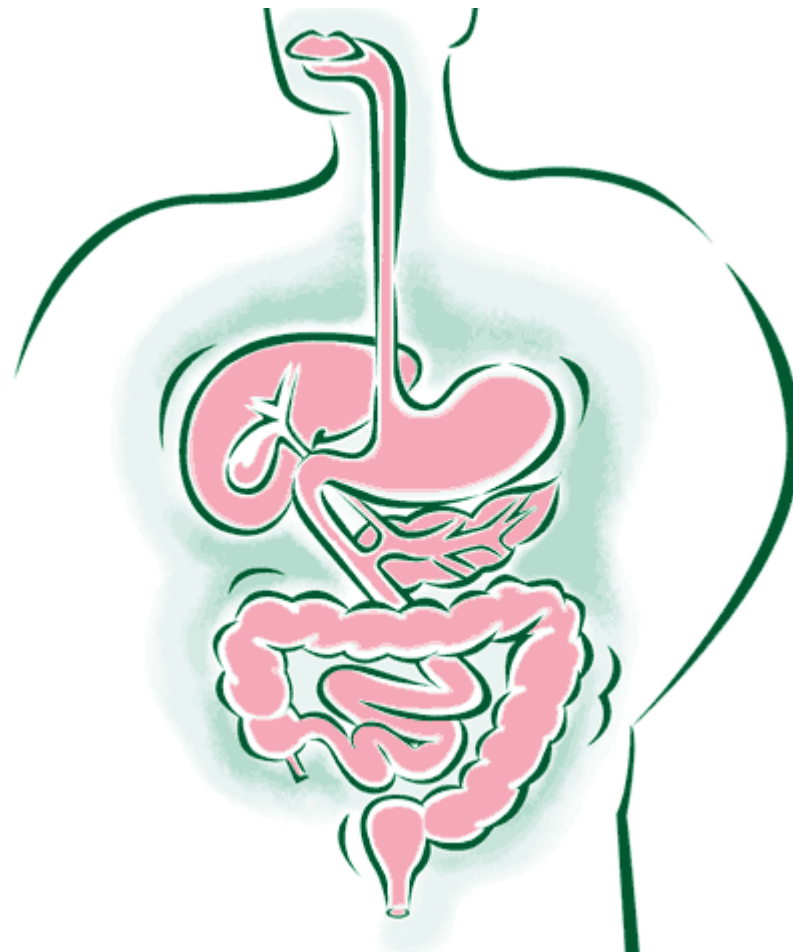
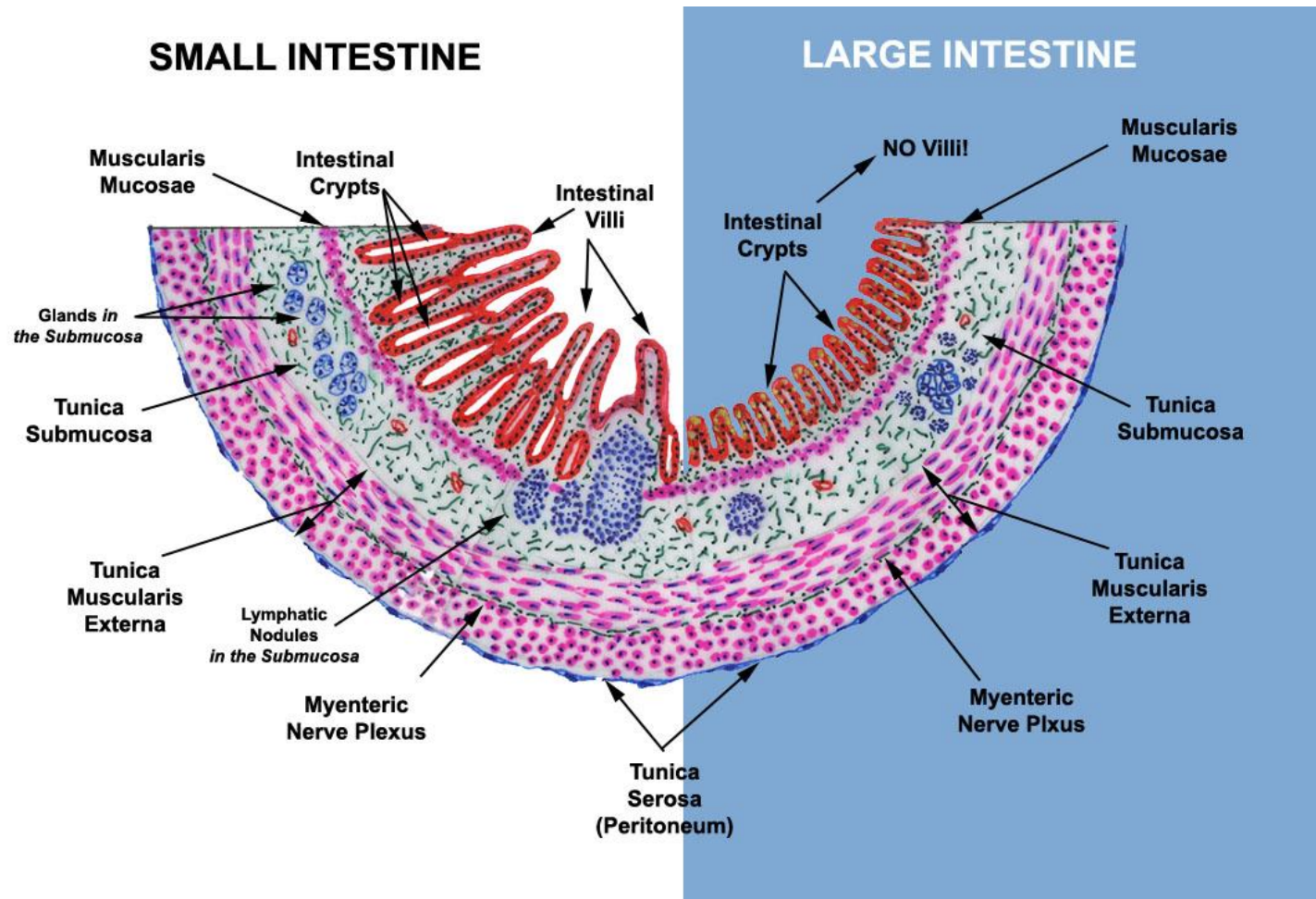


TRÁVICÍ SYSTÉM - 3



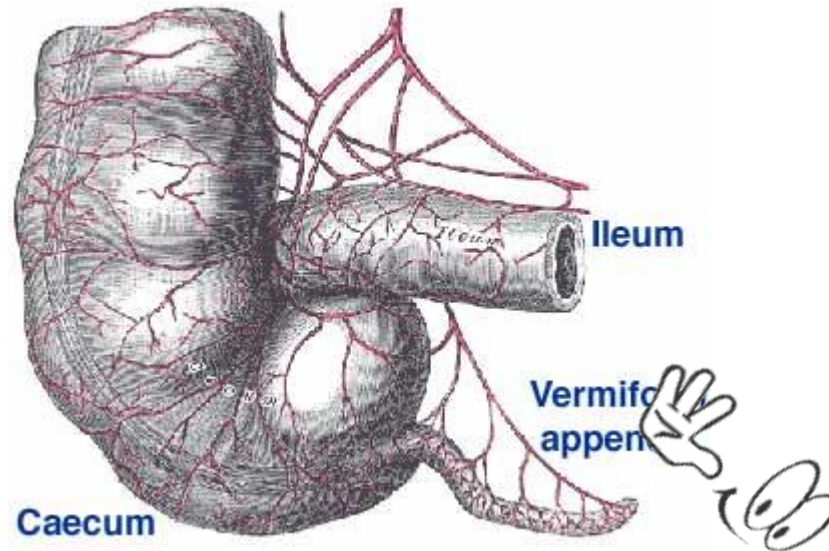
Obečná stavba tenkého a tlustého střeva



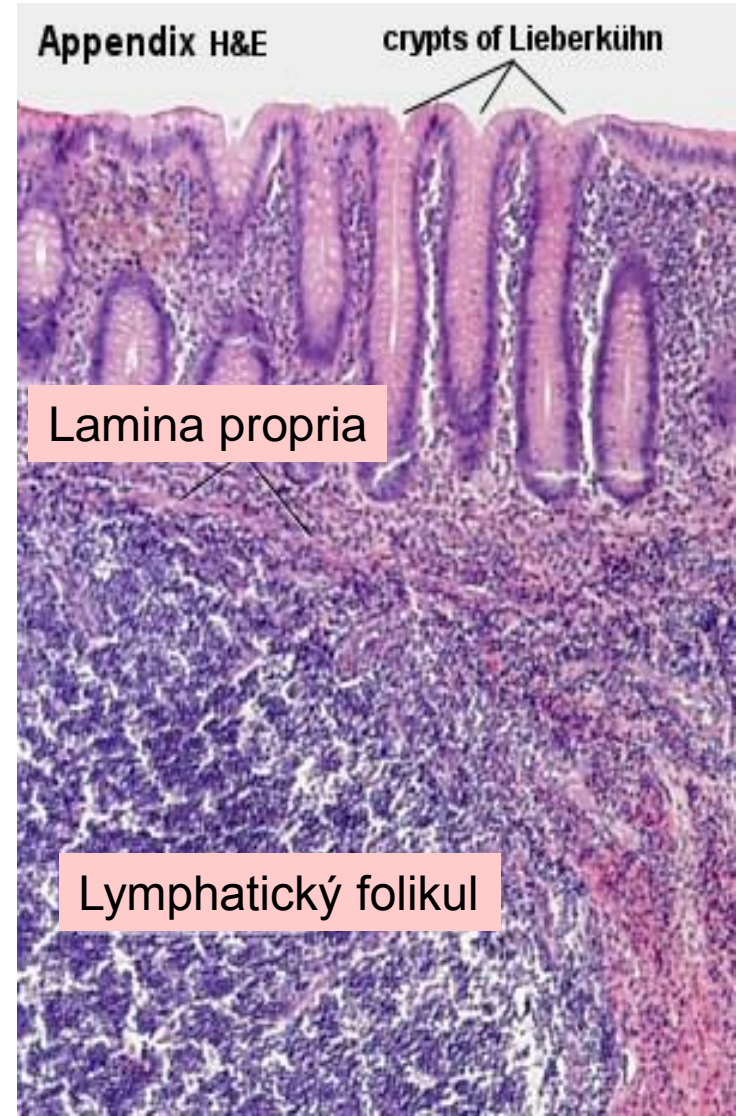
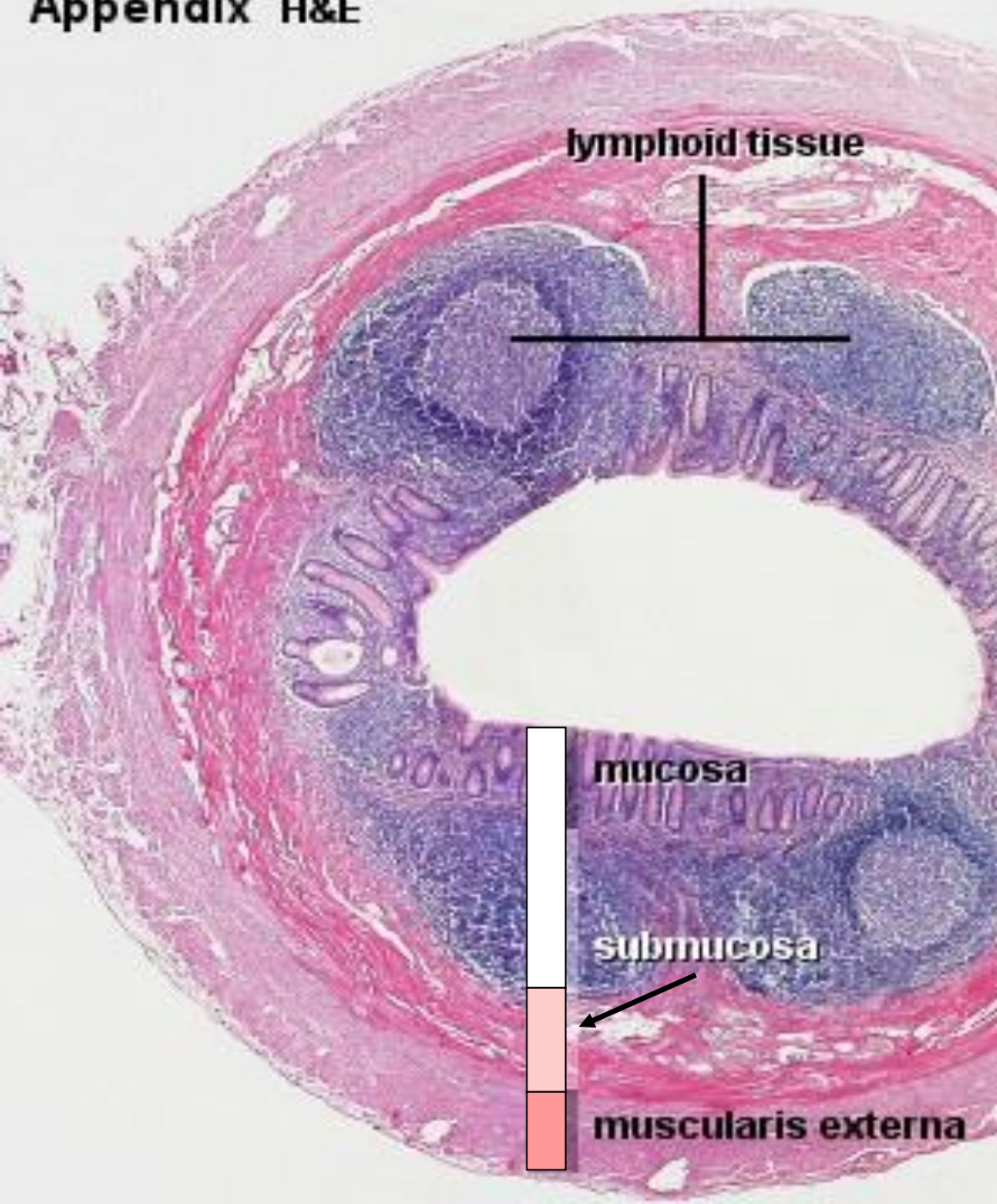
appendix vermiformis

slepě končící divertikl slepého střeva

1. **Tunica mucosa:** *bez klků, krypty nepoččetné, mělké.*
 - jednovrstevný cylindrický epitel,
 - lamina propria – retikulární vazivo; lymfatické uzlíky,
 - lamina muscularis – tenká, nesouvislá.
2. **Tela submucosa** – řídké kolagenní vazivo s tukovými bb. .
3. **Tunica muscularis externa** – tenká.
4. **Serosa.**



Appendix H&E





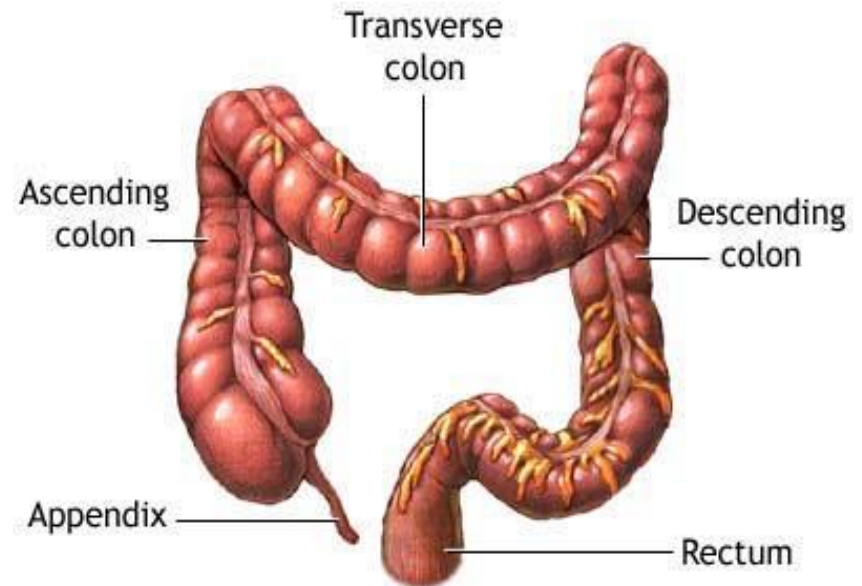


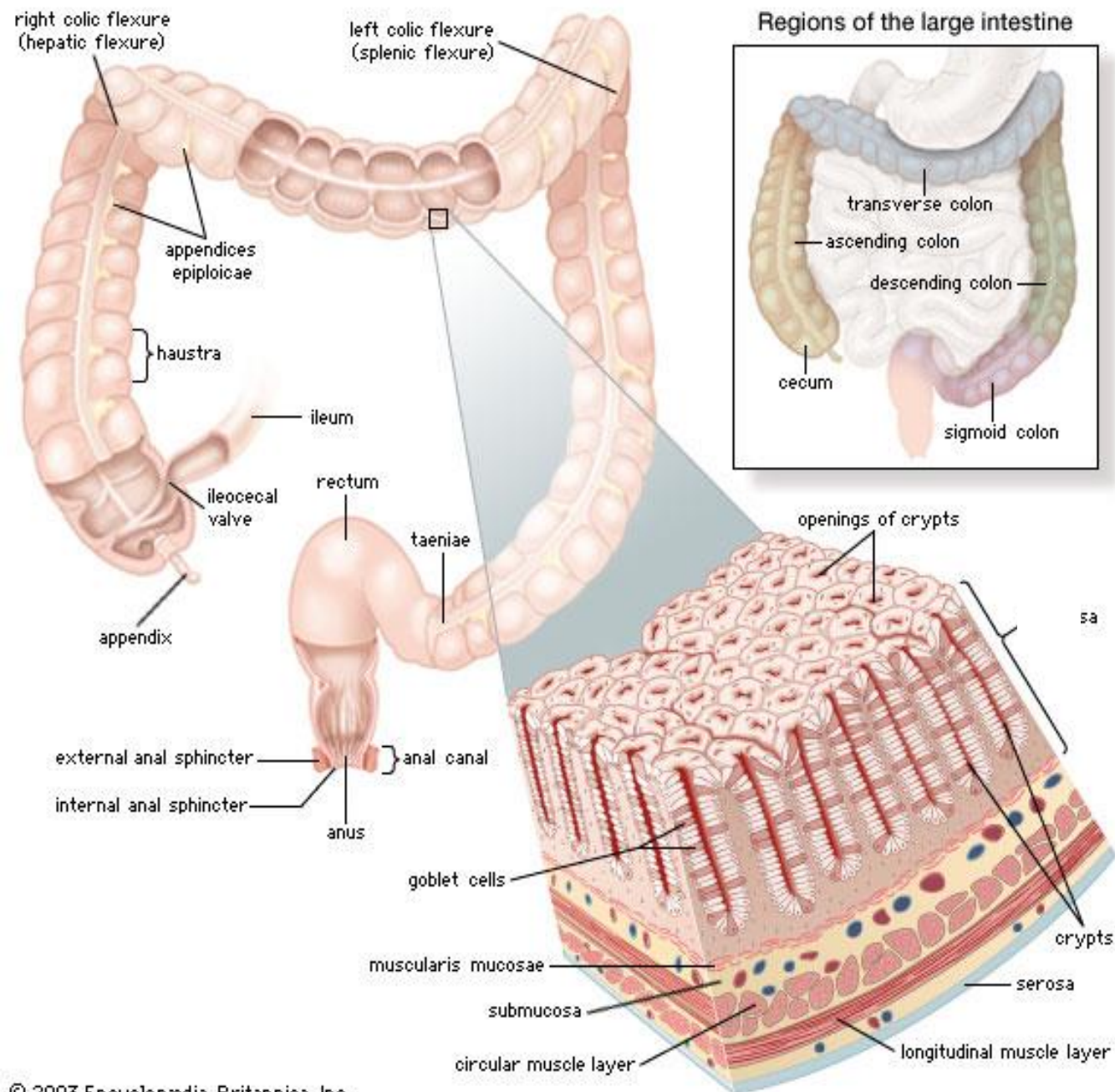
Tlusté střevo

intestinum crassum

3 oddíly:

- *caecum* + *appendix*,
- *colon* (*ascendens*, *transversum*, *descendens*, *sigmoideum*),
- *rectum* + *canalis analis*.





Stěna tlustého střeva

1. Sliznice - krypty

- jednovrst. cylindr. ep.
- l. propria – retikulární vazivo
- l. muscularis – hladké sv.

2. Submucosa

3. Zevní vrstva sval.

4. Seróza

- nevytváří klky

SMALL INTESTINE

LARGE INTESTINE



Circular folds
(of Kerckring)

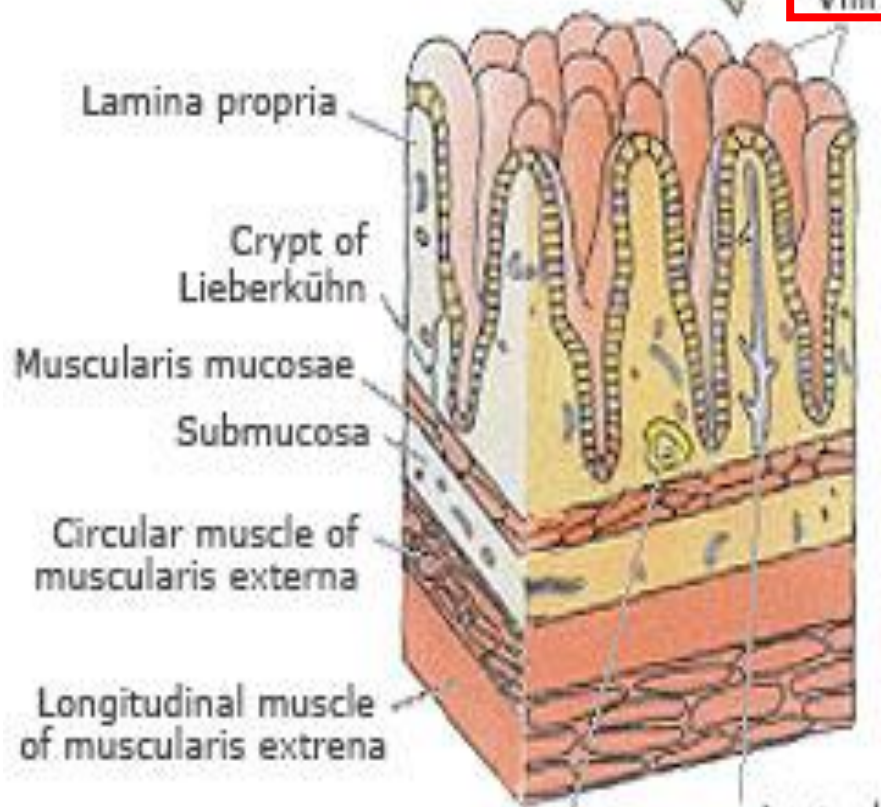


Haustra

Semilunar folds

Villi

Surface epithelium



Lamina propria

Crypt of
Lieberkühn

Muscularis mucosae

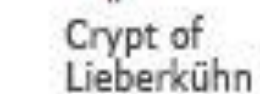
Submucosa

Circular muscle of
muscularis externa

Longitudinal muscle of
muscularis externa

Lacteal

Lymphoid nodule



Crypt of
Lieberkühn

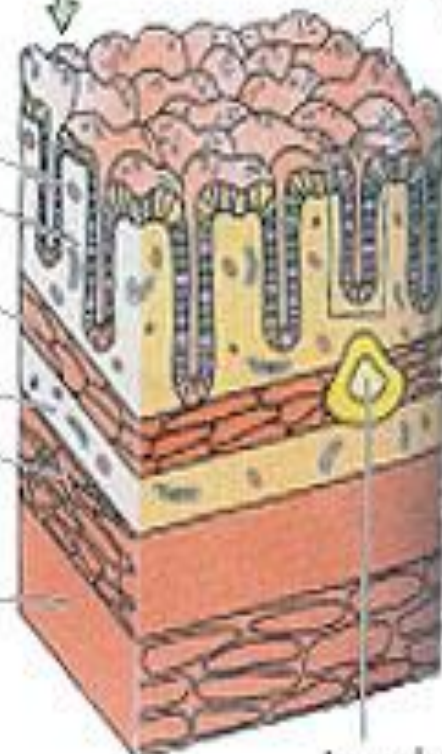
Lamina propria

Muscularis
mucosae

Submucosa

Circular muscle of
muscularis
externa

Longitudinal
muscle of
muscularis
externa



Lymphoid

Intestinum crassum

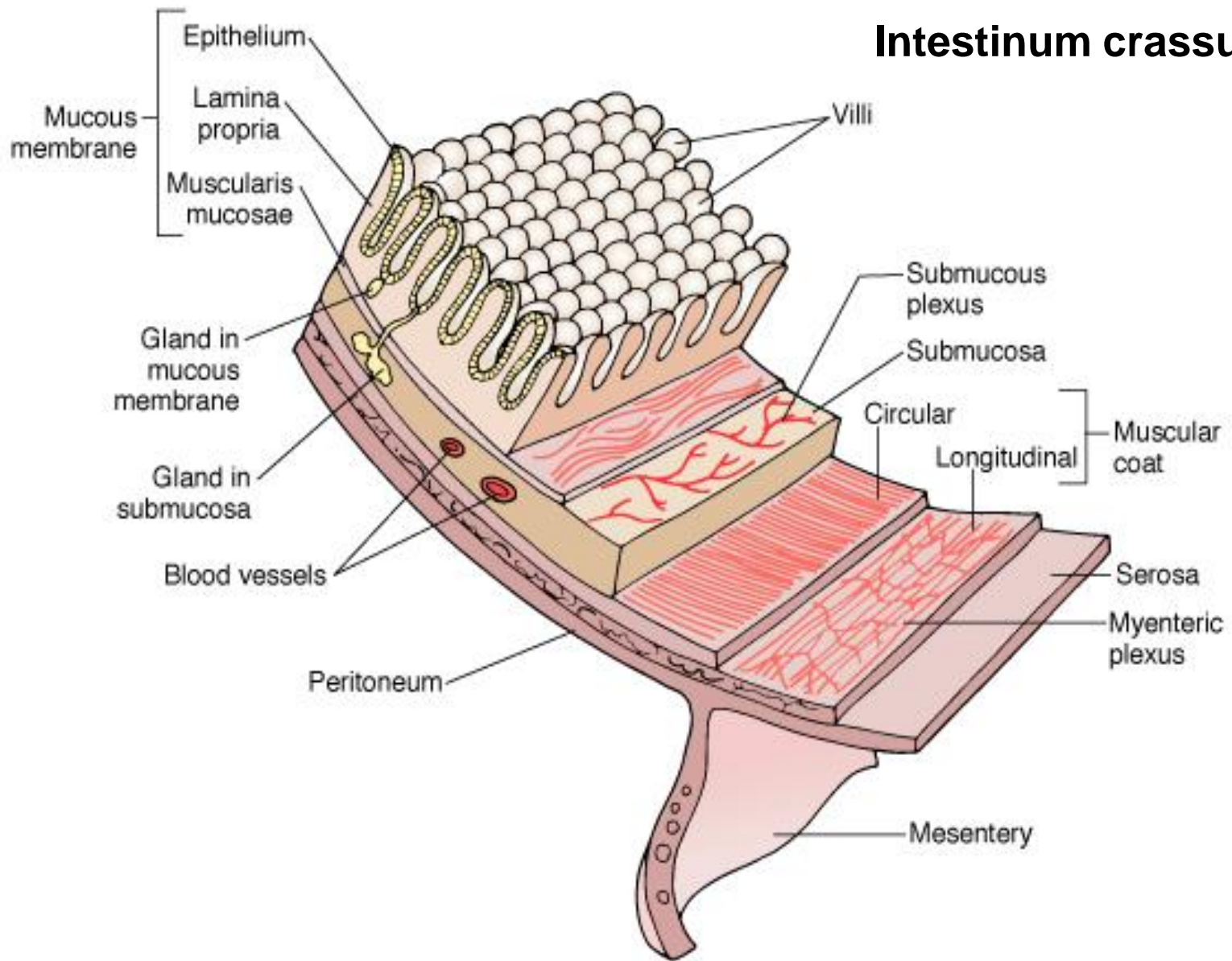
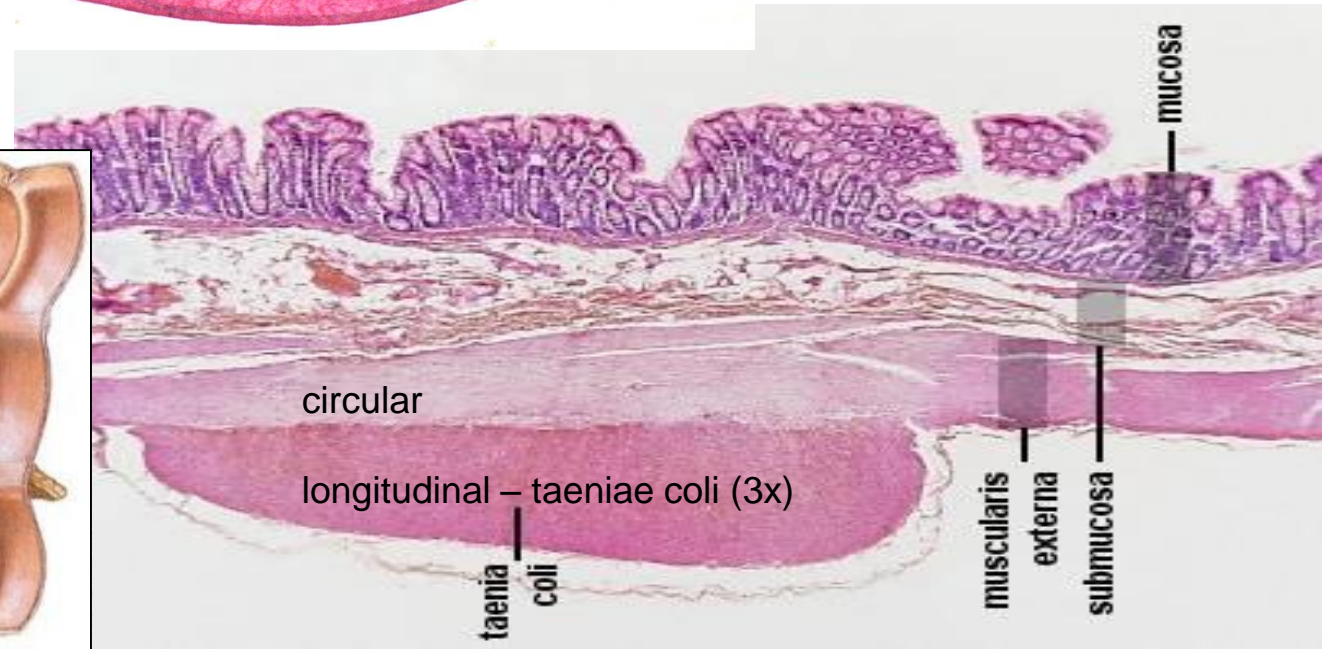
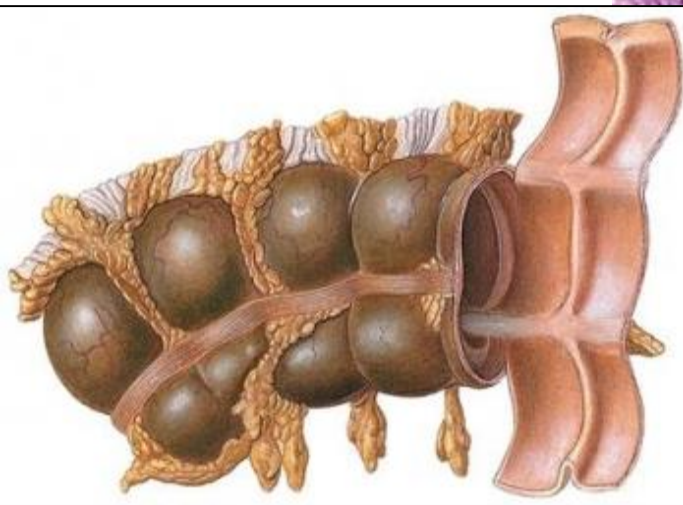


Figure 38-6 Diagram of the four main layers of the wall of the digestive tube: mucosa, submucosa, muscular, and serosa (below the diaphragm).

Tlusté střevo

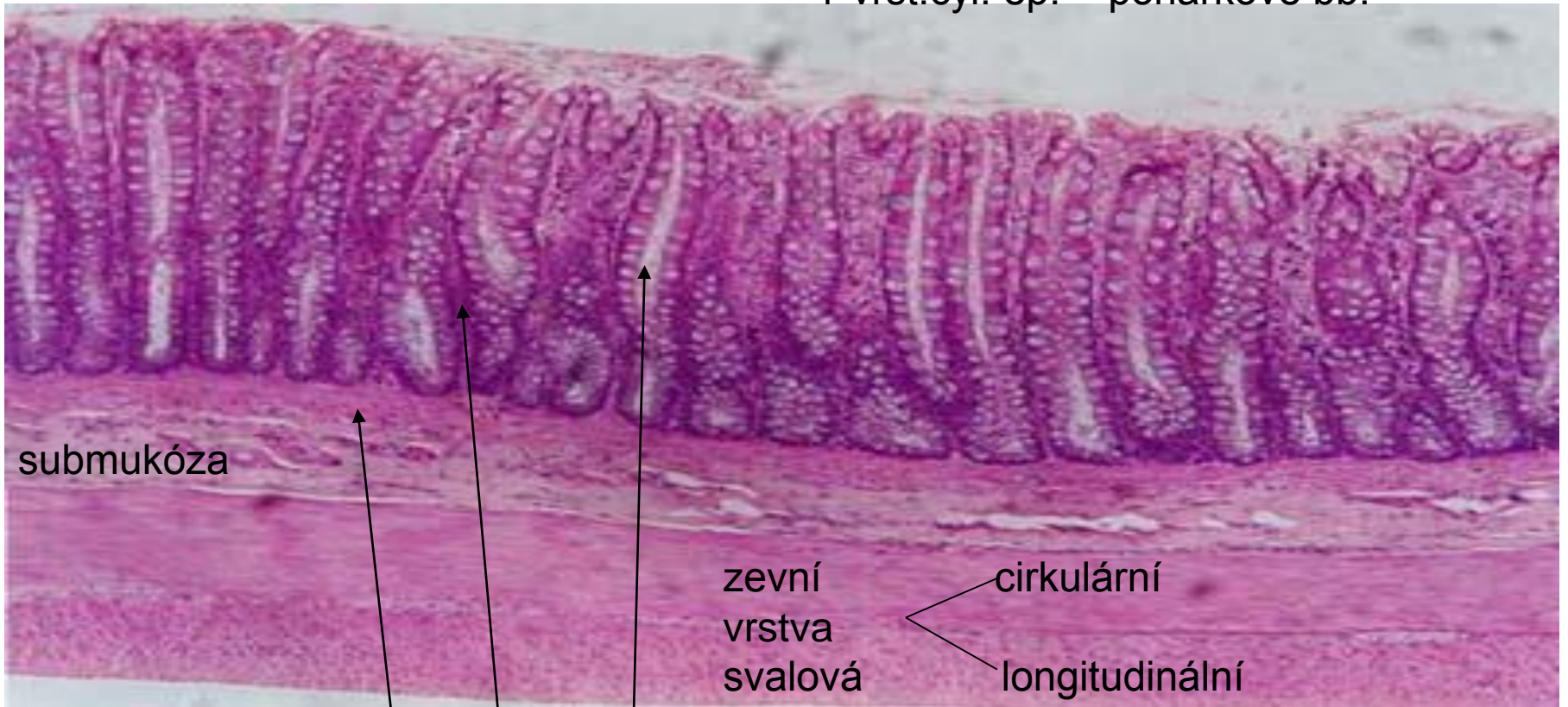


*Seróza tvoří
appendices epiploicae
obsahující tuk.*



Tlusté střevo

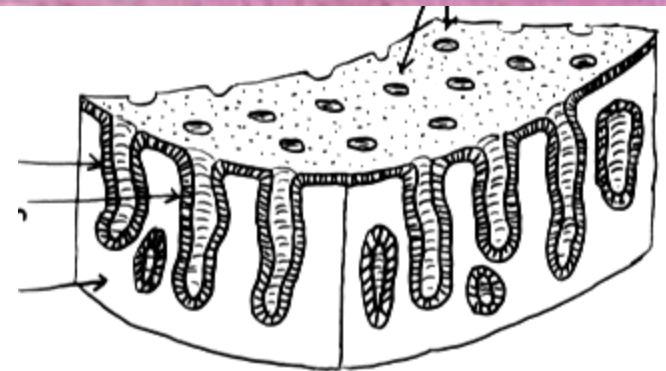
1-vrst.cyl. ep. + pohárkové bb.



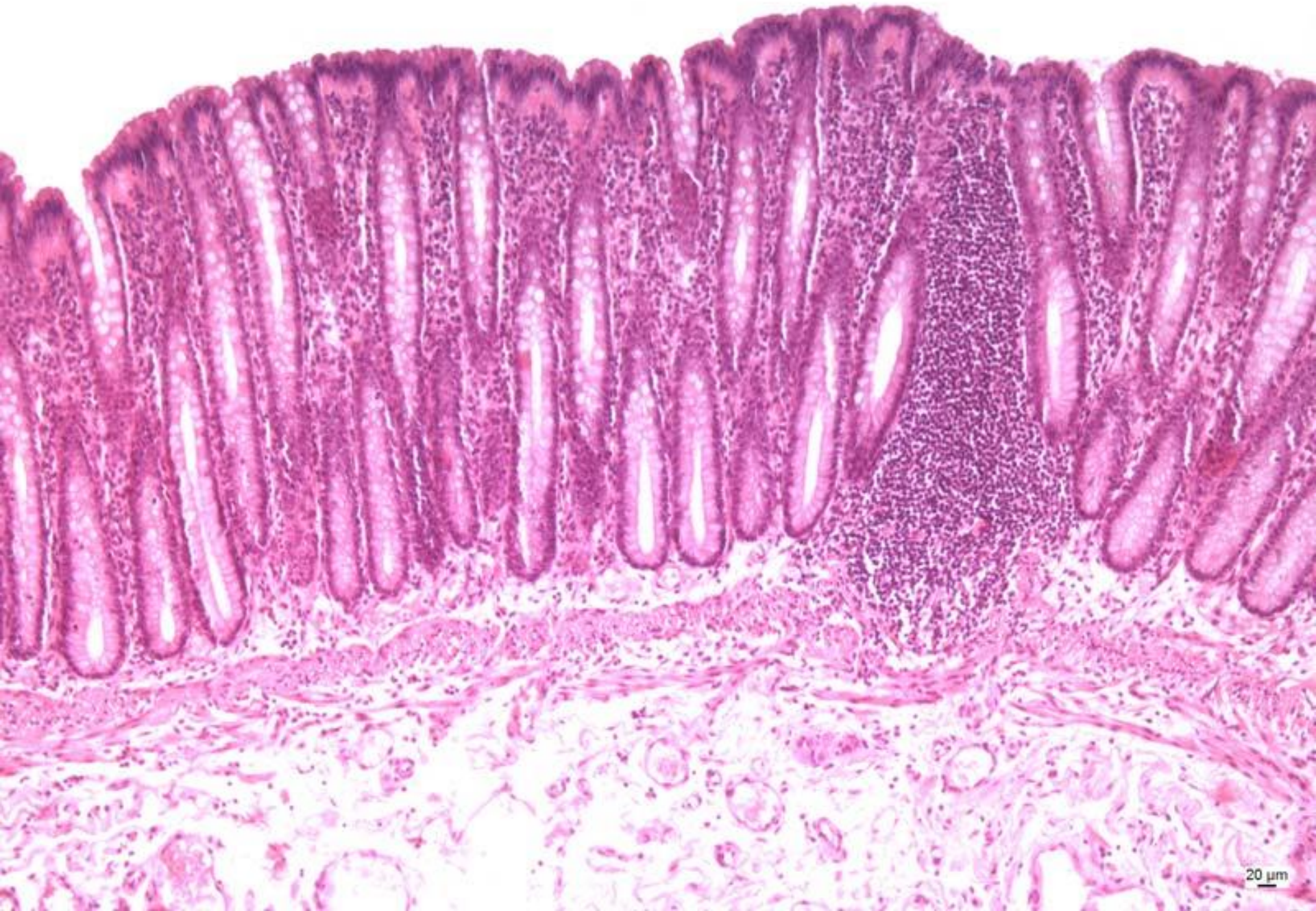
Lieberkühnova krypta

lamina propria mucosae

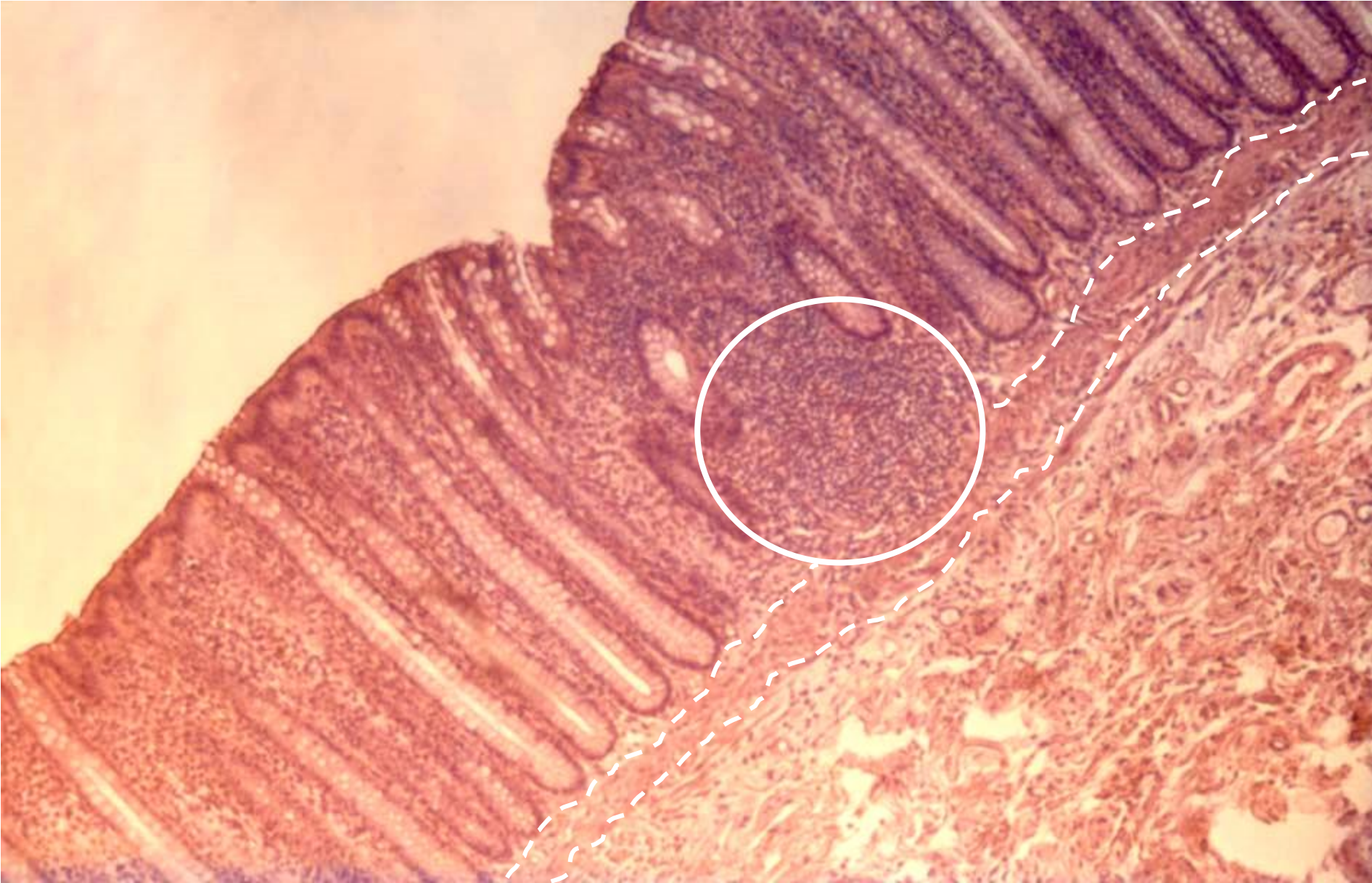
lamina muscularis mucosae



Intestinum crassum (HE)

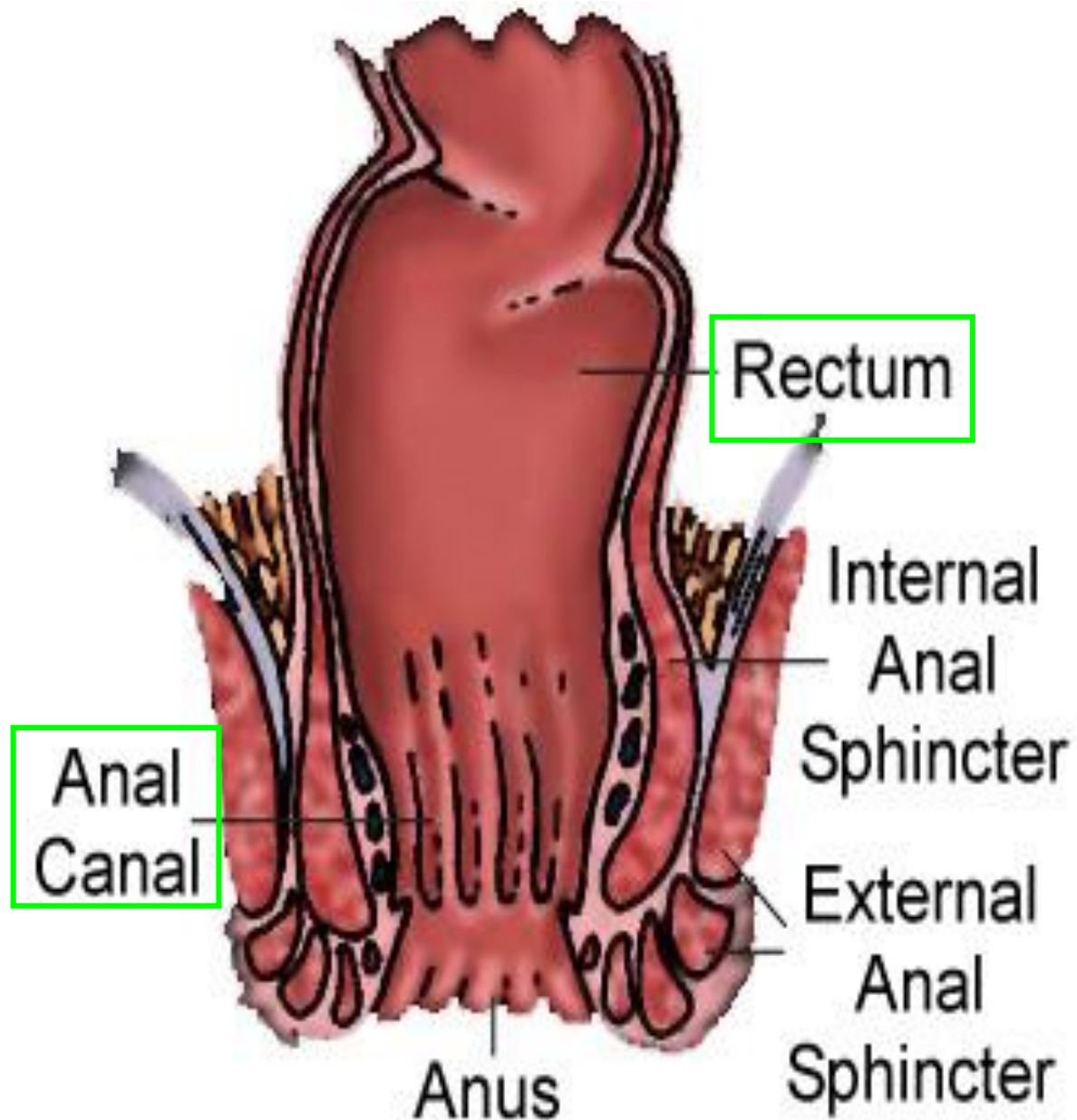
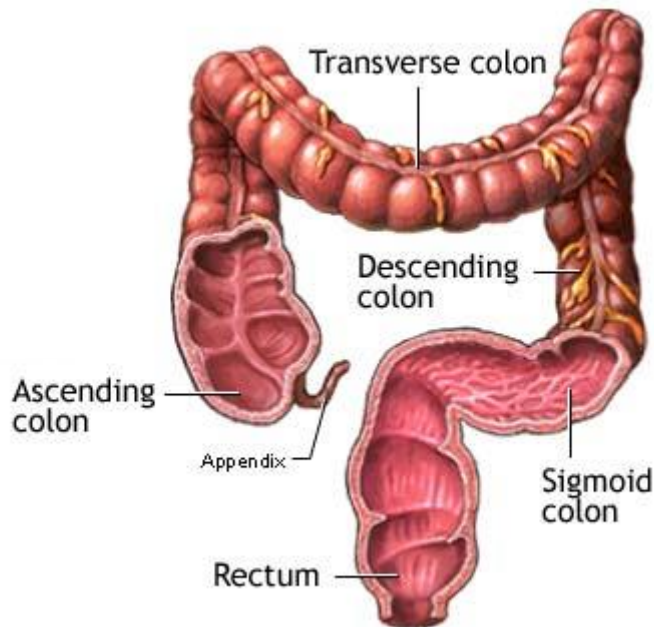


Intestinum crassum



Rektum – ampulla + canalis analis

Ampulla – podobně jako stěna tlustého střeva



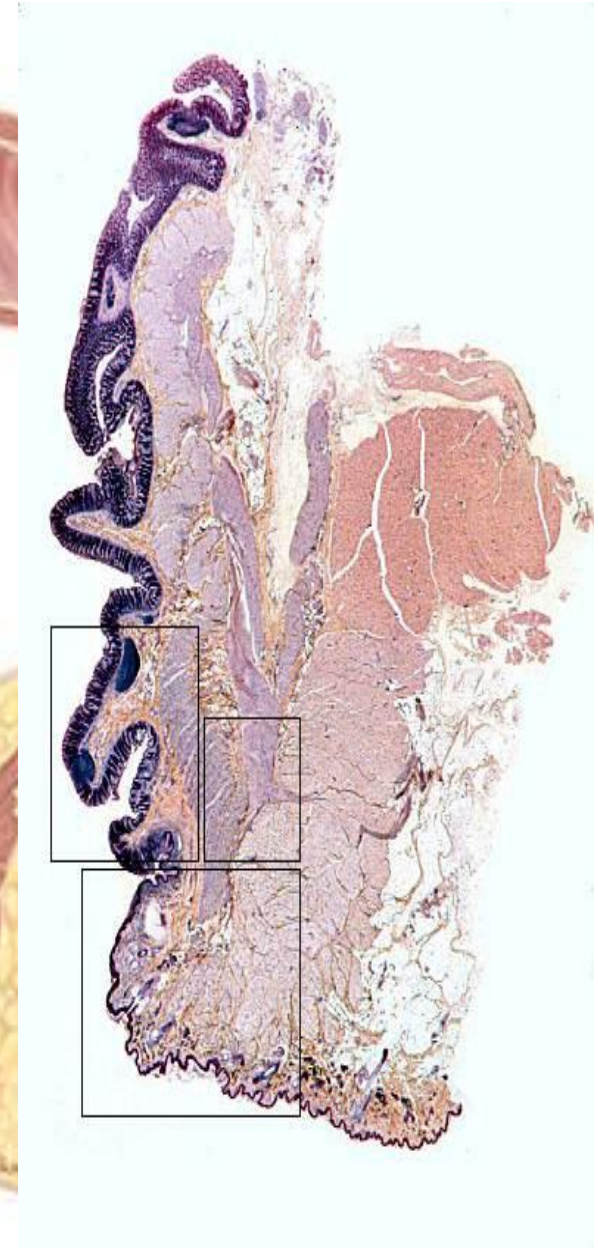
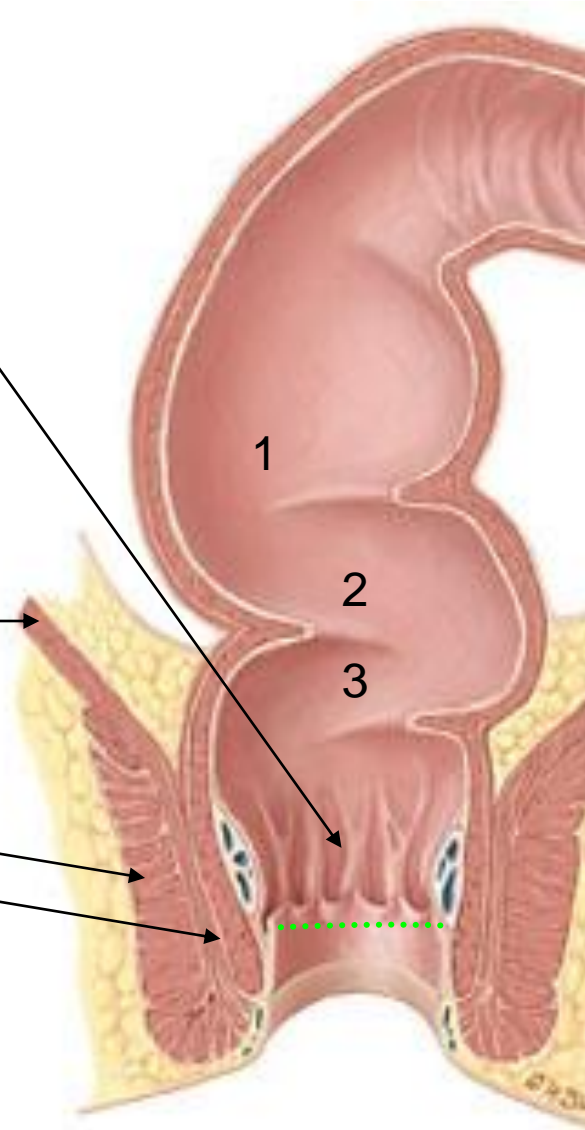
Canalis analis

Plicae transversales (1, 2, 3)

5-10 columnae rectales
+ sinus et valvulae anales

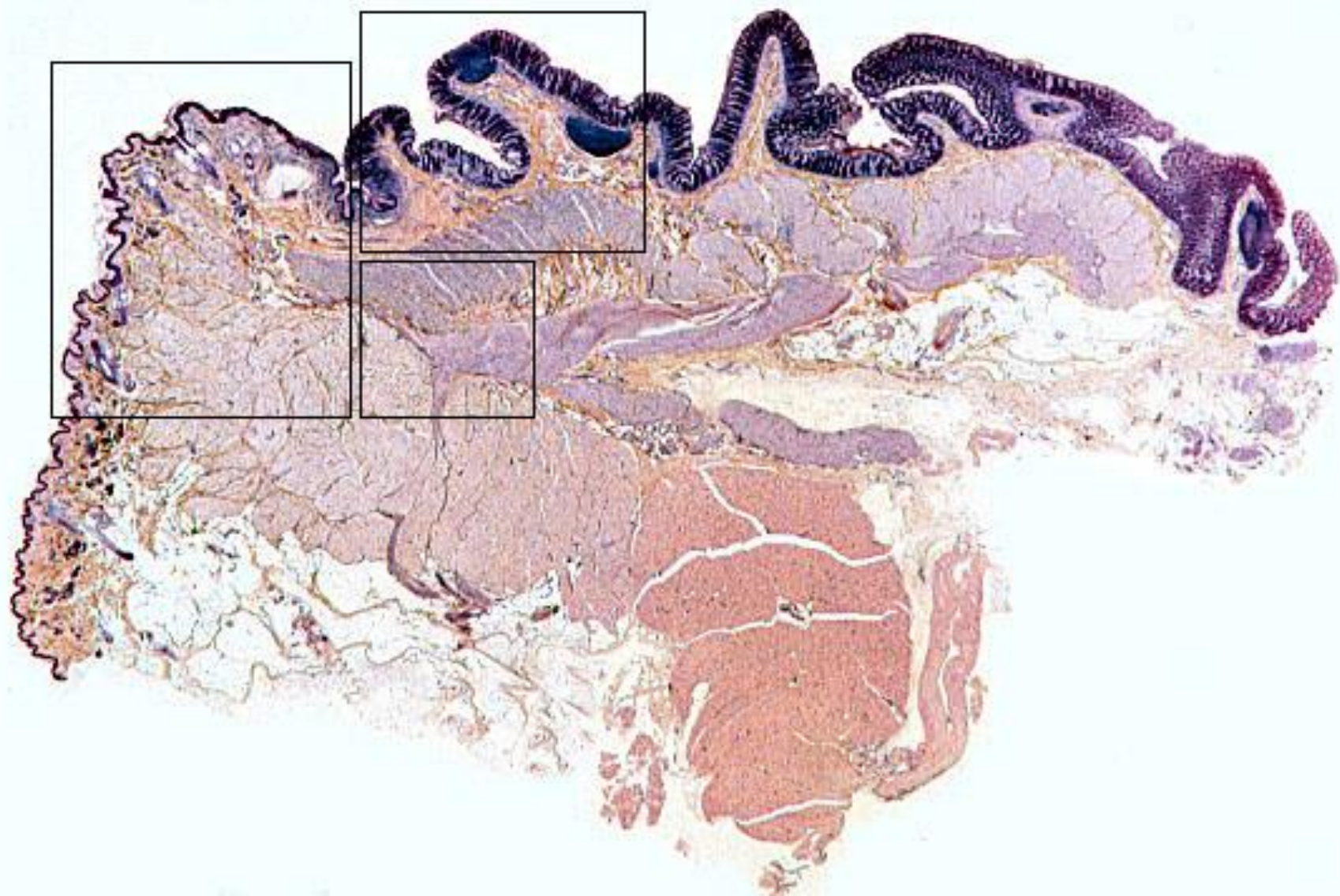
m. levator ani

M sphincter ani:
ext.
int.

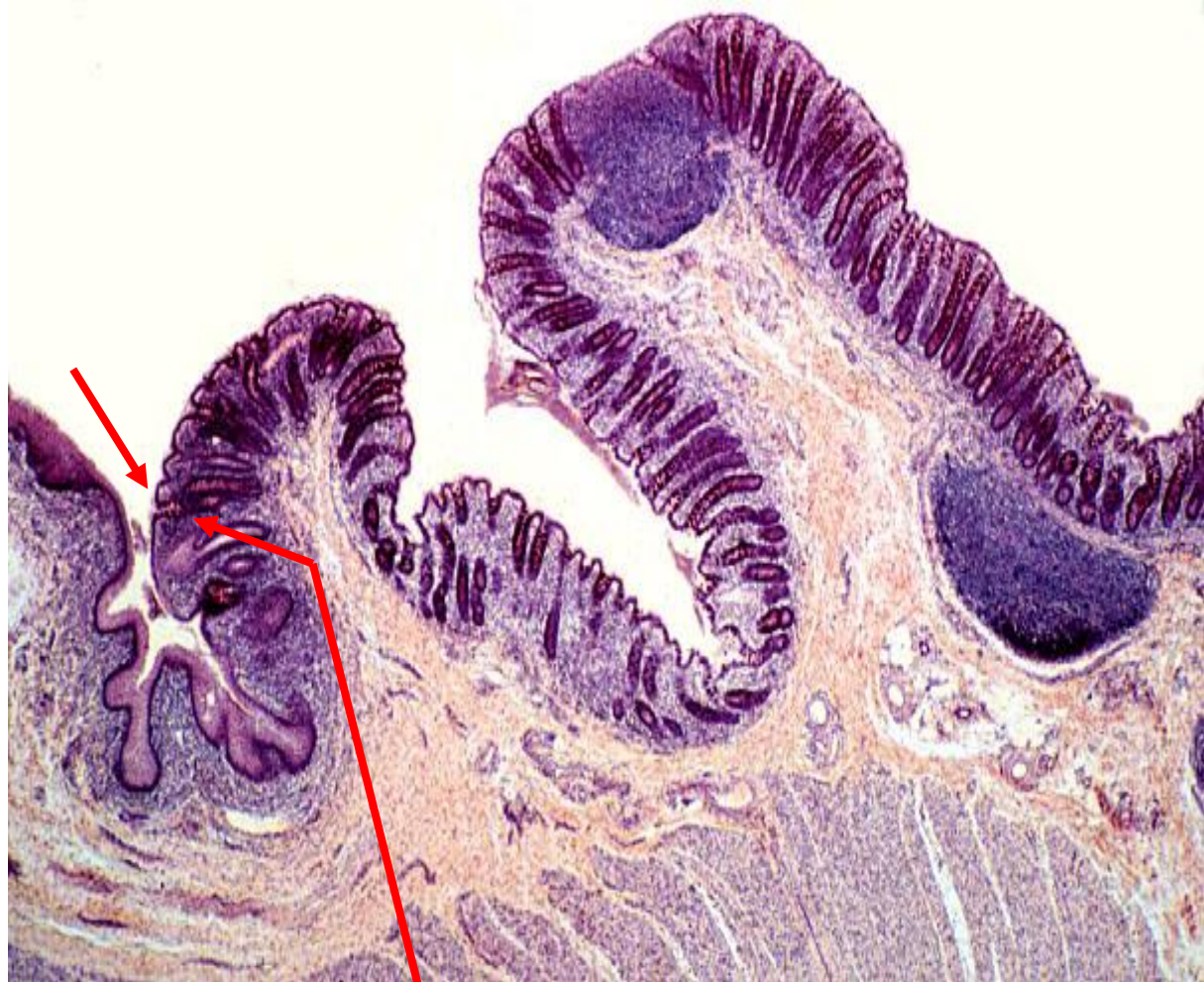
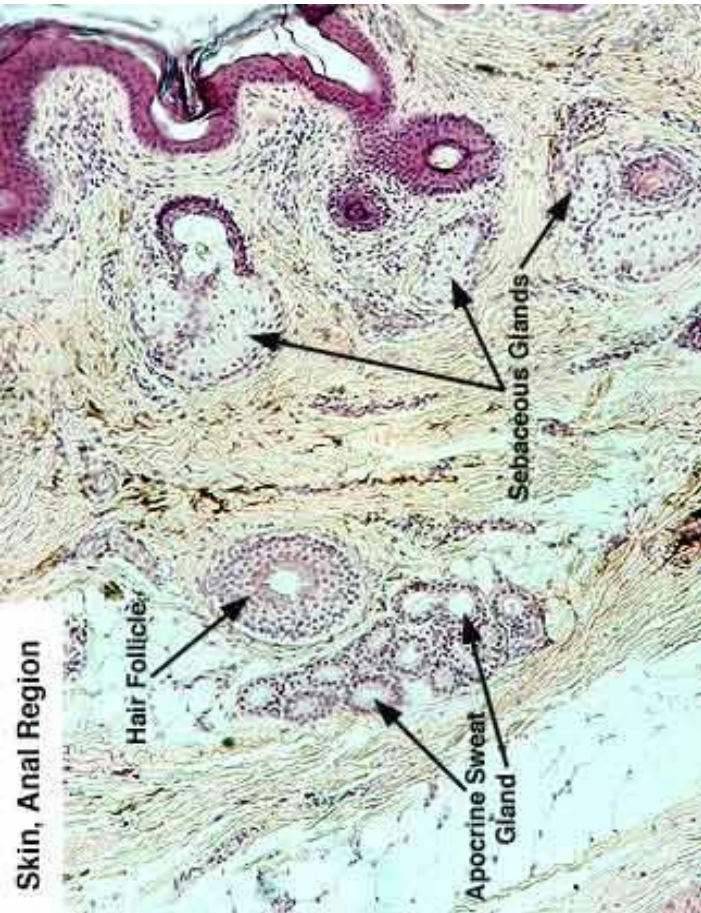


3 zóny análního kanálu – místní rozdíly:

Zona hemorrhoidalis	Zona intermedia	Zona cutanea
<p>Sliznice</p> <ul style="list-style-type: none"> - <u>1-vrst. cyl. ep.</u> - lamina propria - <u>retikulární vazivo</u> <p>- lamina muscularis -<u>ANO</u></p>	<p>→ - vrstev. dlaždic. ep.</p> <p>→ - lamina propria (řídčné kolag. vazivo)</p> <p>- <u>NE</u></p>	<p>Kůže</p> <p>→ - <u>epidermis</u></p> <p>→ - dermis + adnexa + pigment. bb</p>
<p>Submukóza +</p> <p>Zevní sval.vrstva: hladká</p> <p>Adventitia +</p>	<p>+ hladká (m. sphincter int.)</p> <p>+</p>	<p>---</p> <p>kosterní (m. sphincter ext.)</p>



Canalis analis



zona intermedia

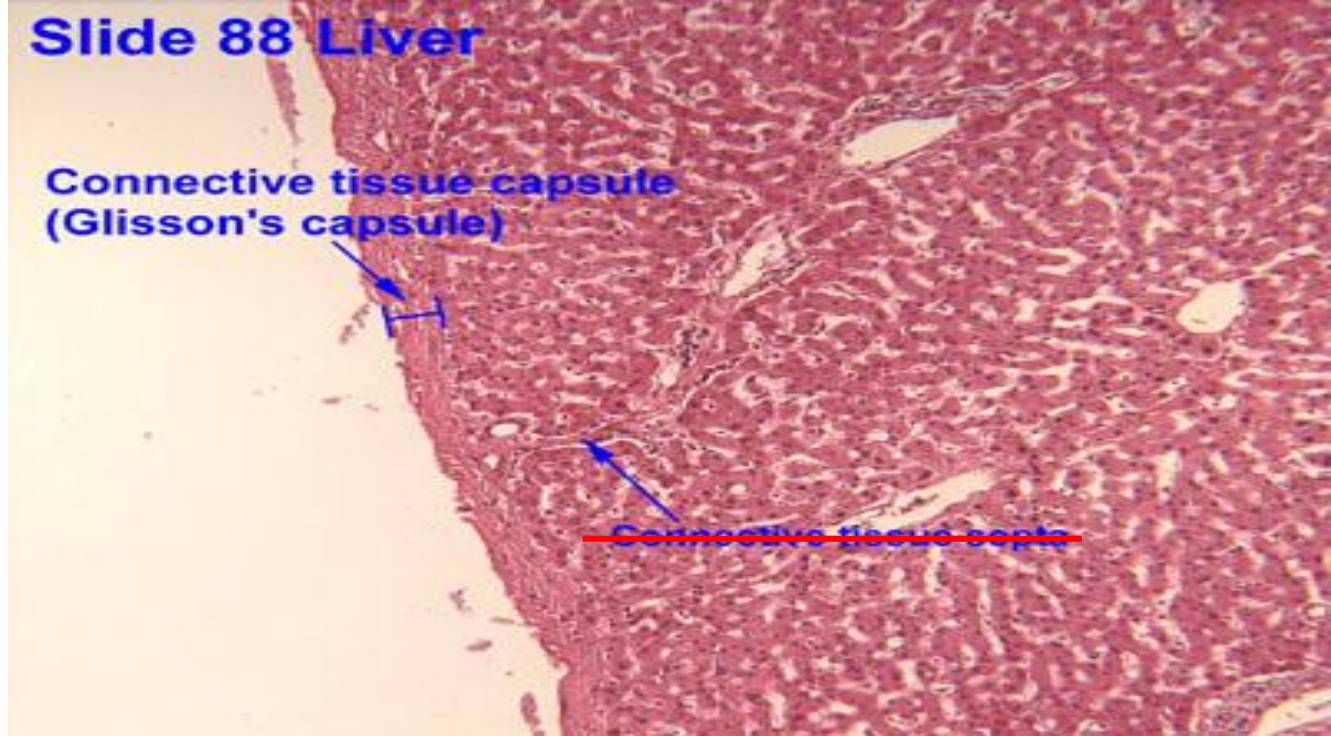
zona hemoroidalis

zona cutanea



Slide 88 Liver

Connective tissue capsule
(Glisson's capsule)



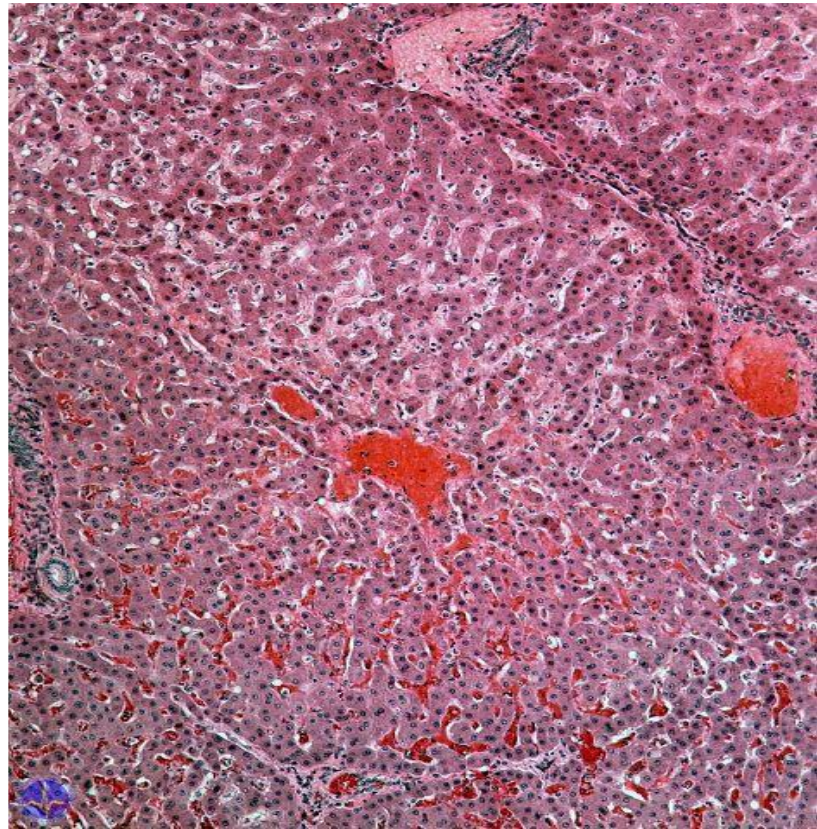
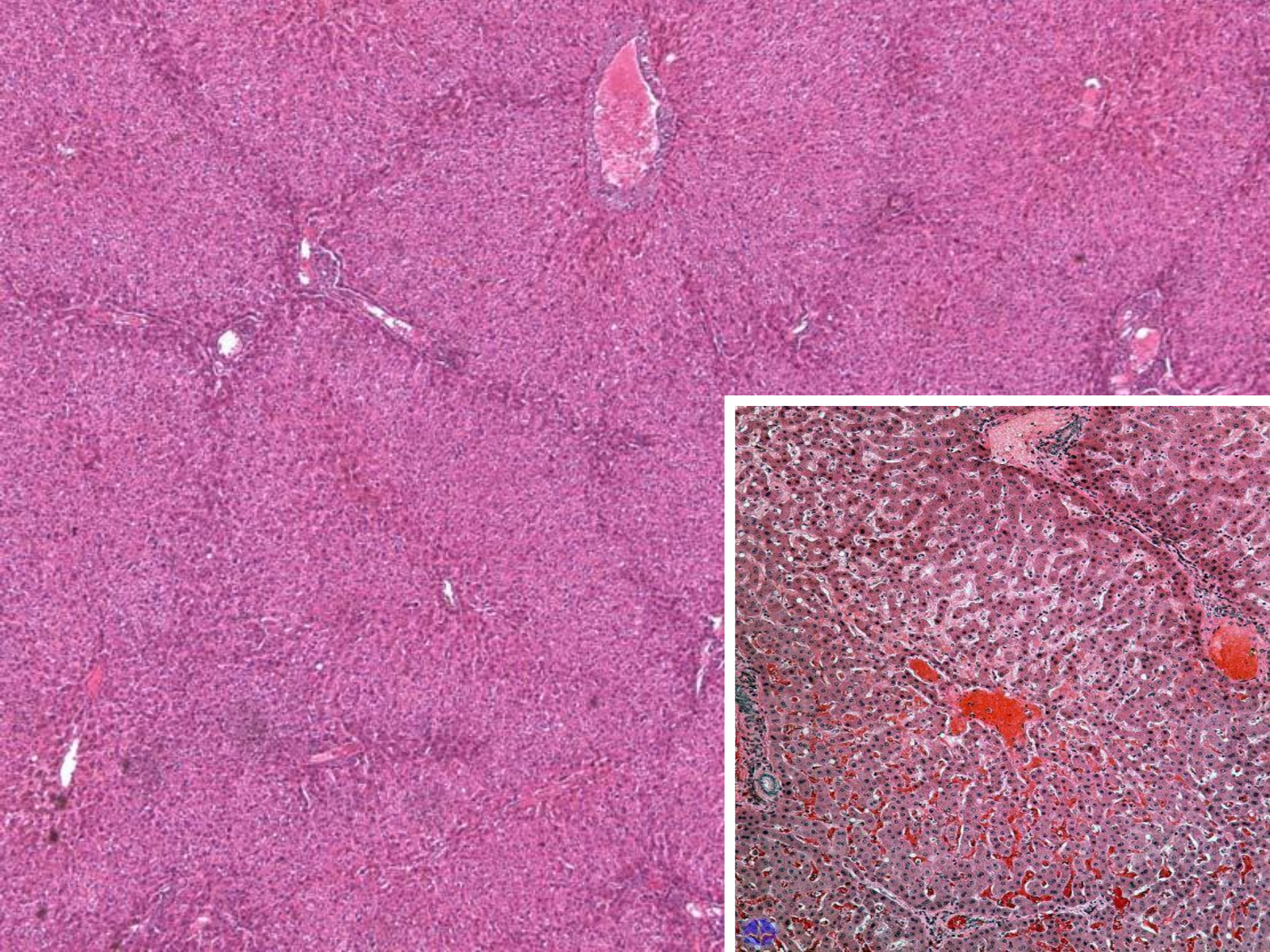
Játra (hepar)

- **vazivo**

capsula fibrosa hepatis (Glissoni) + seróza

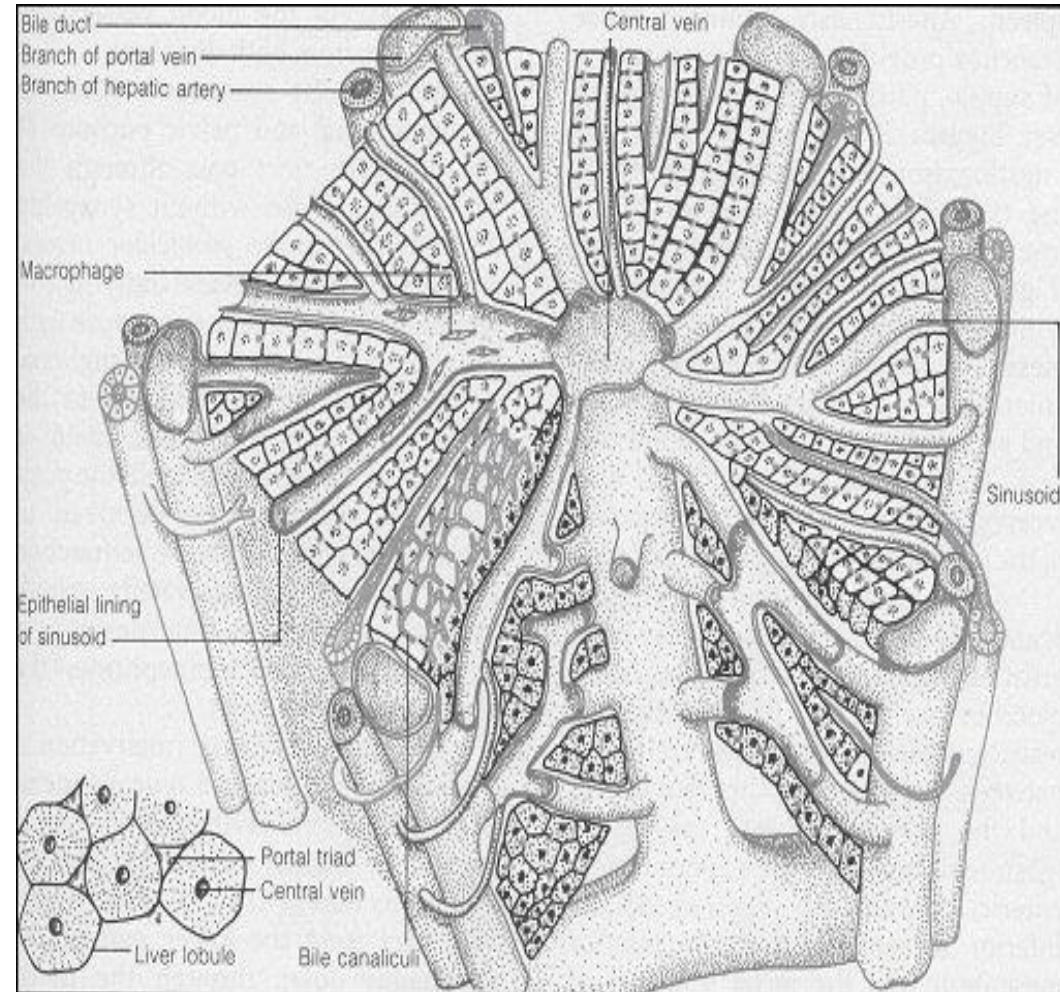
- **játerní parenchym** – trámce hepatocytů - játerní lalůčky

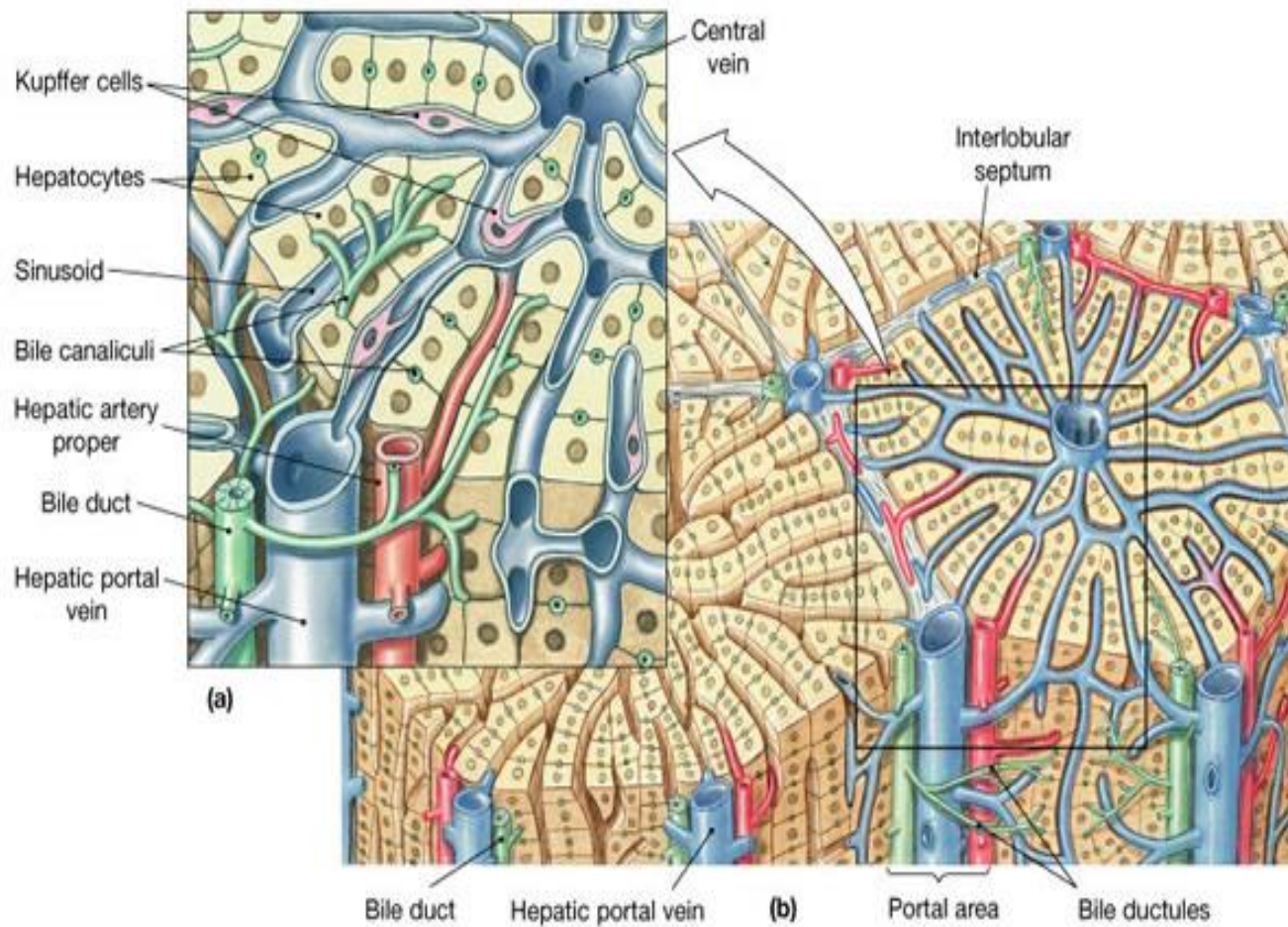
játerní lalůček = morfologická jednotka jater



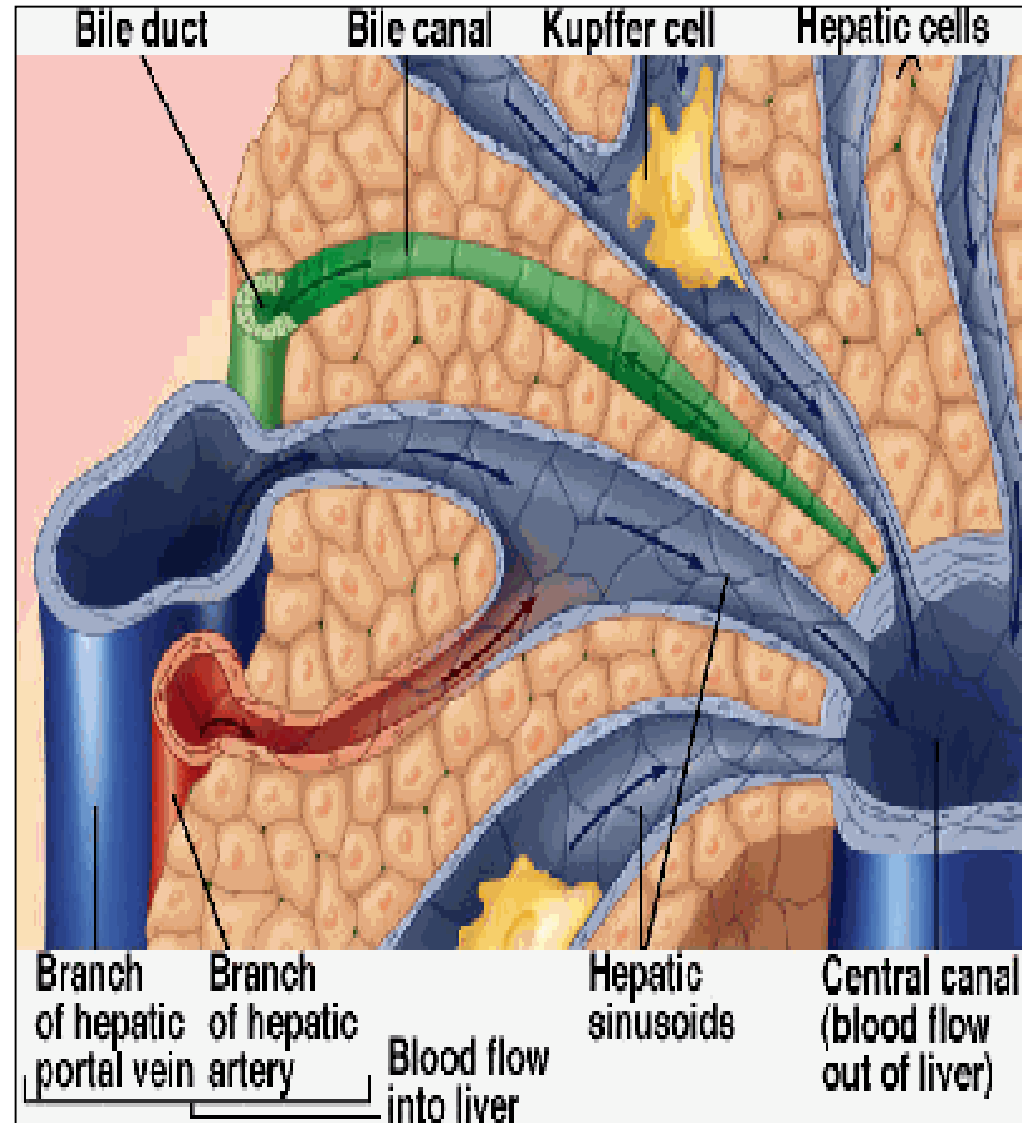
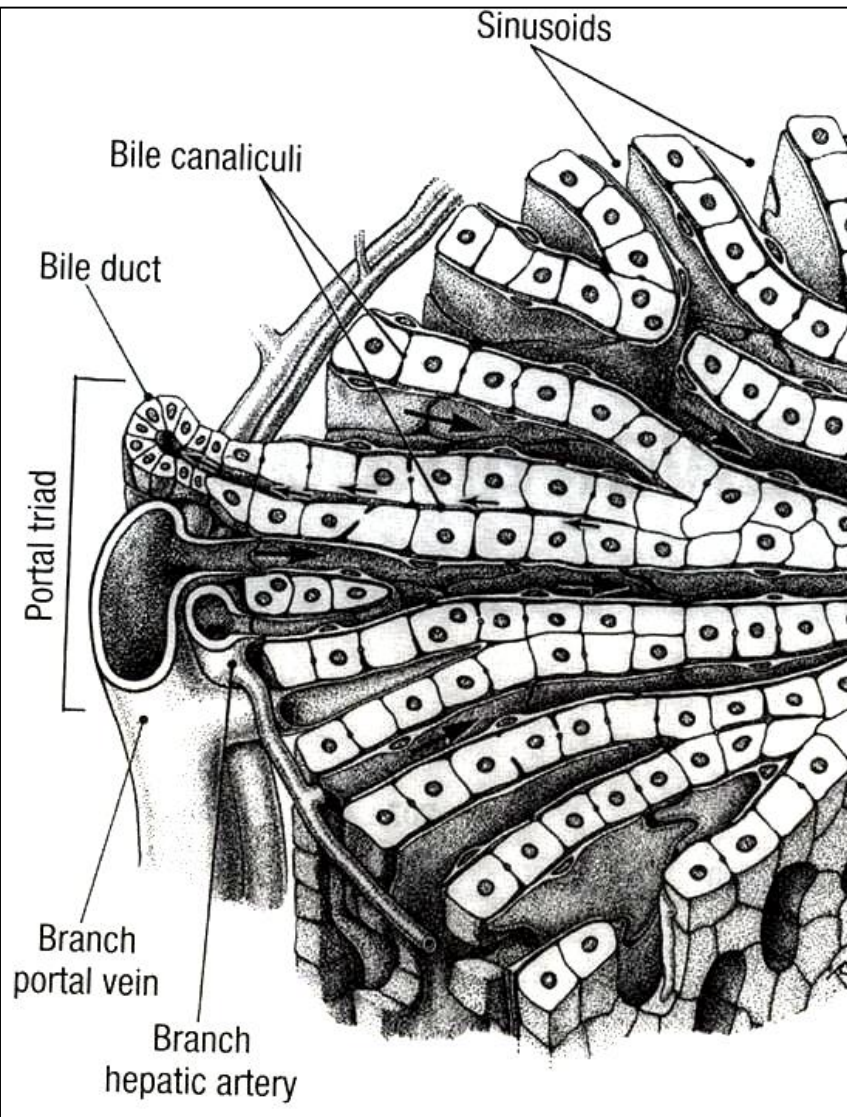
Lalůček centrální vény (jaterní lalůček)

- tvar - 5-6boký hranol
- vena centralis – v ose lalůčku
- trámce hepatocytů – radiálně uspořádané kolem centrální vény
- jaterní sinusoidy
- žlučové kapiláry – každá mezi 2 trámci; jejich stěnu tvoří buněčná membrána hepatocytů





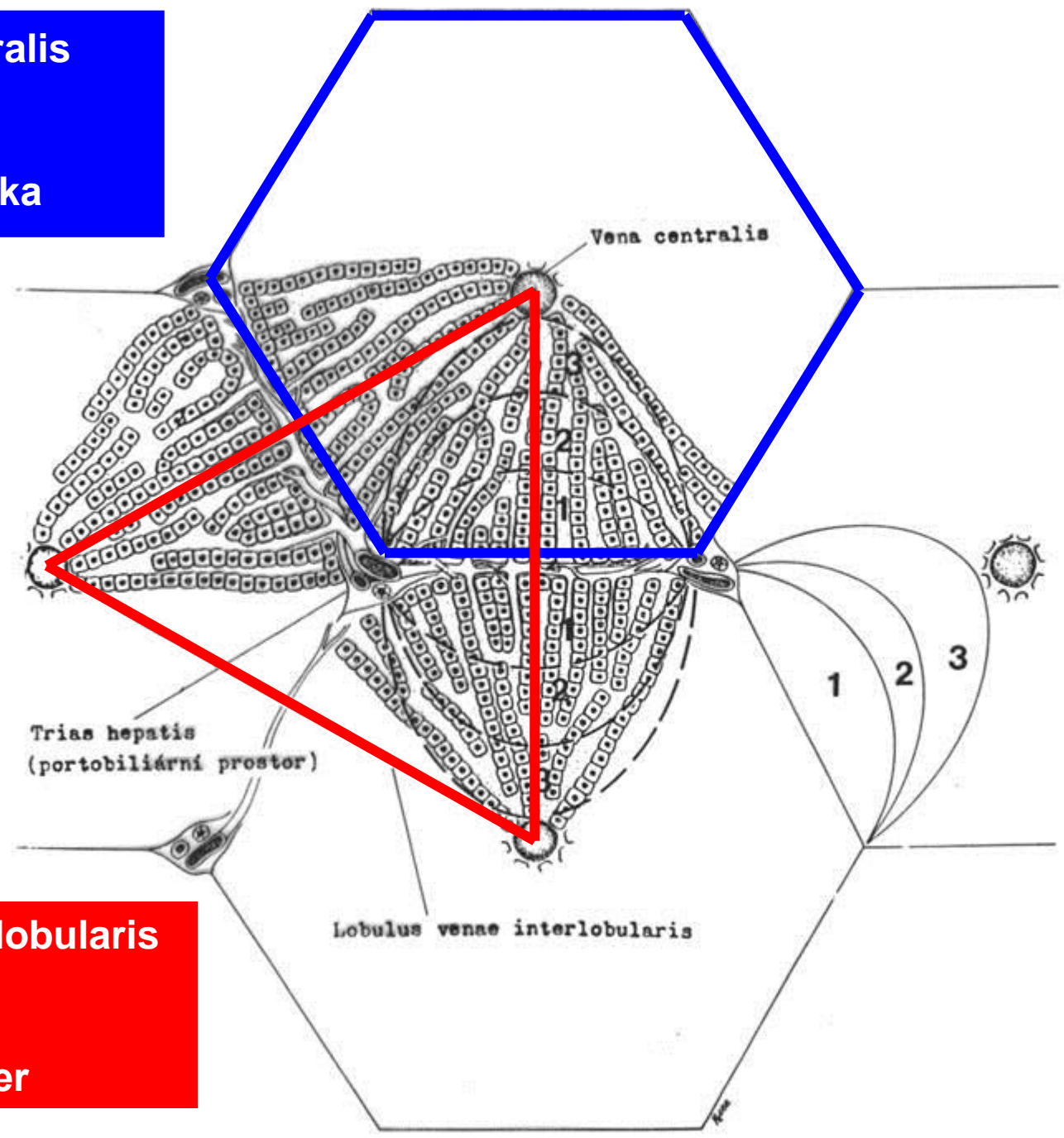
„ploténky“ (3D) – „trámce“ (2D) hepatocytů



**Lobulus venae centralis
(jaterní lalůček)**

=

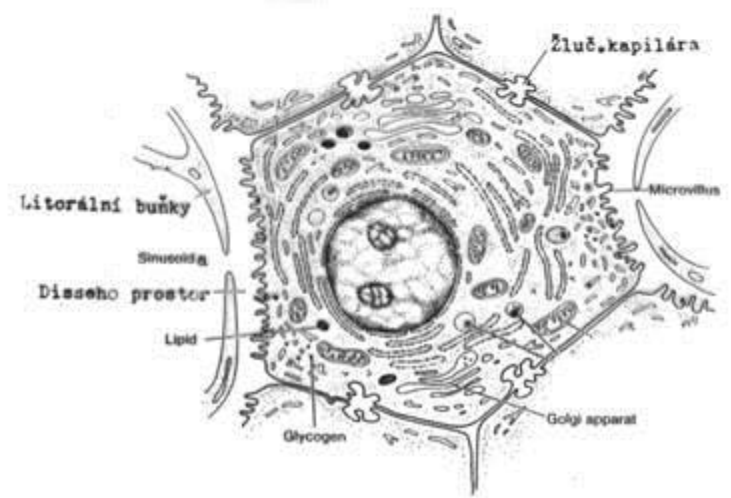
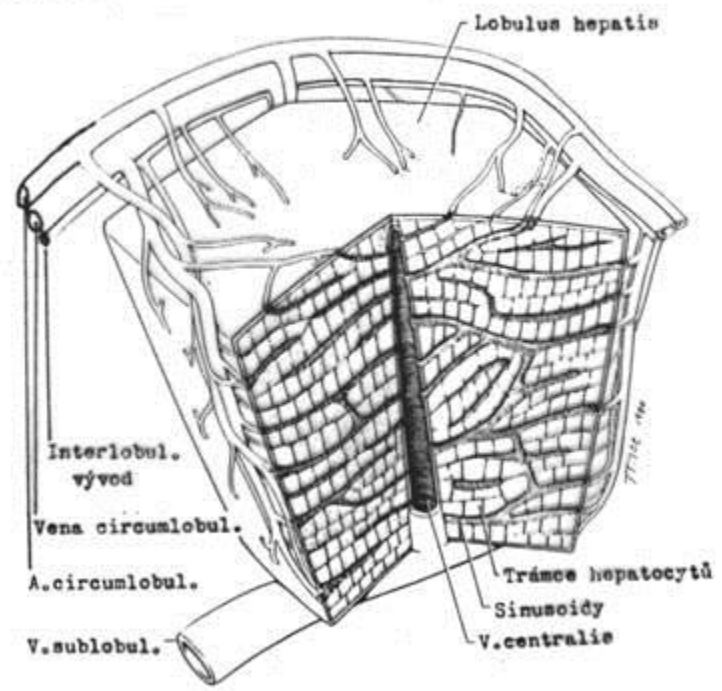
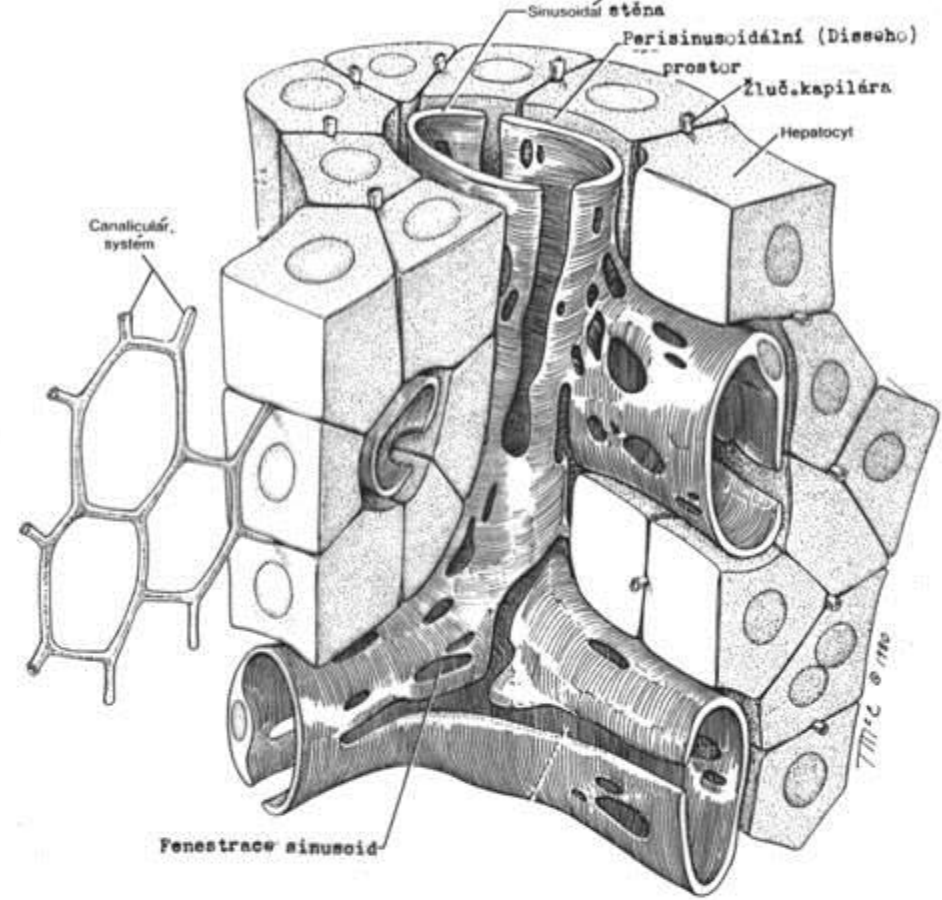
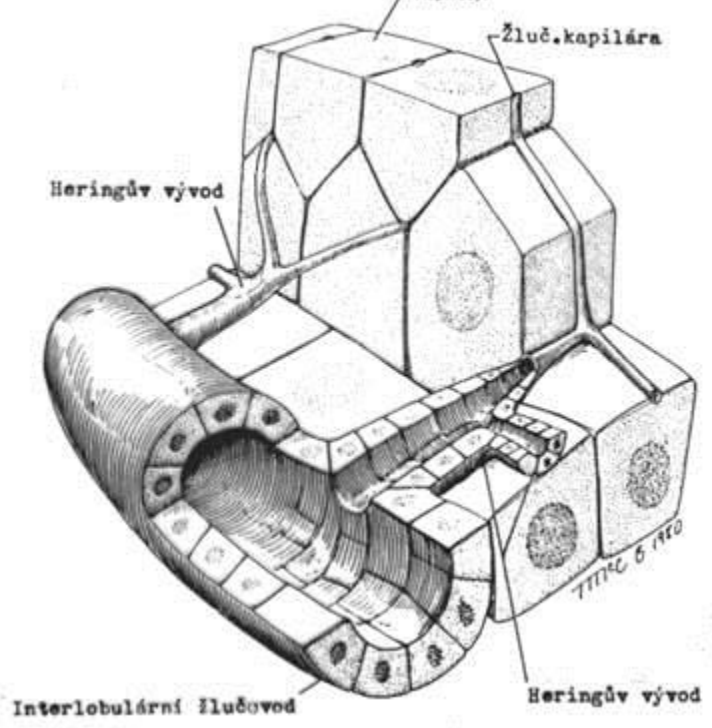
morfologická jednotka



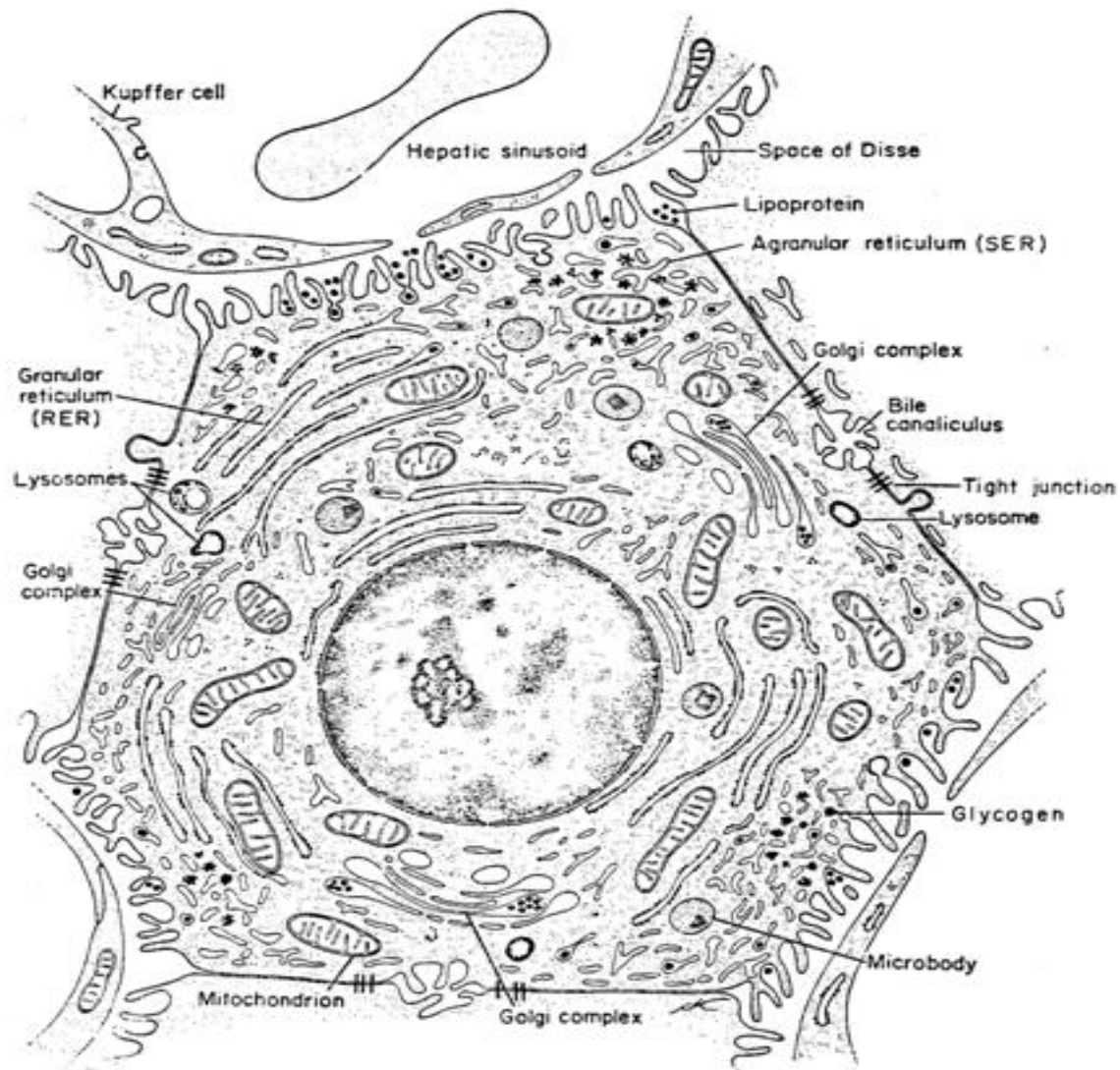
**Lobulus venae interlobularis
(portální lalůček)**

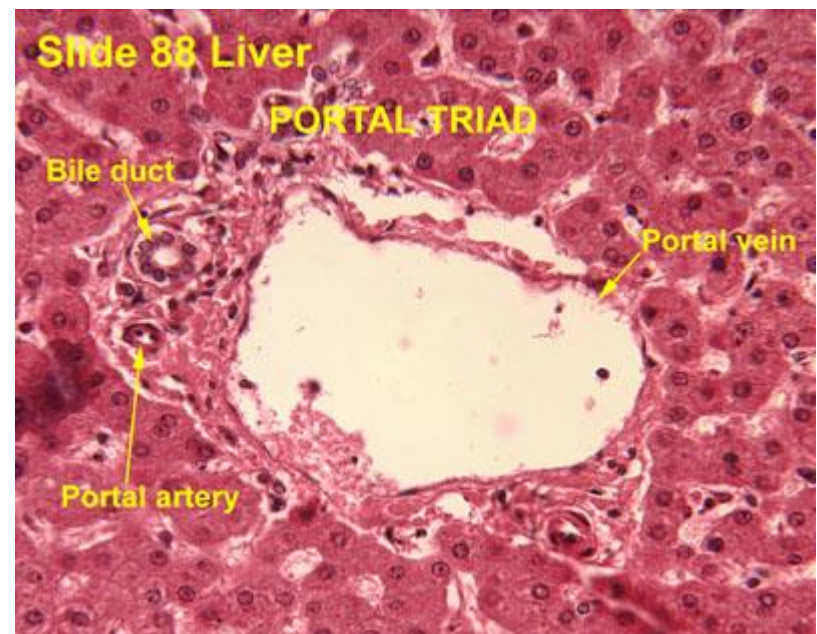
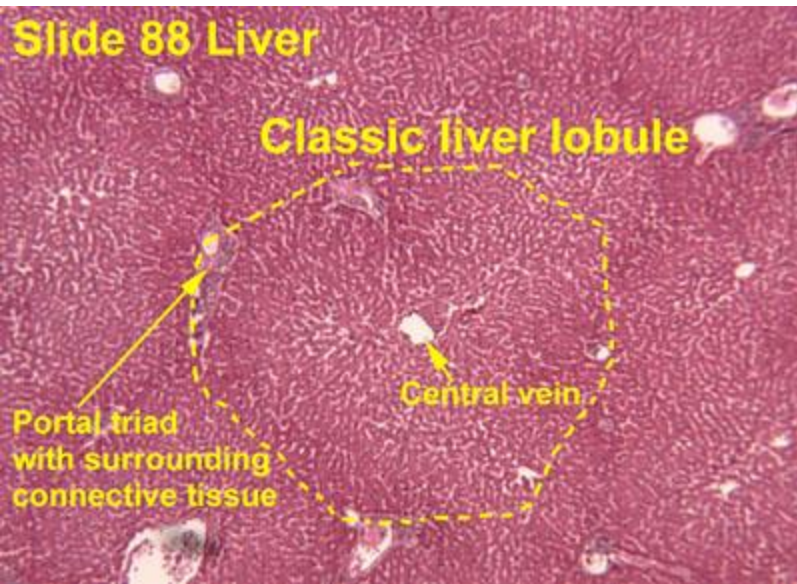
=

funkční jednotka jater



Jaterní buňka (hepatocyt)



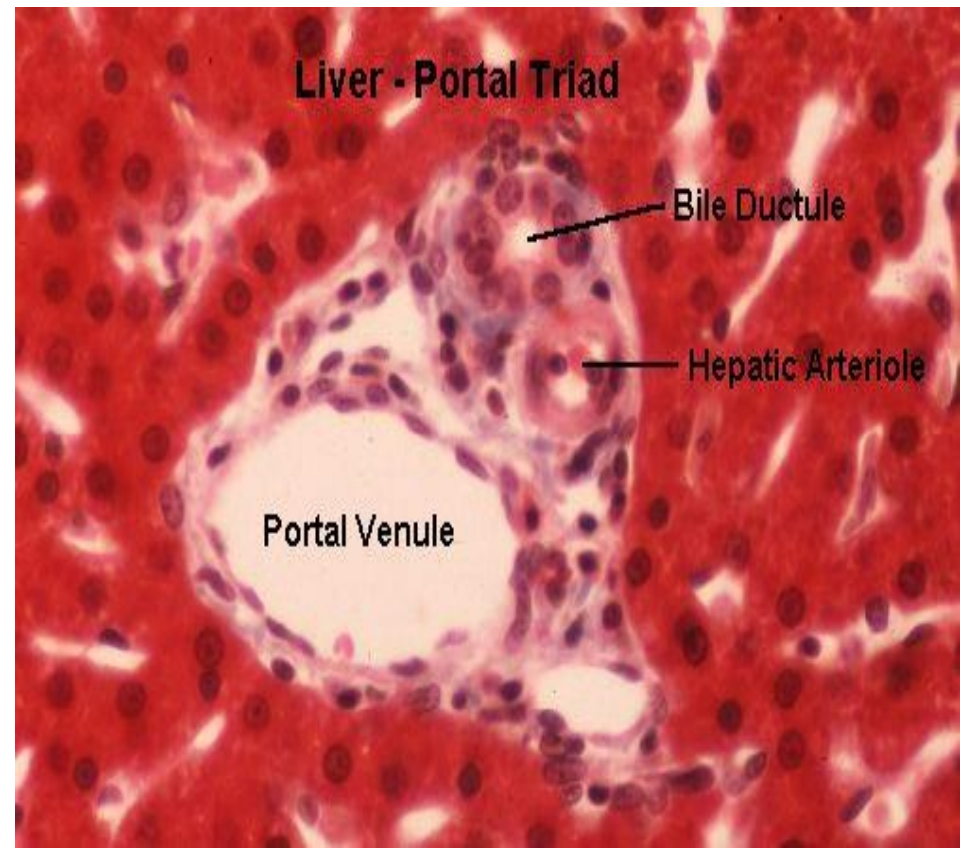
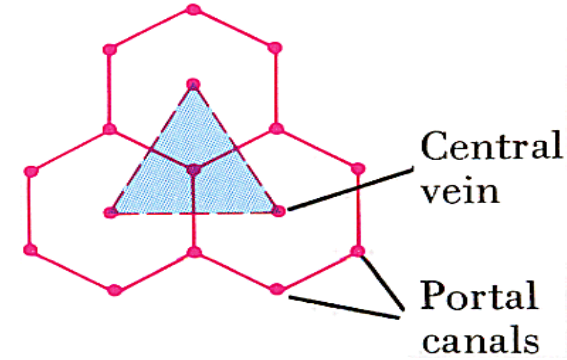


area periportalis (Glissoni)

Malé množství vaziva v místě kontaktu
3-4 jaterních lalůček; vazivo
obsahuje:

- interlobulární arterii
- interlobulární vénu
- interlobulární žlučovod

= trias Glissoni

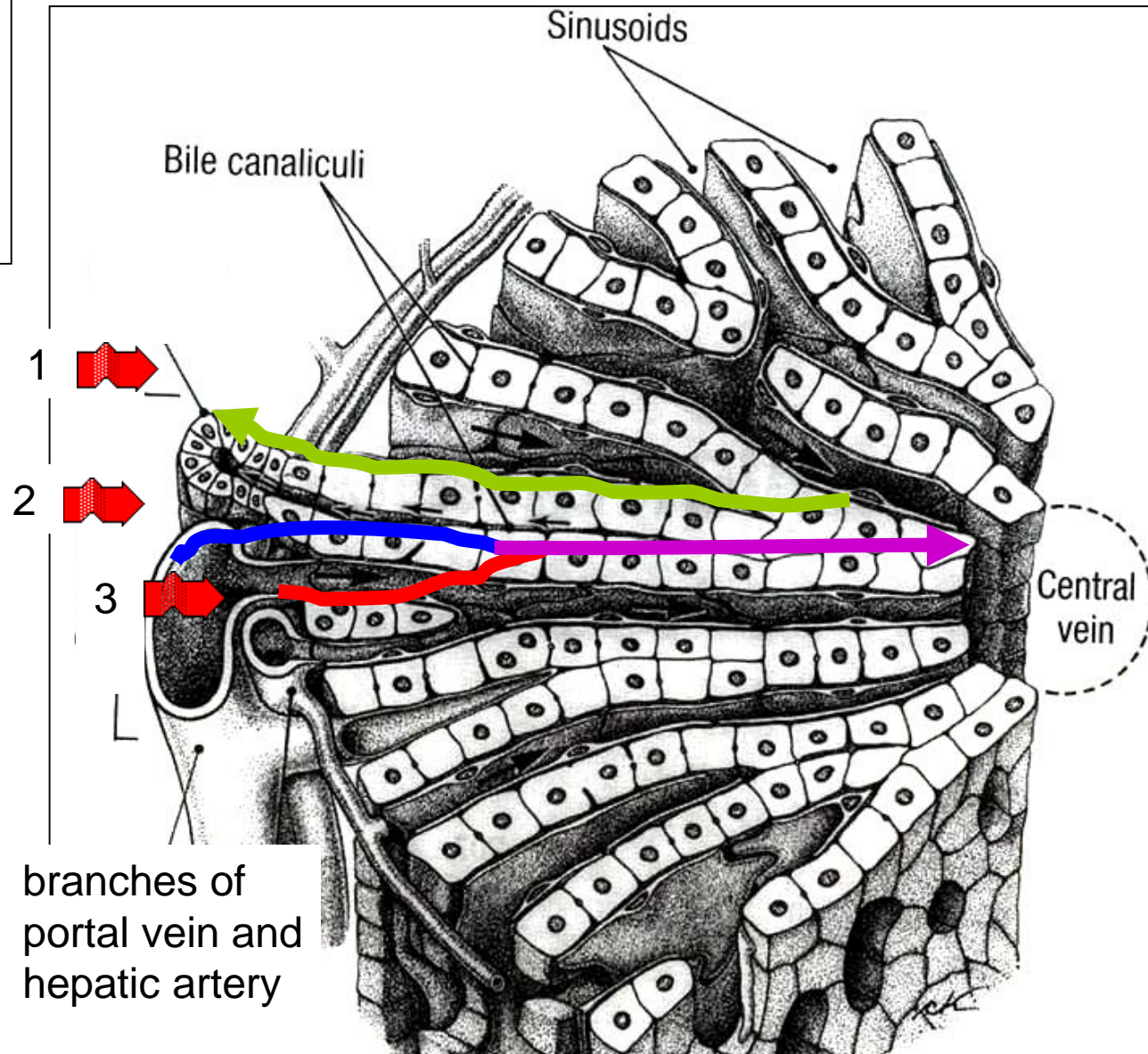


Portální trias (Glissoni):

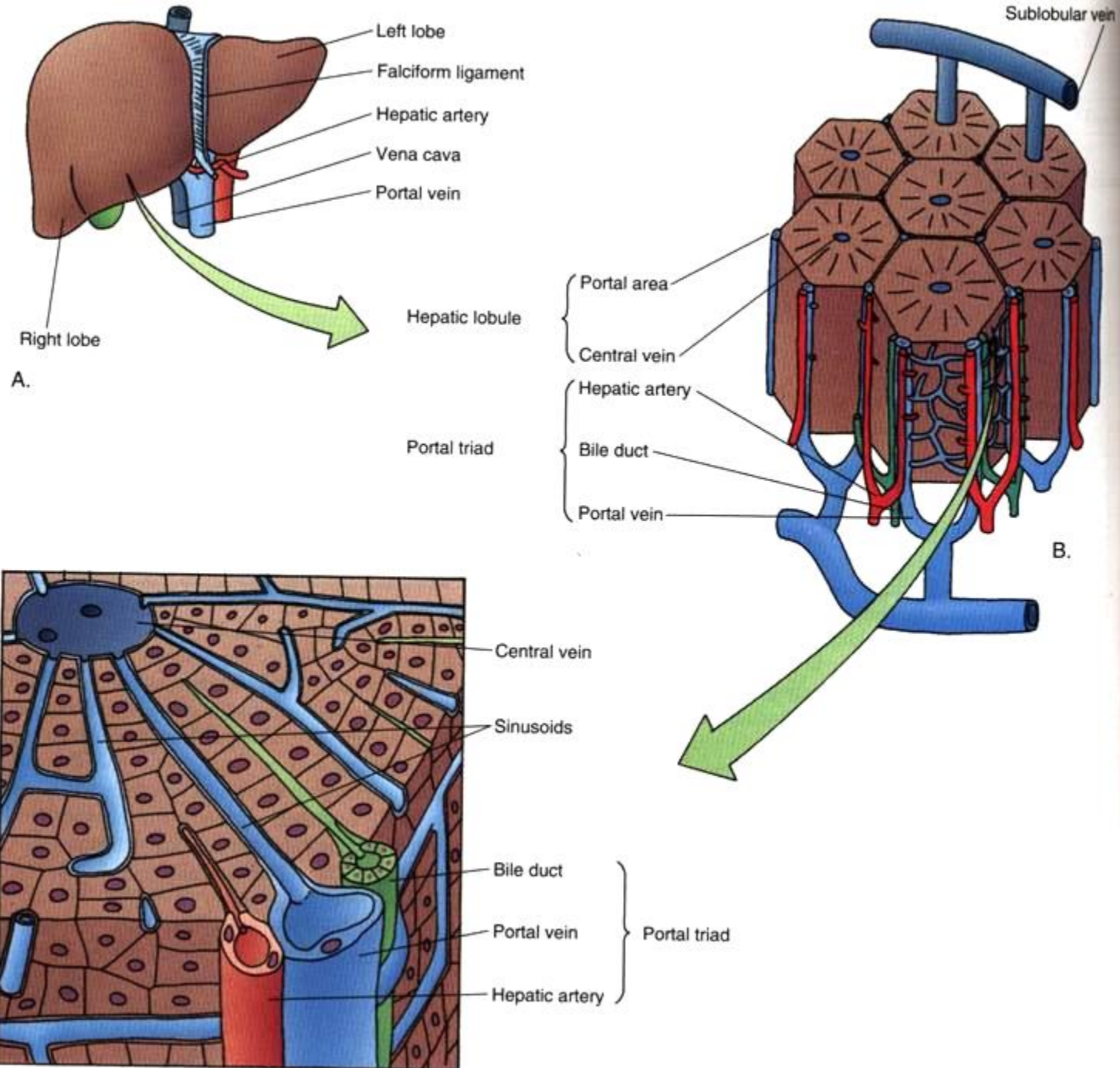
žlučovod – 1

véna – 2

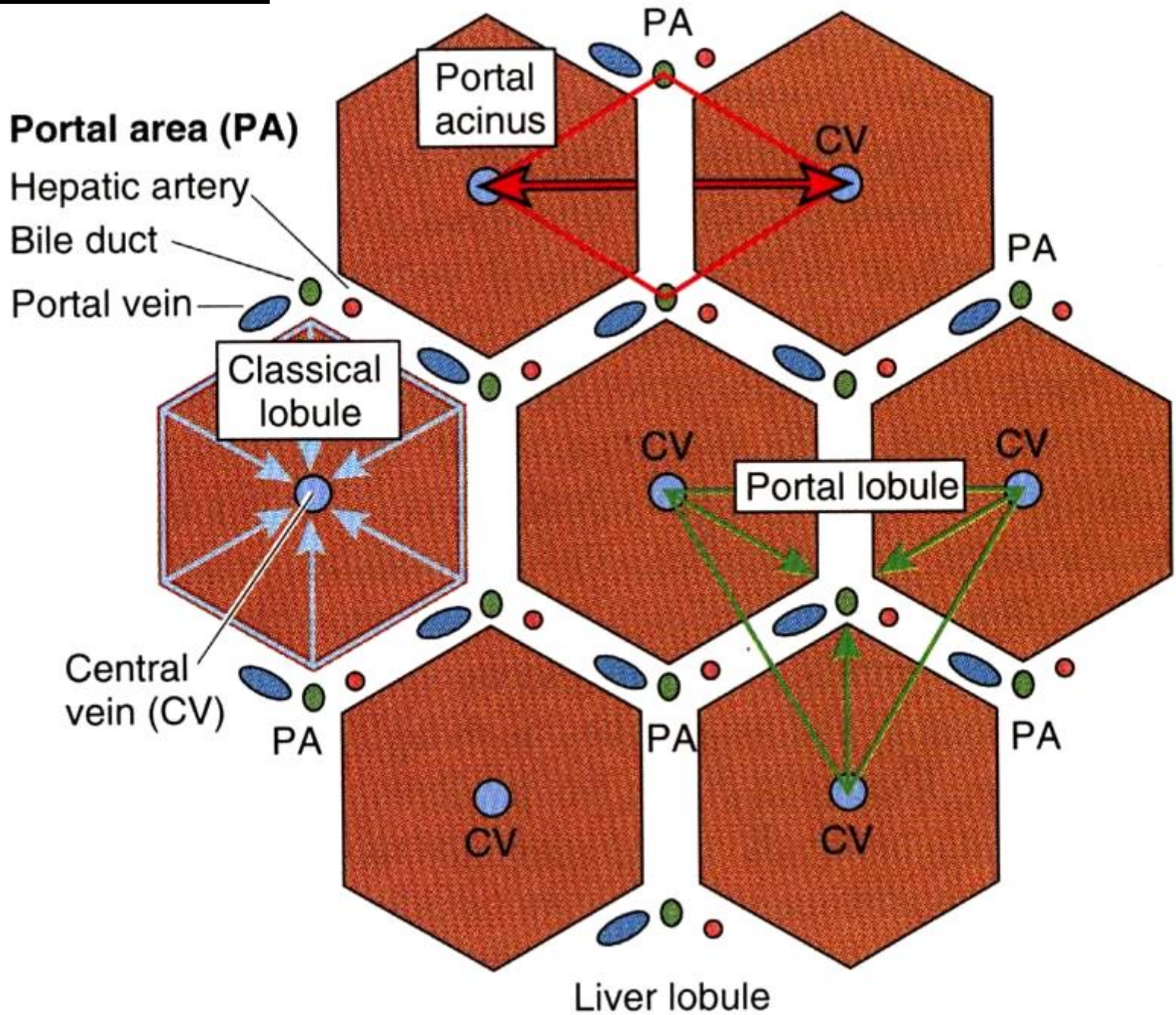
arterie – 3

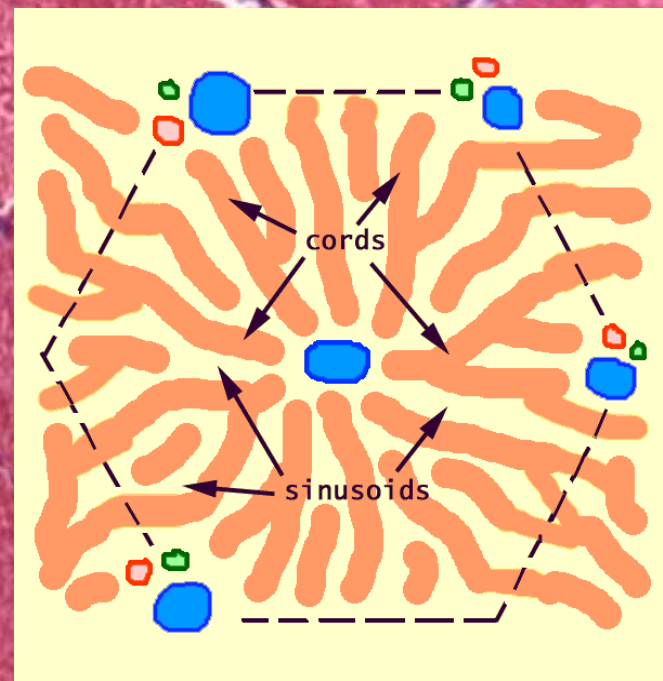
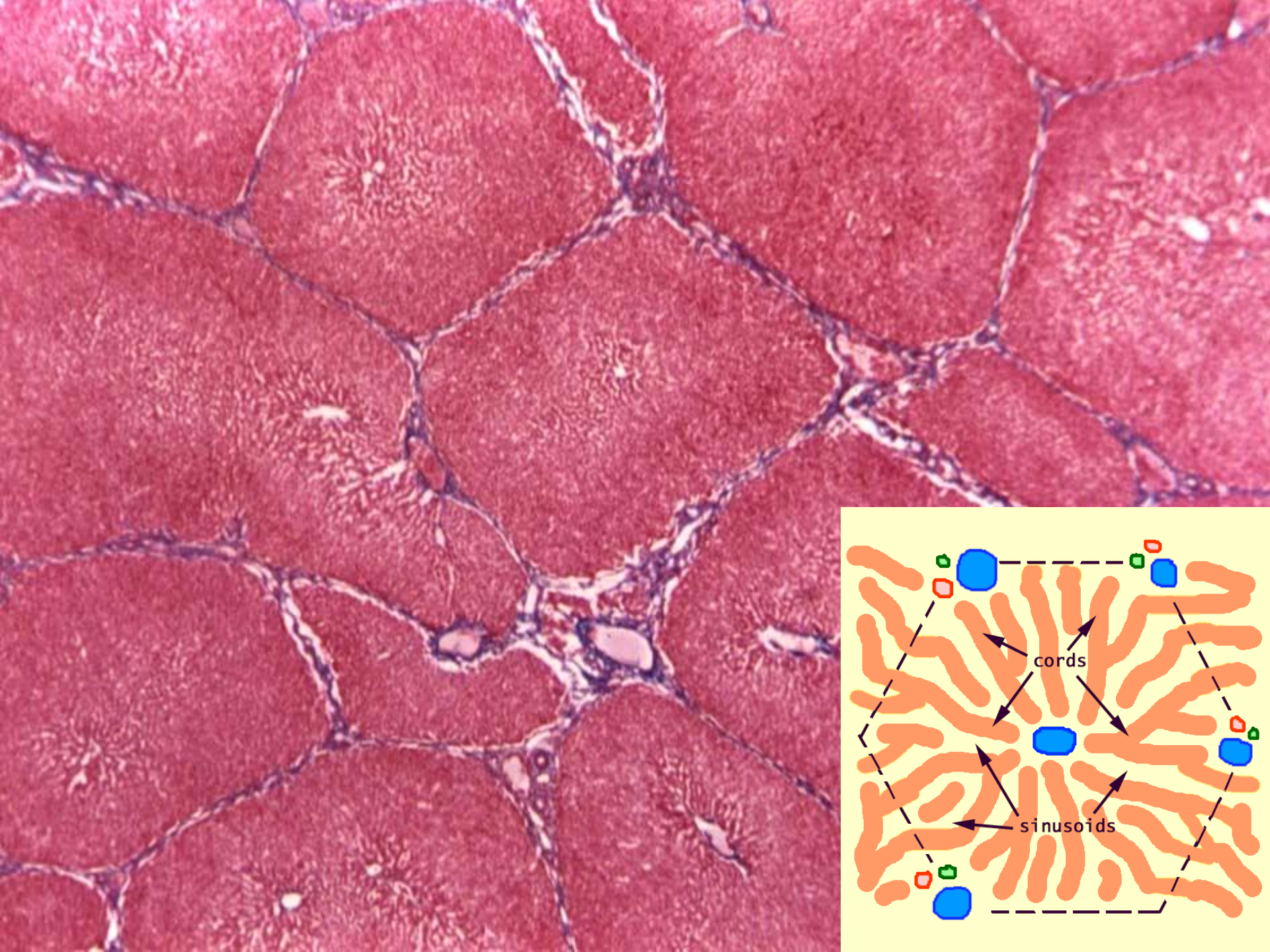


Oběh krve v játrech

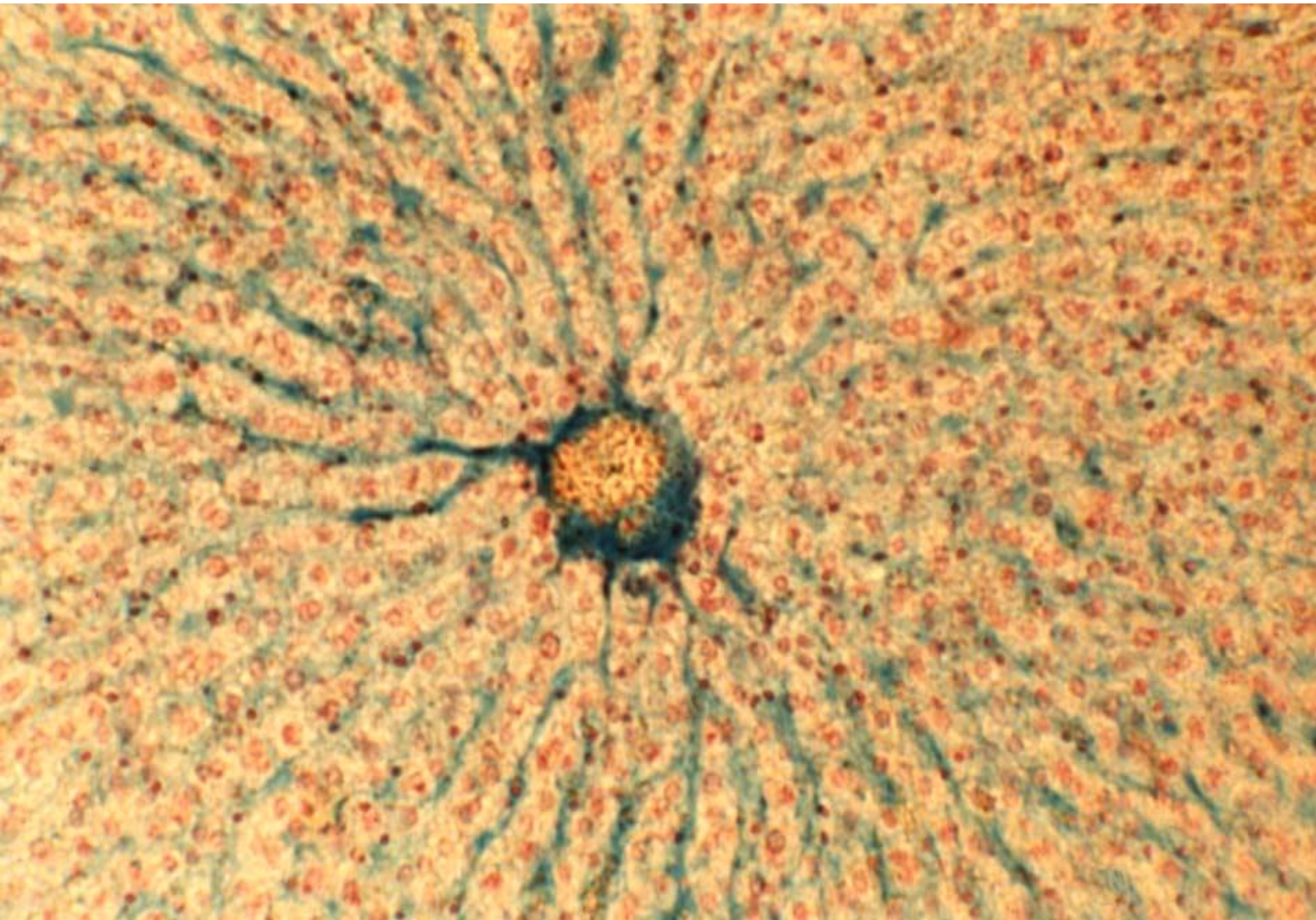


Portal acinus

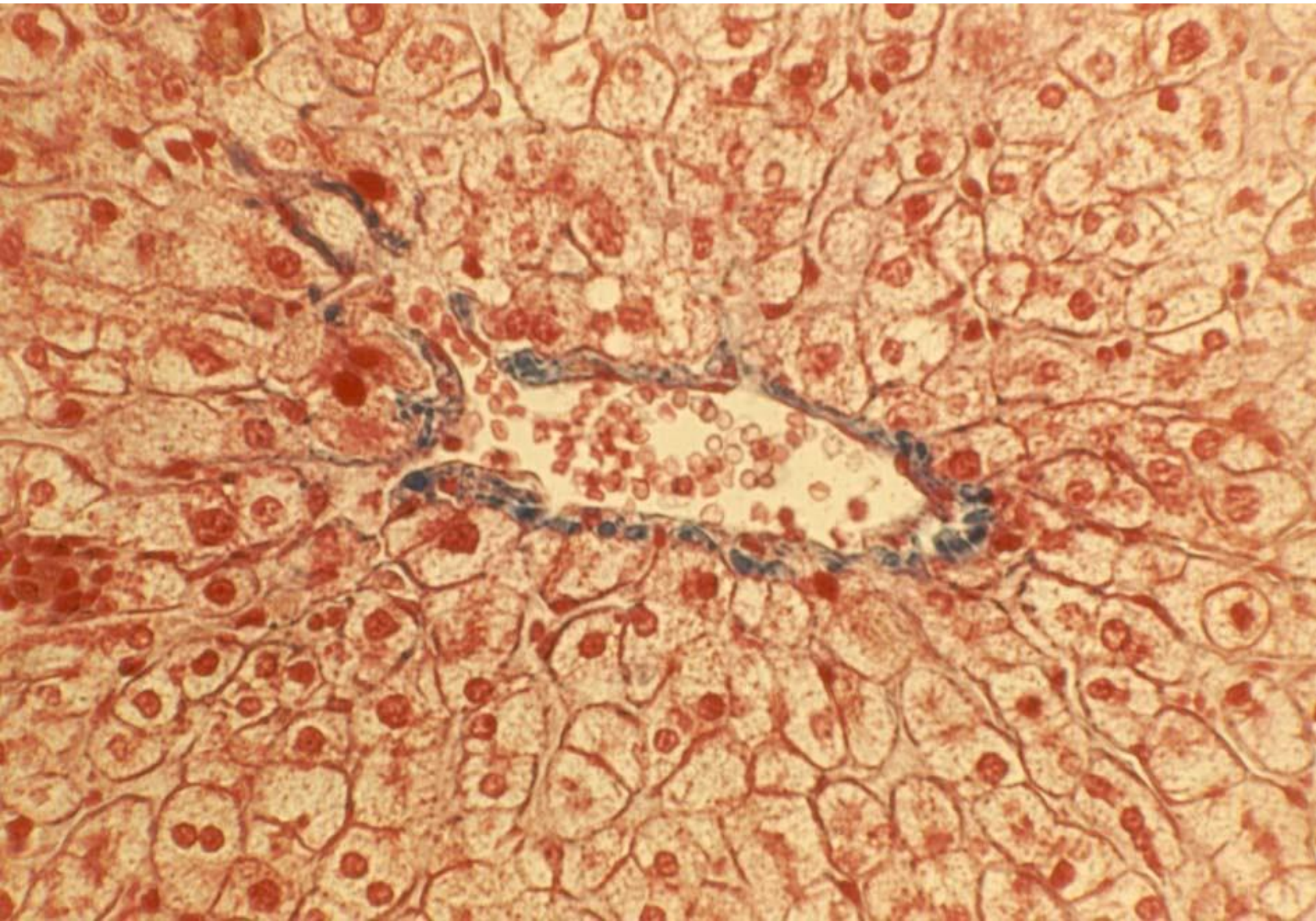




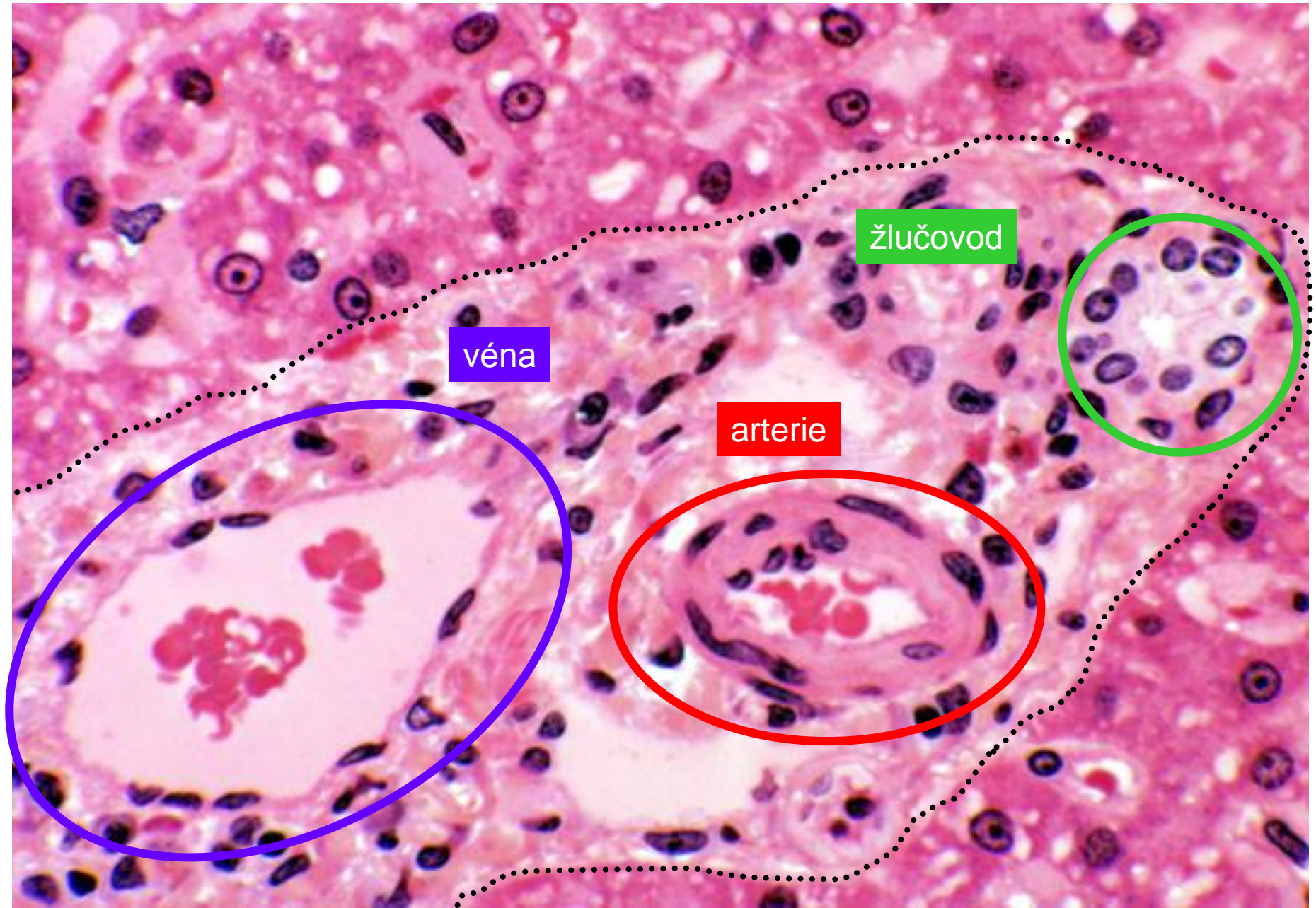
Jaterní sinusoidy - nástřík

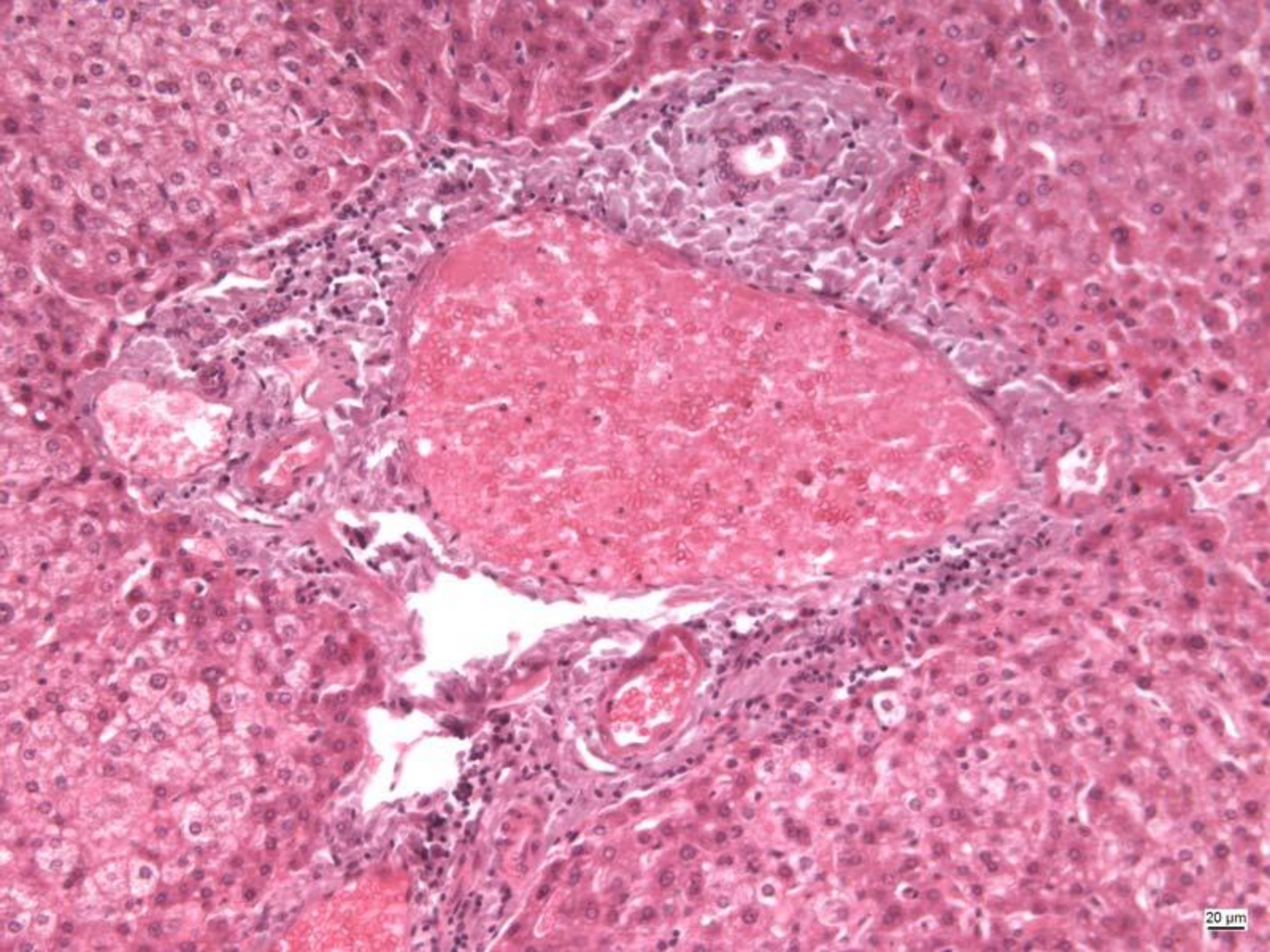


Vena centralis - AZAN

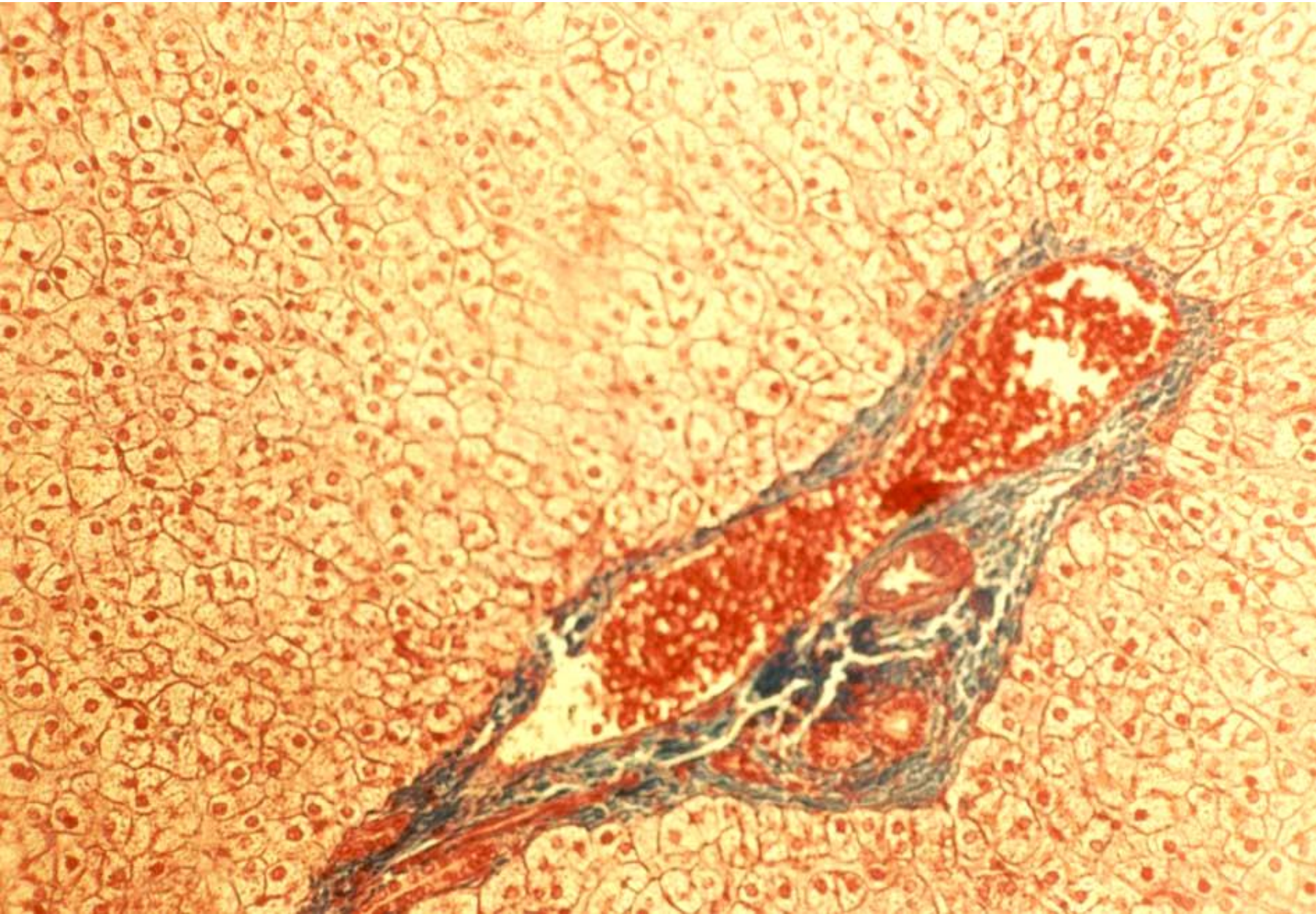


Trias hepatis v area periportalis



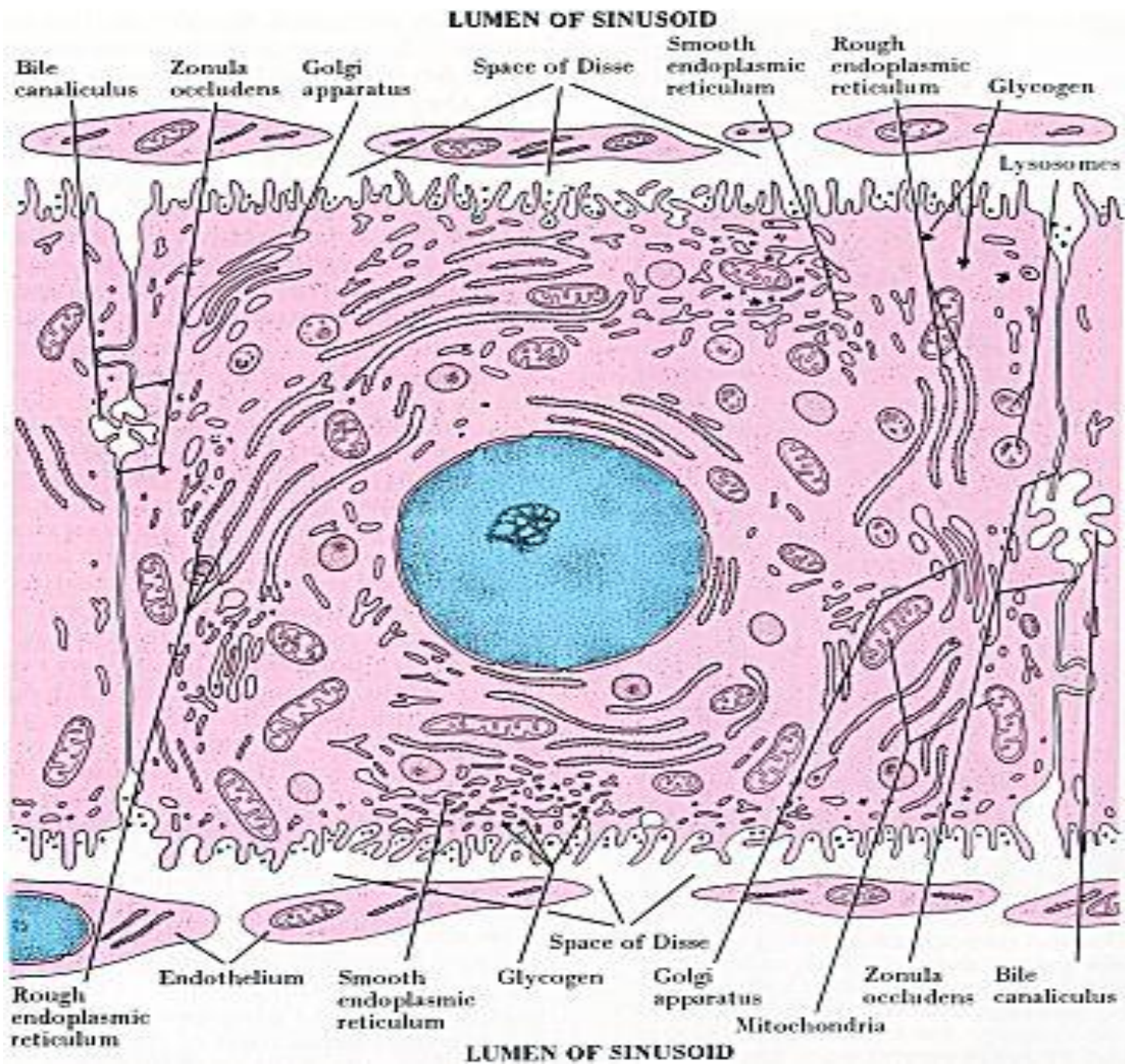


20 μ m

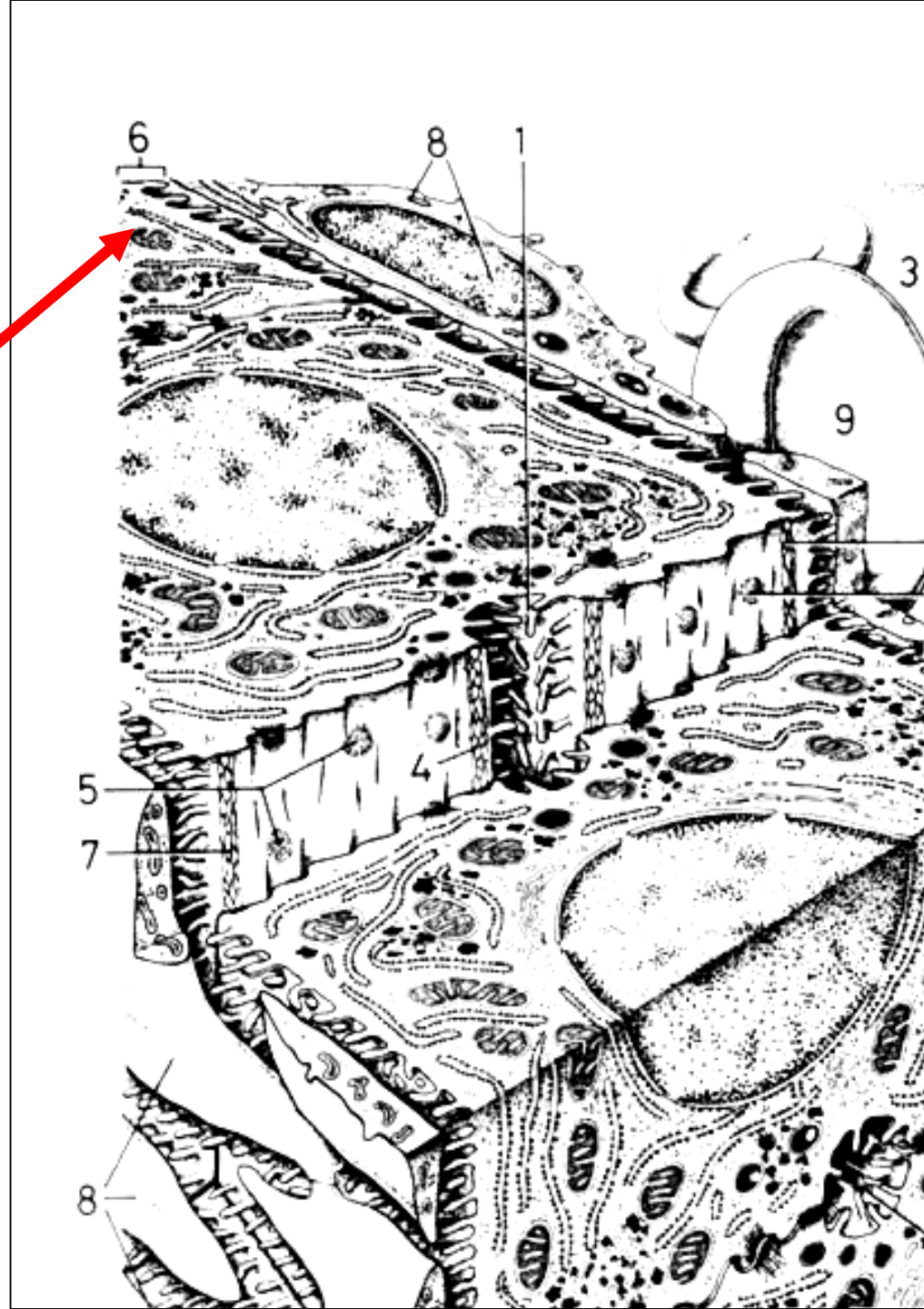
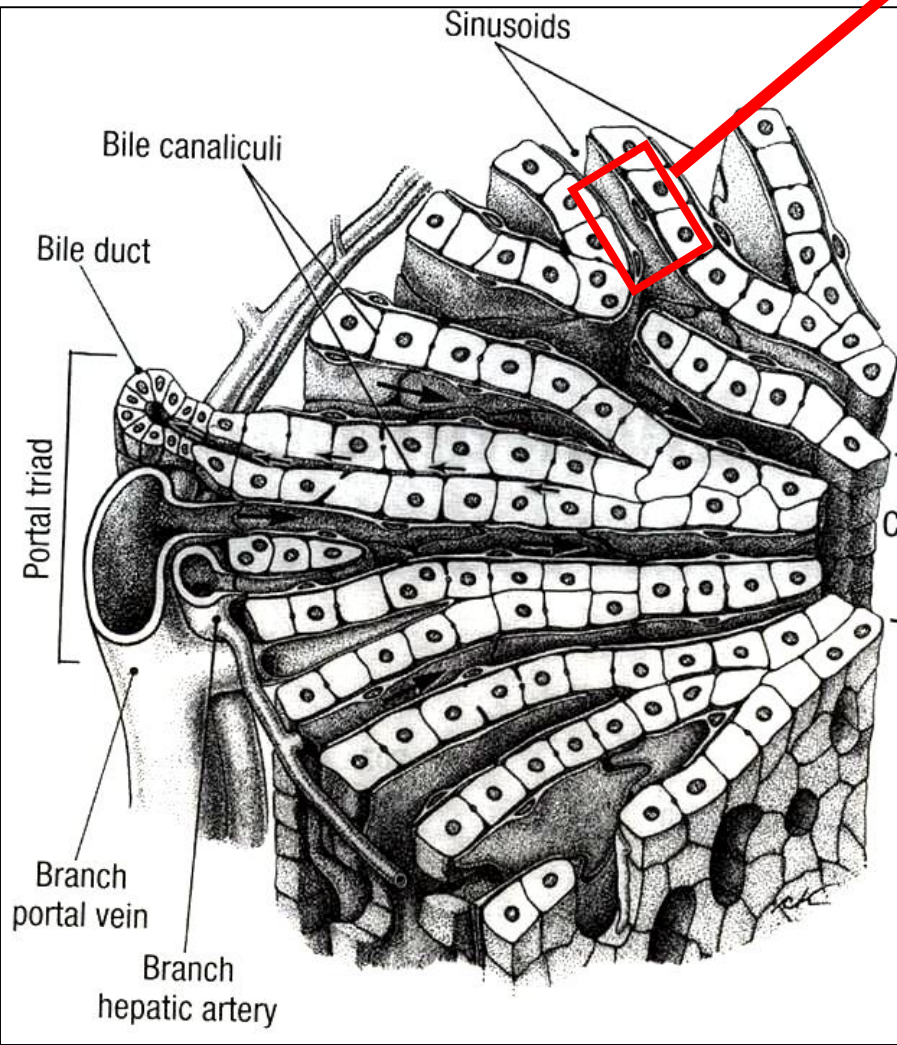


Jaterní sinusoidy

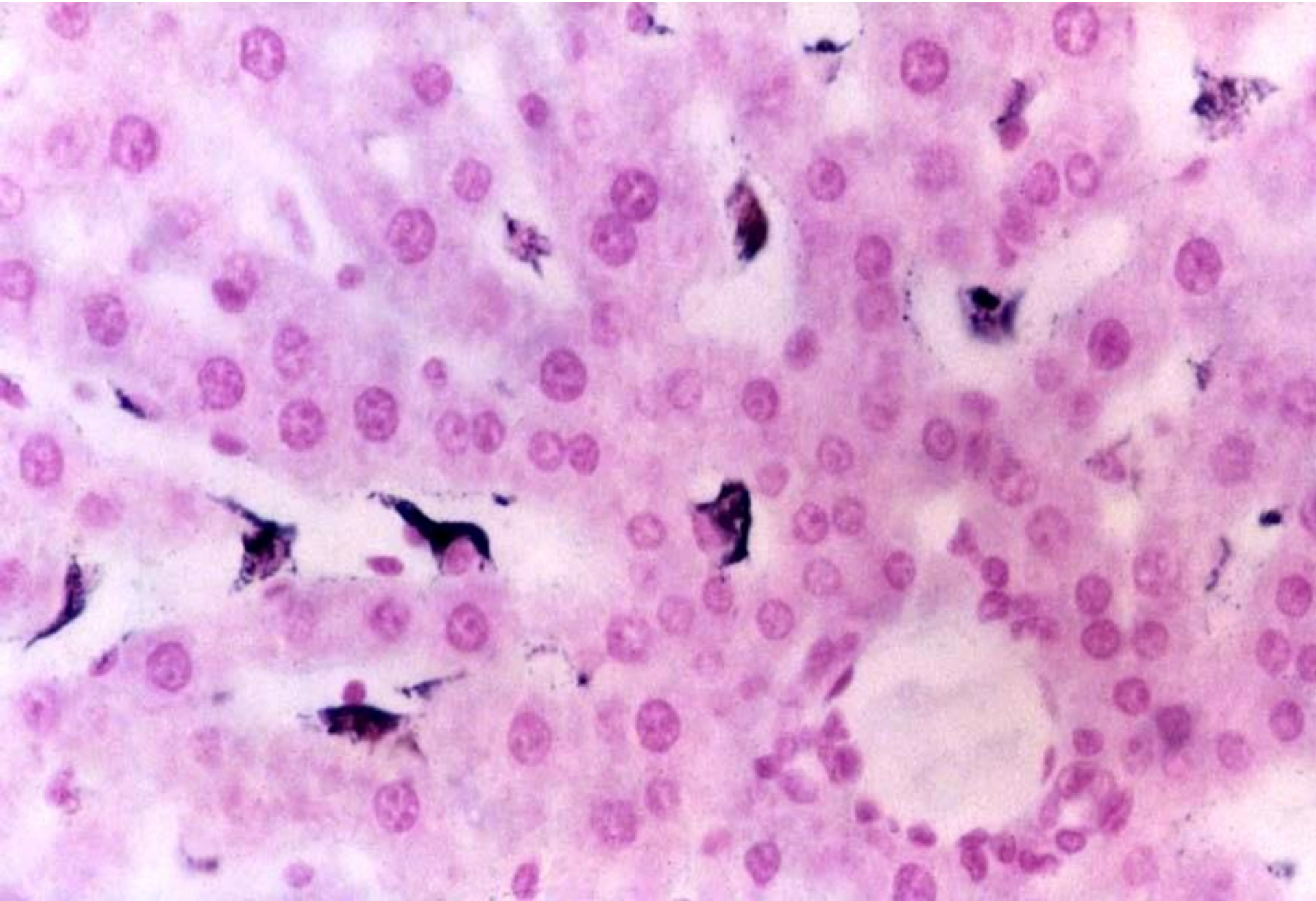
- krevní kapiláry – radiálně od periferie lalůčku k vena centralis
- stěna - nesouvislá: endotelové bb. a Kupfferovy bb.
- lamina basalis chybí
- perisinusoidální prostor (Disse) – mezi jaterními buňkami a stěnou sinusoid



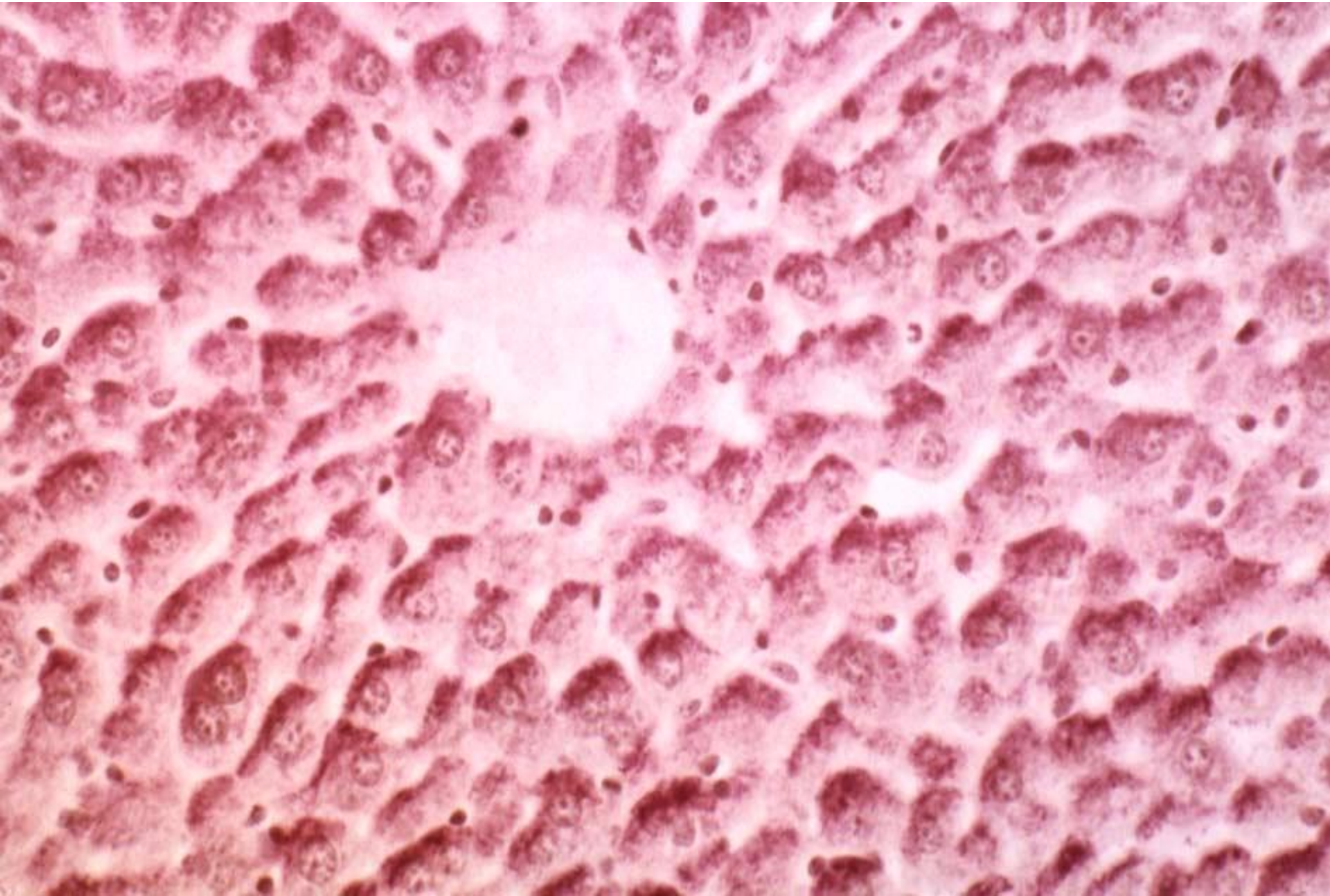
Žlučová kapilára (intercelulární žlučovod)



Jaterní sinusoidy – Kupfferovy buňky



Hepatocyty – glykogen (PAS)



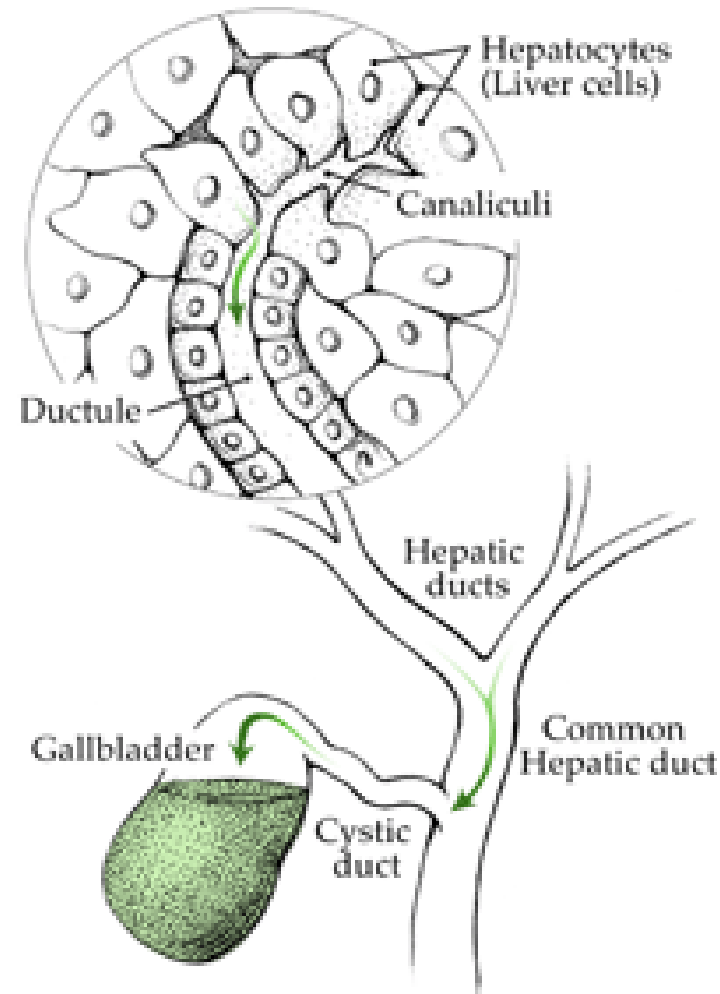
Žlučovody

intrahepatické

- žlučové kapiláry
- Herringovy kanálky
- interlobulární žlučovody
- lobární žlučovody
(hepaticus dex. et sin.)

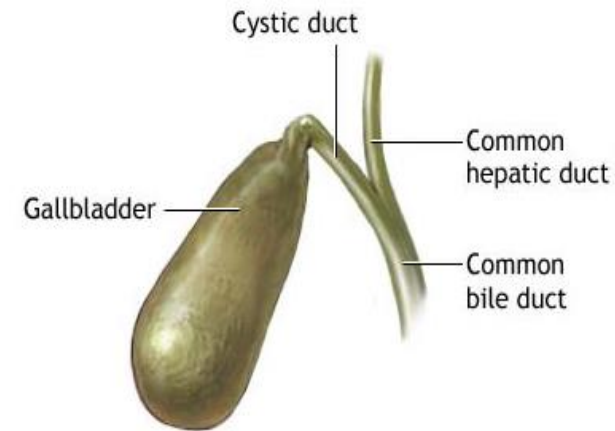
extrahepatické

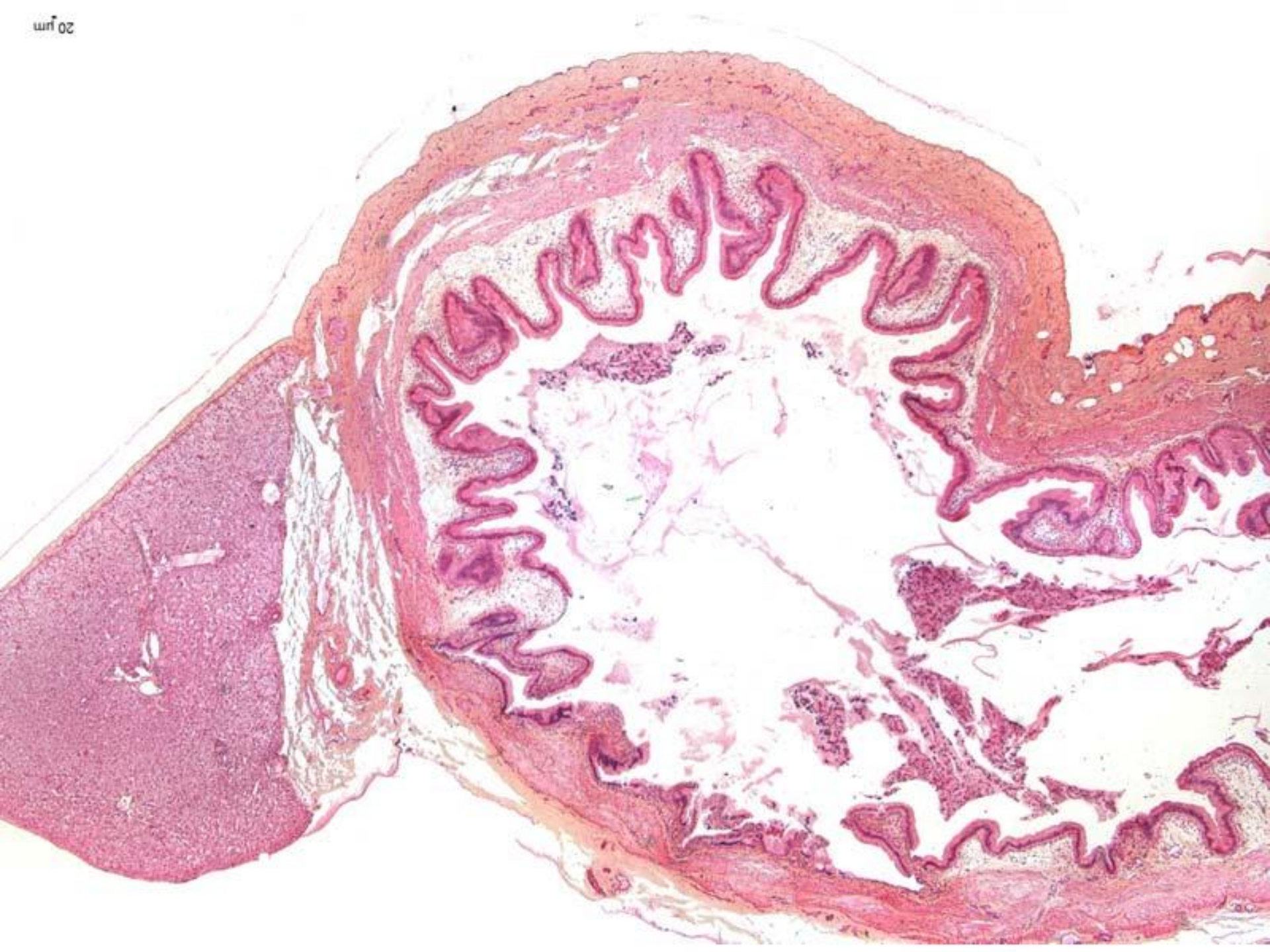
- ductus hepaticus
- ductus cysticus
- ductus choledochus



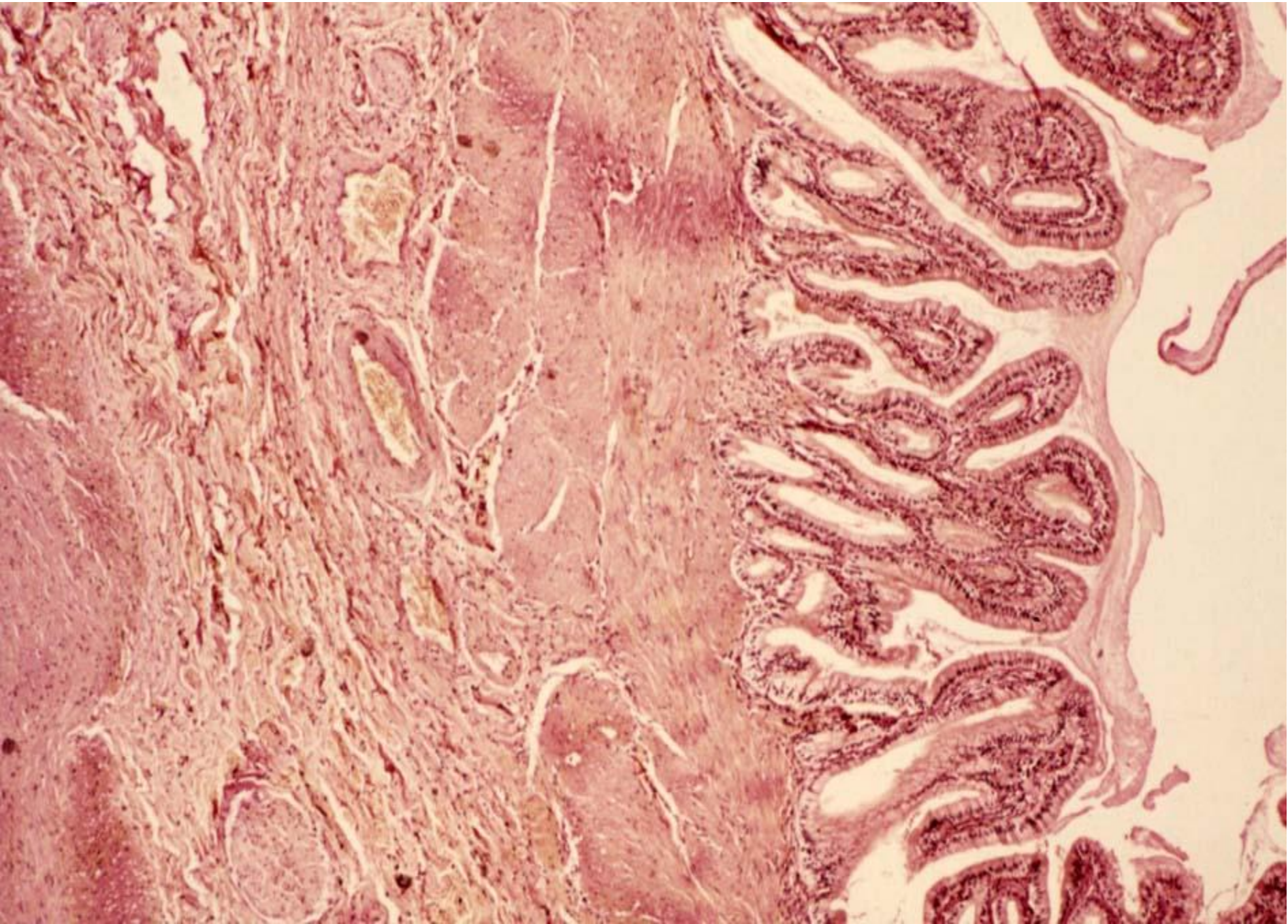
Žlučník (*vesica fellea*)

- Sliznice: členité řasy
 - jednovrstevný cylindrický epitel
 - lamina propria
- Submukóza
- Zevní vrstva svalová – hladká podélná a spirální
- Adventici (mezi játry a žlučníkem) nebo seróza (volný povrch)

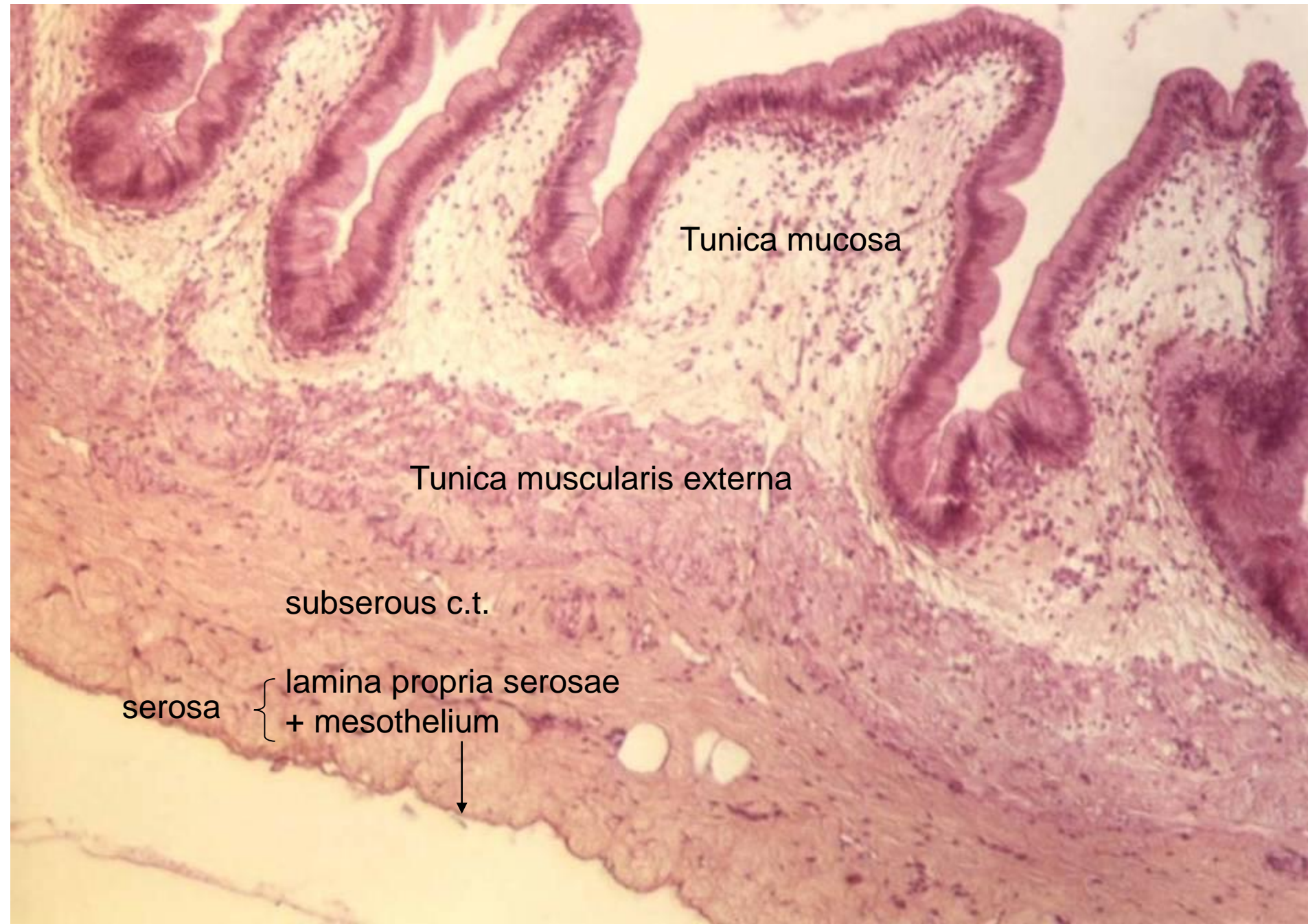




Vesica fellea



Vesica fellea



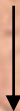
Tunica mucosa

Tunica muscularis externa

subserous c.t.

serosa

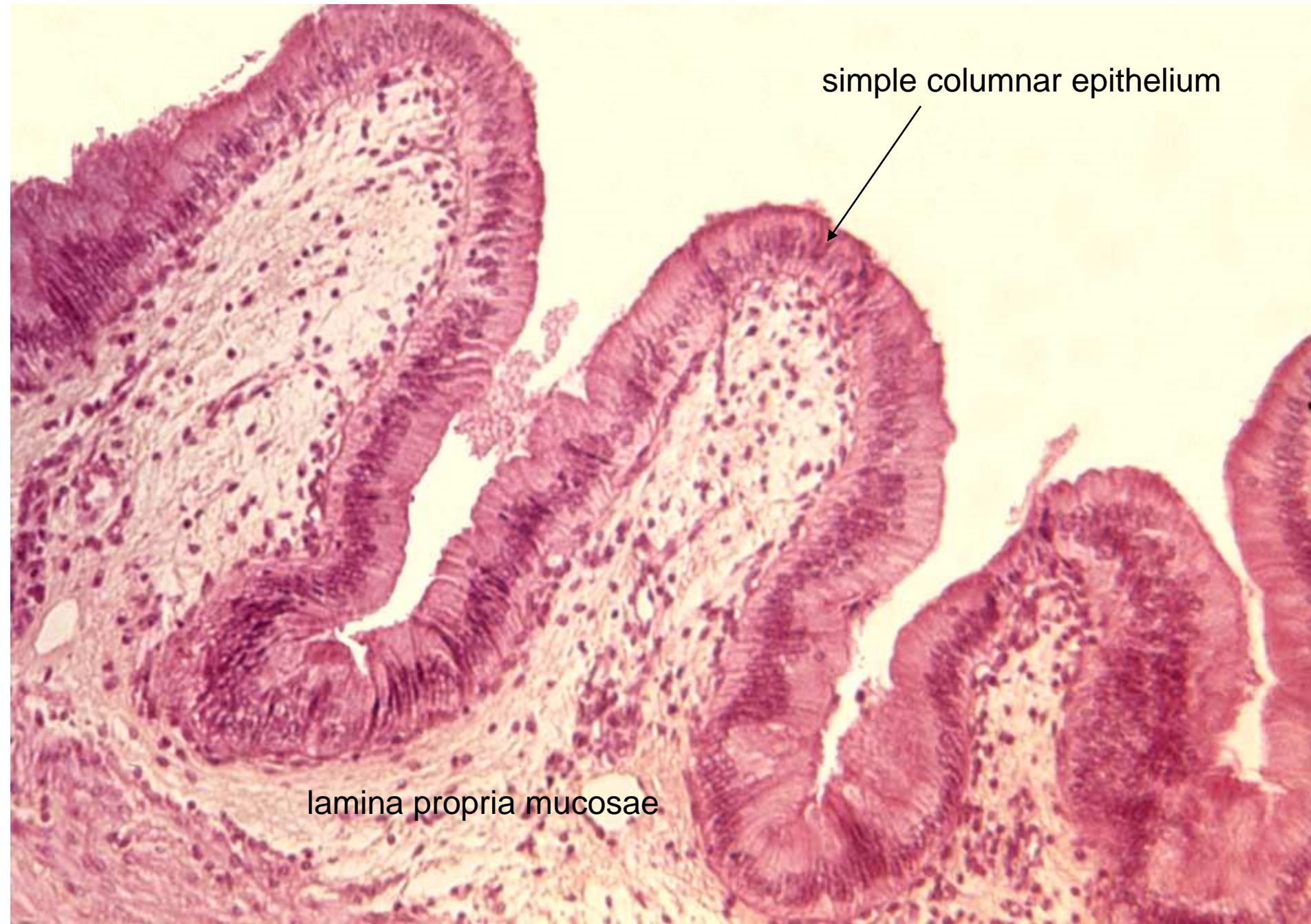
lamina propria serosae
+ mesothelium



Vesica fellea – slizniční řasy

simple columnar epithelium

lamina propria mucosae



Slinivka břišní

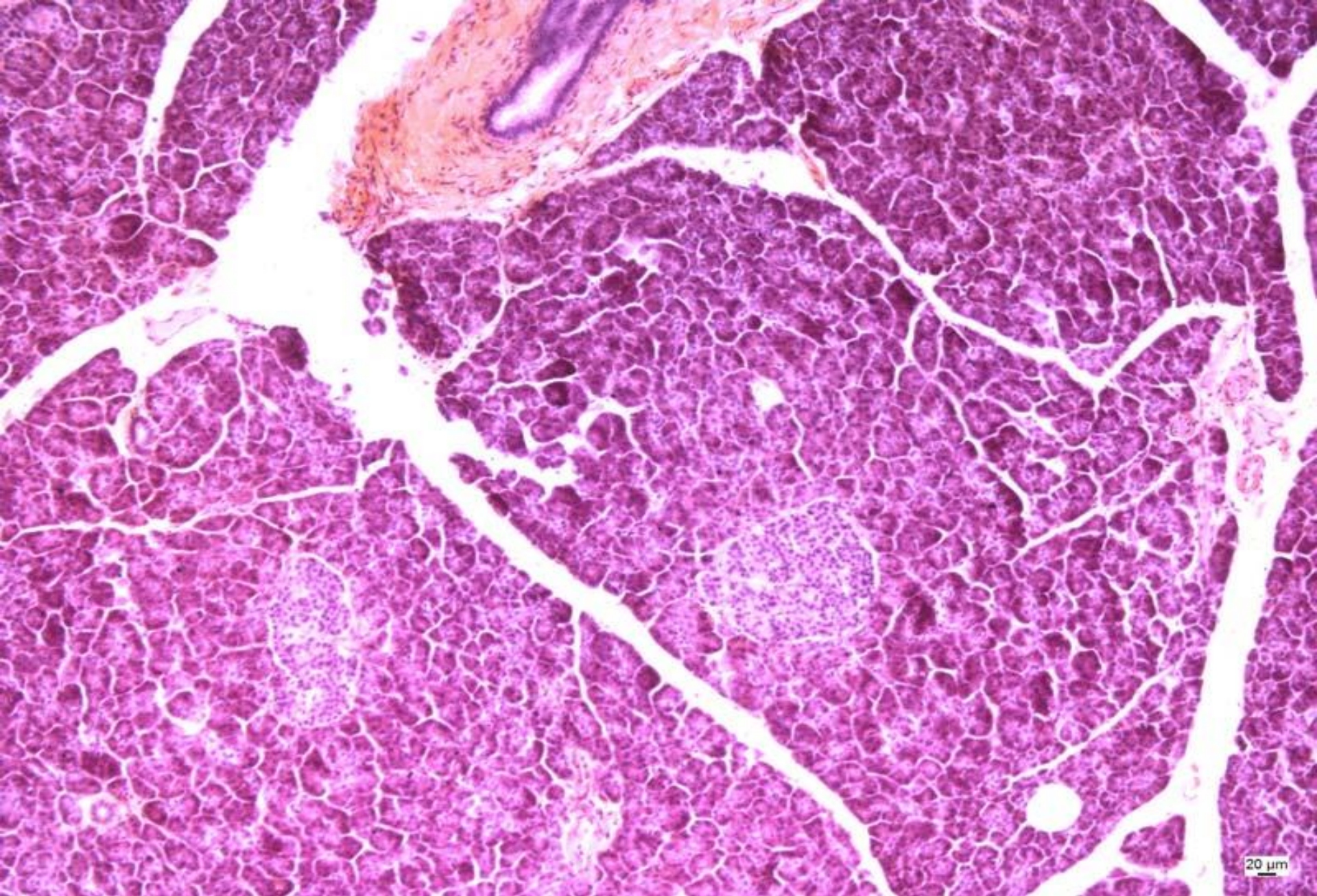
Pancreas

- Vazivo (capsula fibrosa, septa)
- Parenchym:

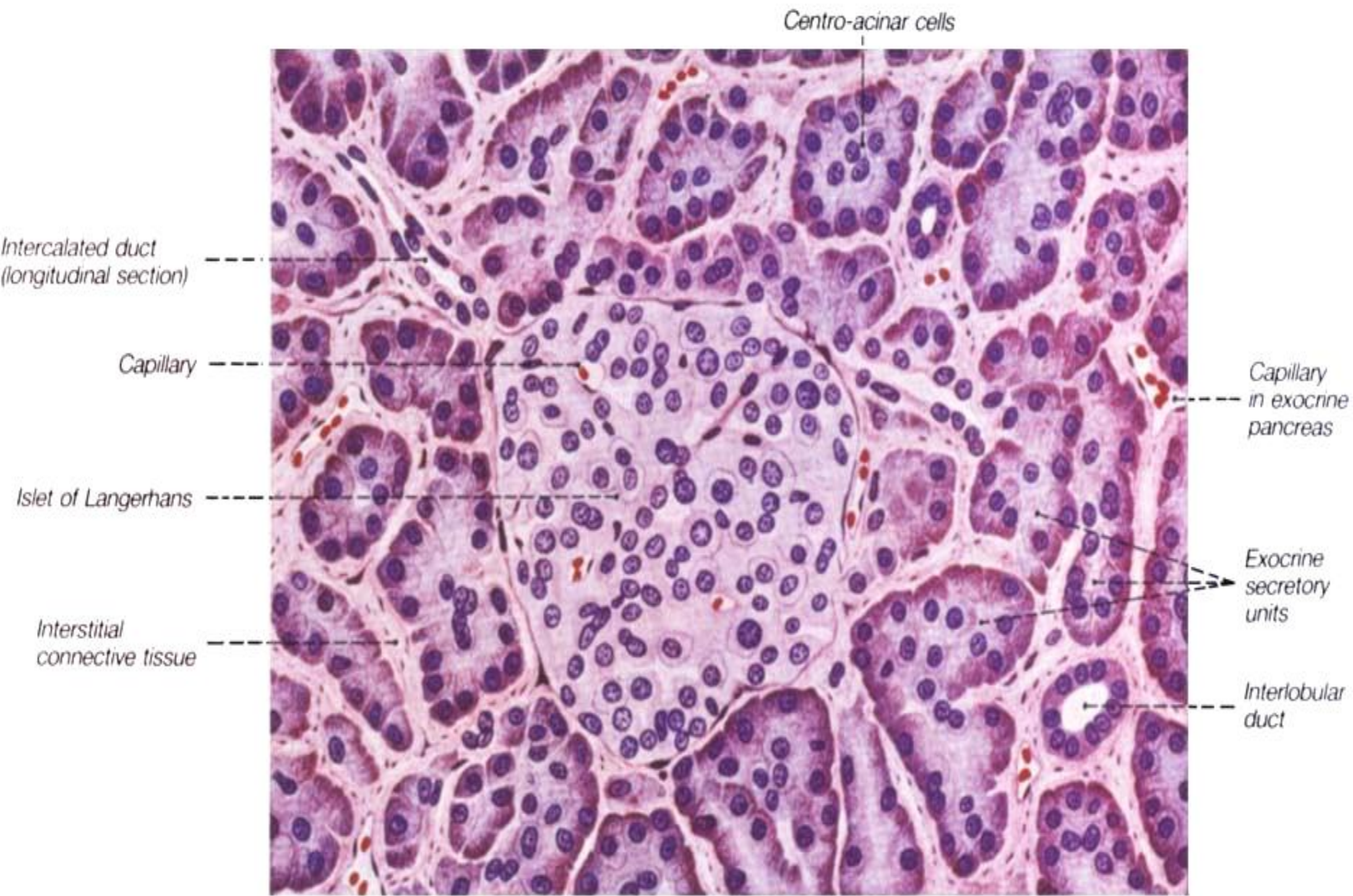
exokrinní žláznová tkáň:

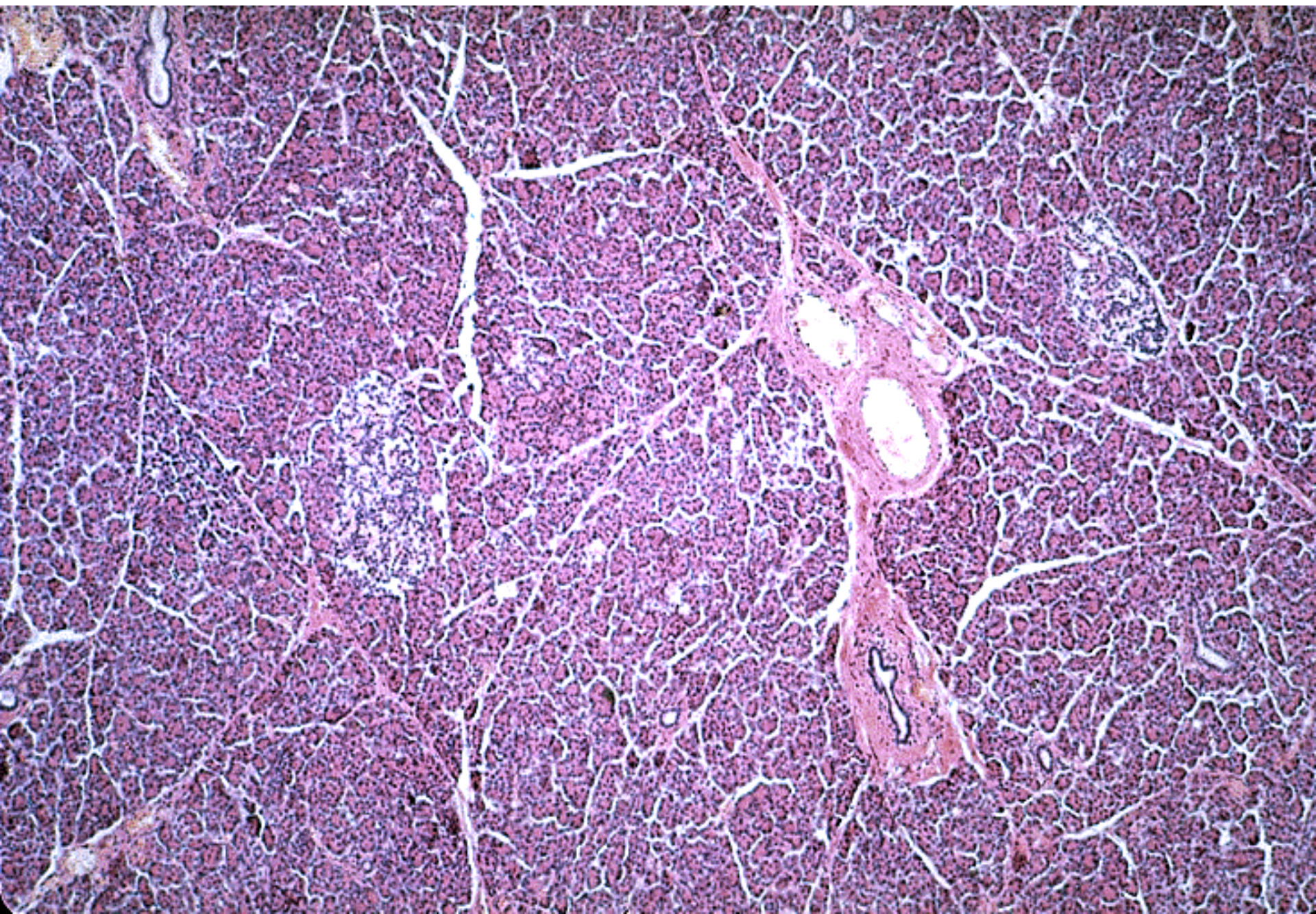
- serózní aciny (serózní a centroacinózní bb.)
- vývody: vsunuté, intra- a interlobulární, hlavní (ductus pancreaticus major et accessorius)

endokrinní žláznová tkáň : Langerhansovy ostrůvky (bb: A – glukagon, B – inzulin, D – somatostatin, PP – pankreatický polypeptid)

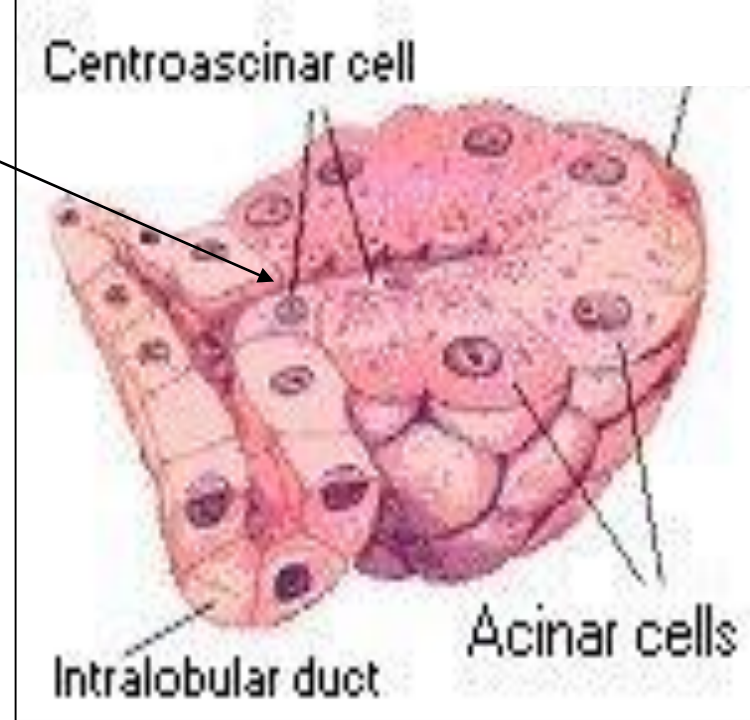
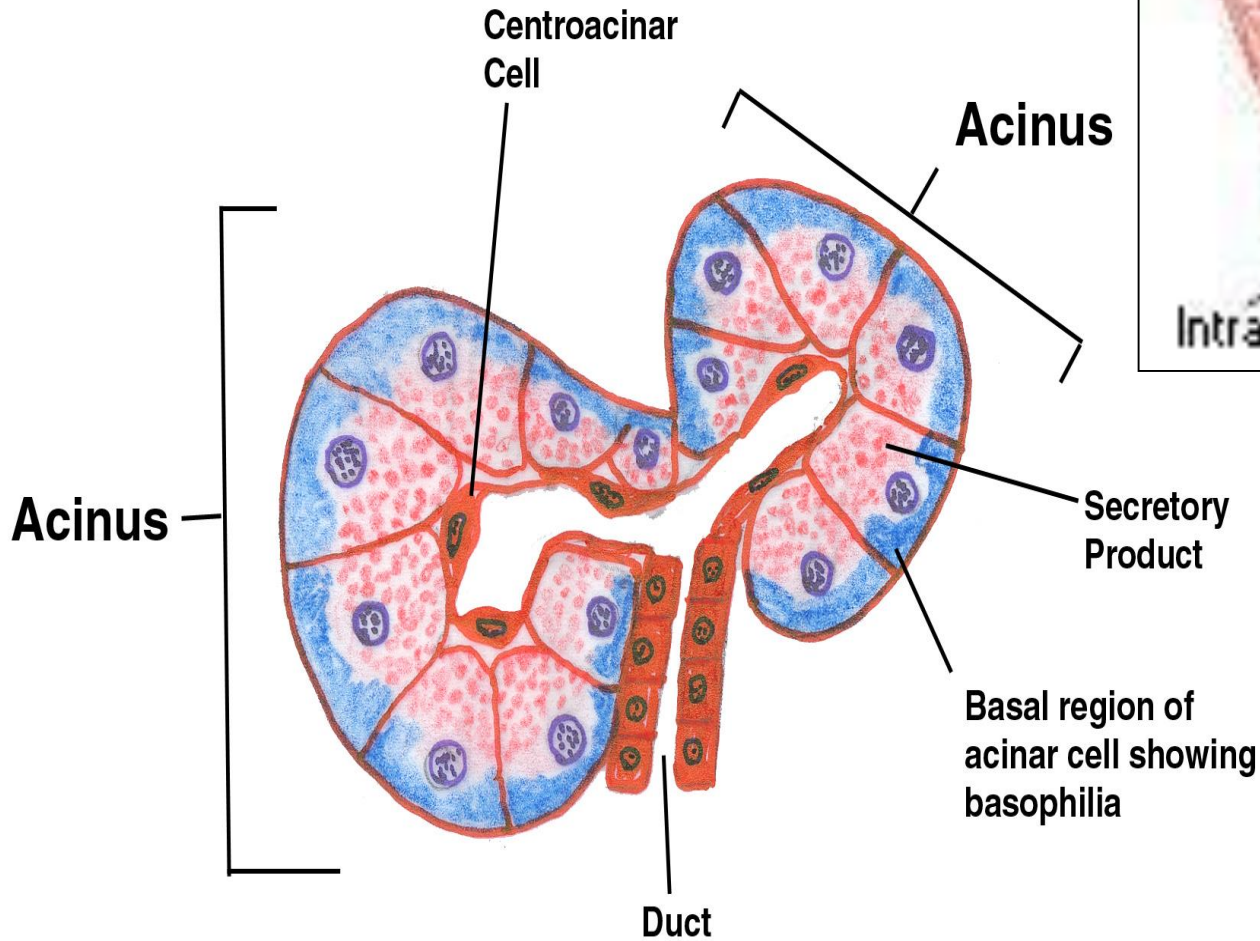


tubuloacinar gland, pancreatic juice /1.5 l/ is a clear alkaline fluid which contains the precursors of enzymes – trypsin, chymotrypsin, lipase, amylase..

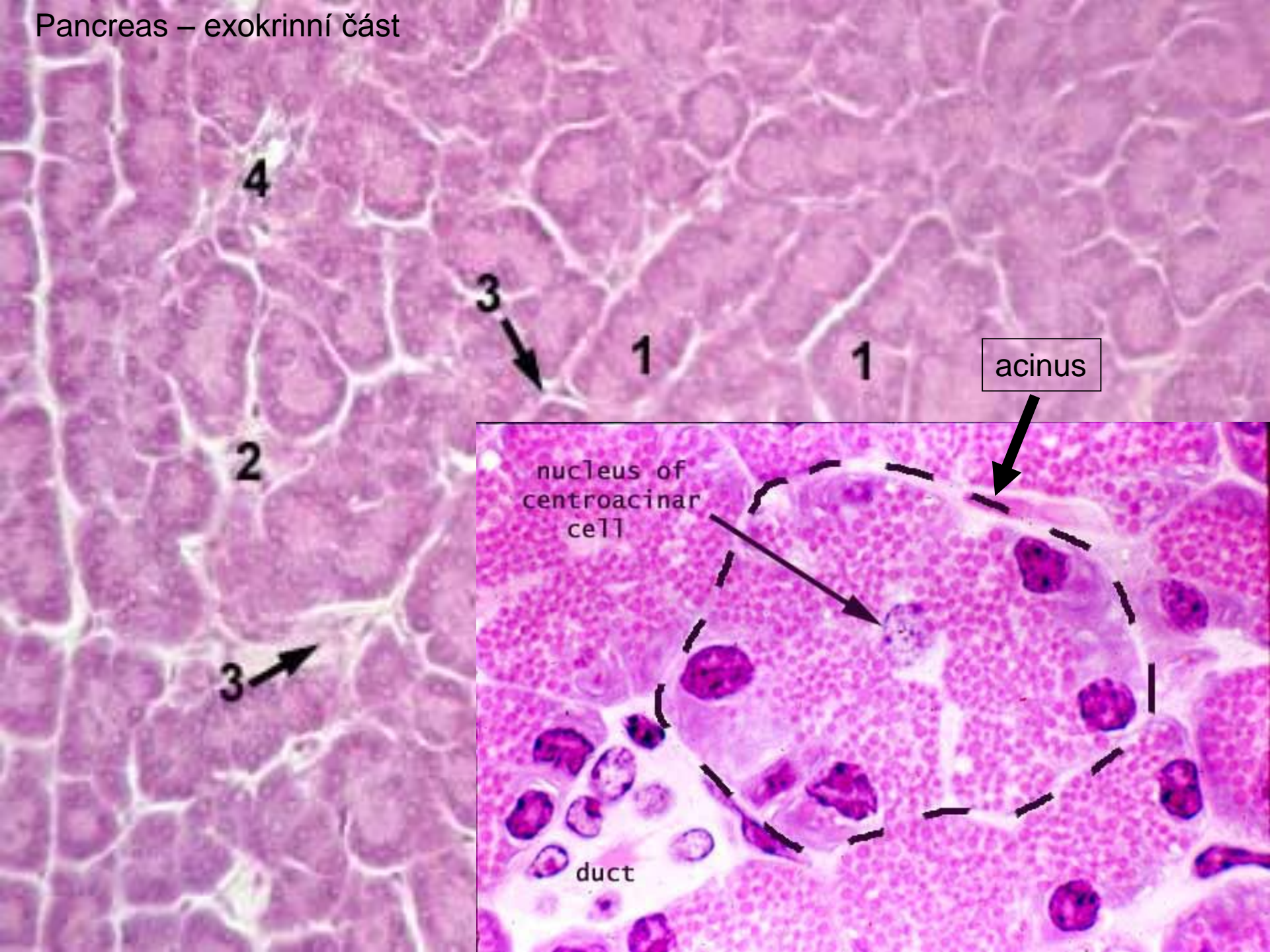




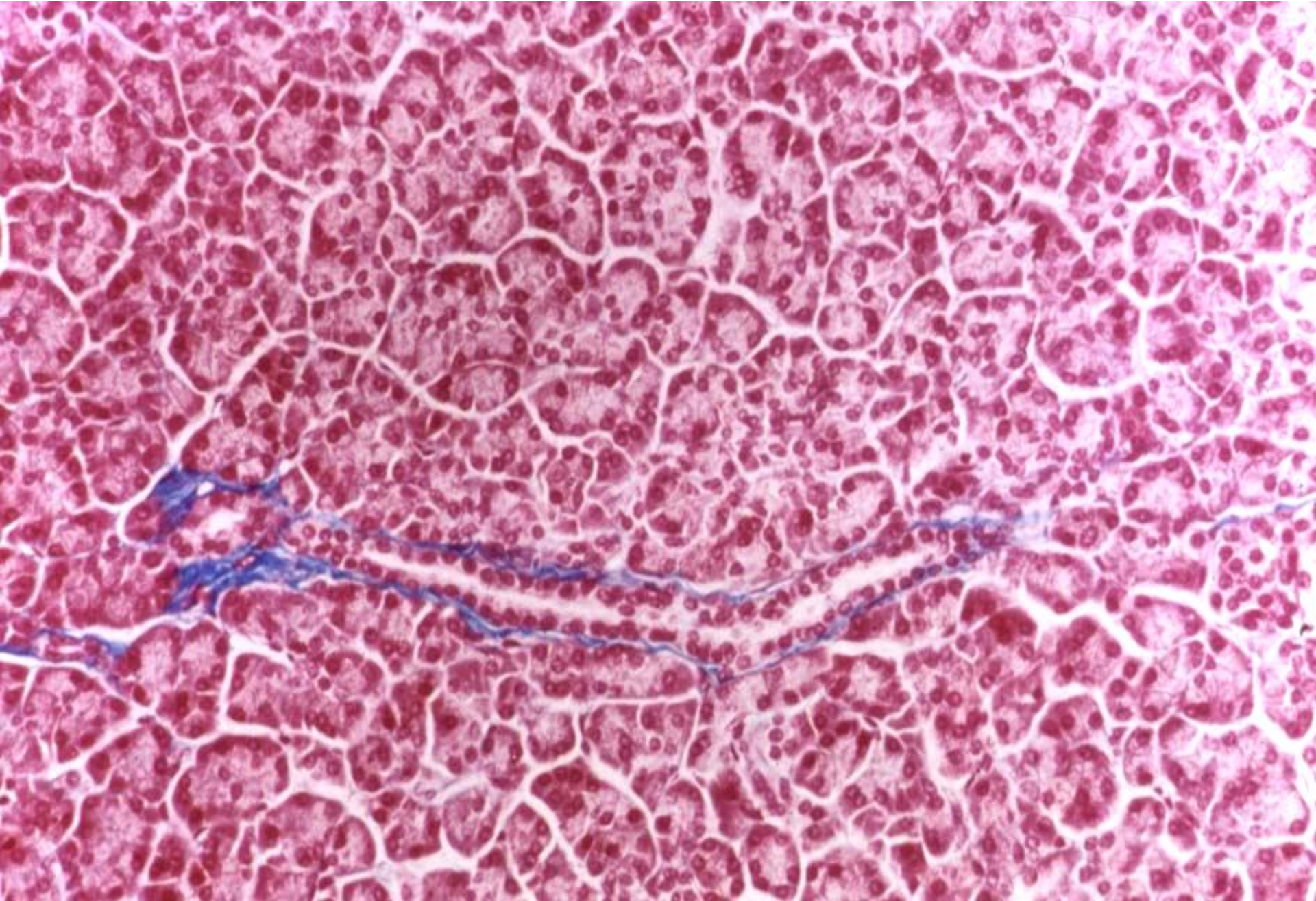
Pancreatic acinus + vsunutý vývod



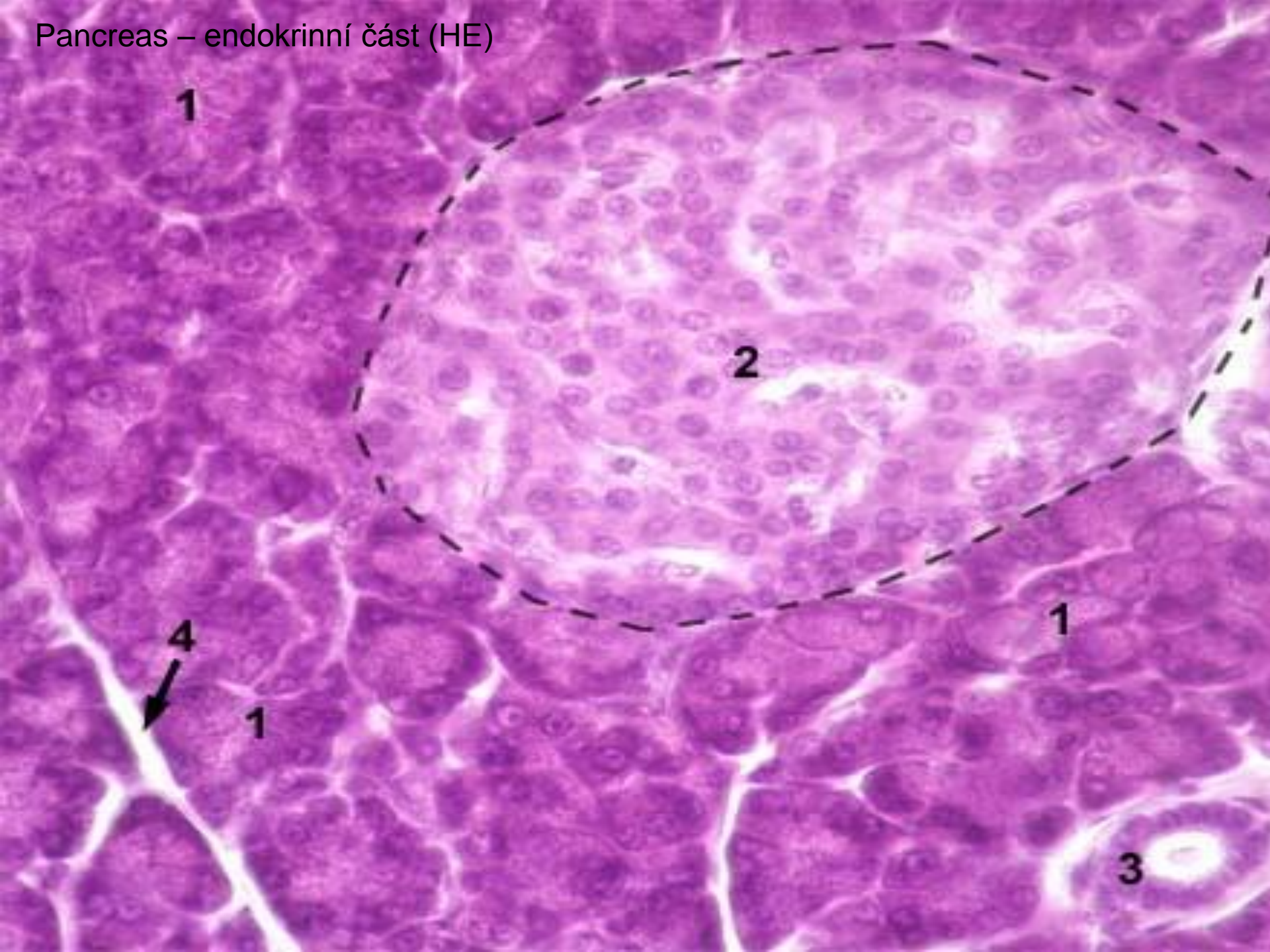
Pancreas – exokrinní část



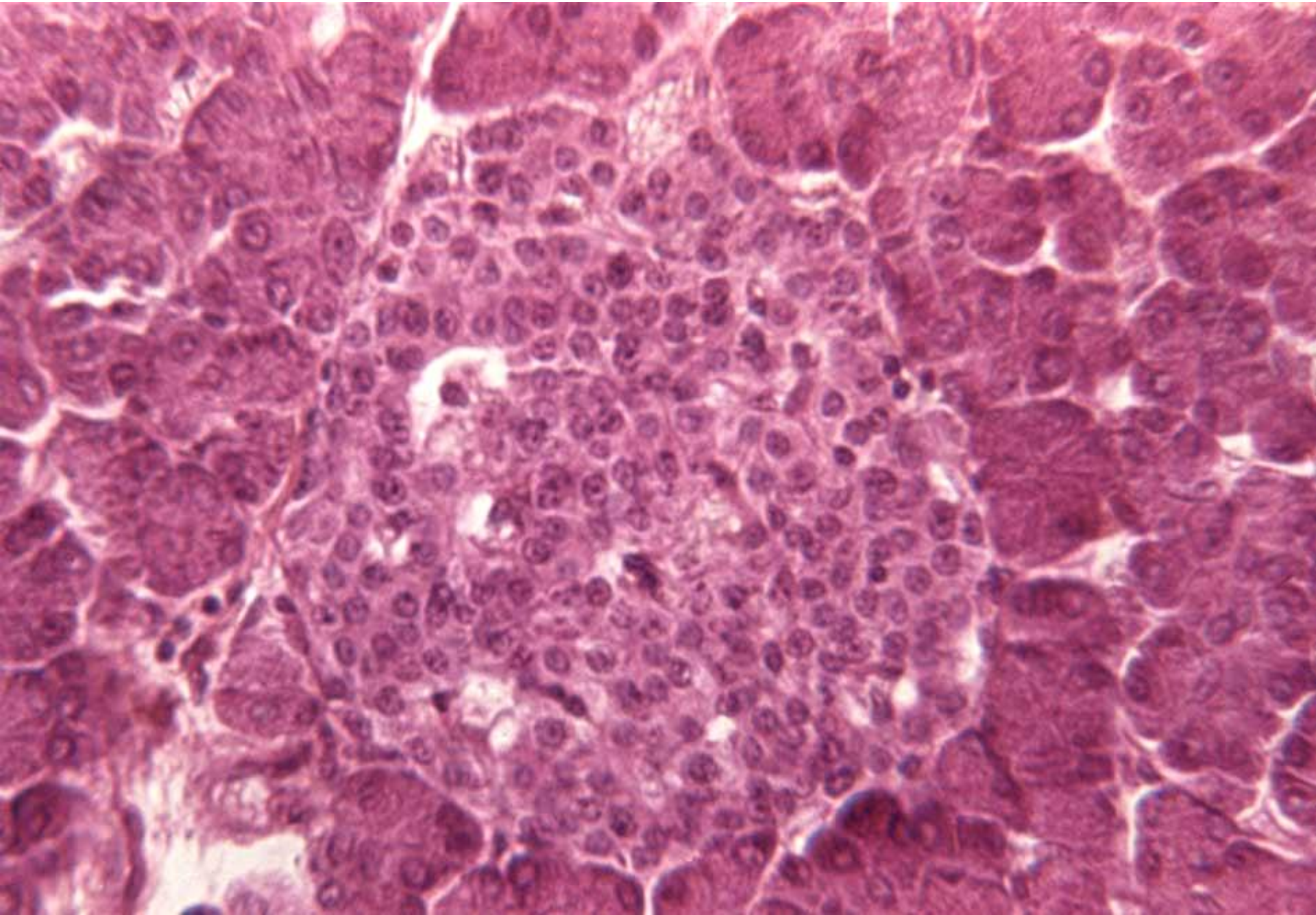
Pancreas – exokrinní část (Mallory)



Pancreas – endokrinní část (HE)



Pancreas – endokrinní část (HE)



Trávicí systém - III

Preparáty:

17. Intestinum crassum (HE)
18. Appendix (HE)
19. Anus(HE)
20. Hepar(HE)
21. Hepar (AZAN)
22. Vesica fellea (HE)
23. Pancreas (HE)

Atlas EM:

- žlučový kanálek (10)