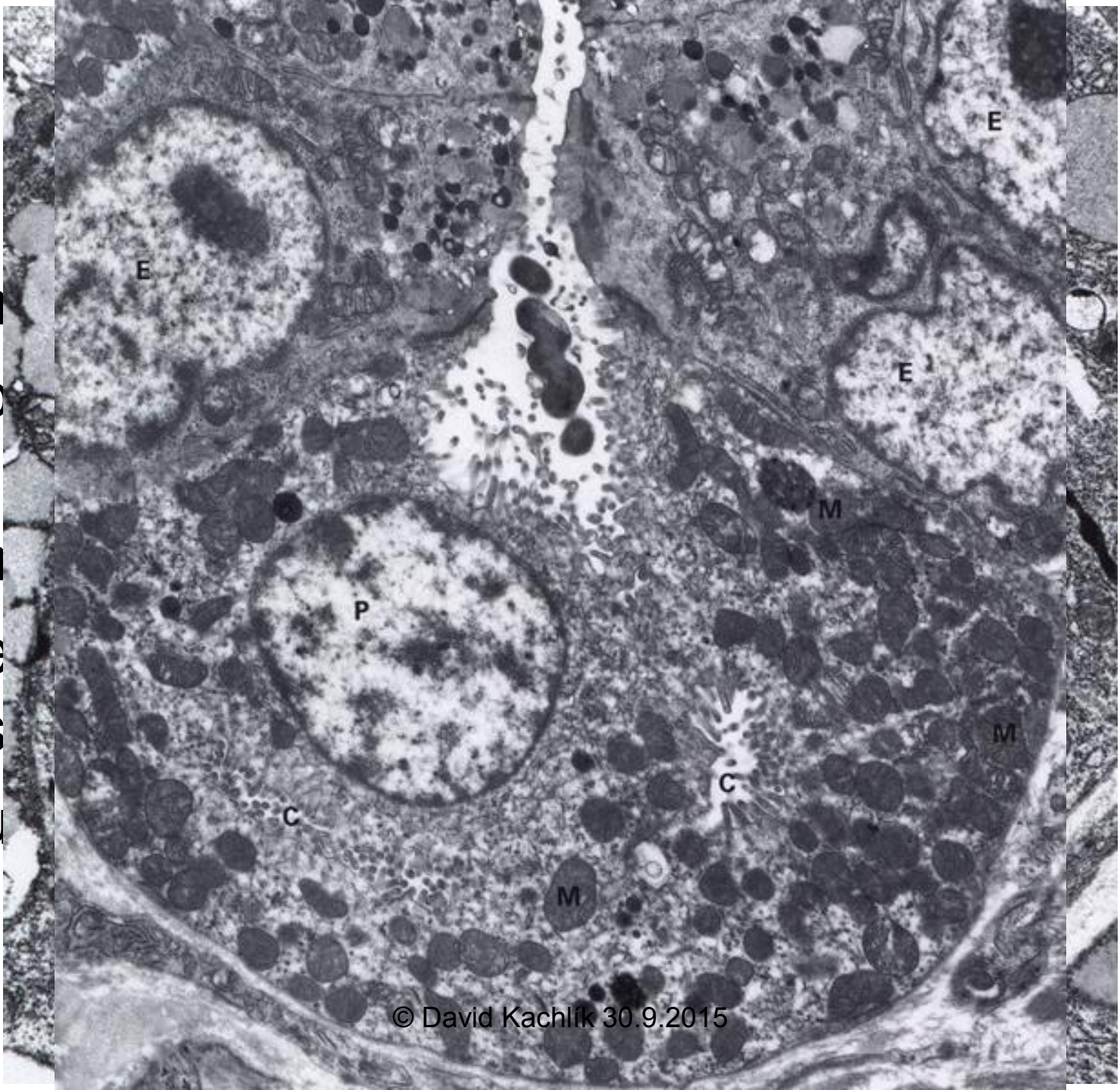
MM

SM

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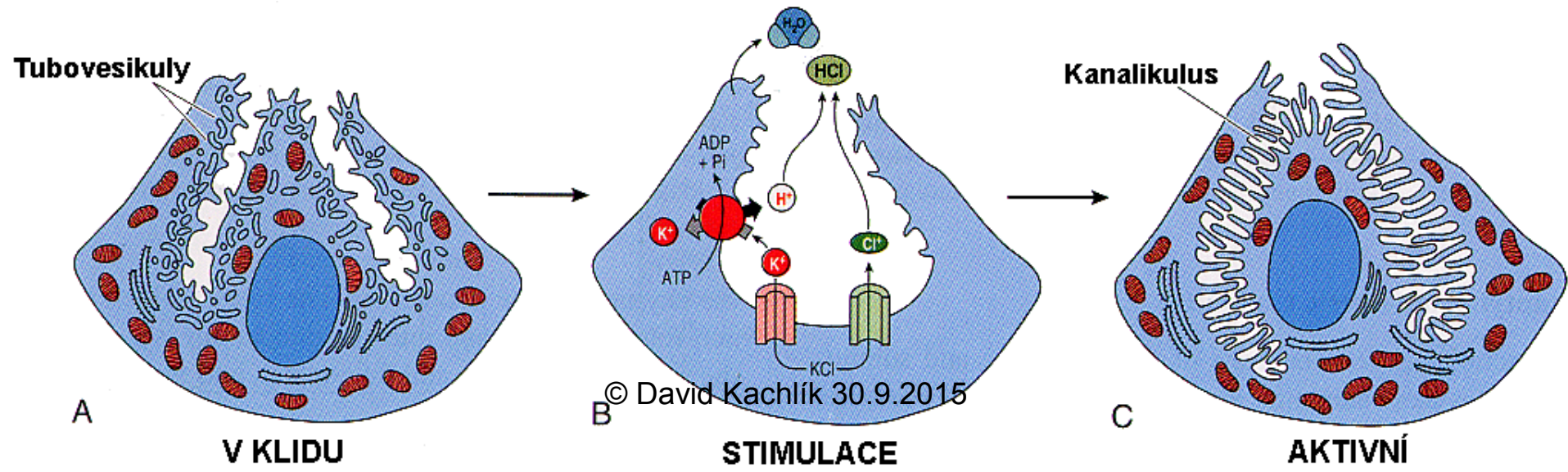
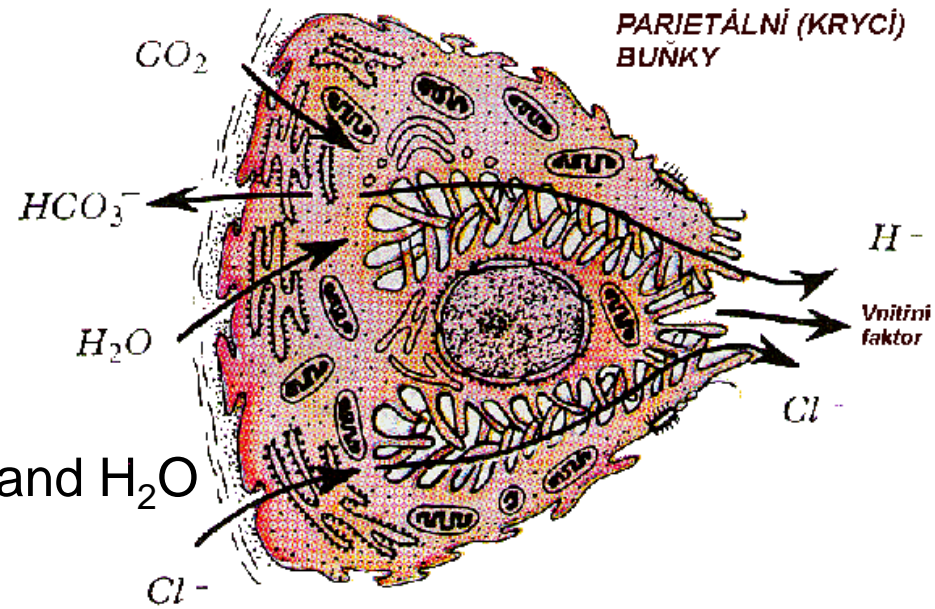
MM

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- p
- n
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- s
- u

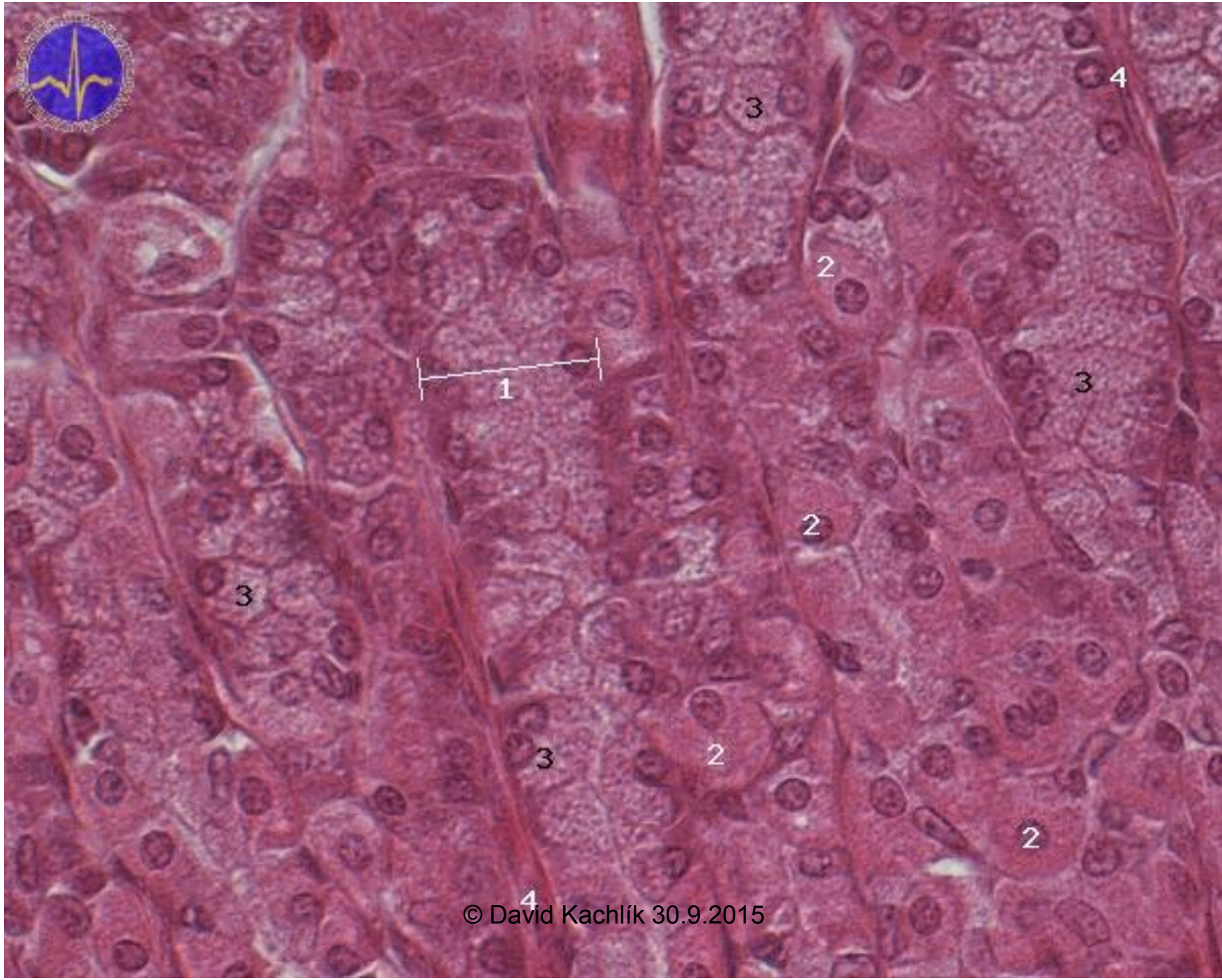


Synthesis of HCl

- in parietal cells
- Cl^- - from plasma
- H^+ - from H_2CO_3
 - by carboanhydrase from CO_2 and H_2O







Stomach – *examination + diseases*

- *peptic ulcer*
- *gastritis A,B (Helicobacter pylori)*
- *tumors*
- *pylorostenosis*

gastroscopy

X-ray – contrast with baryum

gastrostomy

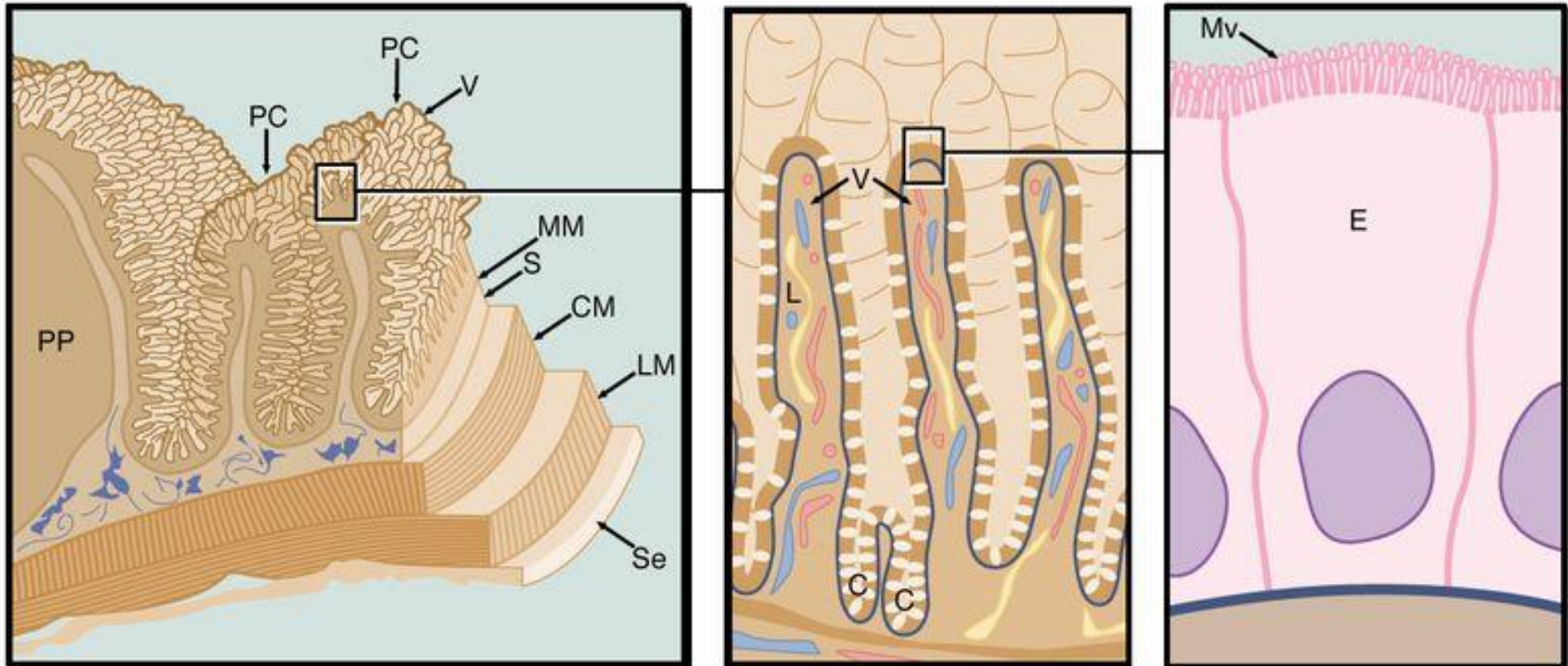
Small intestine = Intestinum tenue

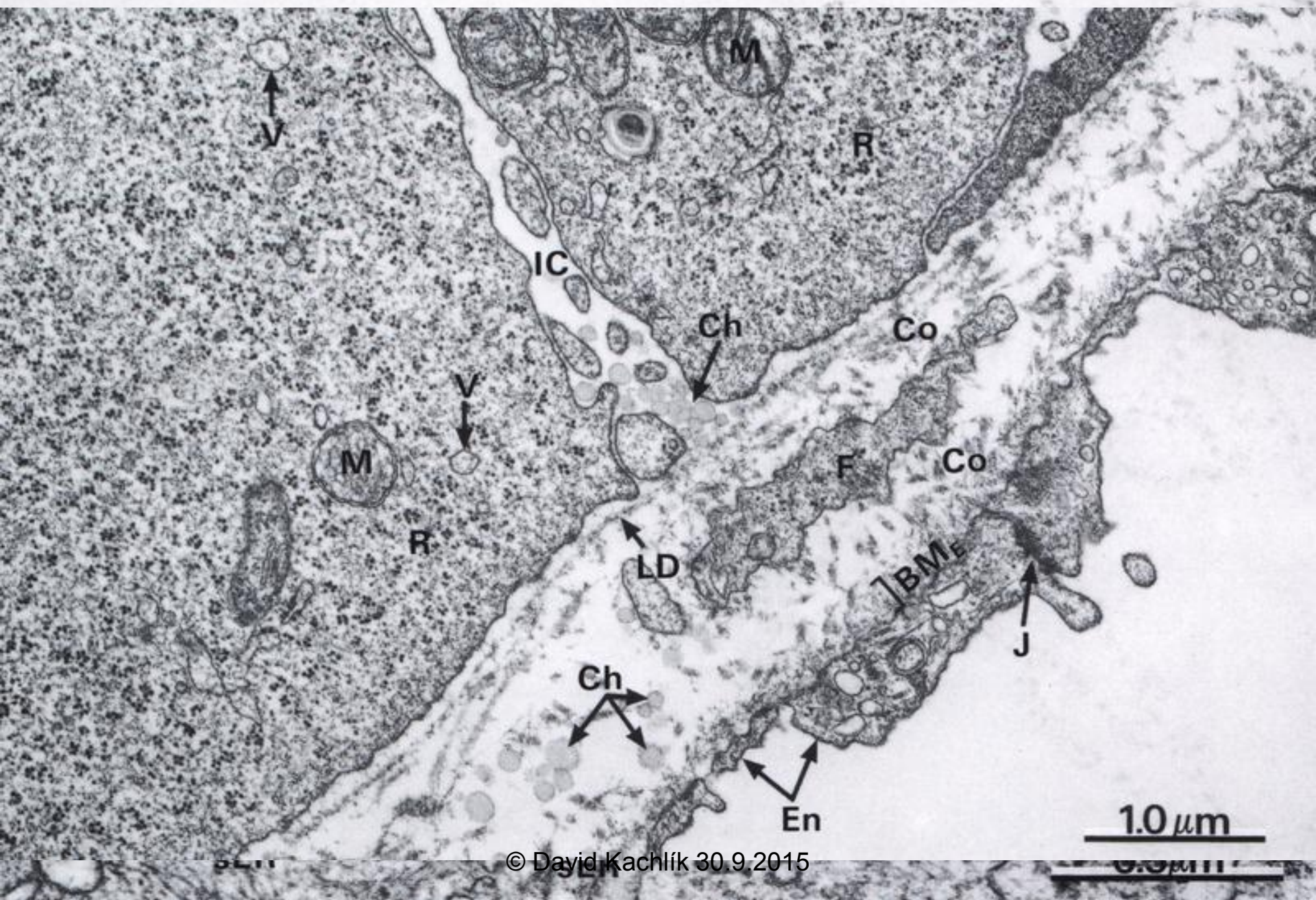
- duodenum
- jejunum
- ileum

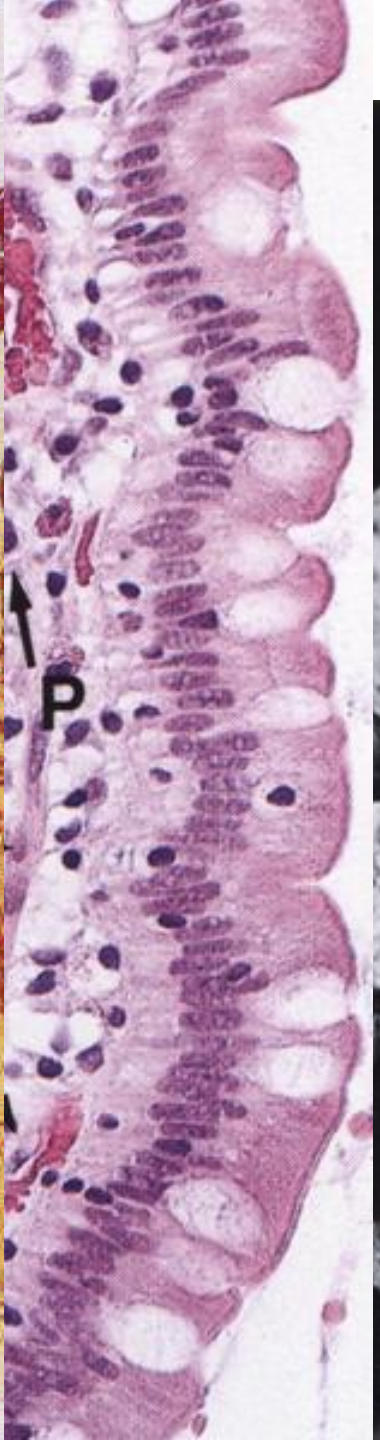
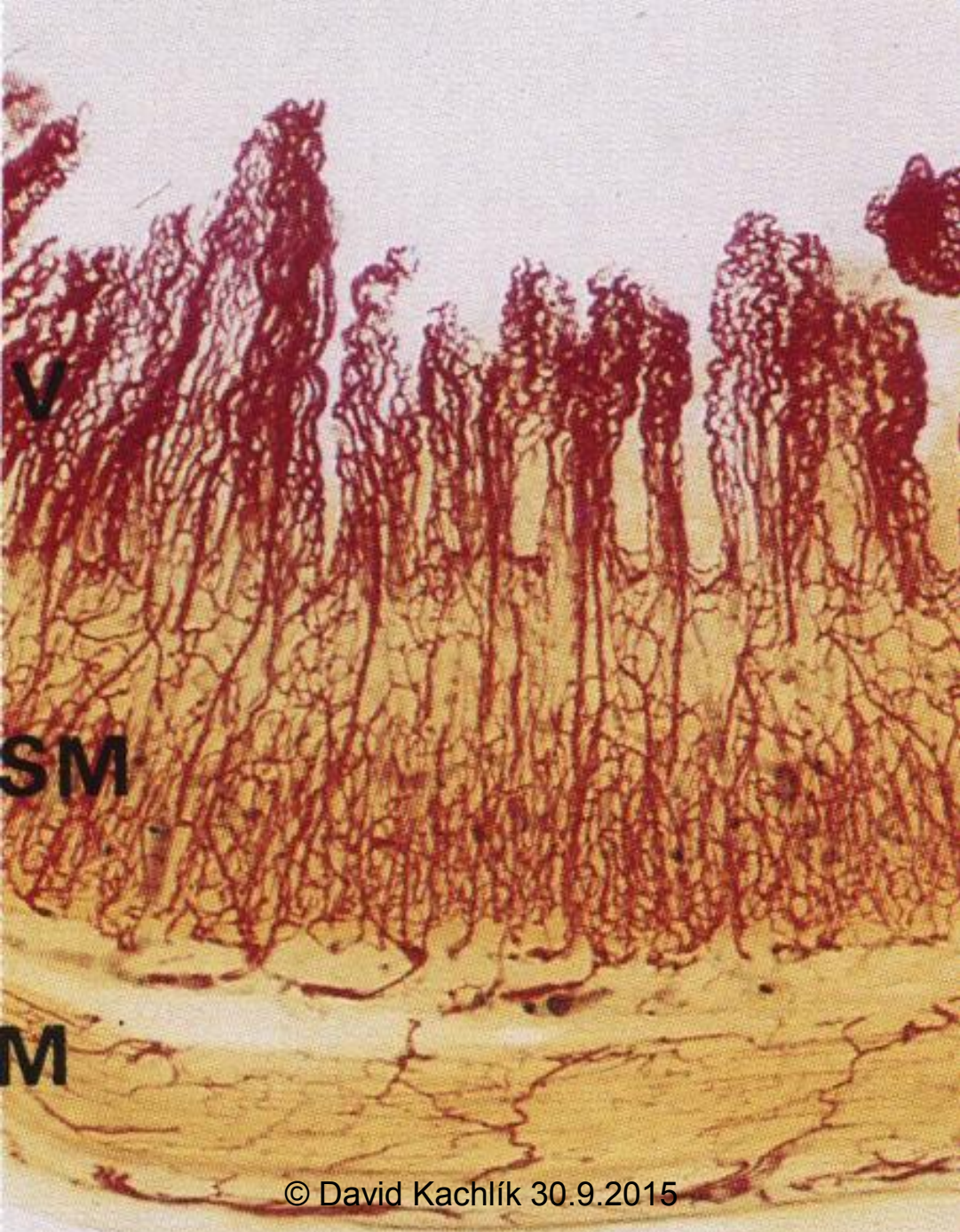
mesenterium

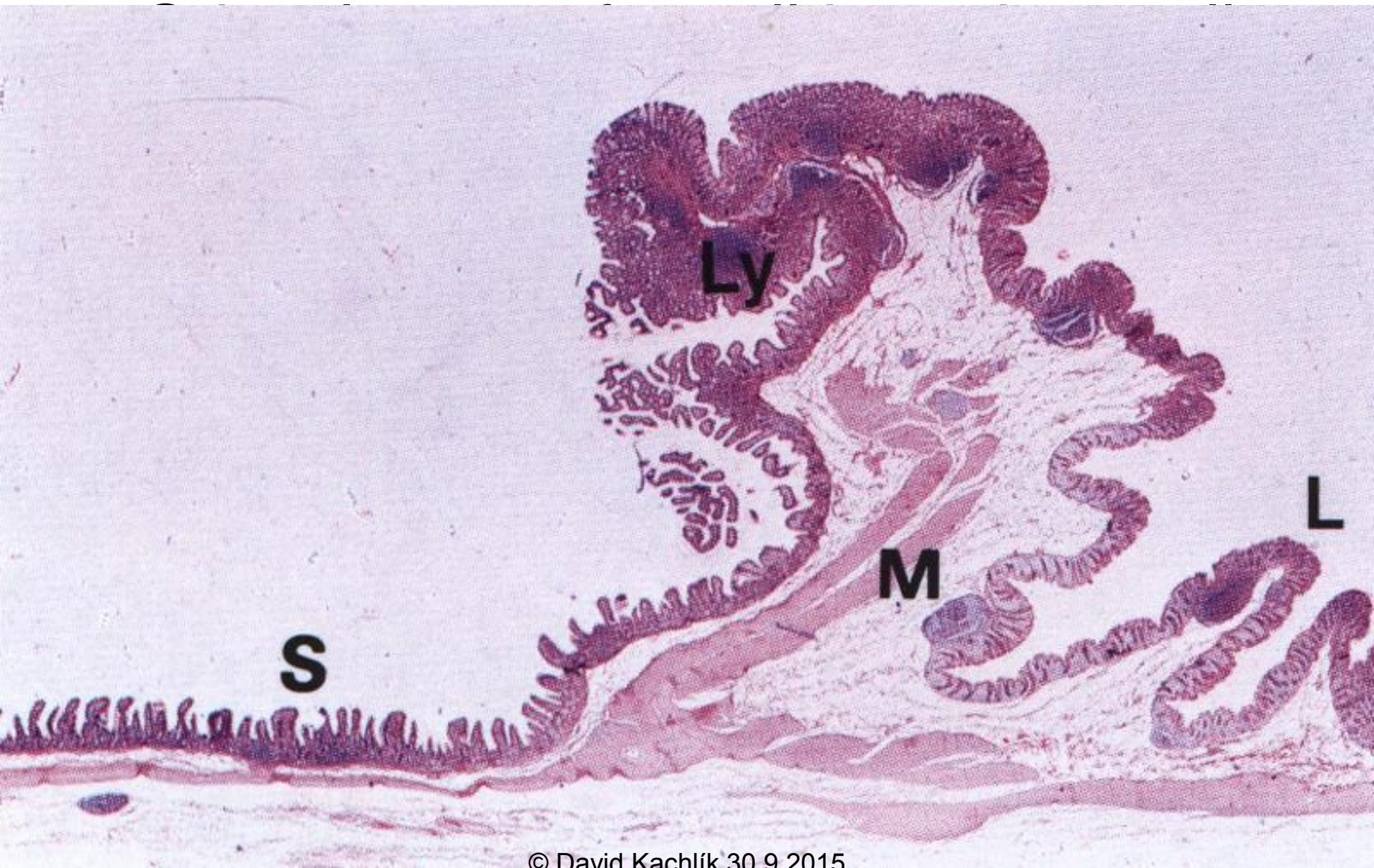
- radix mesenterii

Tunica mucosa of small intestine

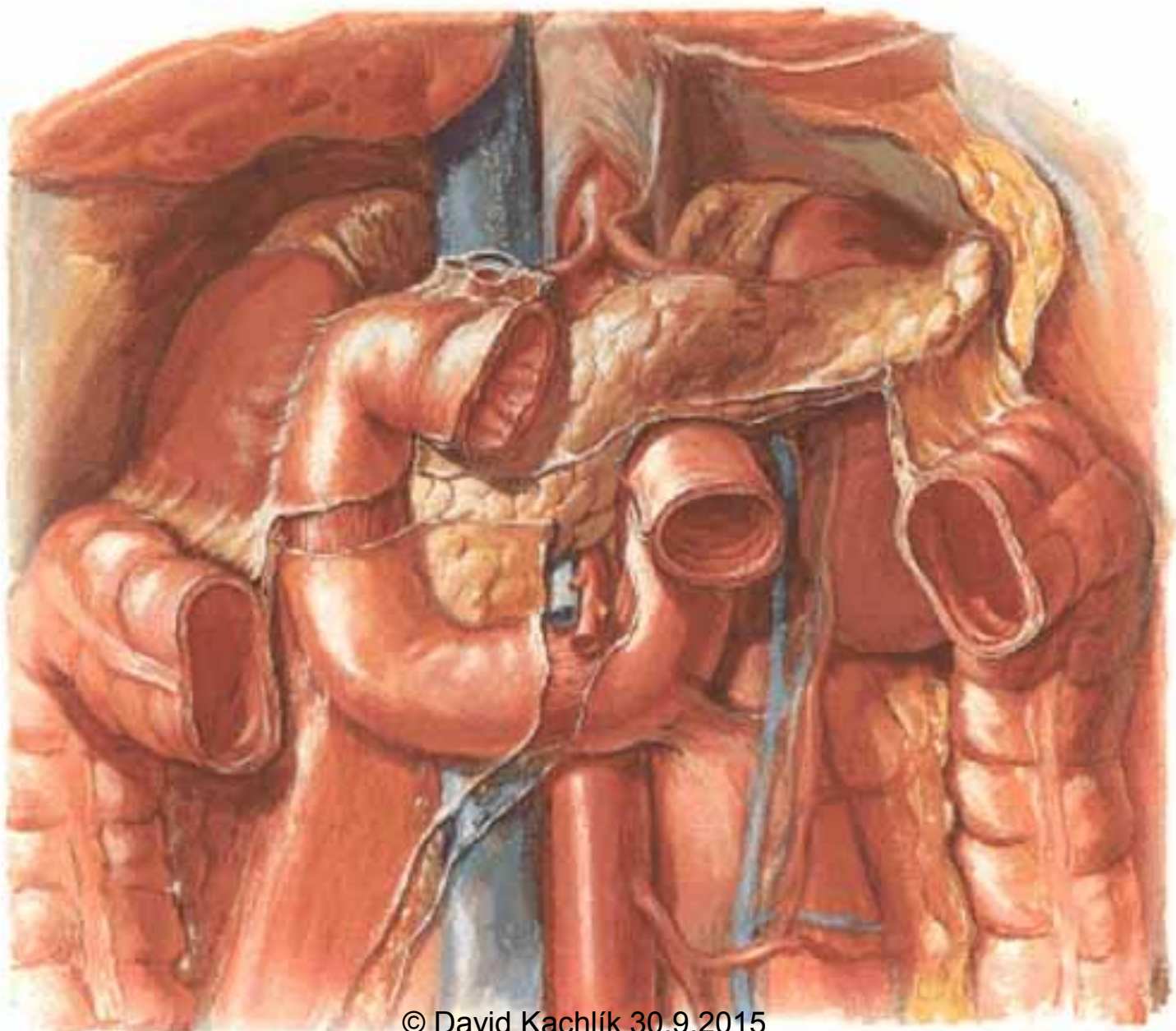






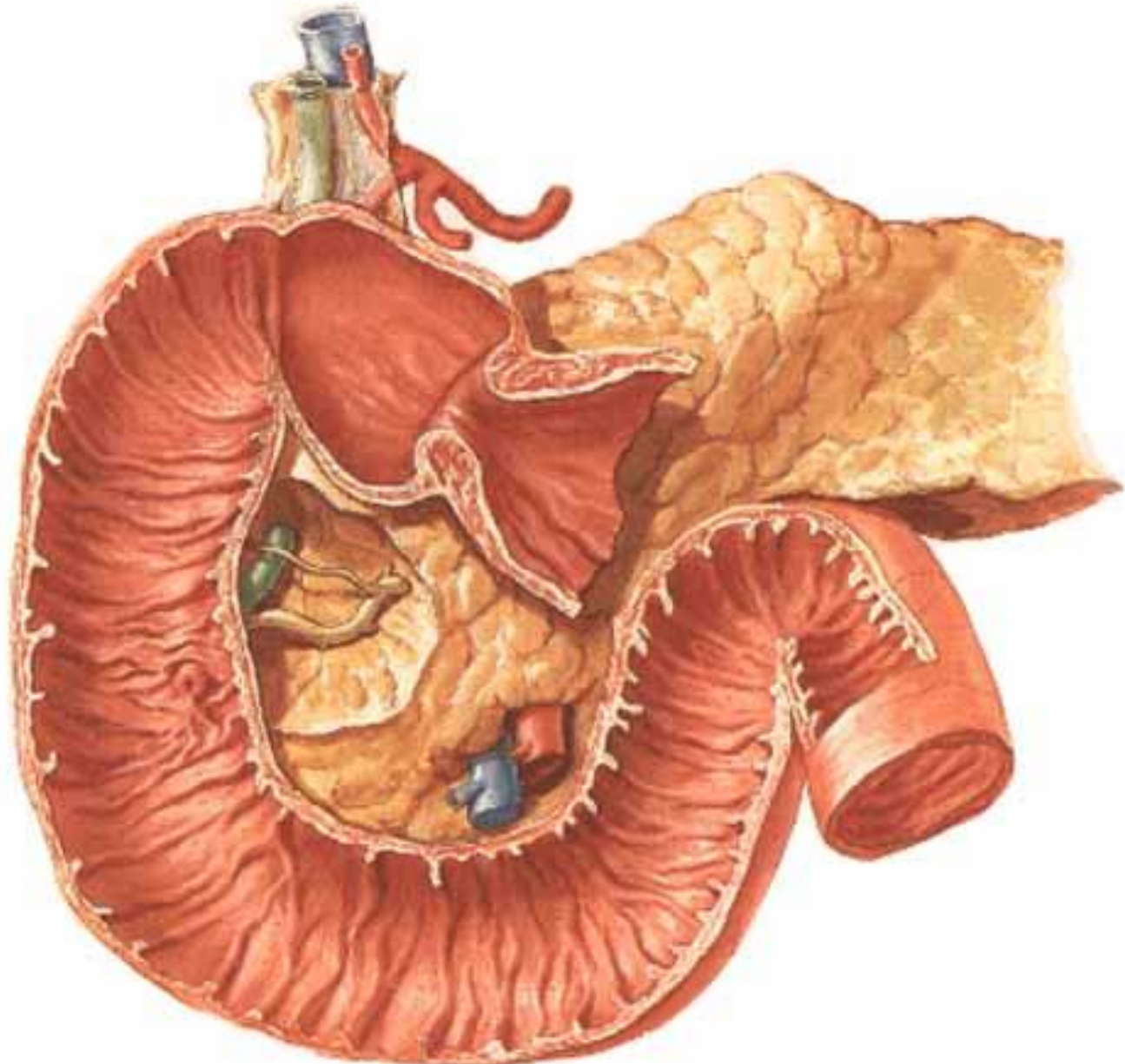


- p
-
- fl
- p
- fl
- p
- p
- fl



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secondary retroperitoneally / except ampulla/

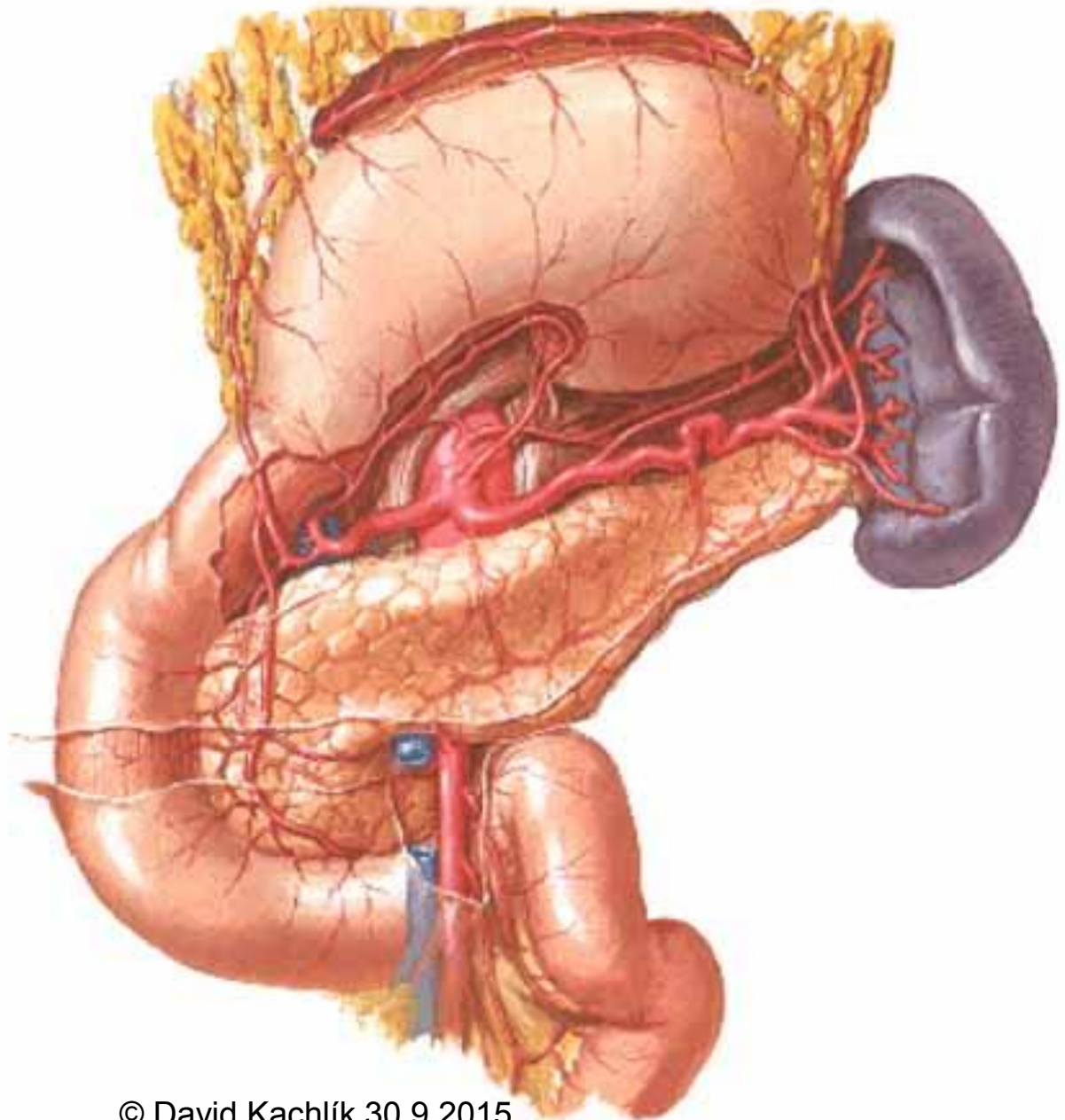


-
-
-
-
-
-

CD

Duod

- truncus coe
communis
pancreatic
ant. + aa. r
- a. mesente
pancreatic
r. post.



Veins: vv. pa
mesenterica sup. / v. portae

Duodenum – *Lymph and Nerves*

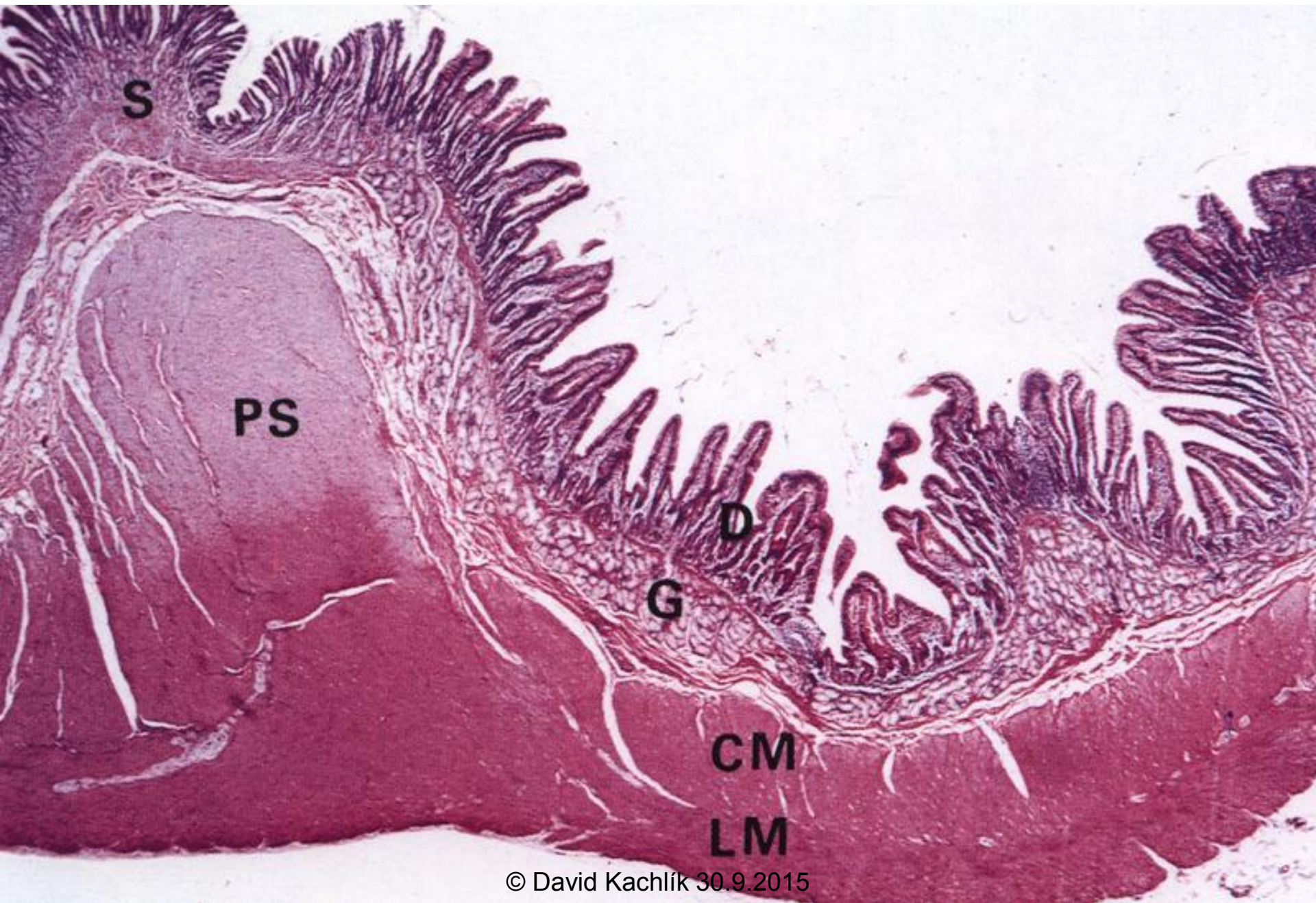
Lymph: n.l. pylorici

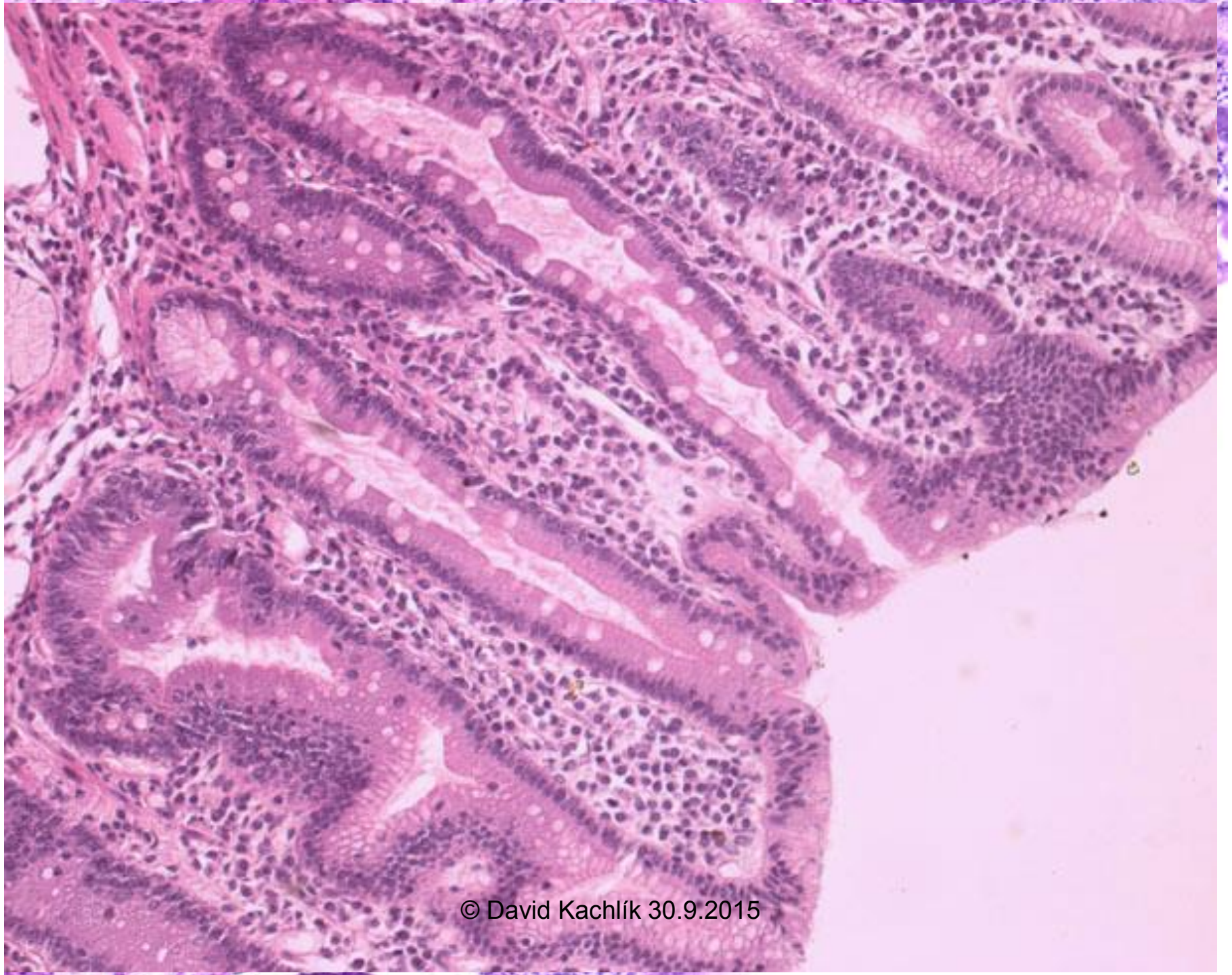
- → n.l. hepatici → n.l. coeliaci → n.l. preaortici
- → *down directly to* n.l. preaortici

Nerves: *parasympathetic* – n. X

sympathetic – nn. splanchnici major+minor

→ ggl. coeliacum + mesentericum sup.



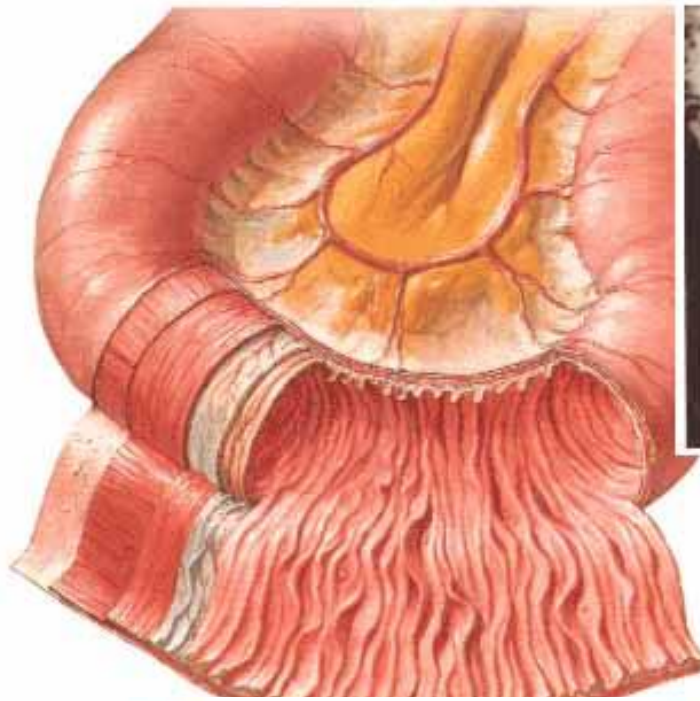


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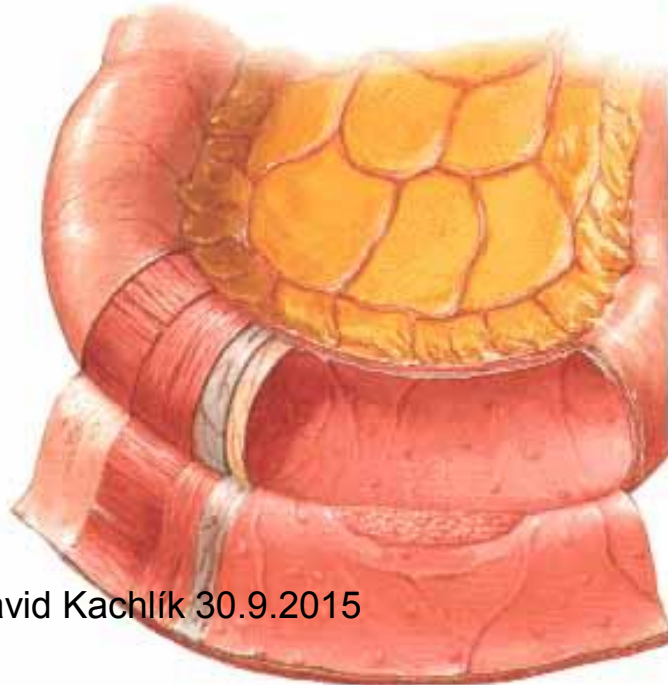
Jejunum

6 differences: content
tissue, vessels de

- wholly intraperitoneal
- ostium ileale *Bau*
ileocaecalis !) – la
- diverticulum ilei Δ
ductus omphaloe



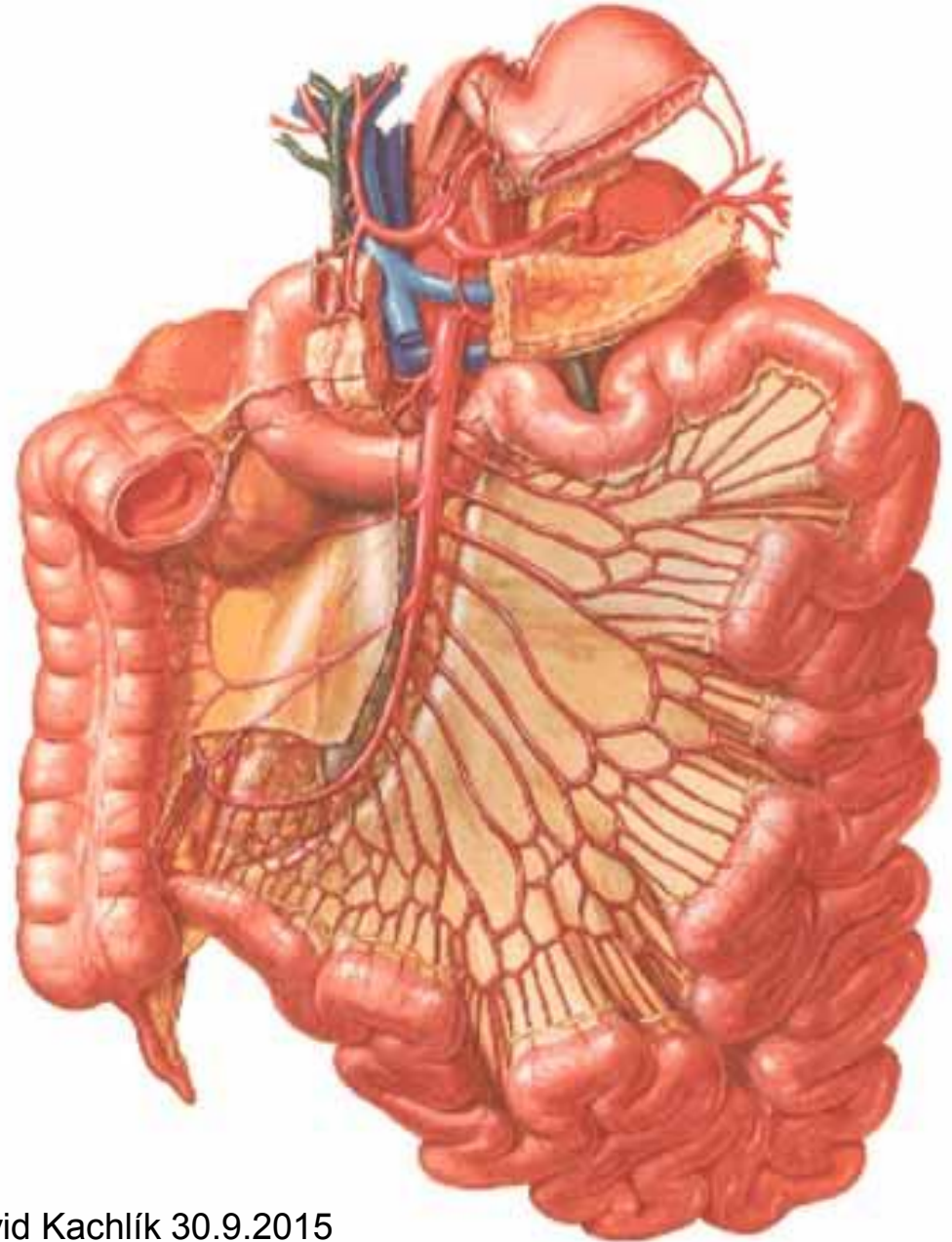
Jejunum

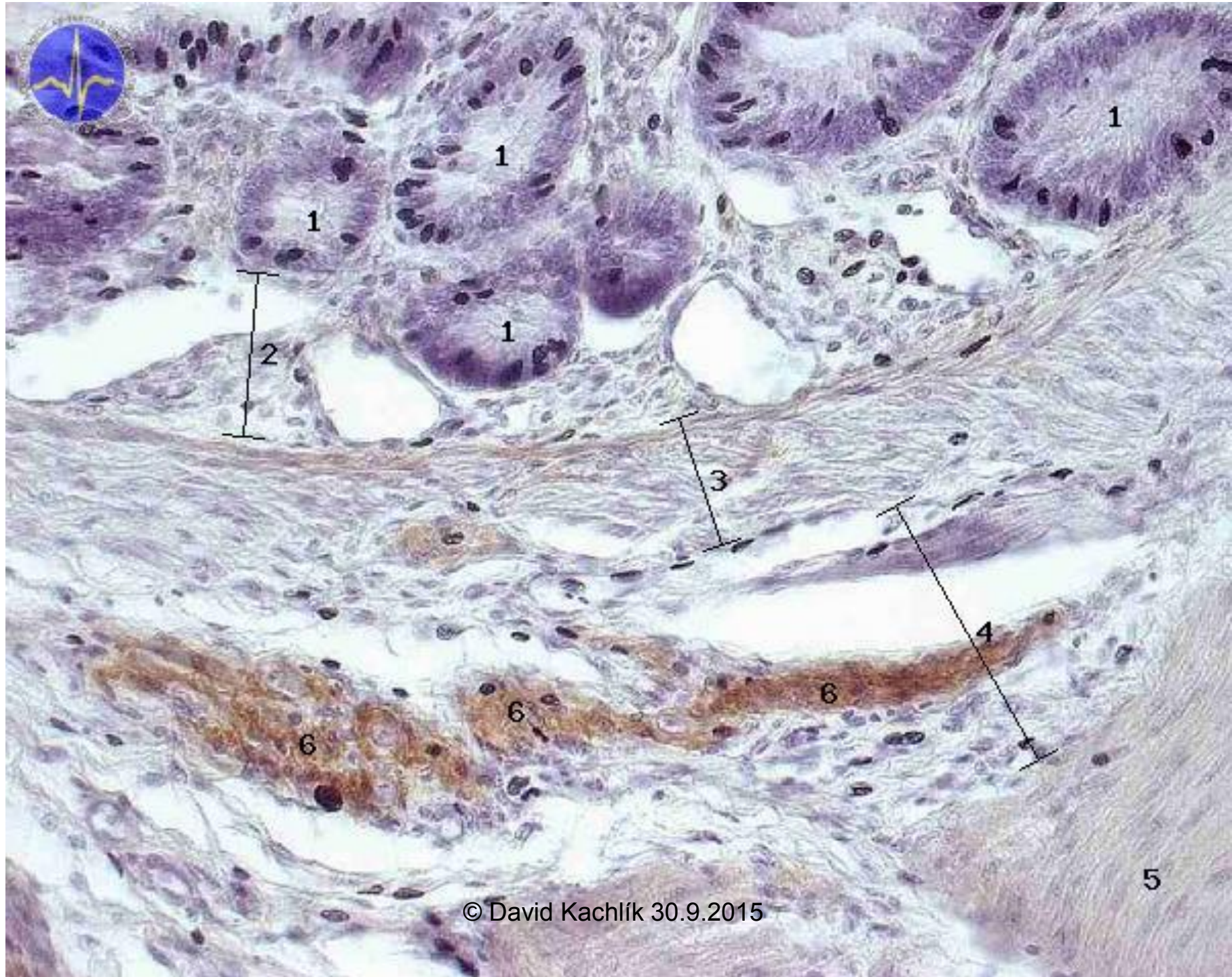


Ileum

Jejunum

- arteries: a. m jejunales + ileo-
arkády (*para*
arteriolae rec
- Veins: corres
- Lymph: 3 row
- Nerves: n. X





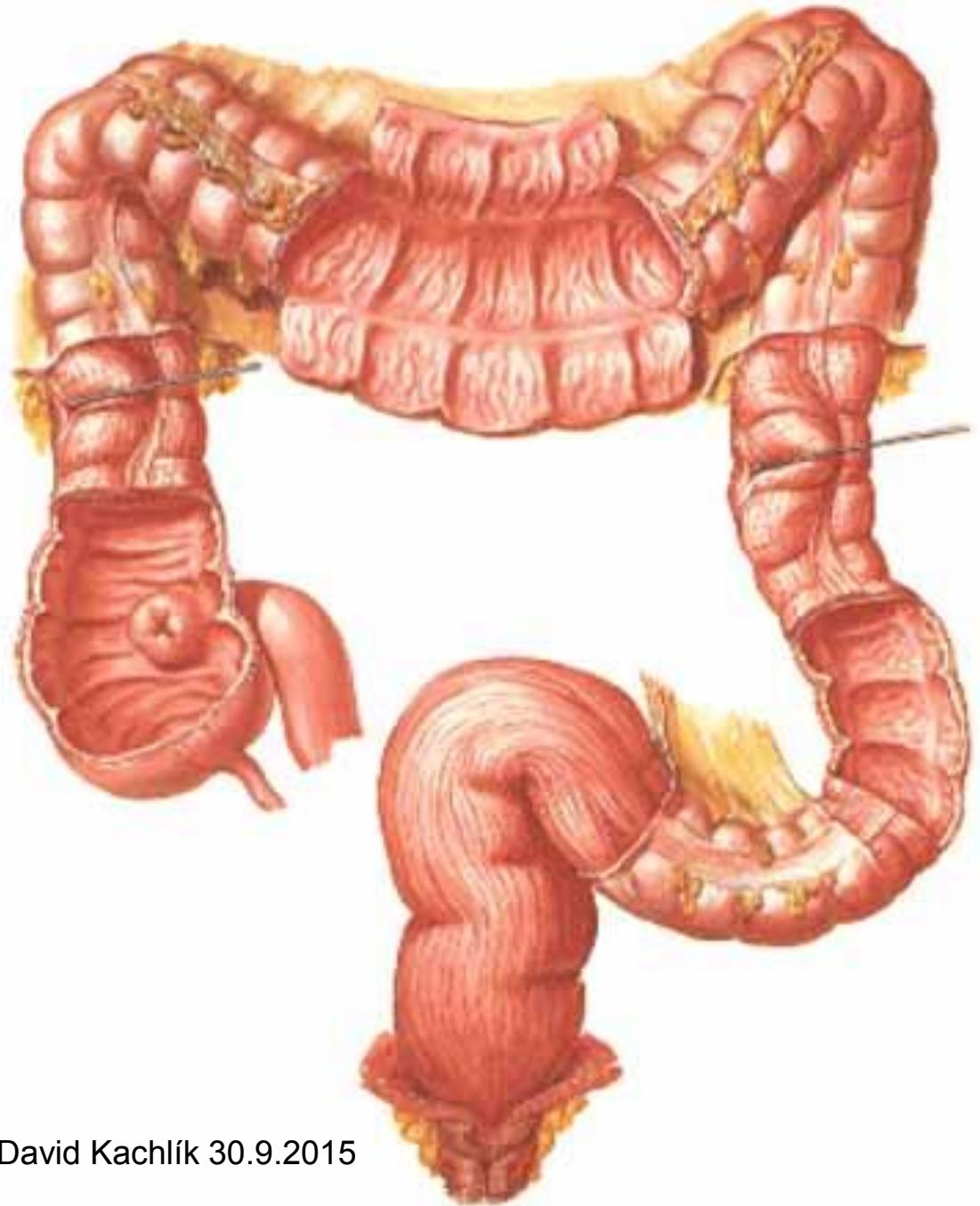
Small intestine - *diseases*

- *duodenal ulcer*
- *inflammation – morbus Crohn, colitis ulcerosa*
- *tumors – very rare – carcinoid*
- *coeliakia*

Larg

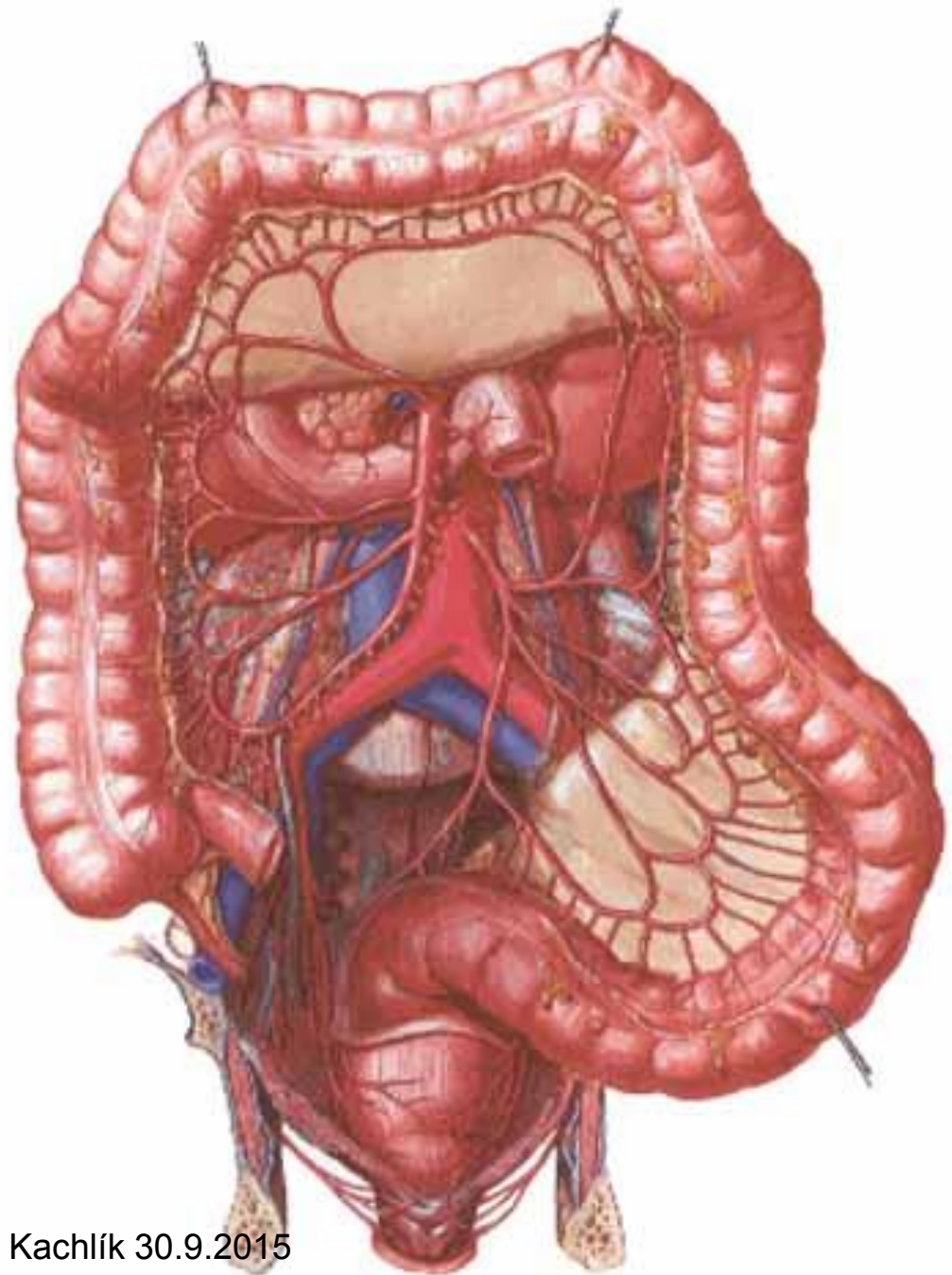
- caecum + app
- colon ascende
descendens, s
- rectum
- canalis analis

- flexurae coli d:



Large int

- a. mesenterica
 - → a. ileocolica
 - → a. ileocolica appendicularis
 - → a. colica dx.
 - → a. colica me
 - a. mesenterica
 - → a. colica sin.
 - → aa. sigmoide
- arteria marginalis /
anastomosis magr



Large intestine – *other supply*

- Veins: correspond to arteries → v. portae
- Lymph: 3 rows of n.l. colici → n.l. preaortici
- Nerves:
 - parasympathetic: n. X down to flexura coli sin. (= *Cannon-Böhme's*), then sacral parasympathetic (S2-4)
 - sympathetic: z ggl. coeliacum, mesentericum sup. + inf.

Mucosa of large intestine

- *plicae semilunares*
- *no villi*
- *deeper Lieberkühn's crypt*
 - enterocytes – less of microvilli
 - goblet cells are numerous
 - *Paneth cells are missing*
 - endocrine cells (DNES) are present

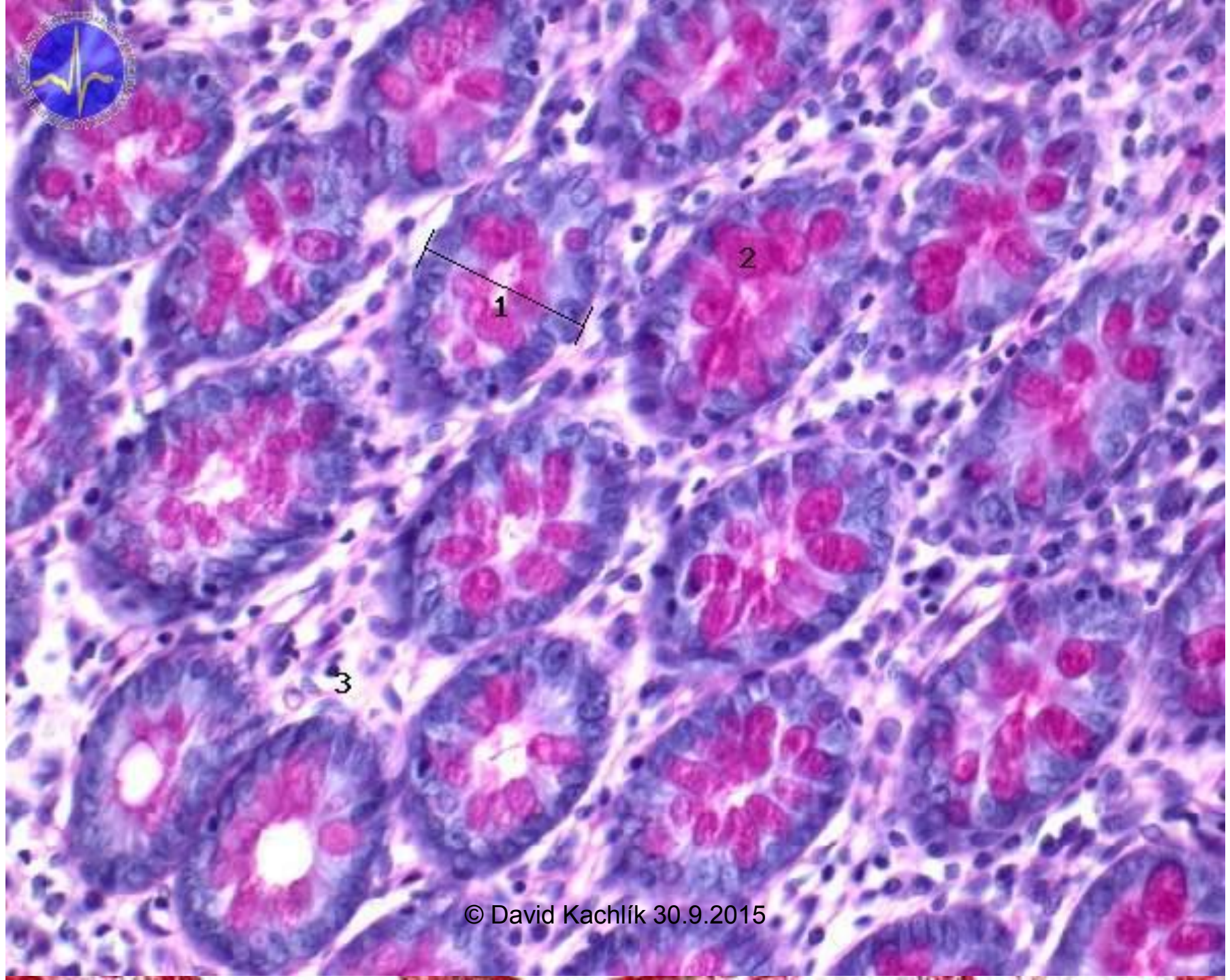
Other layers of large intestine wall

- tunica muscularis externa
 - inner circular - haustrations
 - outer longitudinal – reduced to *taenie coli*
 - mesenterica
 - omentalis
 - libera
 - *besides appendix and rectum !*

Large intestine - tunica serosa

Fixation and relation to peritoneum

- intraperitoneal: appendix, colon transversum + sigmoideum - *having their meso-*
- mesoperitoneal: colon ascendens + descendens – *half-grown with the posterior wall*
- rectum – partially intraperitoneal + subperitoneal
- caecum – variability – *see picture*
- appendices omentales
 - adipose tissue
 - unclear function

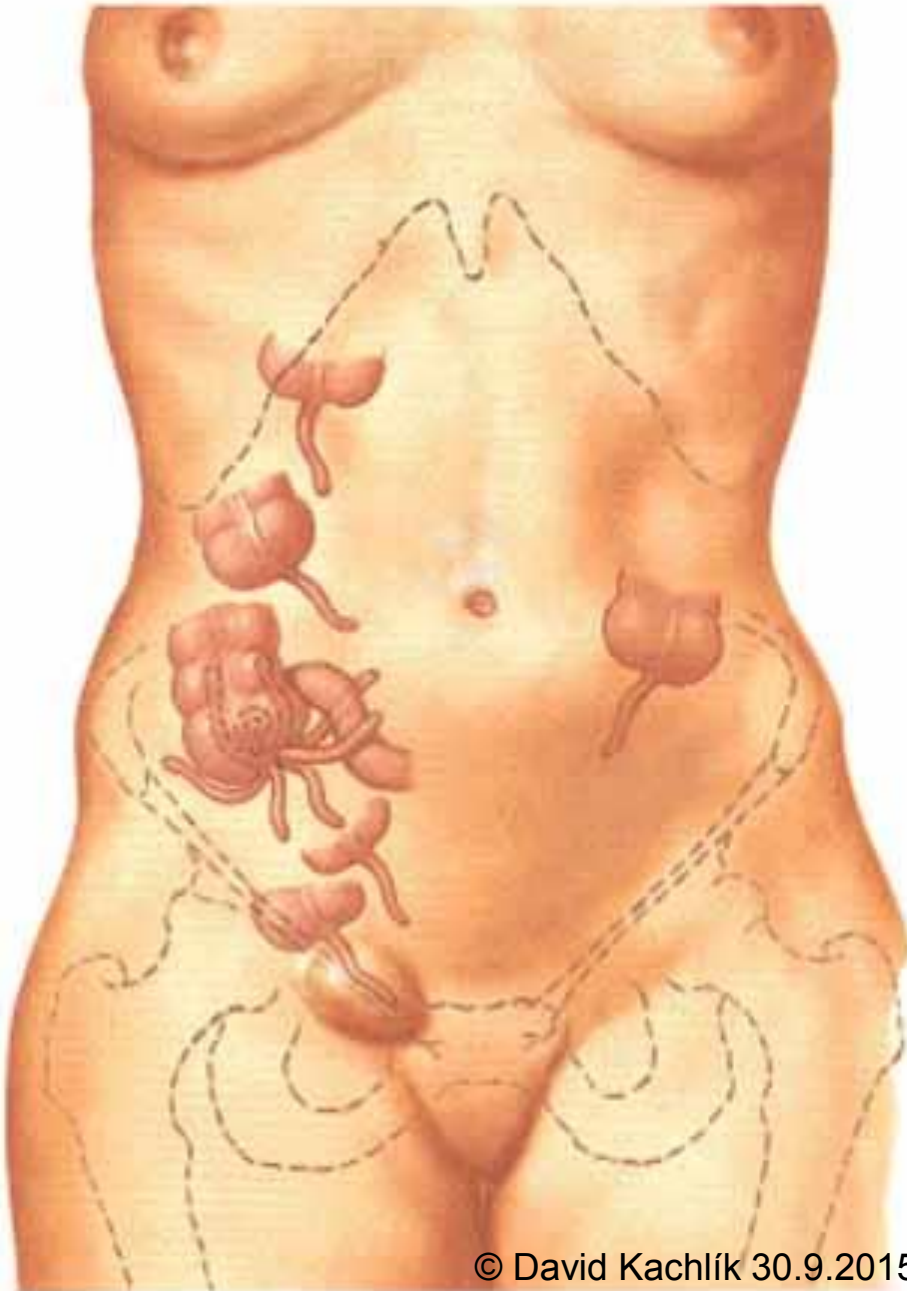




Ileocecal Region

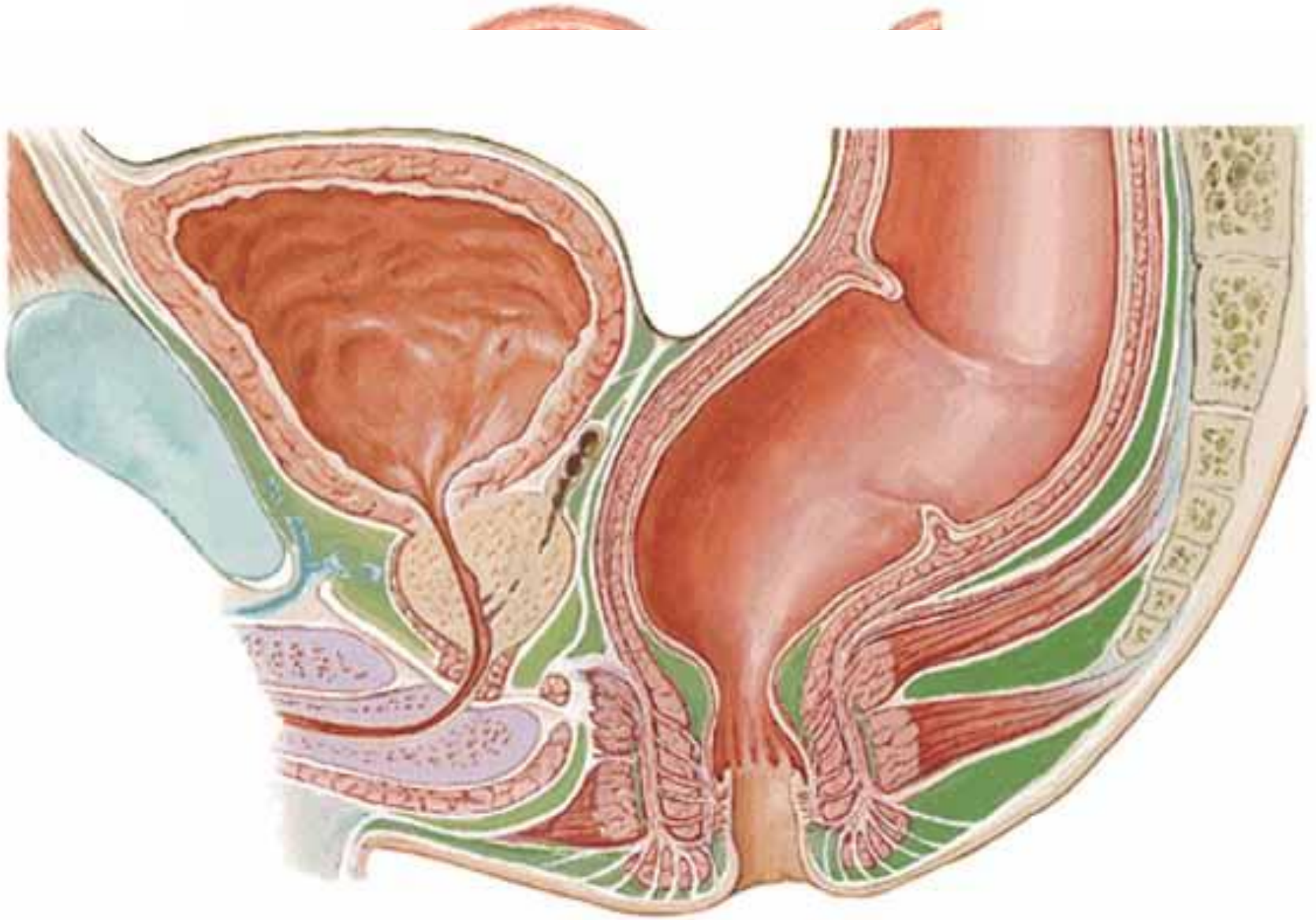
Variations in Posterior Peritoneal Attachment







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recti

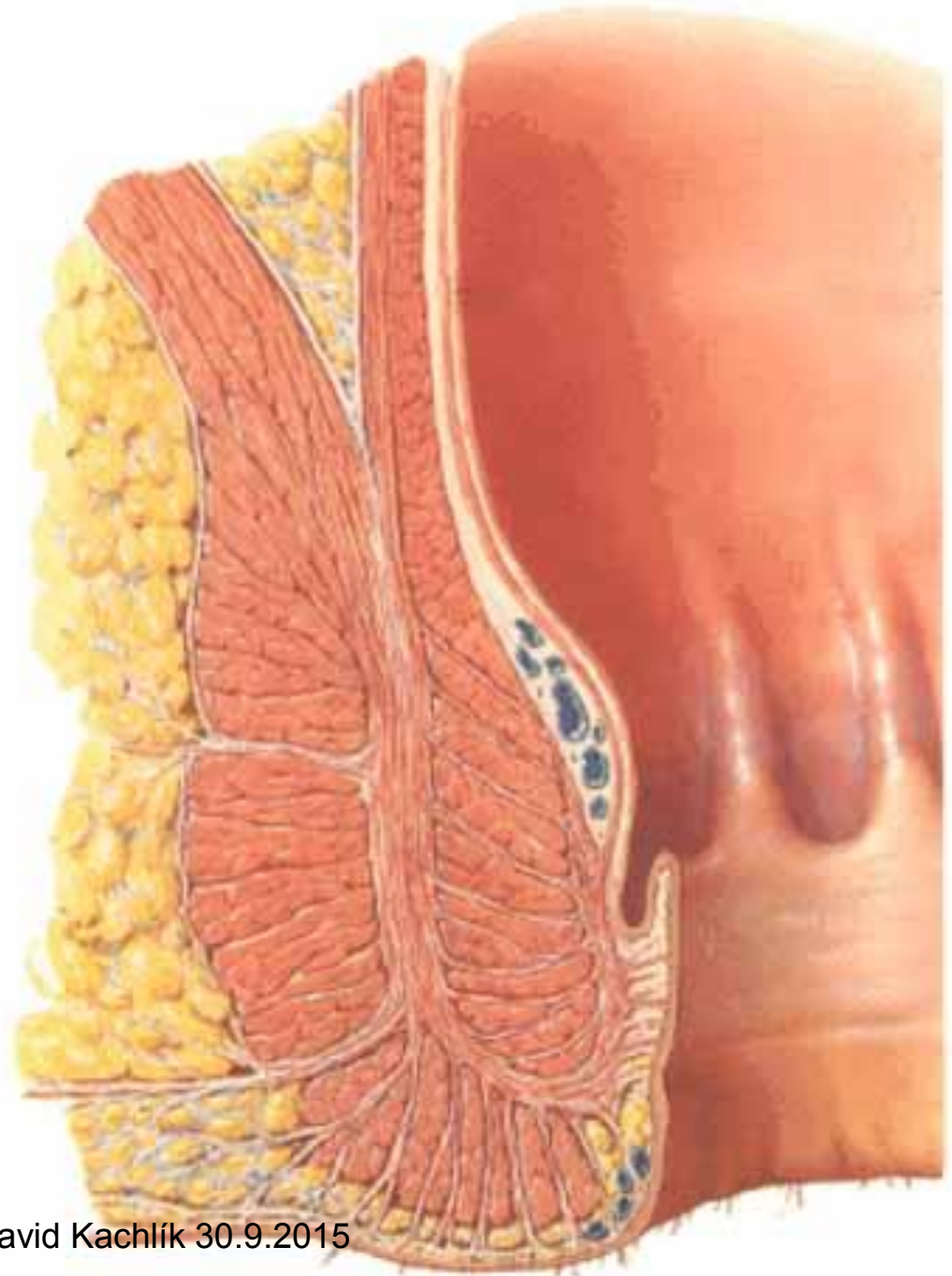
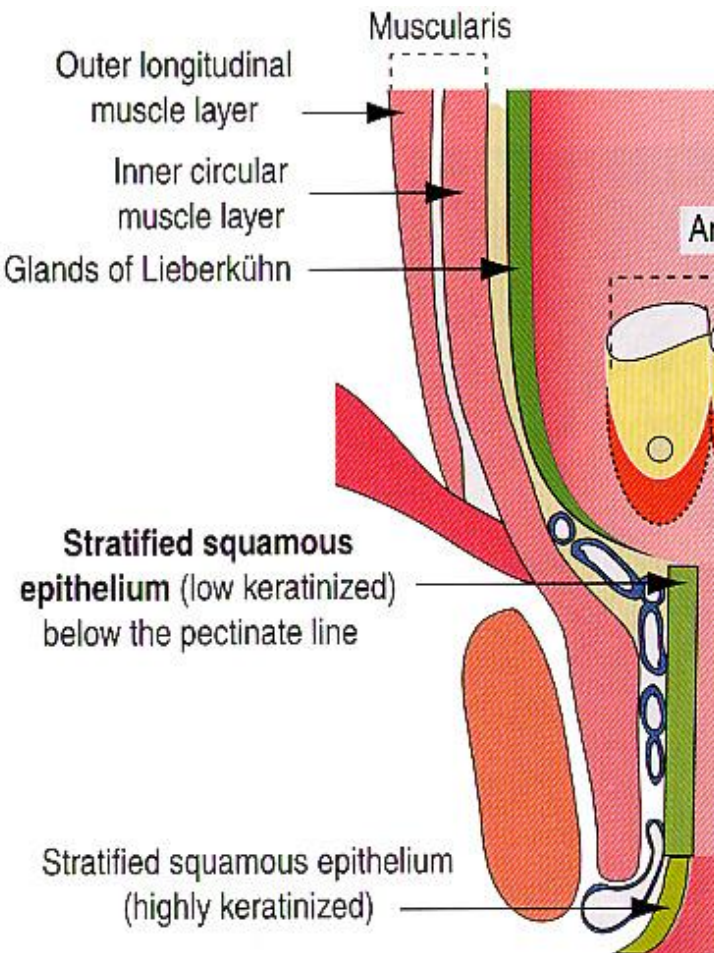
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lig. recti lat.

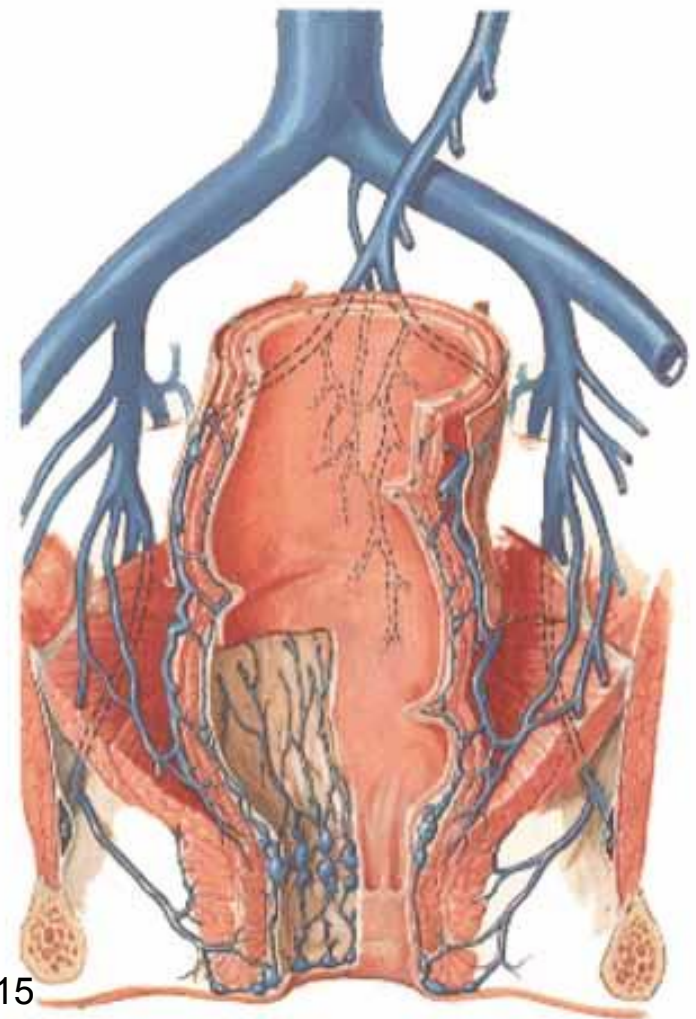
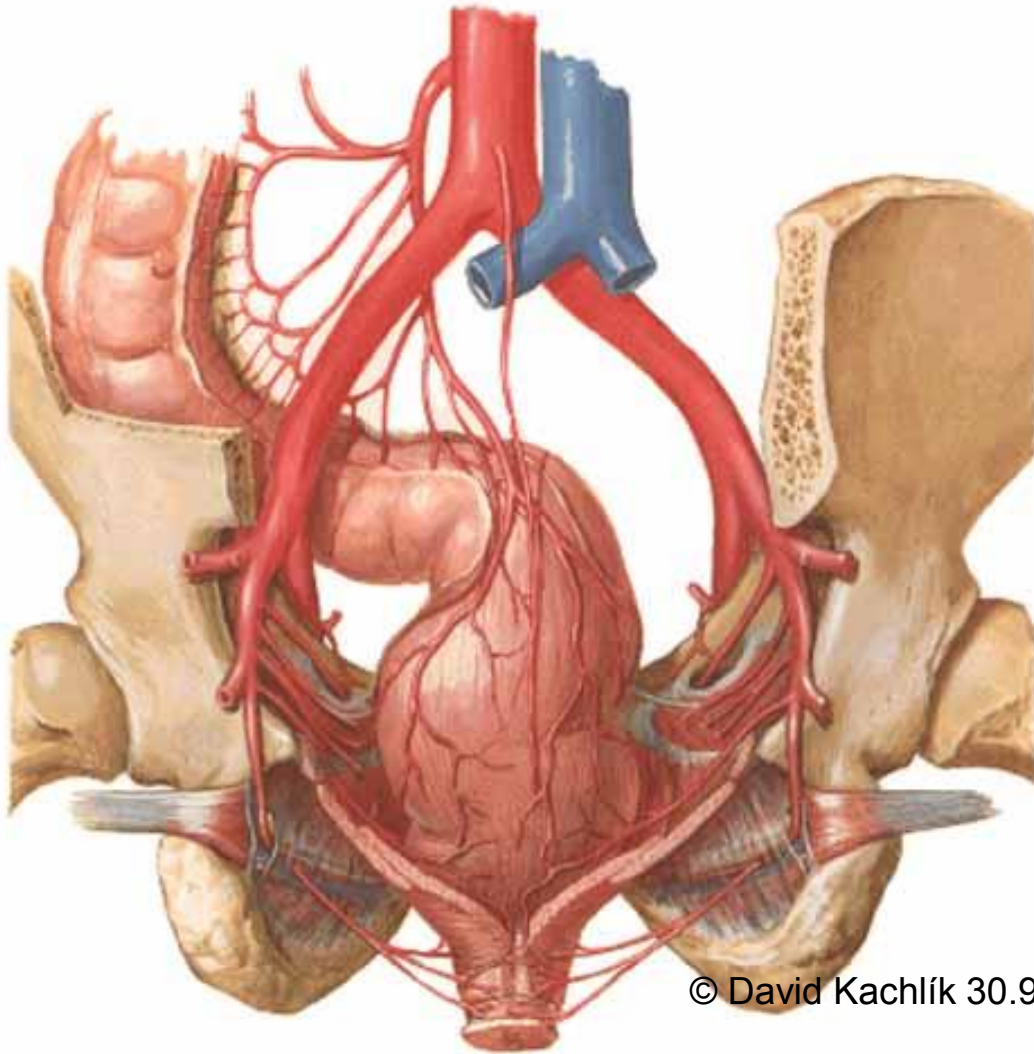
lig. recti lat.

Ca

- description: flex
anus



Rectum + canalis analis – *blood vessels*



Rectum + canalis analis – *Lymph and Nerves*

- n.l. mesenterici inf. → n.l. preaortici
- n.l. iliaci int.
- n.l. sacrales
- n.l. inguinales superficiales

Nerves: - sacral *parasympathetic*

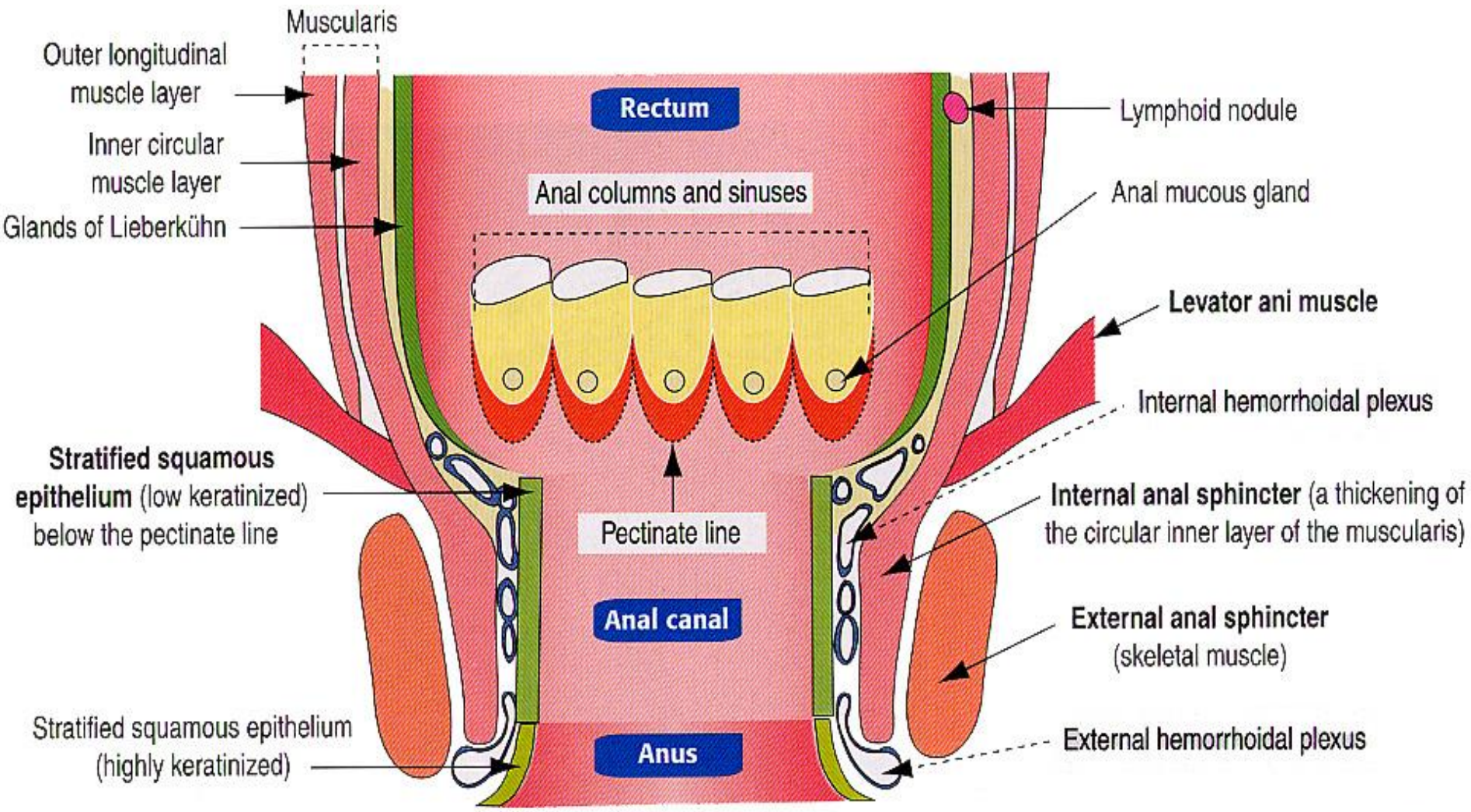
– *sympathetic* by plexus hypogastricus sup. + inf., n. pudendus



SS

J

RM



Large intestine - *examination*

- Hemocult – hidden bleeding examination
- endoscopy – rectoscopy (*rigid*), coloscopy (*flexible*)
- X-ray- native, contrast - passage, irigography
- CT

Large intestine - *diseases*

- *polyps*
- *tumors – most frequent !!!*
- *diverticulosis → diverticulitis (Graser's diverticle)*
- *inflammation – colitis ulcerosa, morbus Crohn*
- *appendicitis – „the sun may not rise or fall“*
 - *most frequent sudden abdominal accident*
- *internal / external haemorrhoids*

- *colostomy – temporary / permanent*