

Digestive system – part II

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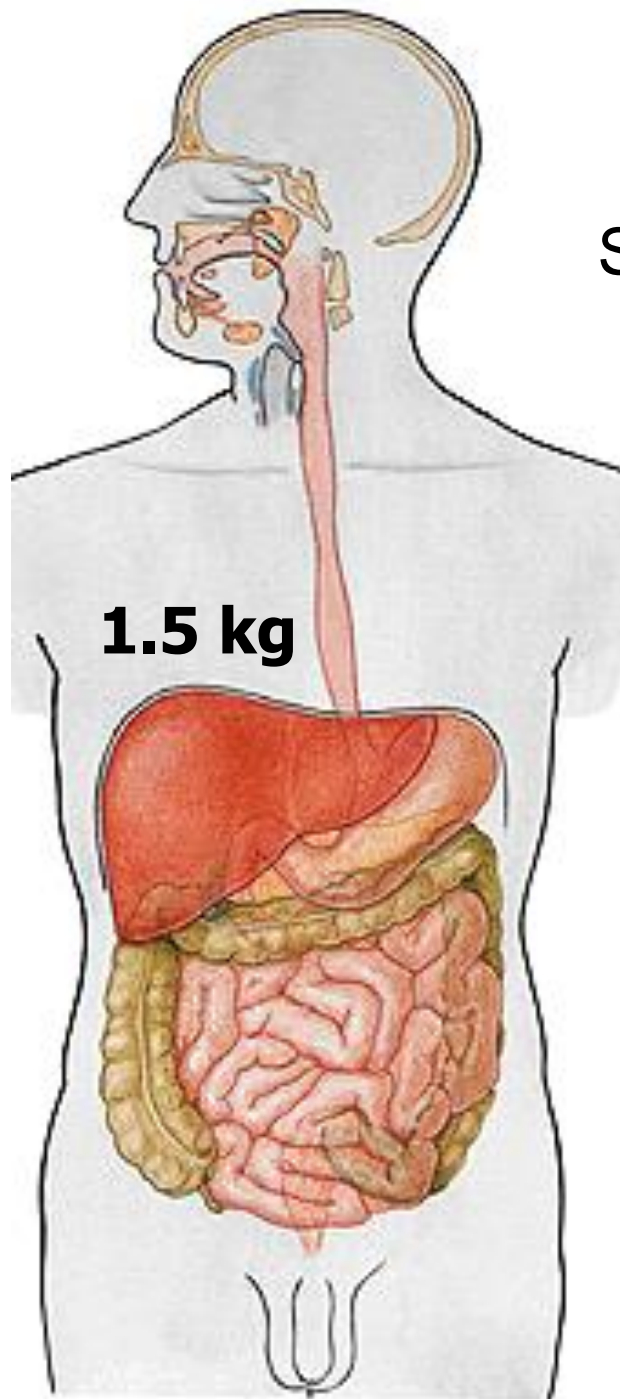
Liver Cirrhosis

LIVER

Regio hypochondriaca dx. + regio epigastrica



- ✓ Peritoneal cavity
- ✓ Exocrine gland
- ✓ Production of the bile
- ✓ Another metabolic functions....

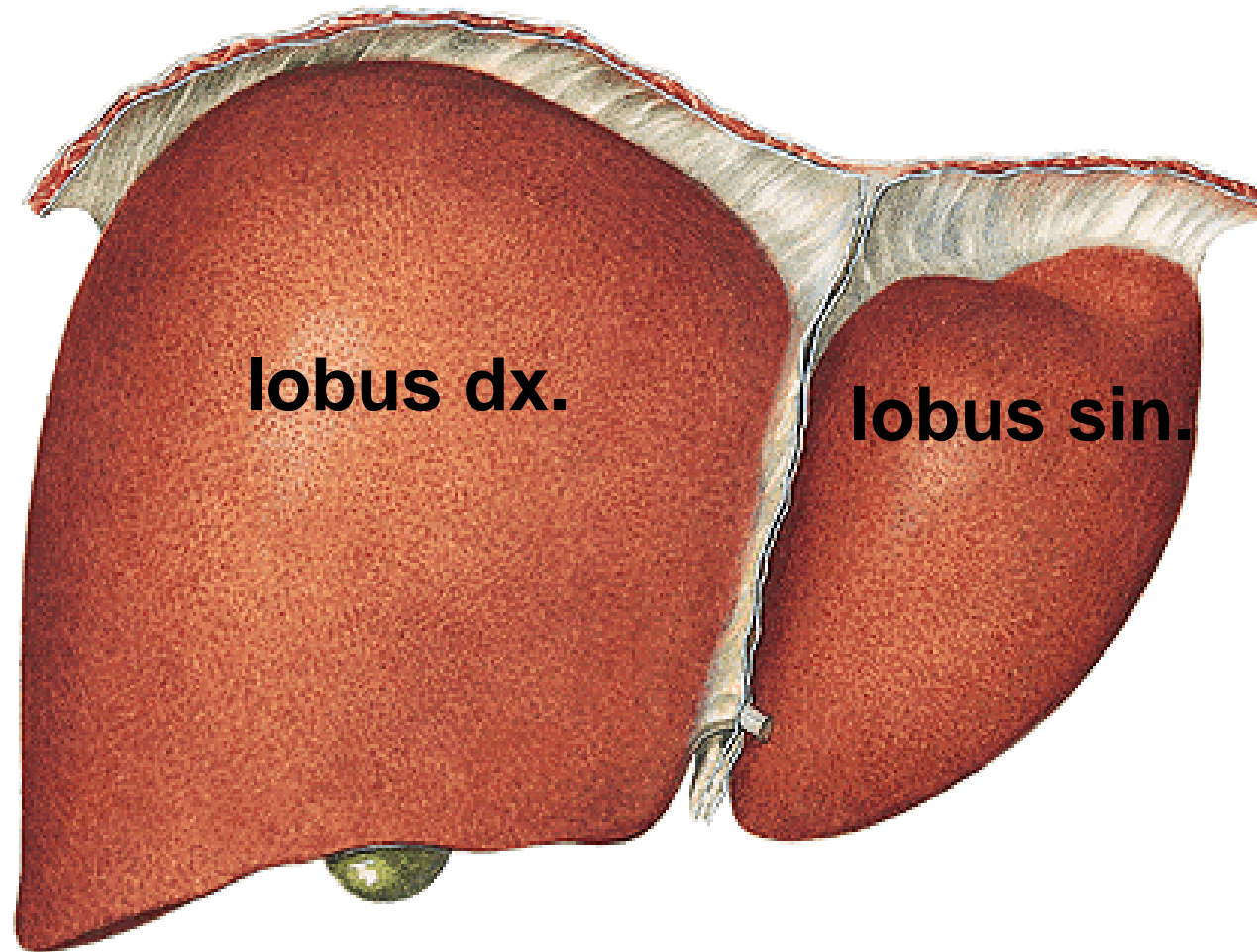


Surface covered by: **capsula fibrosa**

Fixation:

- ✓ VCI (course)
- ✓ Diaphragma (fusion)
- ✓ Internal abdominal organs
- ✓ Folds of peritoneum

Facies diaphragmatica - pars anterior



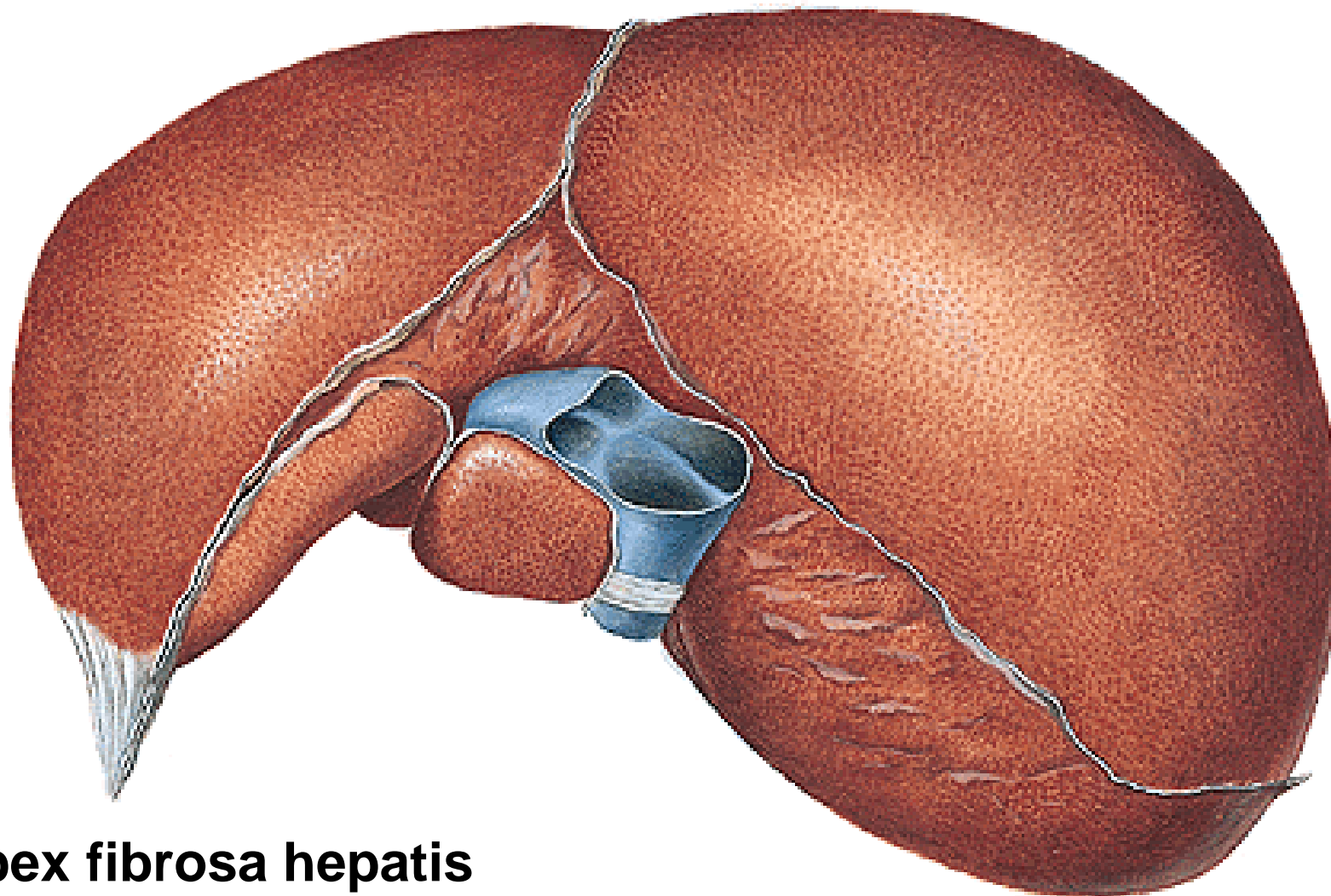
lobus dx.

lobus sin.

**Tunica serosa
lig. falciforme
lig. teres hep.
ligg. coronaria
ligg. triangularia**

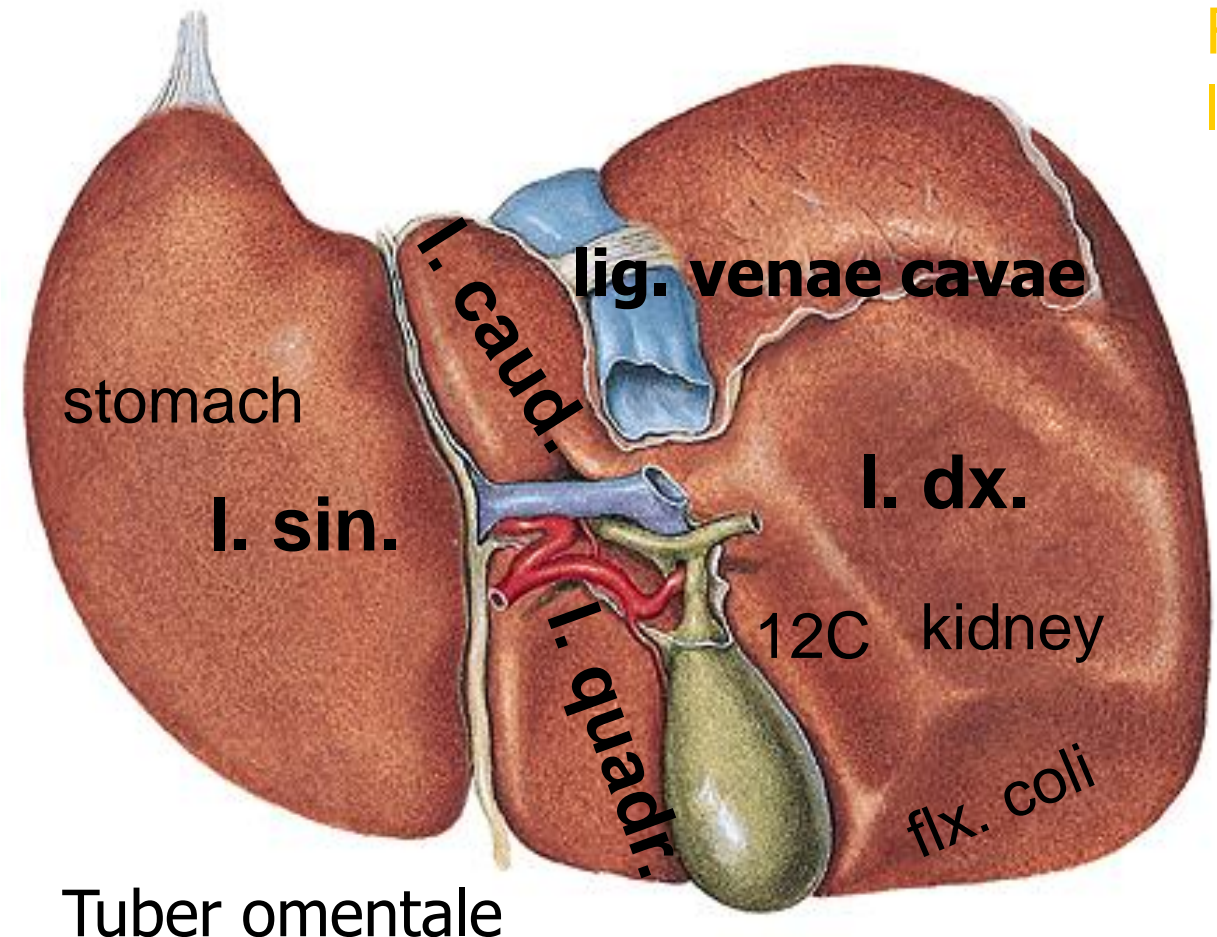
Facies diaphragmatica

- pars sup. (area nuda, bare area)



Apex fibrosa hepatis

Facies visceralis



Fissura
lig. venosi

Sulcus
VCI

Fissura sagittalis sin.

Porta
hepatis

Fissura sagittalis dx.

Fissura
lig. teretis

Fossa
vesicae
biliaris

Tuber omentale

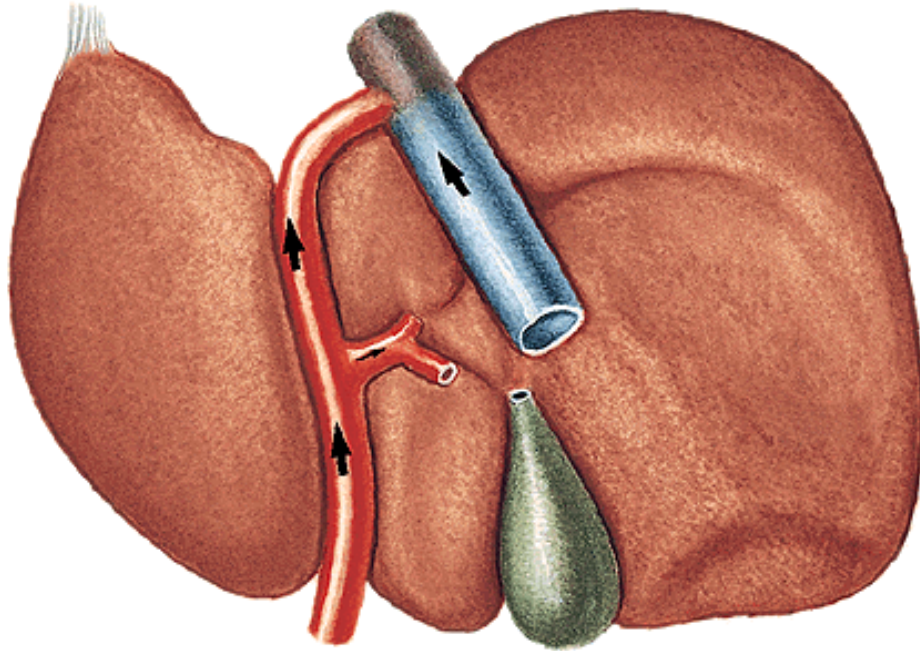
v. portae

a. hepat. propria

dct. hepat. dx., sin. – com.

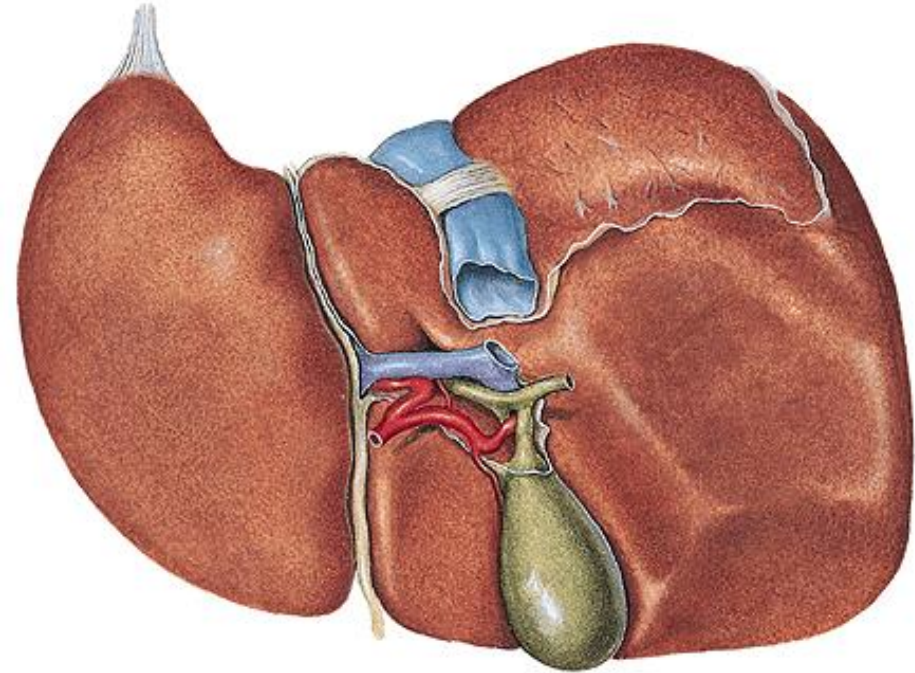
Fetus

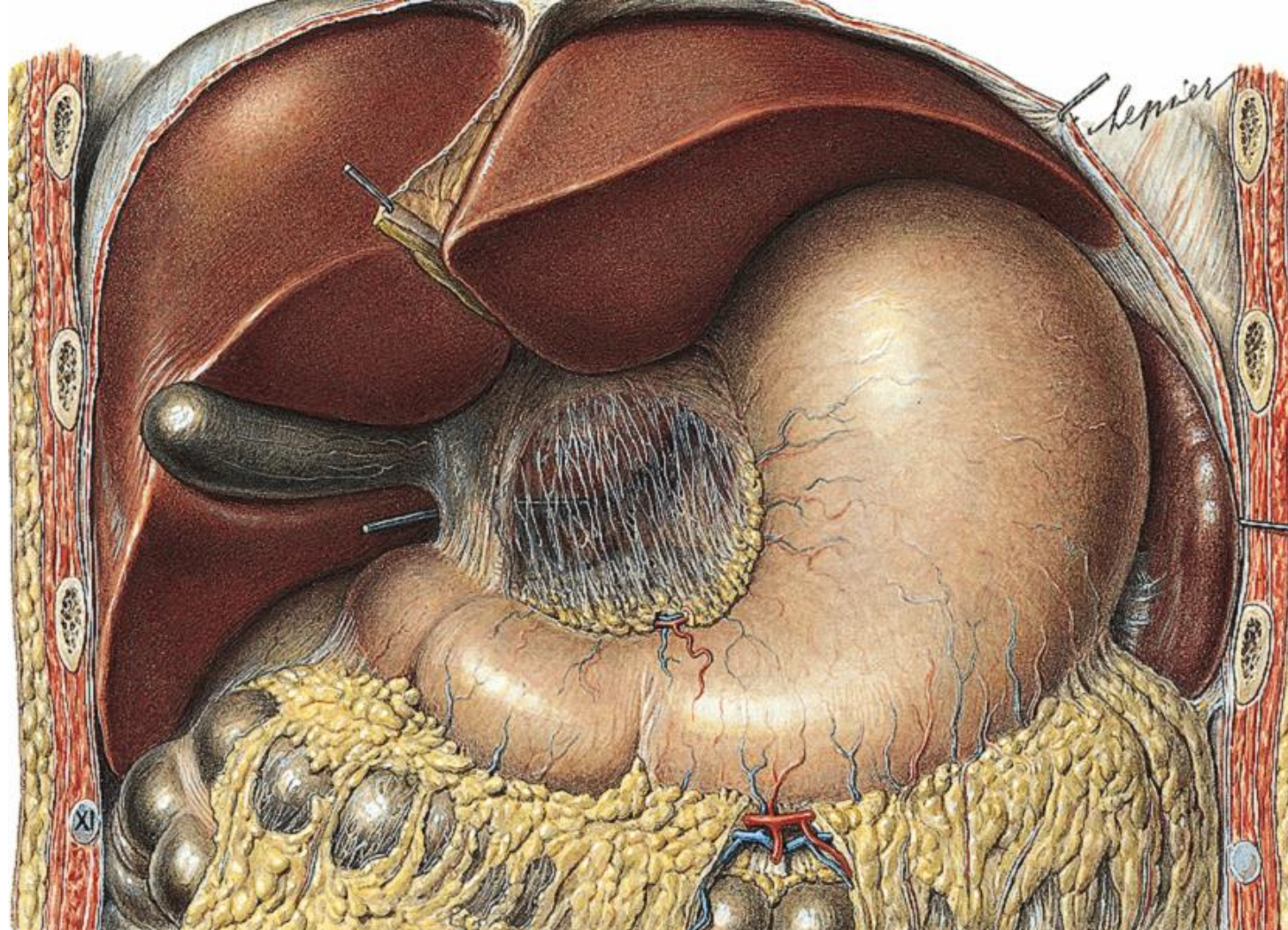
**Dct. venosus
> lig. venosum**



**V. umbilicalis
> lig. teres hepatis**

ADULT

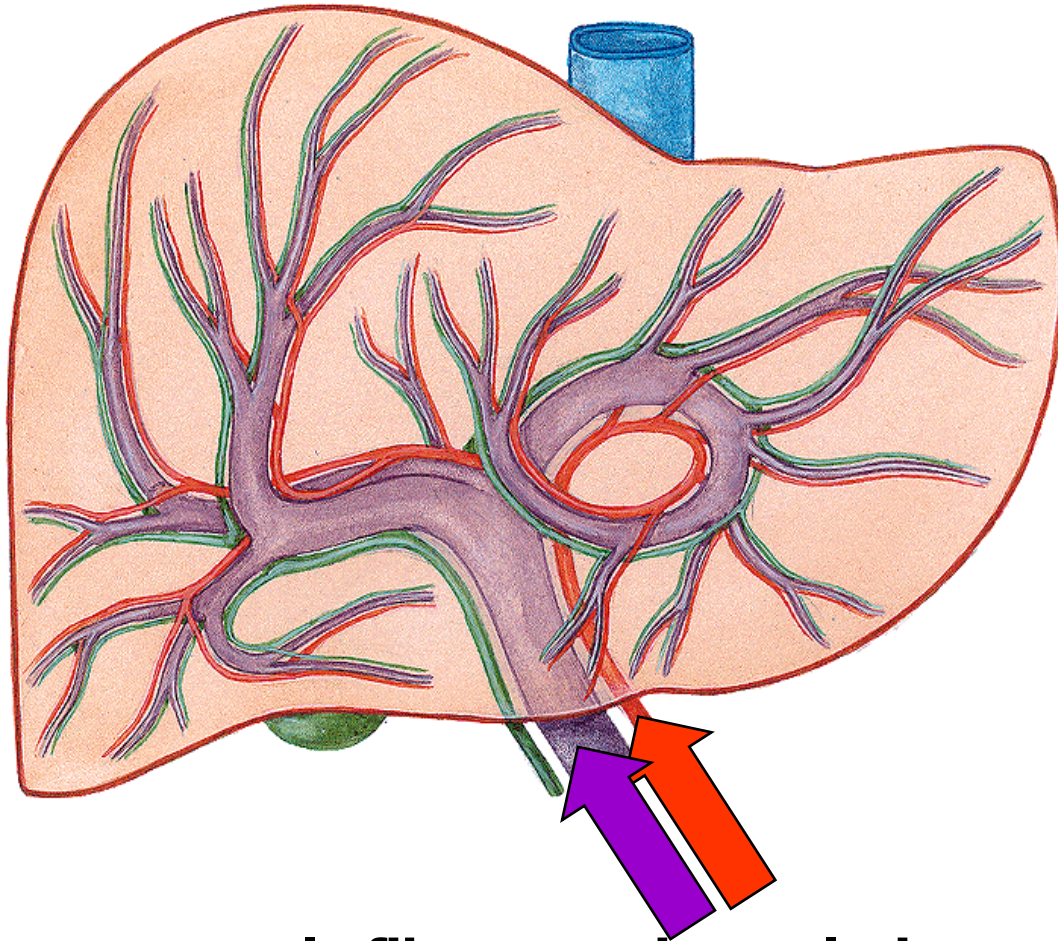




Omentum minus

1. lig. hepatogastricum
2. lig. hepatoduodenale: v. portae
a. hepatica propria
dct. choledochus

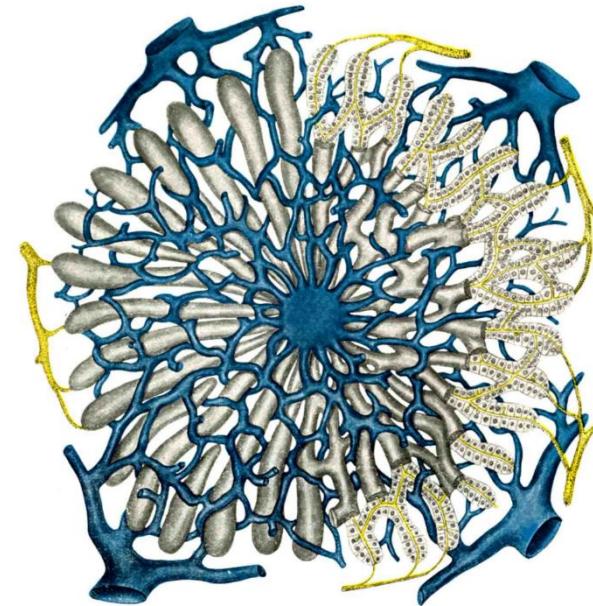
Circulation of the blood



Functional v. portae
Nutritional a. hepatica

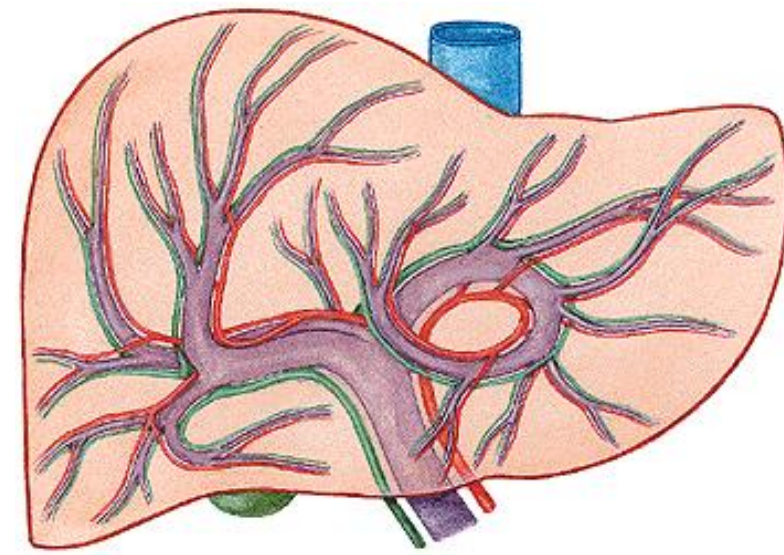
it branches...until
circumlobular vessels >
sinusoids >
v. centralis ...

vv. hepaticae - VCI

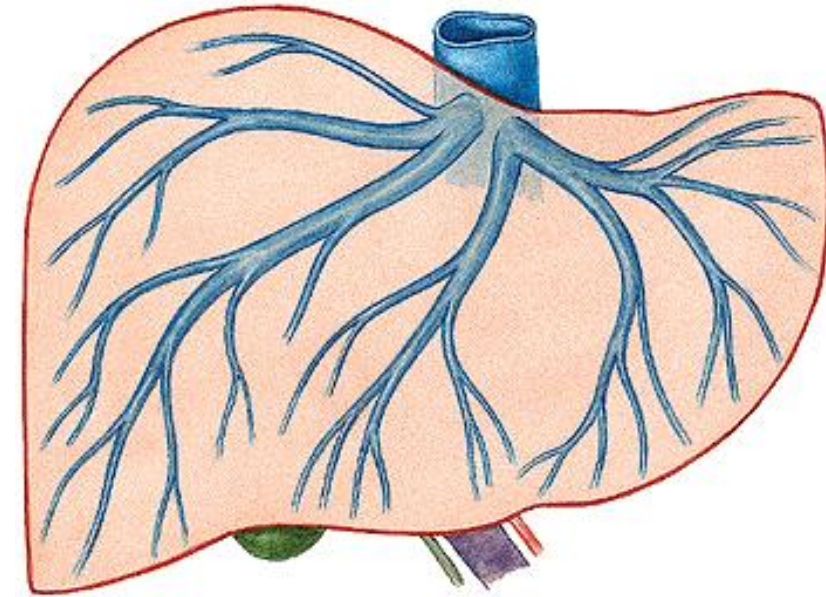


Capsula fibrosa – capsula fibrosa perivascularis
- v. interlobularis, a. interlobularis, ductus interlobularis
sinusoids v. centralis
Lobulus venae centralis

**V. PORTAE (v. mesenterica sup. + v. lienalis)
A. HEPATICA PROPRIA**



- ramus dexter et sinister..... aa. et vv. interlobulares,
aa. et vv. circumlobulares → sinusoids → v. centralis
→ vv. sublobulares → vv. hepaticae

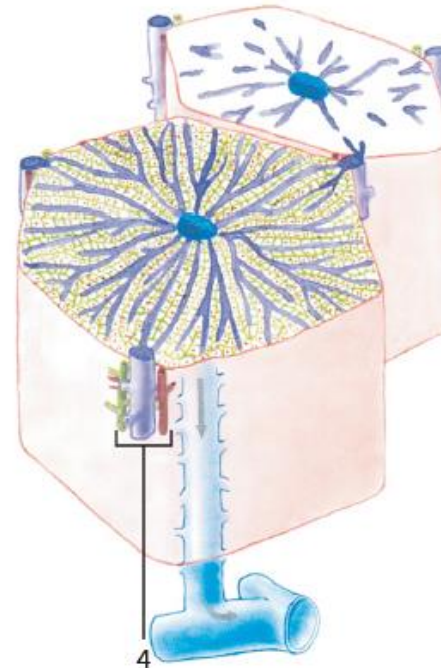
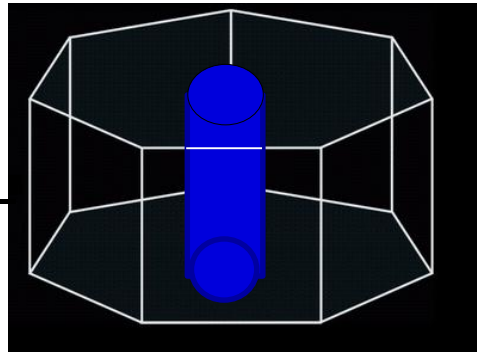


Liver structure

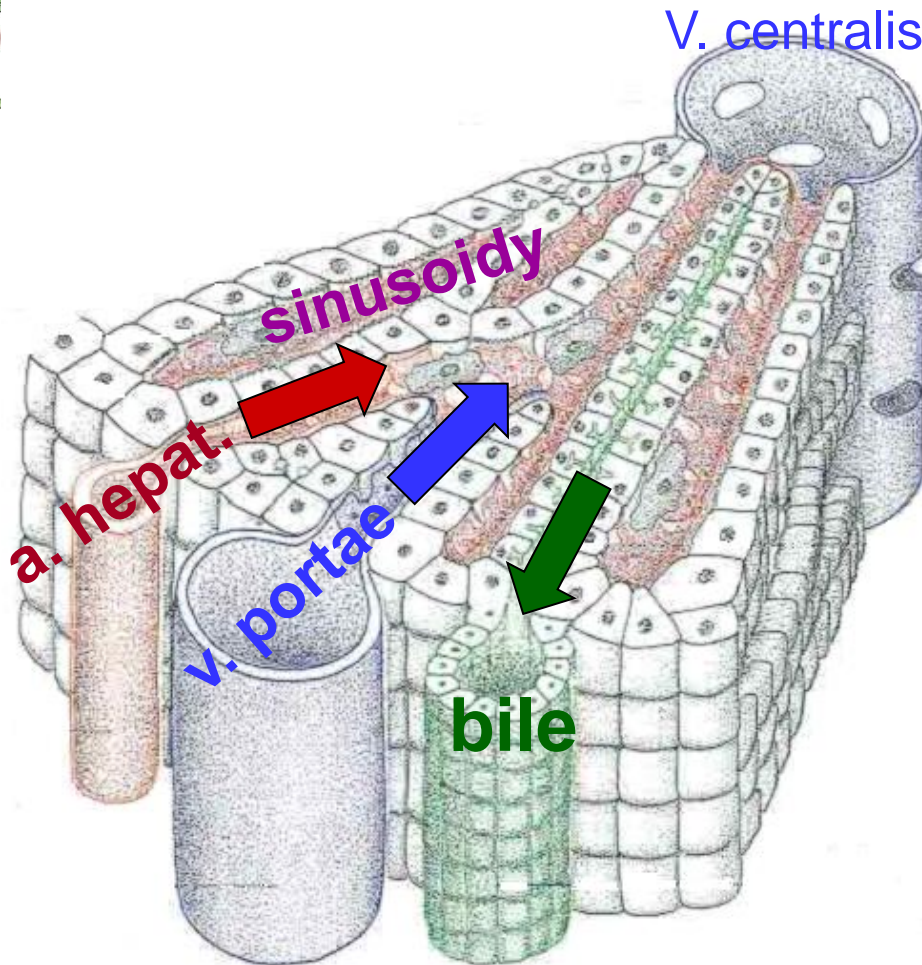
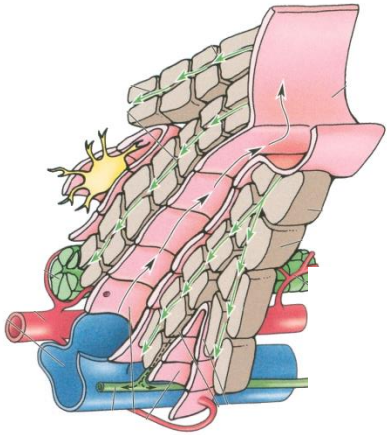
Hepatic lobulus = **lobulus v. centralis**:

- ✓ Fibrous capsule, below capsula fibrosa perivascularis enclose branches of the portal triad
- ✓ Separate cells, polygonal hepatic lobules **hepatocytes arranged in trabeculae (laminae)** separated from each other by sinusoids
- ✓ in the middle is v. centralis

PORTAL ACINUS —
functional unit,
between 2
adjacent central
veins



between trabeculas of hepatocytes are **sinusoids**,
to hat are draining **a. hepatica** and **v. portae**

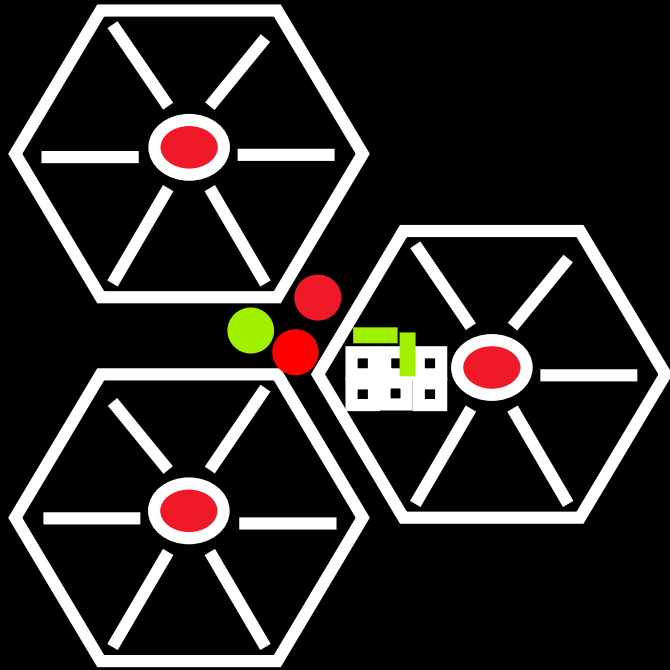


Blood in sinusoids is washing
hepatocytes > takes useful
and unuseful substances

- sinusoids are meeting in
the middle - **v. centralis**

FORMATION OF THE BILE

Biliary ducts



Intrahepatic biliary ducts start at the border of 2 cells.

Canaliculus bilifer – ductus bilifer intralobularis

– ductulus bilifer – ductus bilifer interlobularis

– collecting ducts

Extrahepatic bile ducts

ductus hepaticus dexter

et sinister – ductus

hepaticus communis

+ ductus cysticus = ductus choledochus (bile duct)

a. interlobularis

v. interlobularis

dct. bilifer interlobularis

Vesica biliaris (fellea)

Extrahepatic biliary ducts

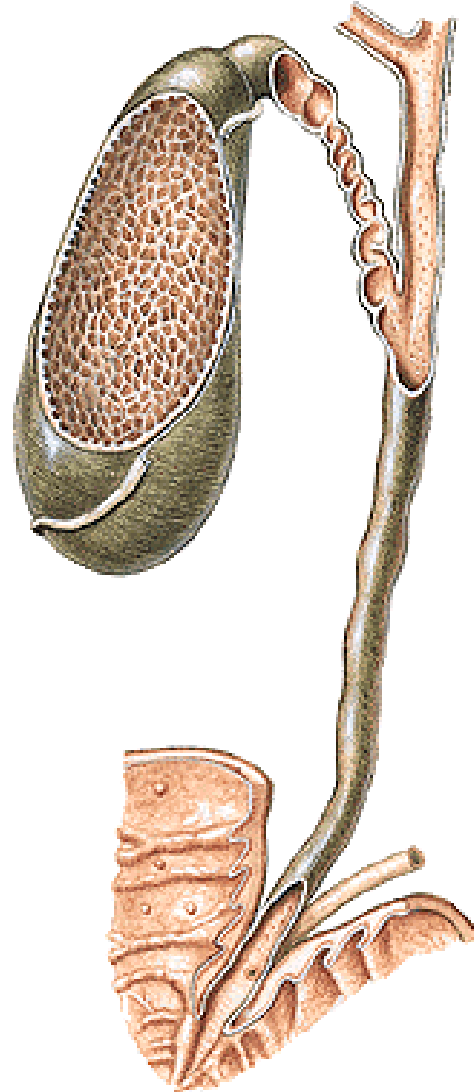
Collum

Infundibulum

Corpus

Fundus

Plica
spiralis

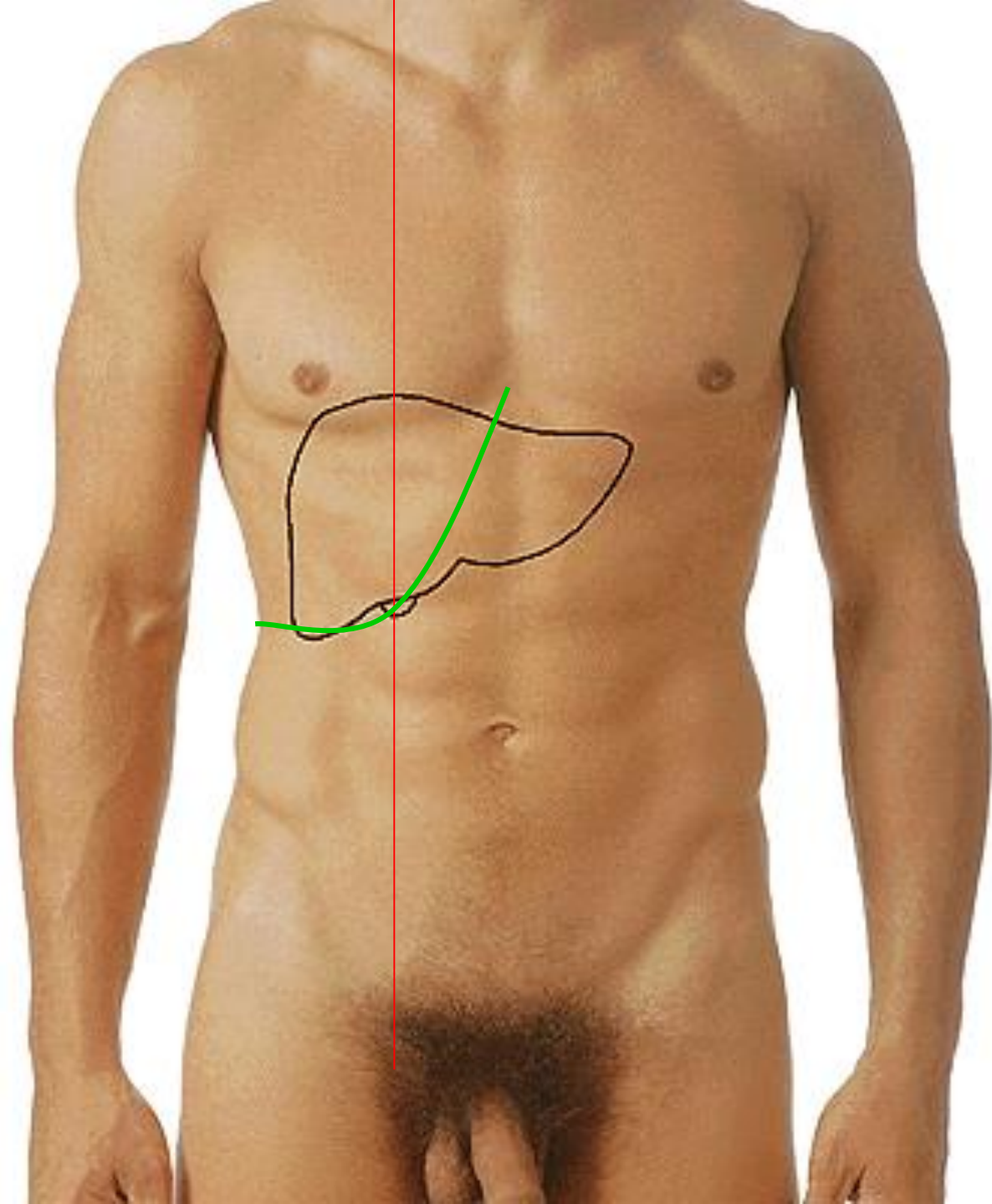


Ductus hepaticus comm.
dct. cysticus

> **bile duct**

**Papilla duodeni major
(Vater)**

**Plica longitudinalis duodeni
Ampulla hepatopancreatica
M. sphincter ampullae
hepatopancreaticae (Oddi)**



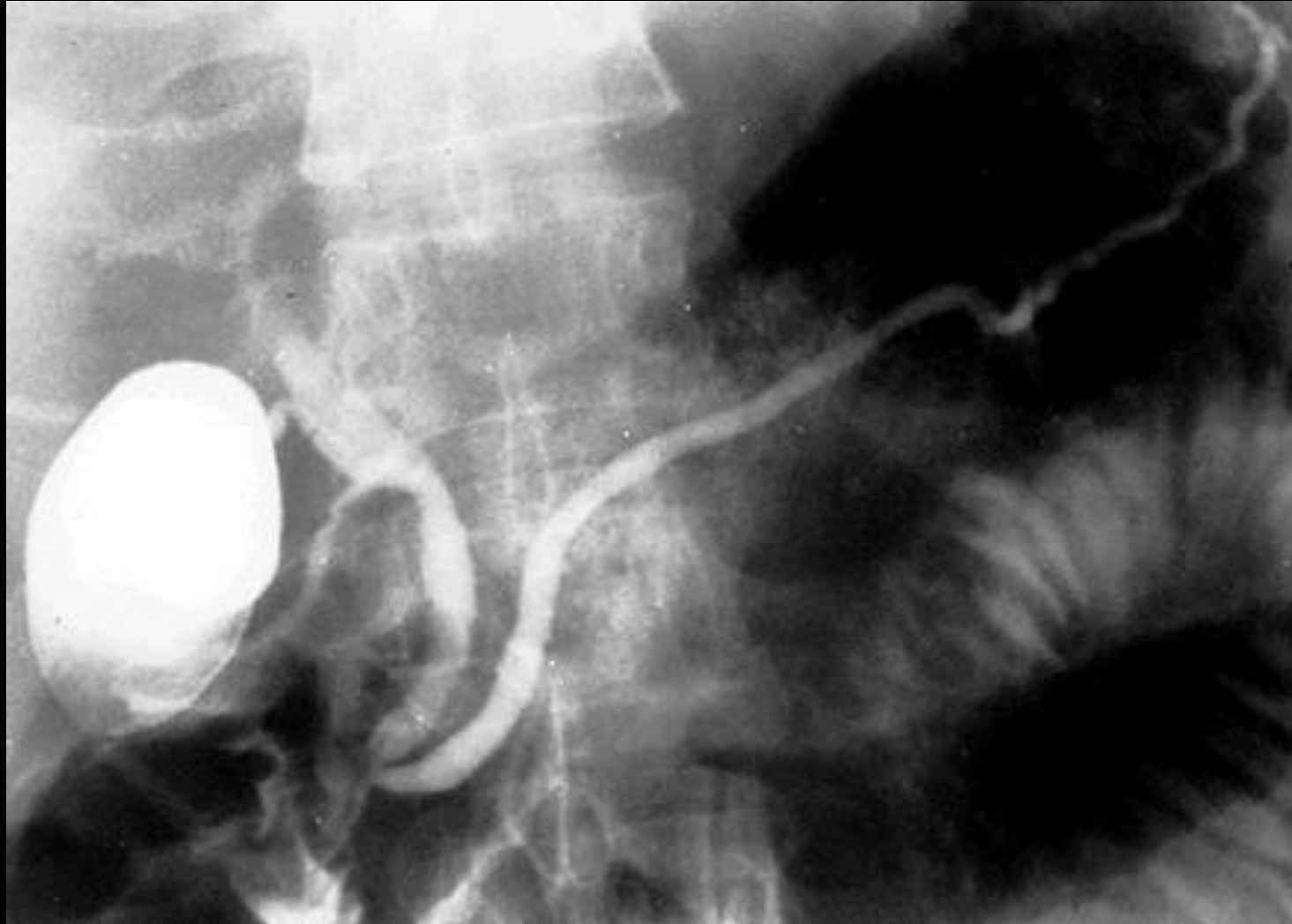
Cholecystography

Biliodistin g
 St. nach Einnahme

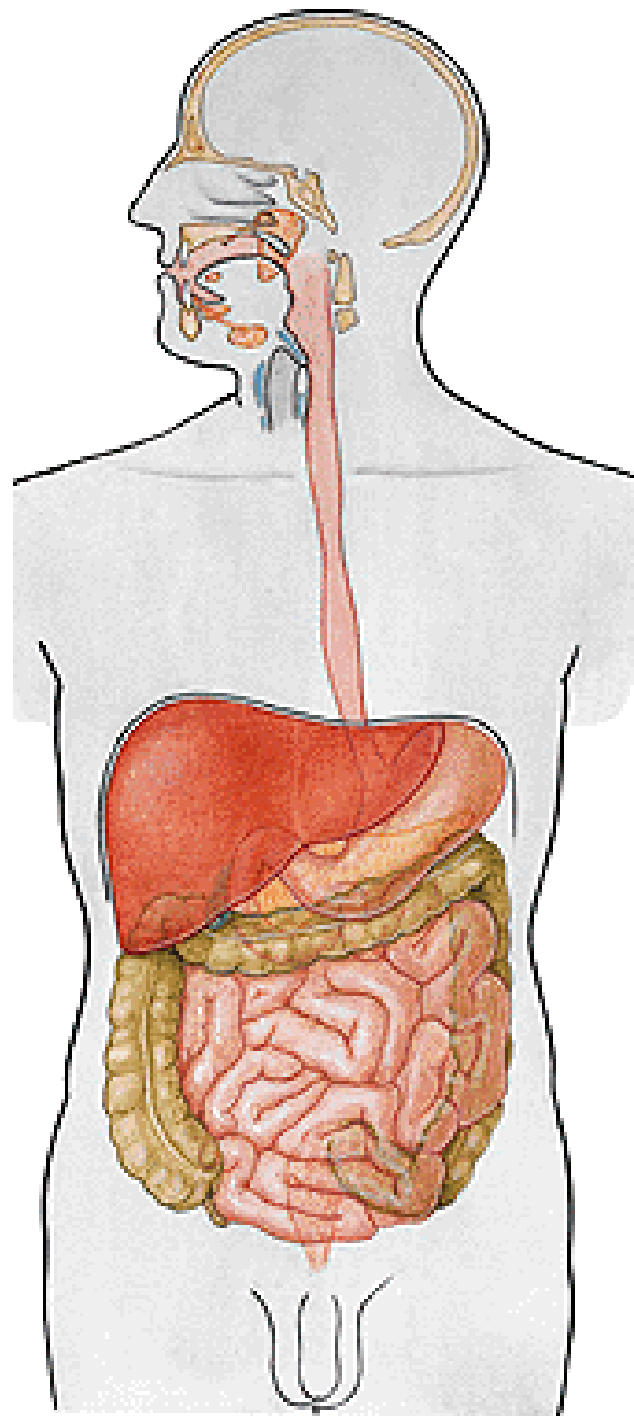


ERCP

Endoscopic retrograde cholangiopancreatography



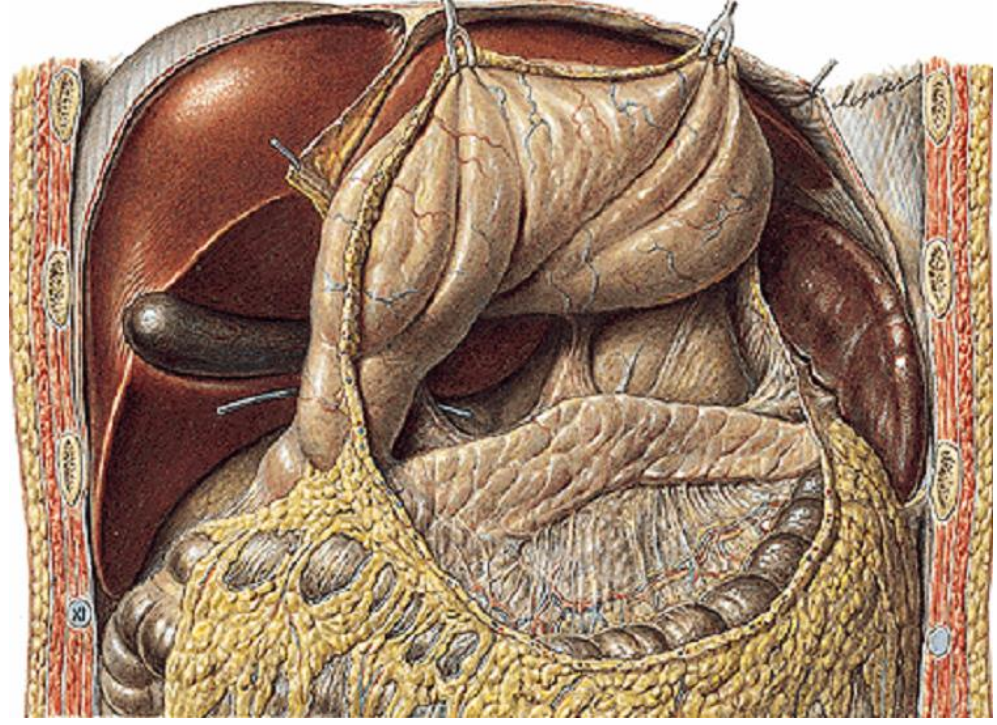
Pancreas



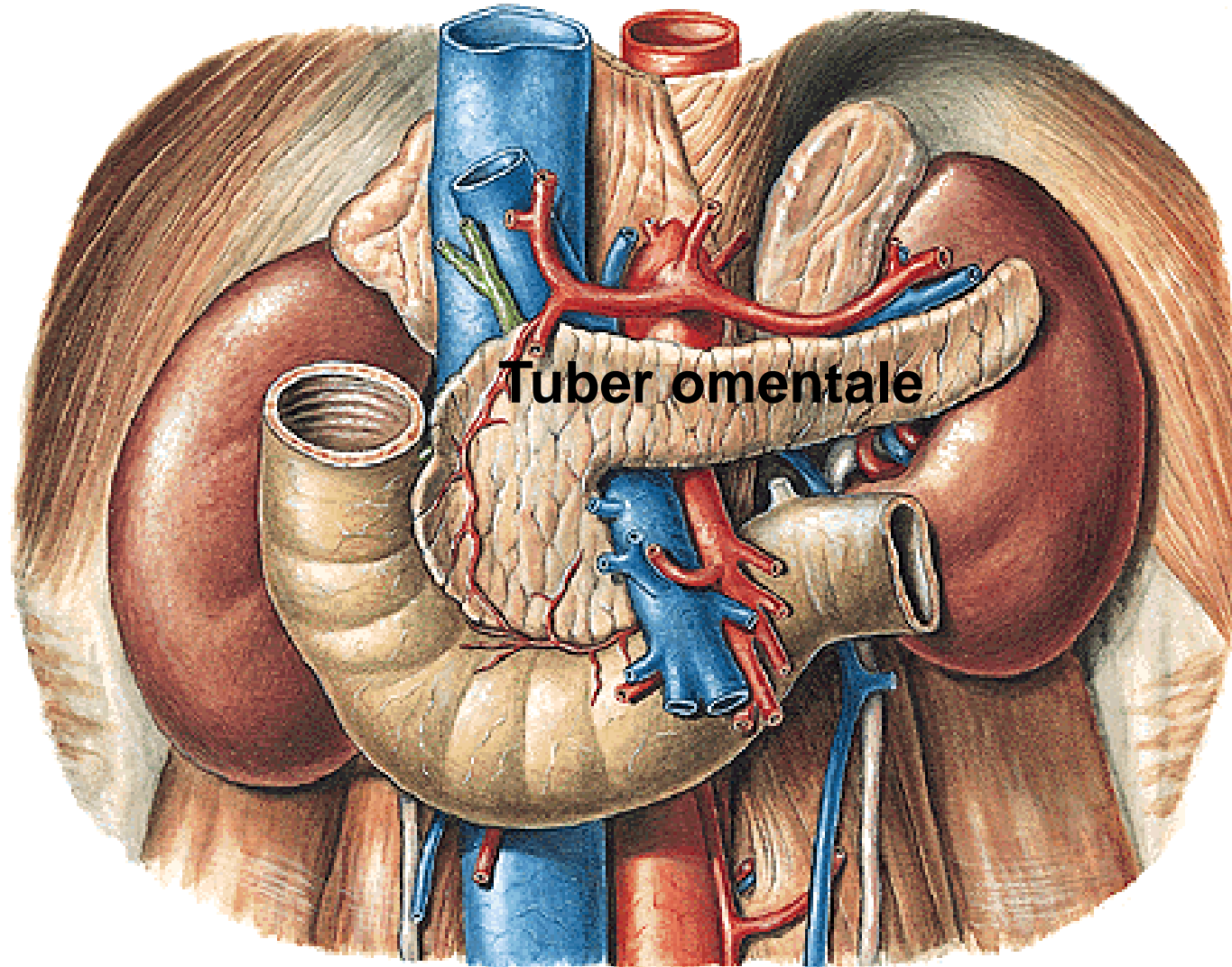
Exocrine gl. (succus pancreatic.)

Endocrine gl. (insulin, glukagon)

- ✓ Abdominal cavity
- ✓ Behind the stomach
- ✓ Horizontally from duodenum to the spleen
- ✓ Grey-pink color
- ✓ 12-16 cm



membrana retropancreatica (Treitz)



Parts

caput
corpus
cauda

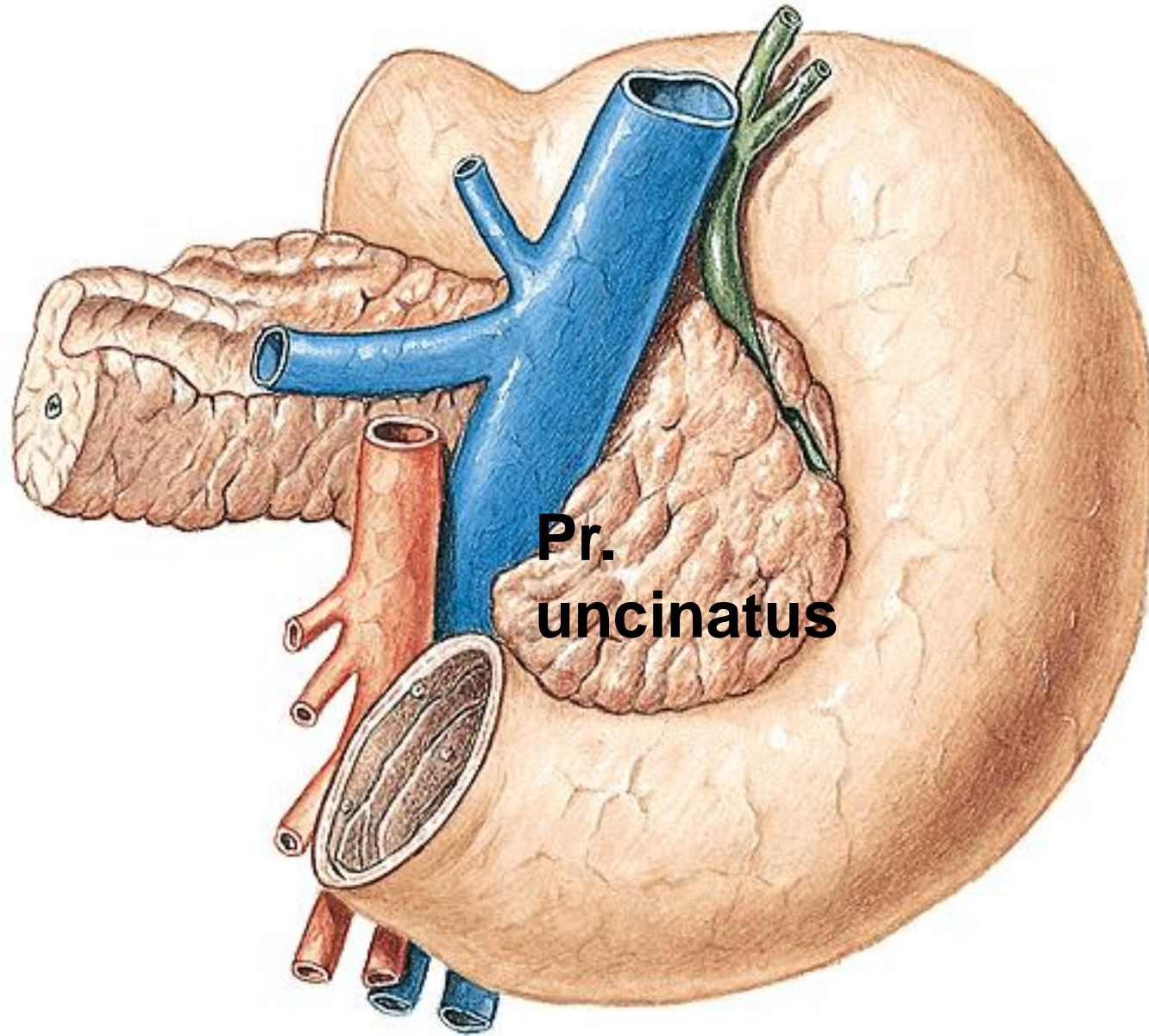
Facies

anterior
posterior

Margo

superior
inferior

Incisura pancreatis, processus uncinatus

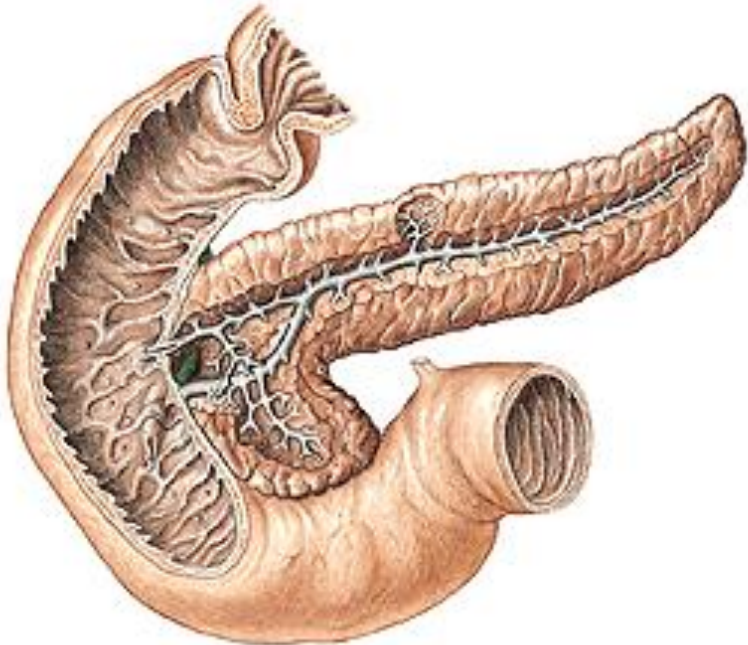


Pr.
uncinatus

Origin of
v. portae

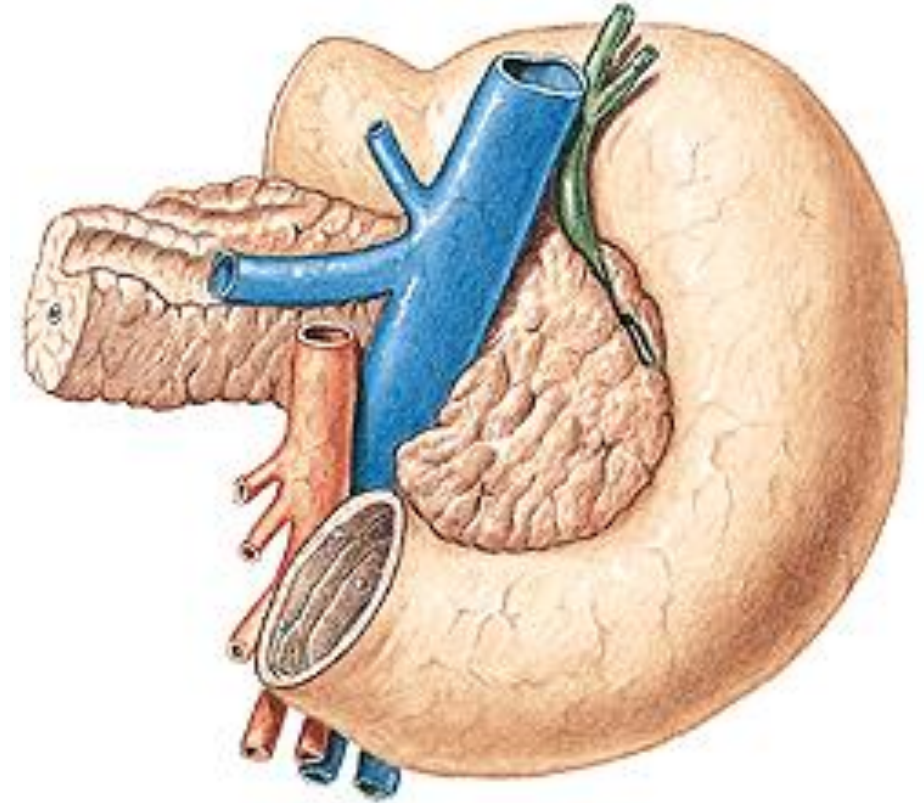
Exocrine pancreas:

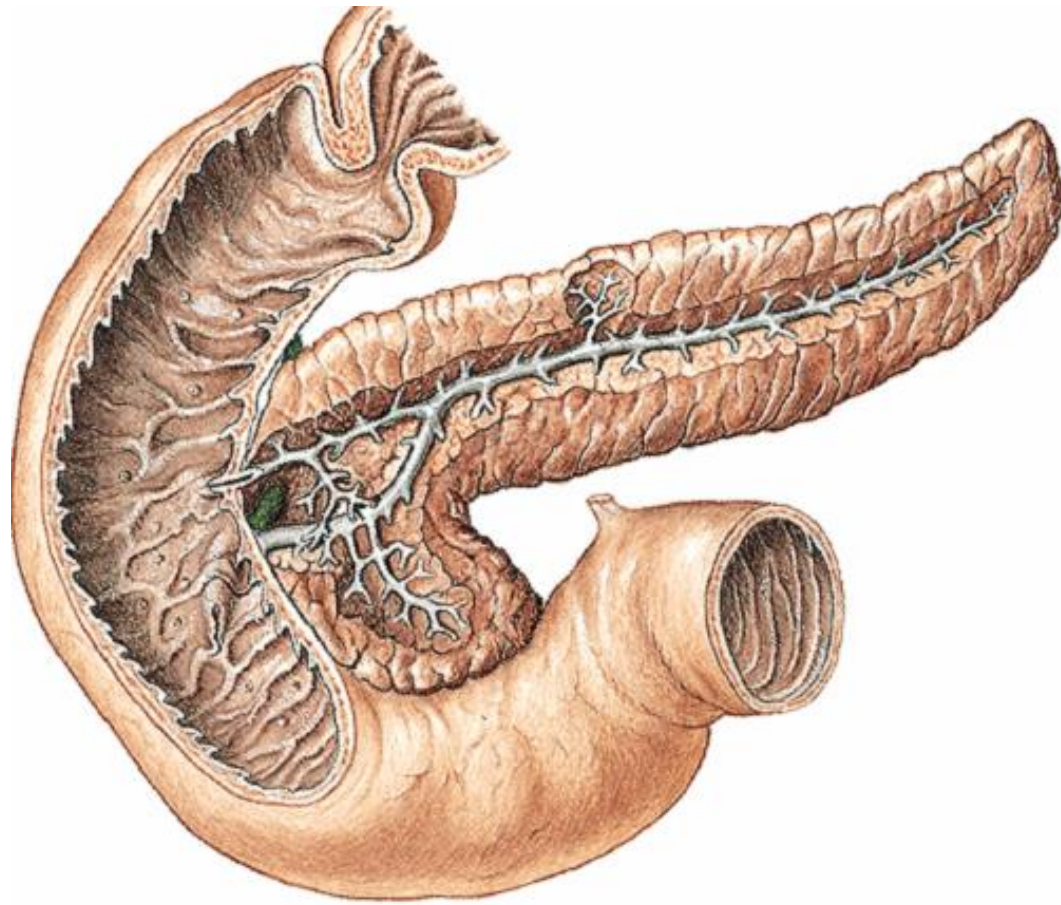
capsula pancreatis, lobules - acin
succus pancreaticus
ductus pancreaticus
ductus pancreaticus accessorius
m. sphincter ampullae hepatopancreaticae
m. sphincter ductus choledochi
m. sphincter ductus pancreatici



Endocrine pancreas:

islets of Langerhans (1-2 millions)
insulin, glucagon – hormones to the blood





**Dct. pancreat. major
+dct. choledochus**

Thickened to the
ampula hepatopancre.

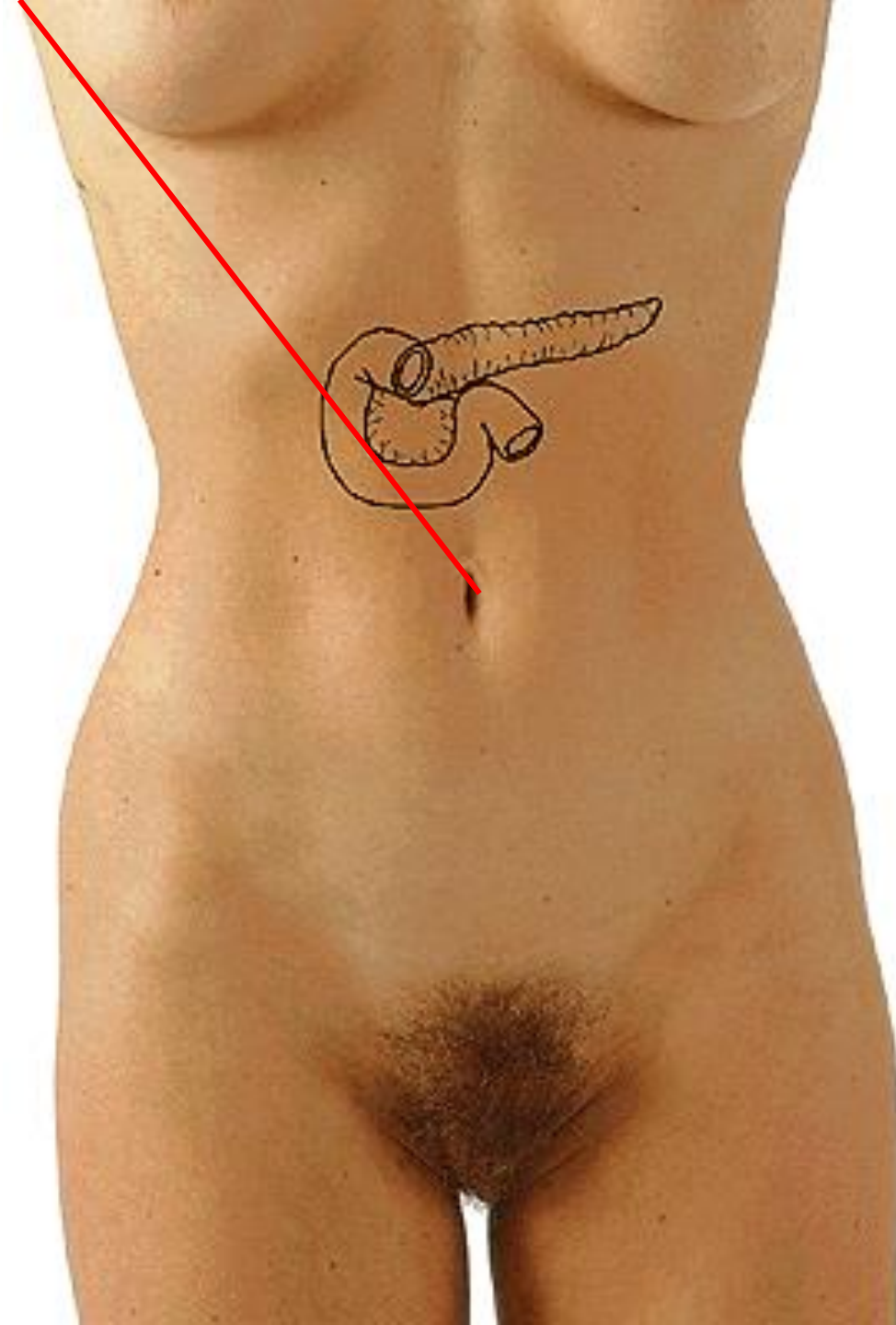
- m. sphincter papillae
hepatopancre.

(2 parts)

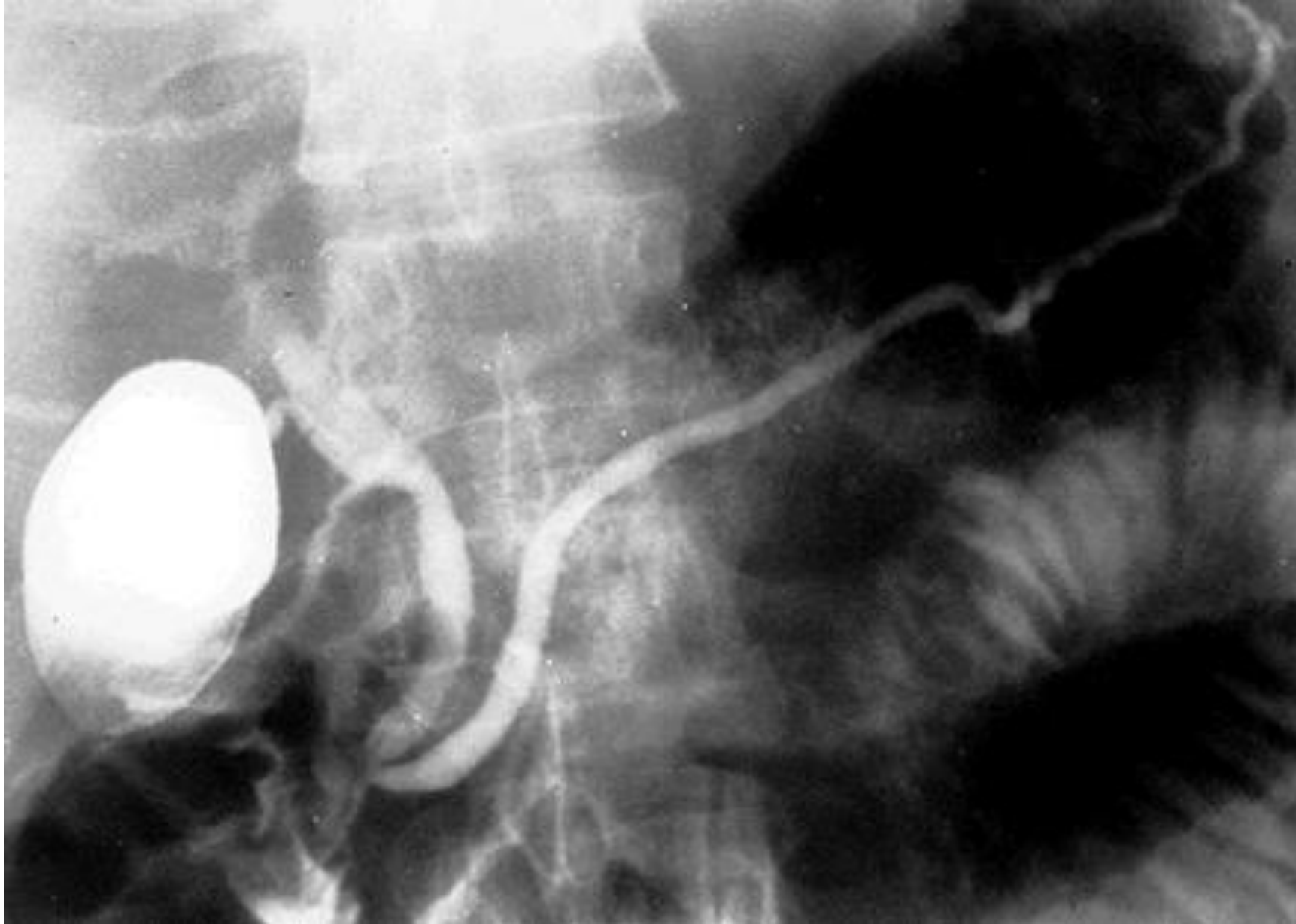
> **papilla duod. major**

Dct. pancreat. minor
> **papila duod. minor**

**Umbilico-axillary line
- point of Desjardin**



ERCP – endoscopic retrograde cholangiopancreatography

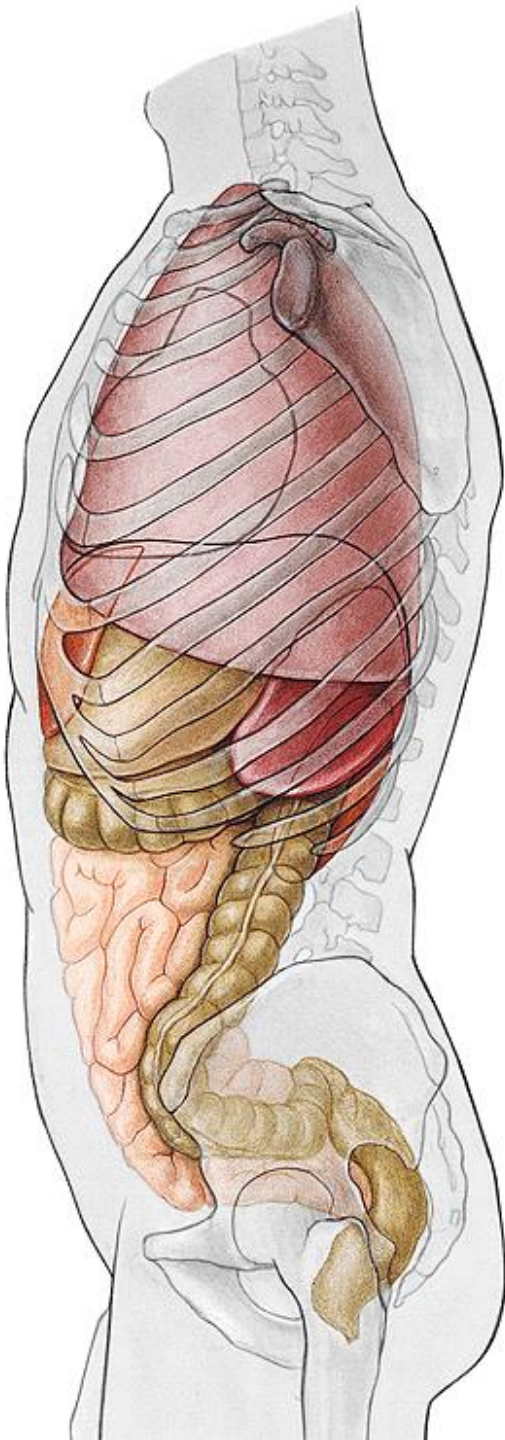


Lien, spleen

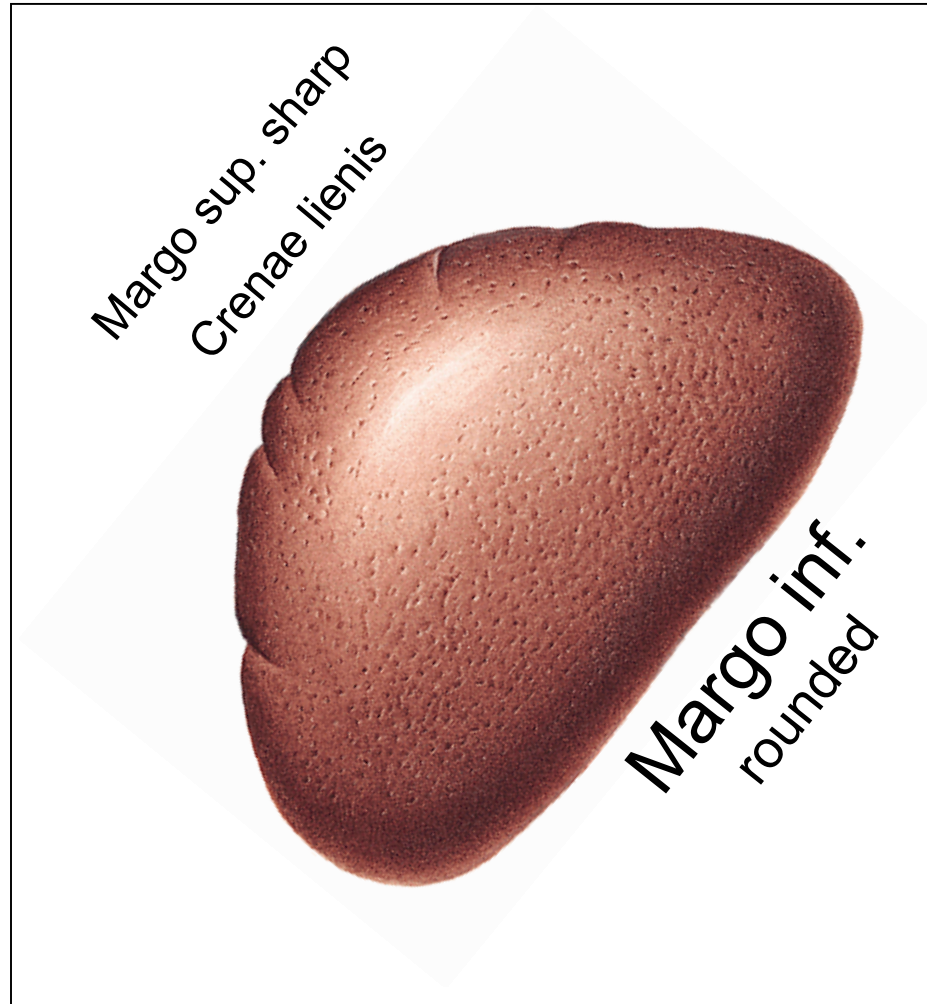
- ✓ Located in the abdominal cavity
- ✓ Length cca 12 cm
- ✓ Color- red purple

Extremitas
posterior
anterior

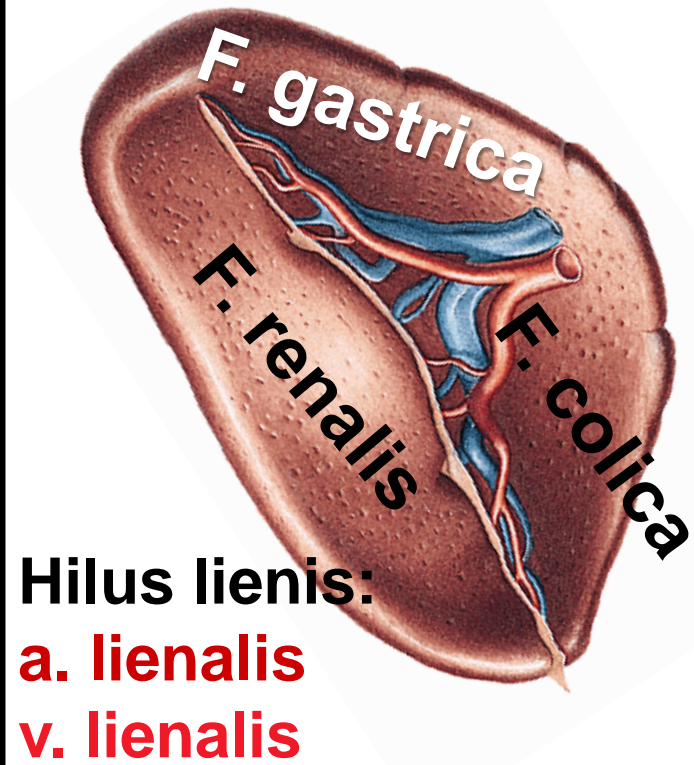
Margo
superior
inferior



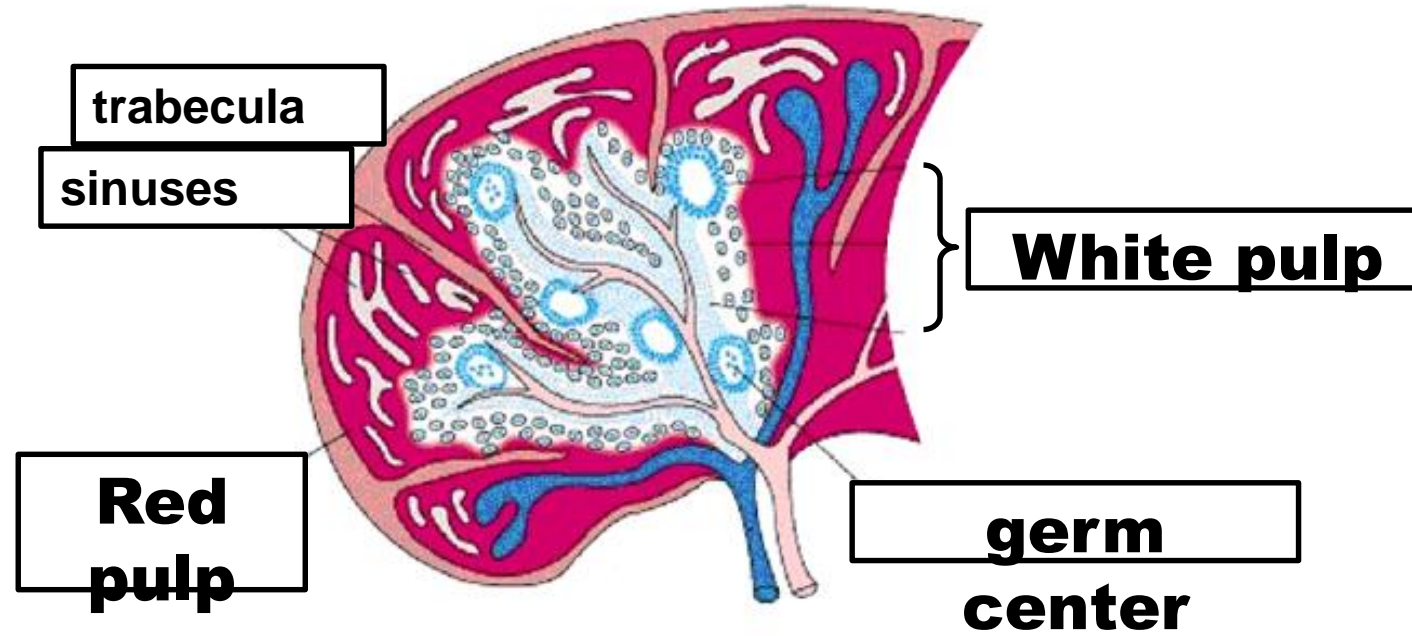
Facies diaphragmatica



Facies visceralis



Structure of the spleen



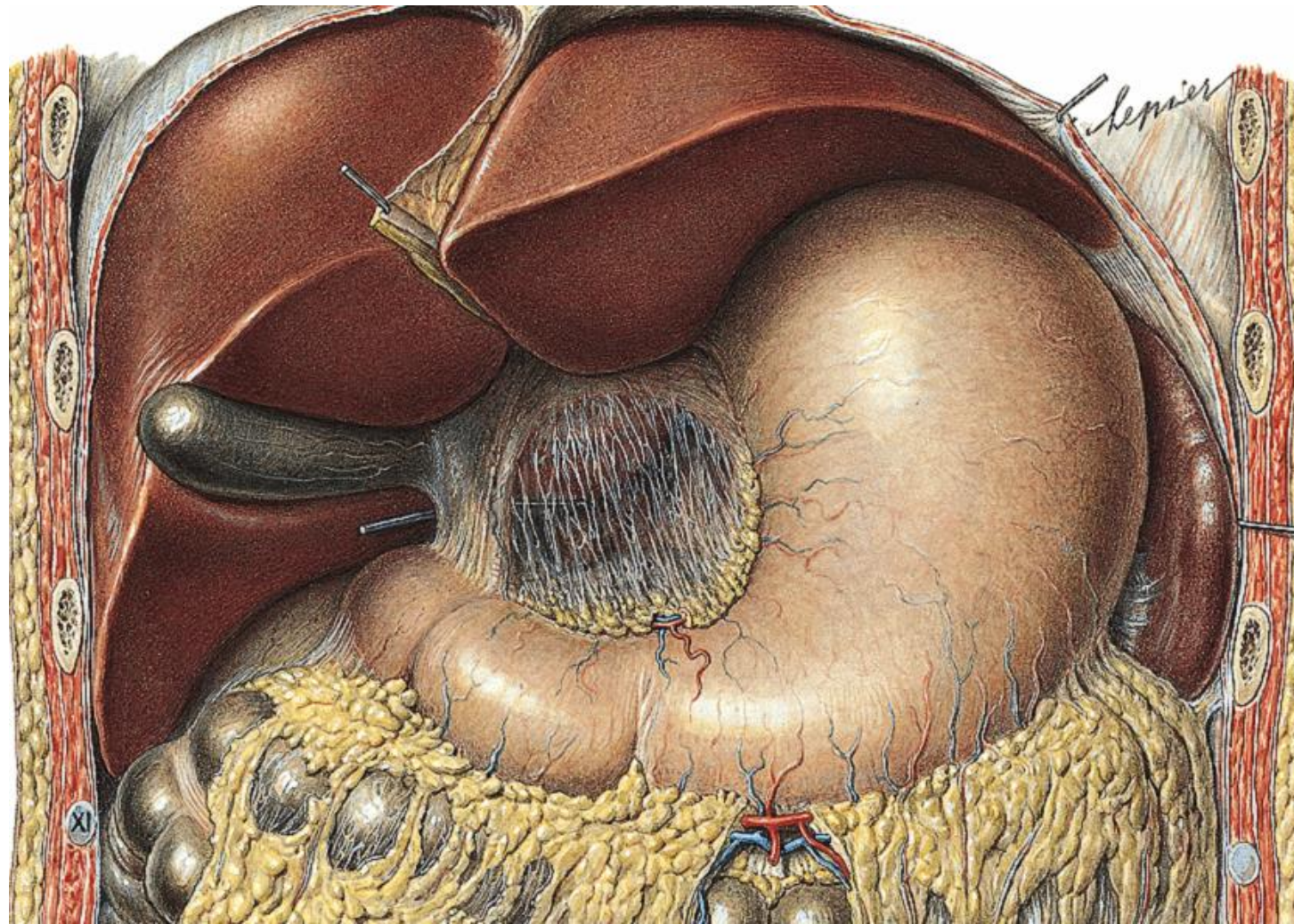
Tunica fibrosa (capsula lienis)

Trabeculae splenicae - fibrous

Pulpa lienalis: white, red

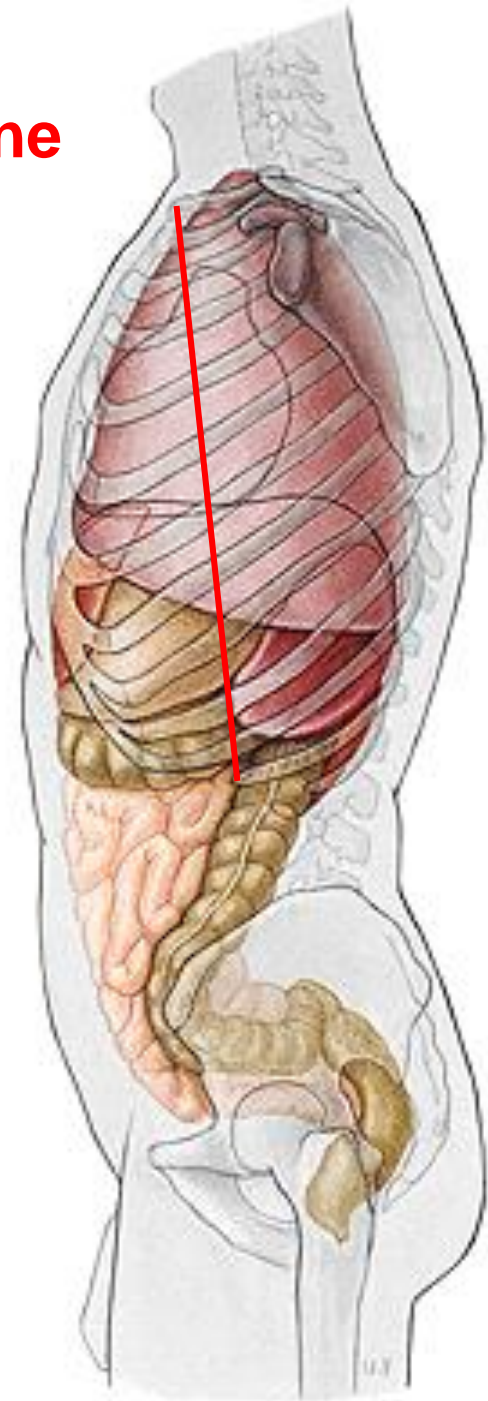
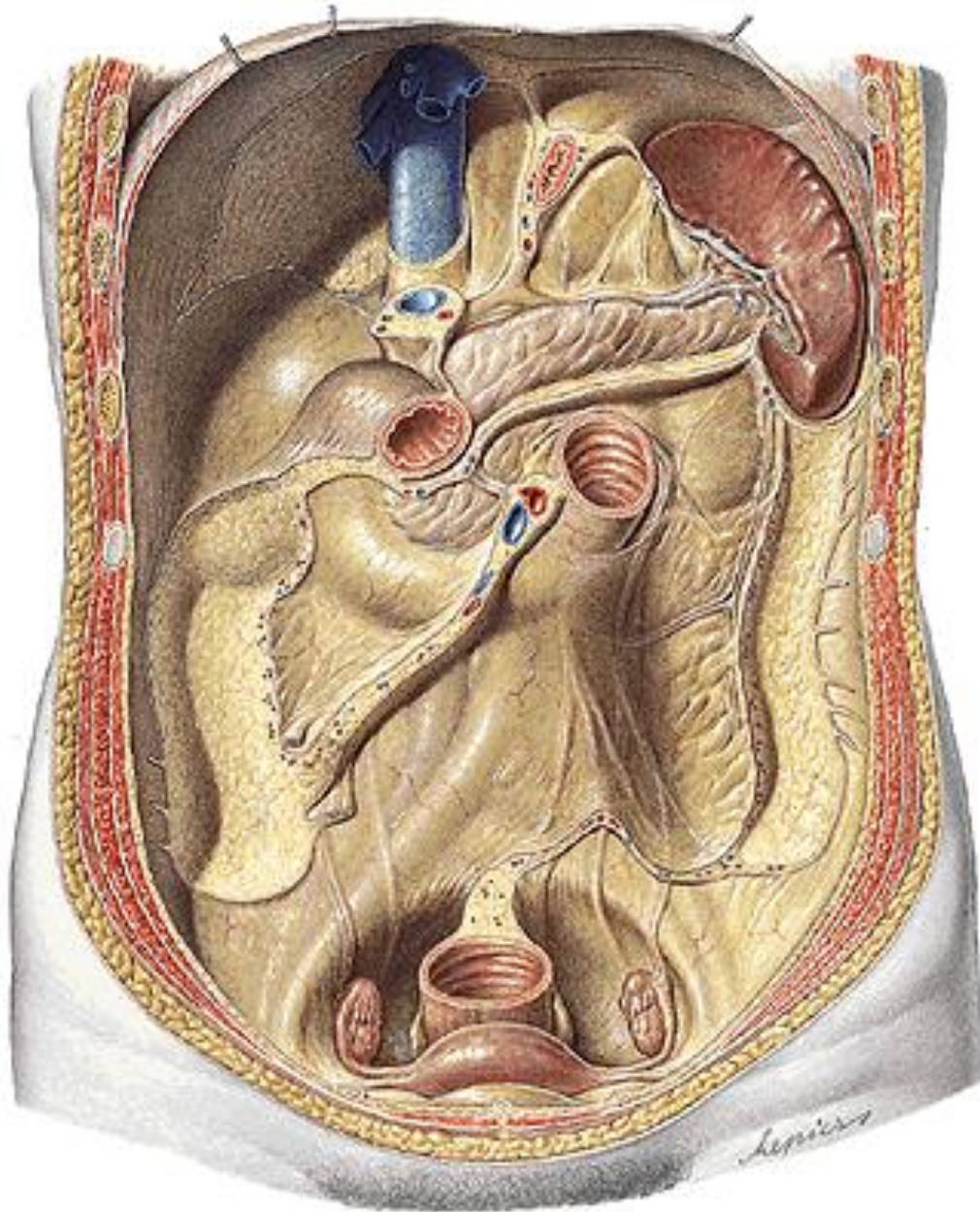
function

- ✓ Defense mechanism
- ✓ Extinction of erythrocytes
- ✓ blood reservoir



lig. phrenico-lienale
lig. gastro-lienale
lig. phrenico-colicum

Costoarticular line



CAVITAS ABDOMINALIS

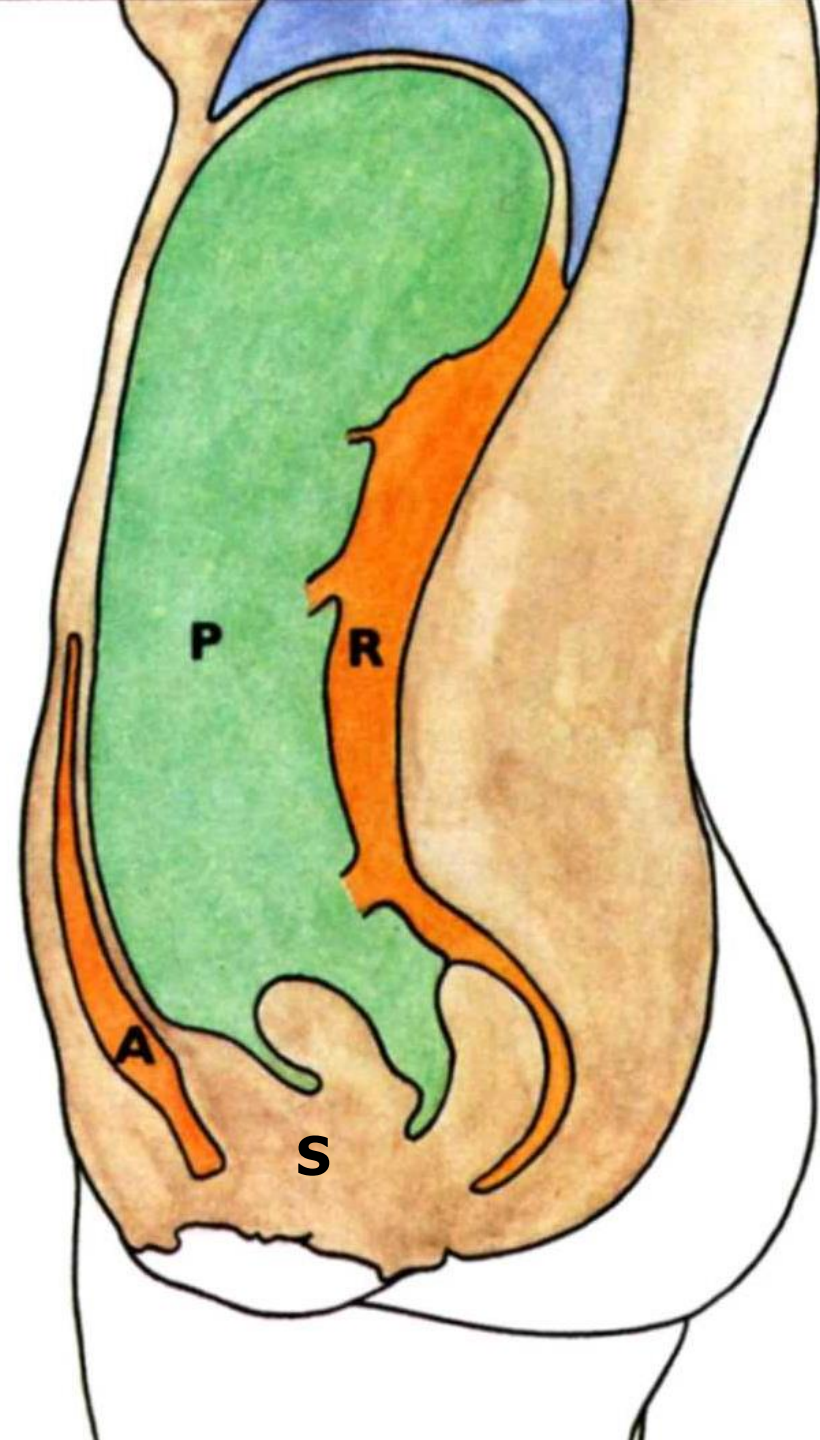
P – cavitas peritonealis

Spatium extraperitoneale:

A – spatium preperitoneale

R – spatium retroperitoneale

**S – spatium subperitoneale
(infraperitoneale)**



Peritoneum serosa



Onelayered squamous epithelium+ subserose tissue

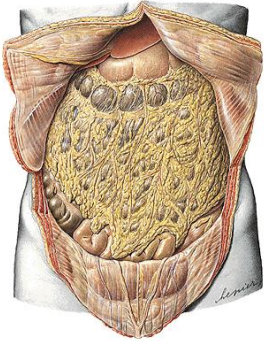
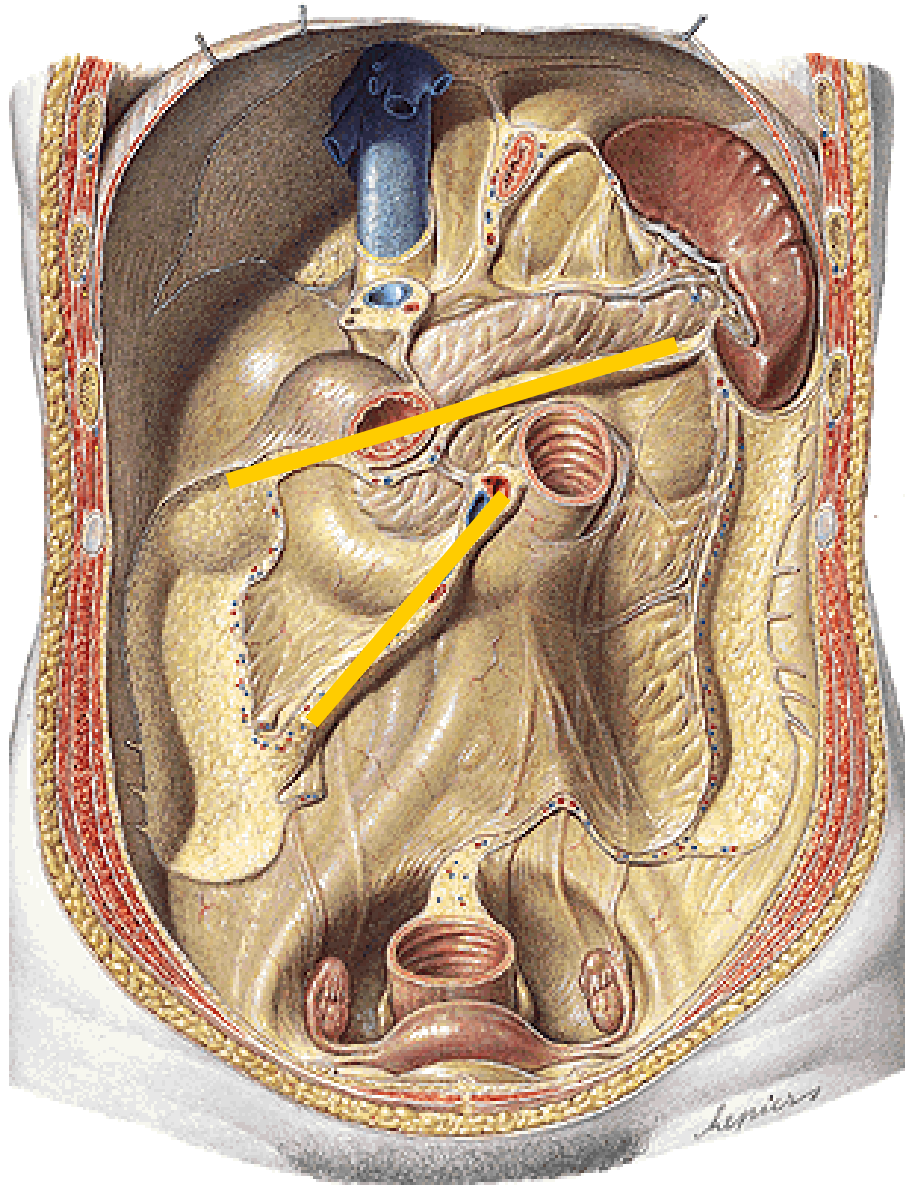
1. Parietal peritoneum

Mesenteria

connection of the wall with organs (vessels+ nerves)

2. Visceral peritoneum

Cavitas peritonealis



Pars supramesocolica
above mesocolon transversum

Liver, gallbladder, stomach,
spleen, part of the pancreas and
duodenum

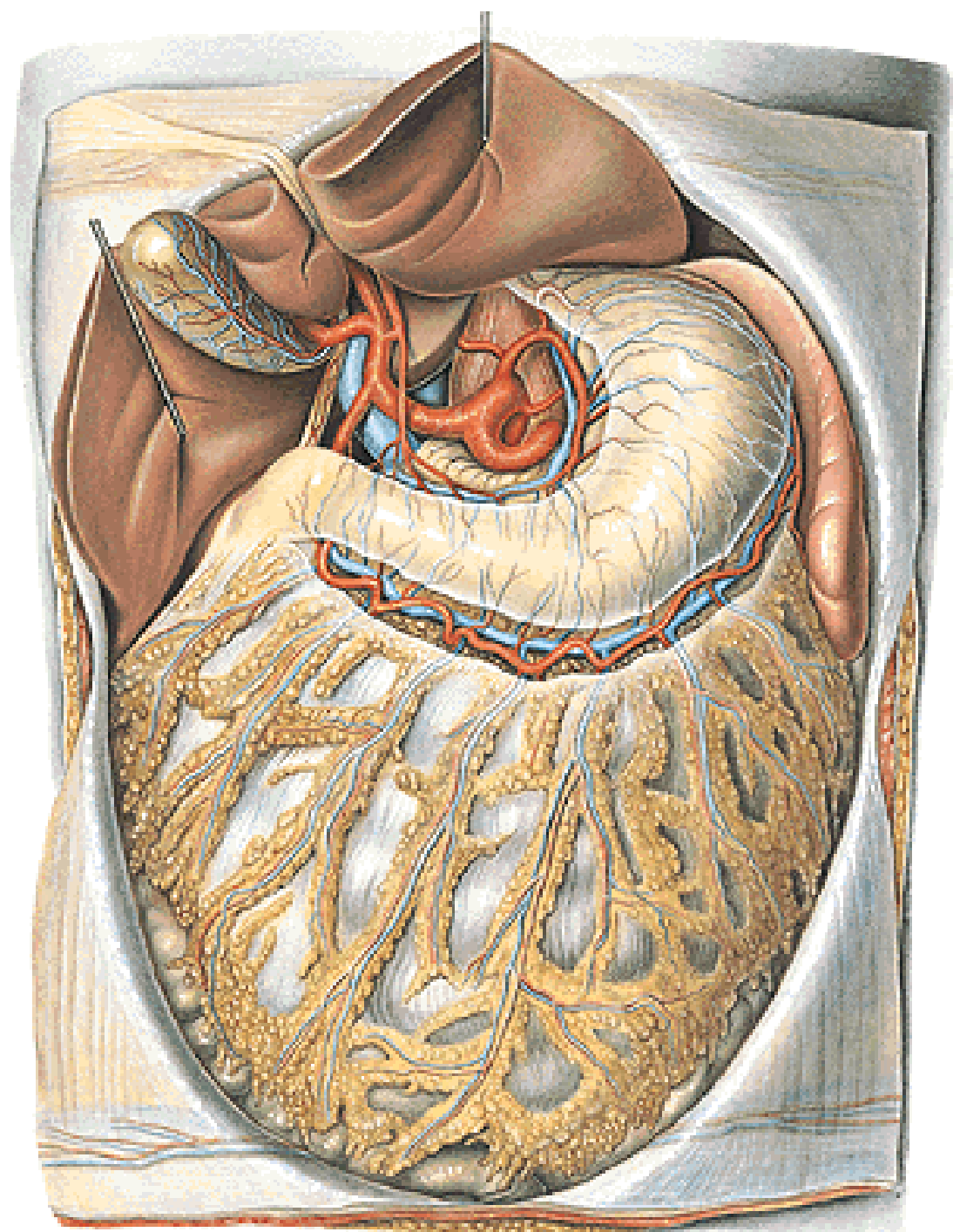
Pars inframesocolica
below mesocolon transversum

Part of the pancreas and
duodenum, intestine

Radix mesenterii devides it into:
pars dx. et sin.

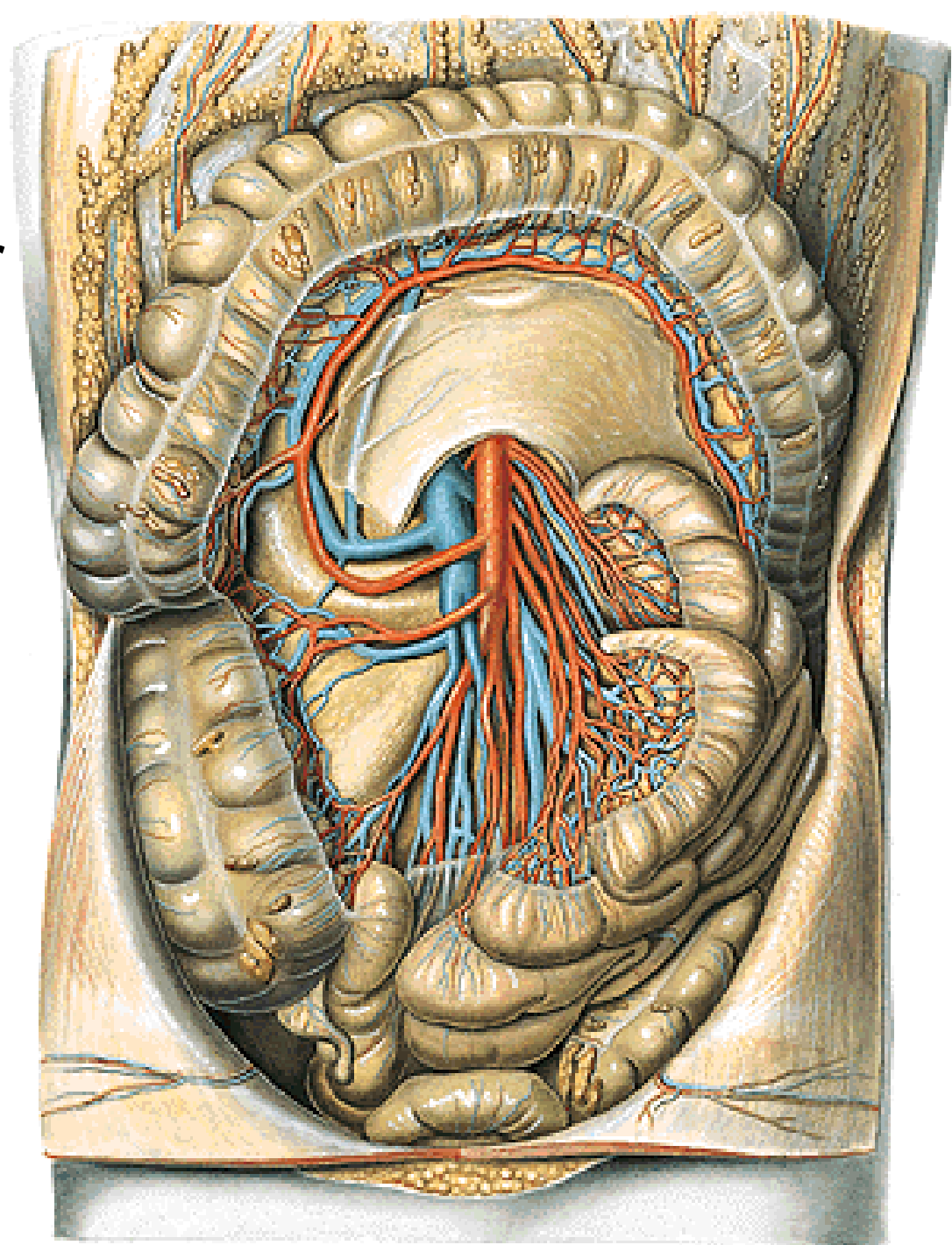
Pars supramesocolica

Truncus coeliacus



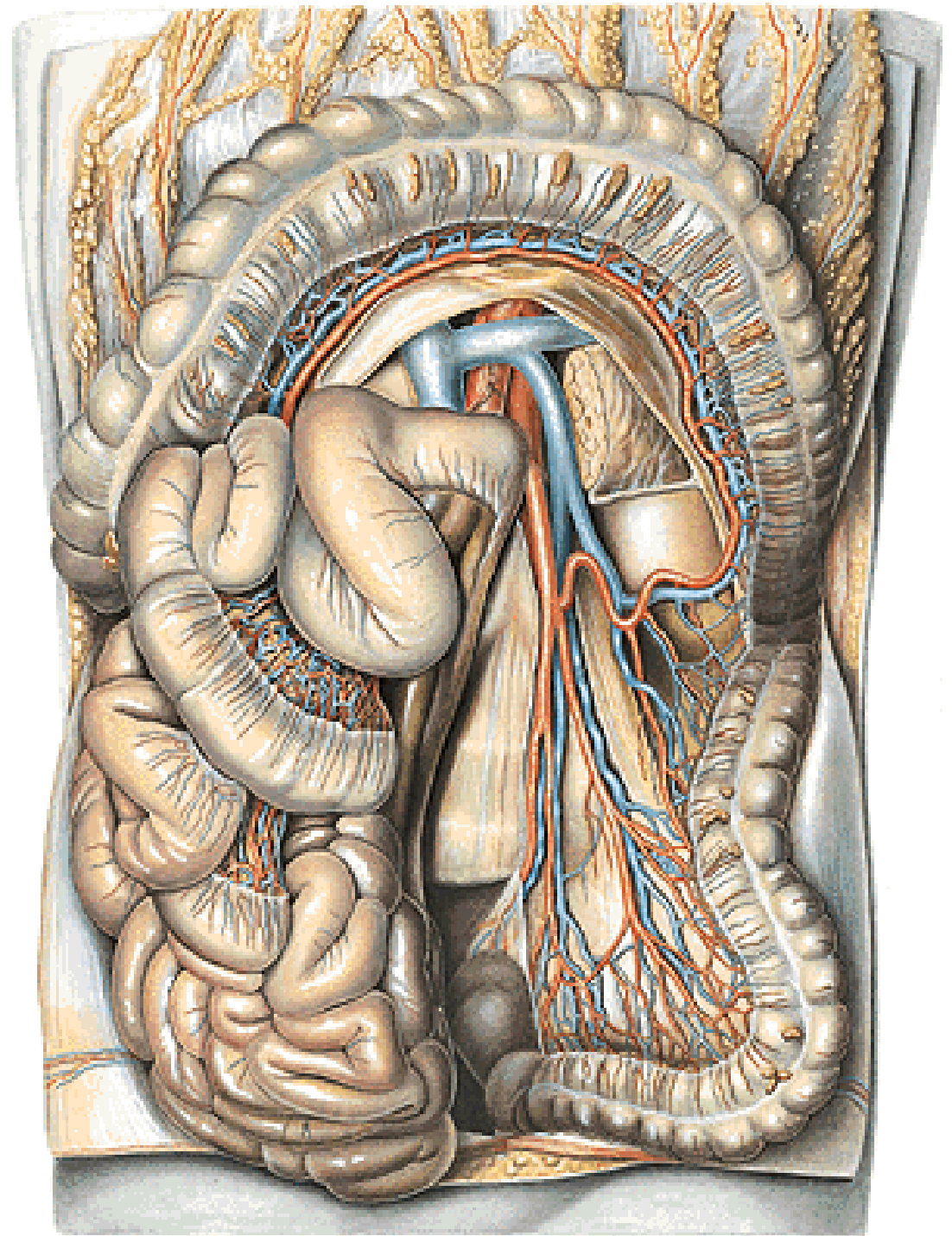
Pars inframesocolica

A. mesenterica superior



Pars inframesocolica

A. mesenterica inferior



Peritoneal folds in the supramesocolic portion

Lig. falciforme hep., lig. coronarium



Omentum minus:

lig. hepato-gastricum
hepato-duodenale

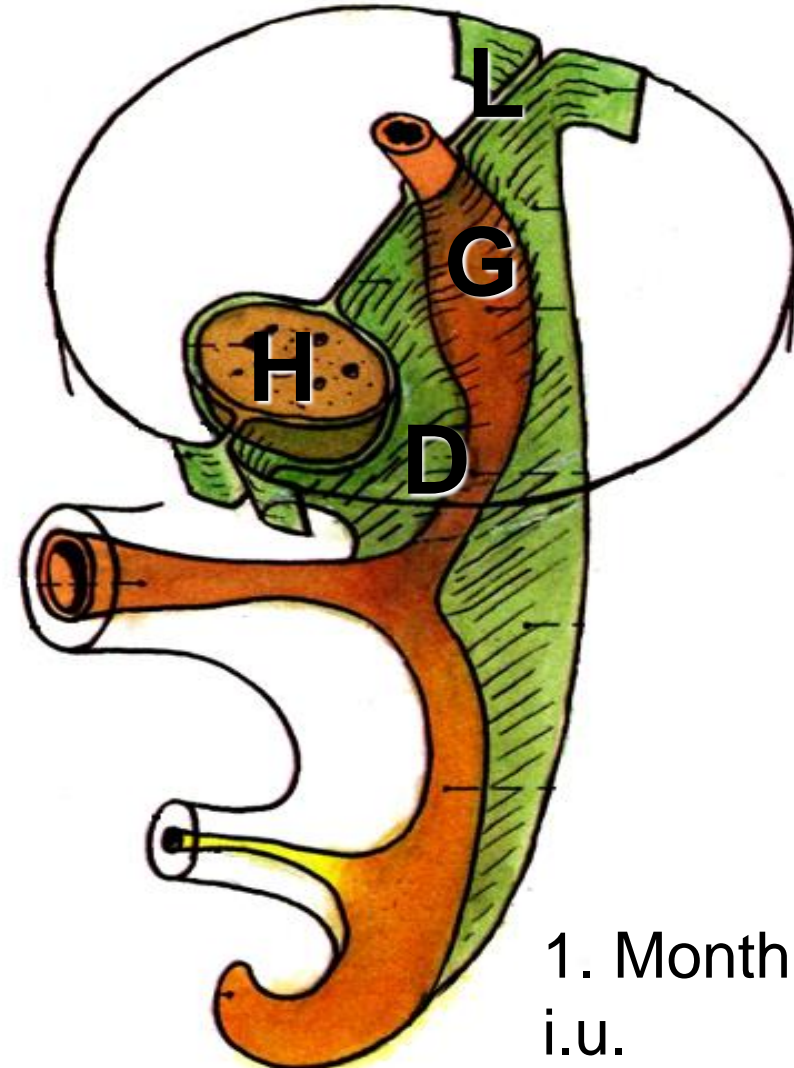
Omentum majus:

lig. gastrocolicum

Lig. gastro-lienale

Lig. phrenico-lienale

Lig. phrenico-colicum

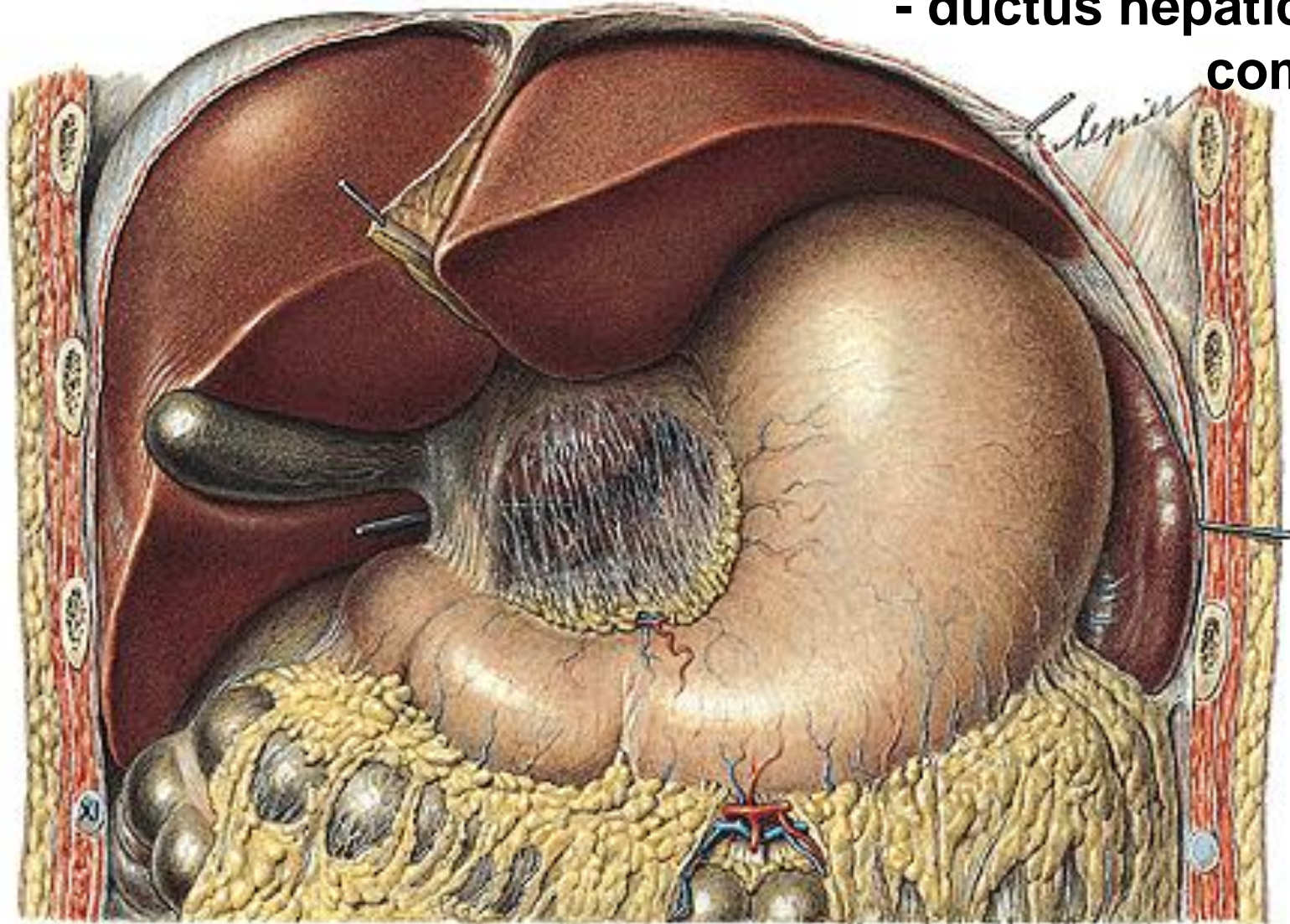


Omentum minus - lig. hepatogastricum

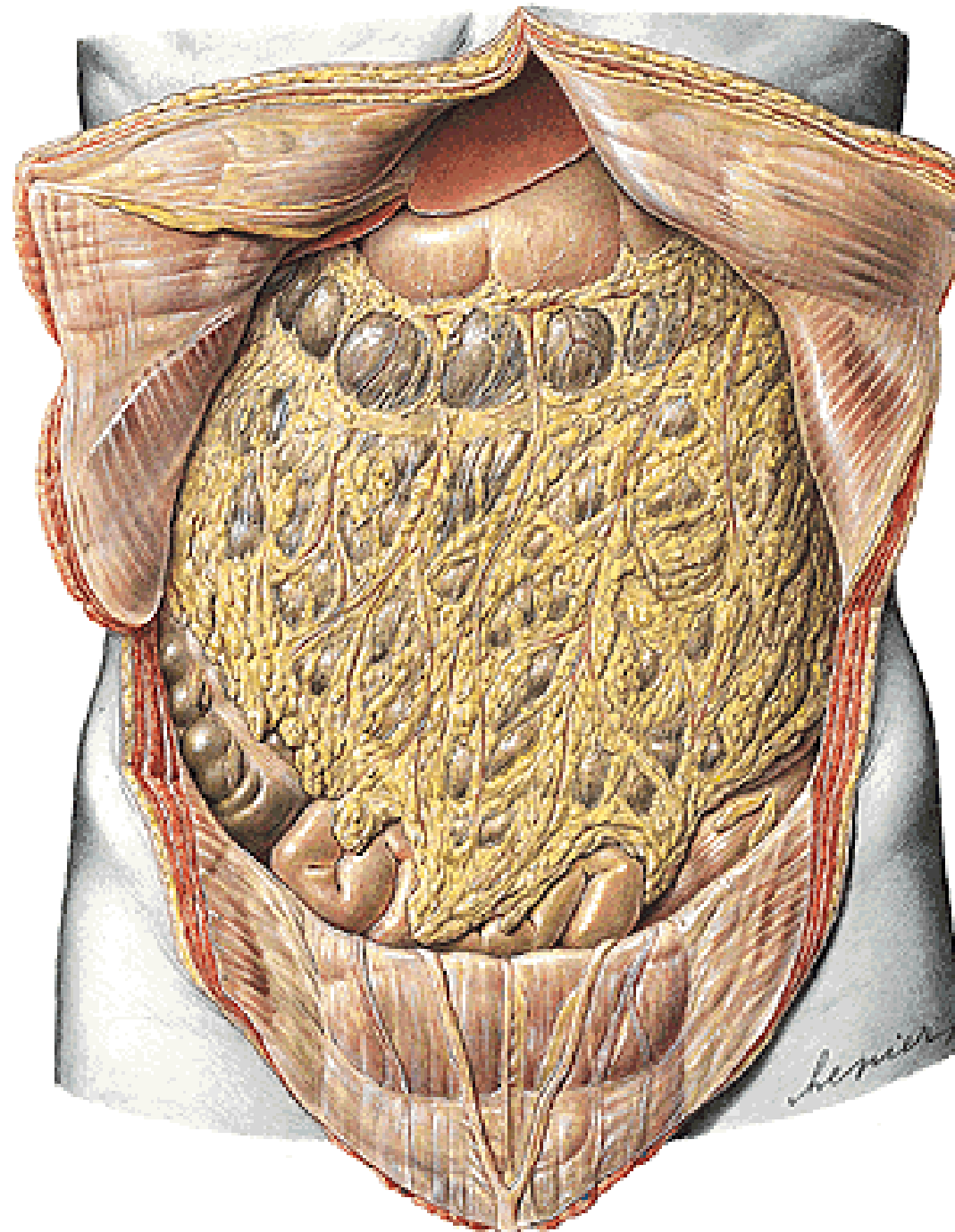
- lig. hepatoduodenale - a. hepatica propria

- v. portae

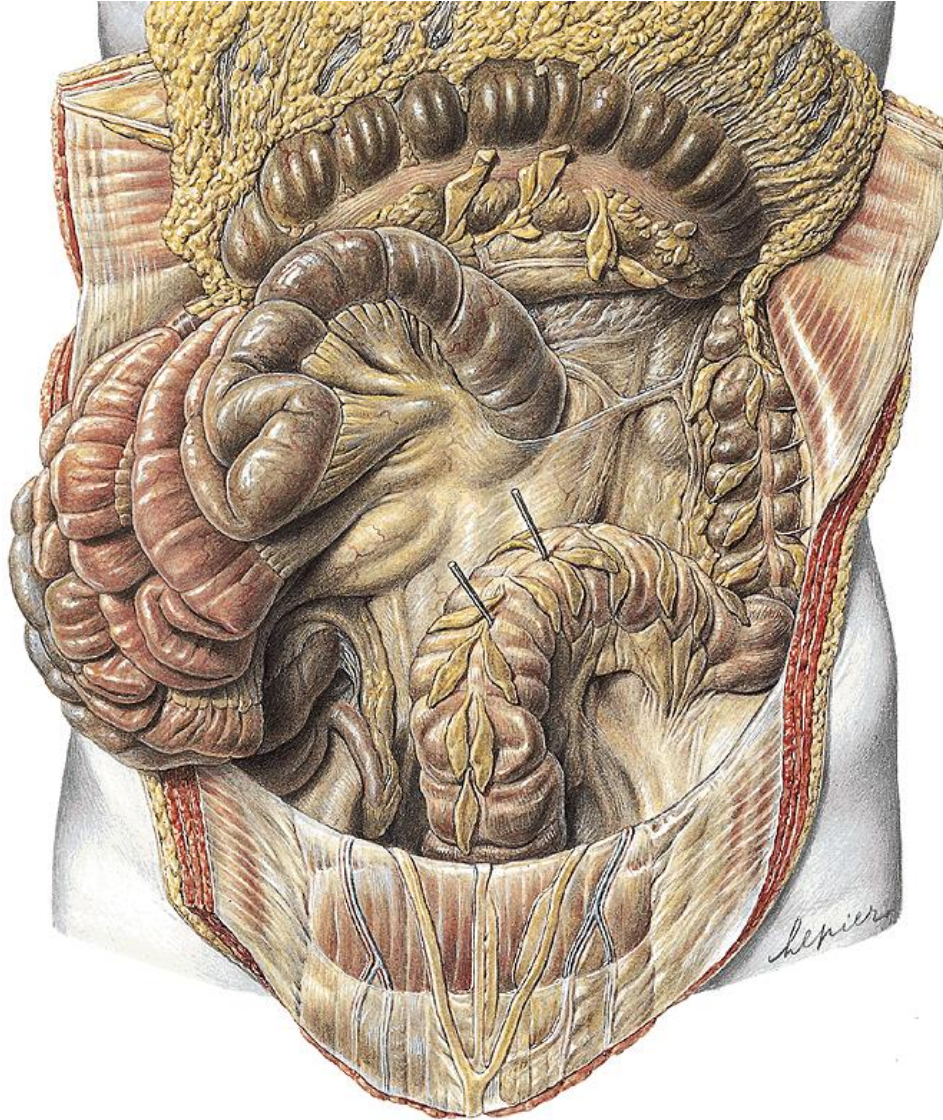
- ductus hepaticus
comm.



Omentum majus
- lig. gastrocolicum



Peritoneal folds in inframesocolic portion



Mesenterium
Mesoappendix
Mesocolon transversum
Mesosigmoideum



During development –
rotation of some organs
– fusion of the
mesenterias with
peritoneum parietale >
secondarily
retroperitoneal organs

colon ascendens
colon descendens
pancreas
duodenum

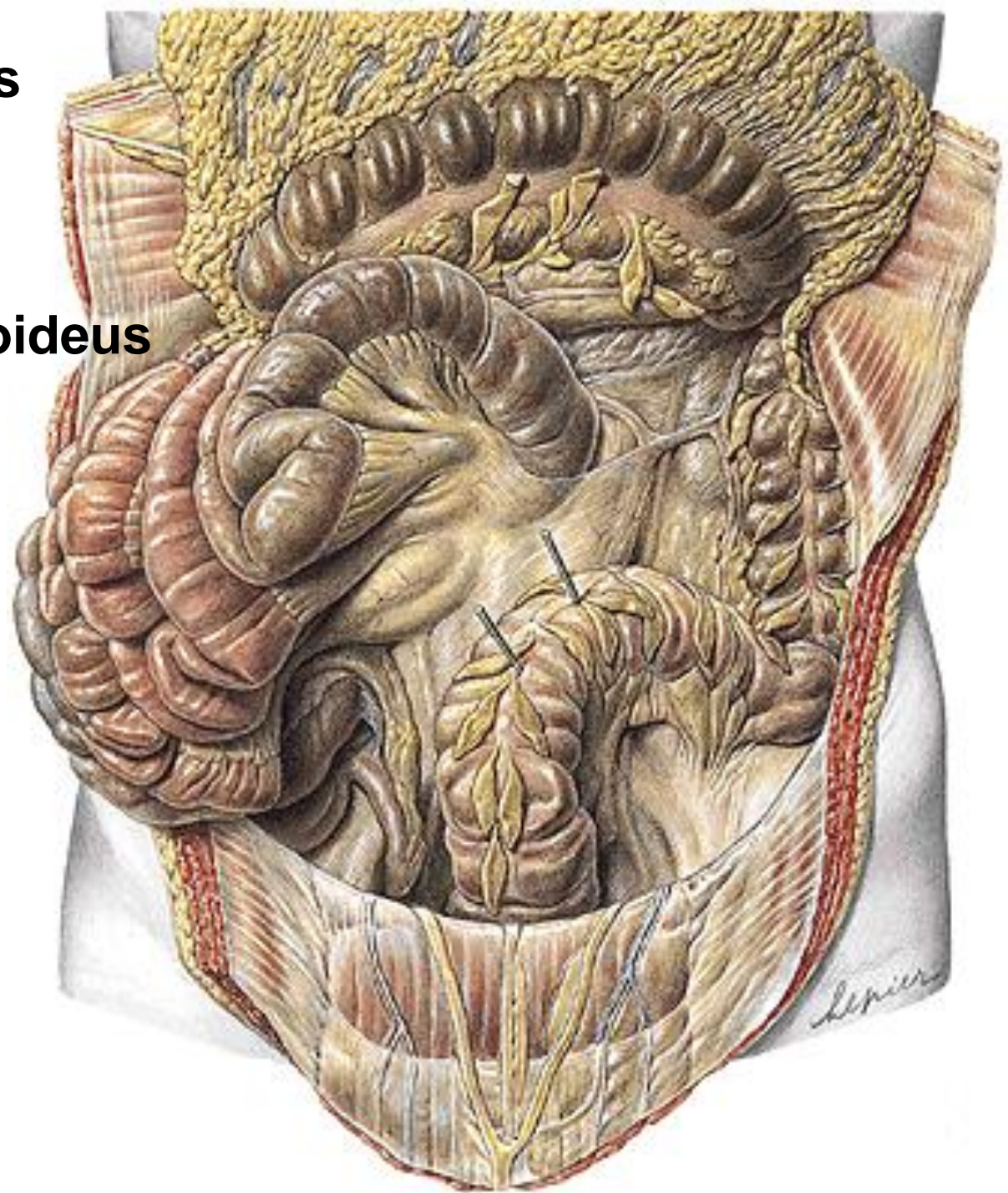


Recessus peritonei Herniae internae

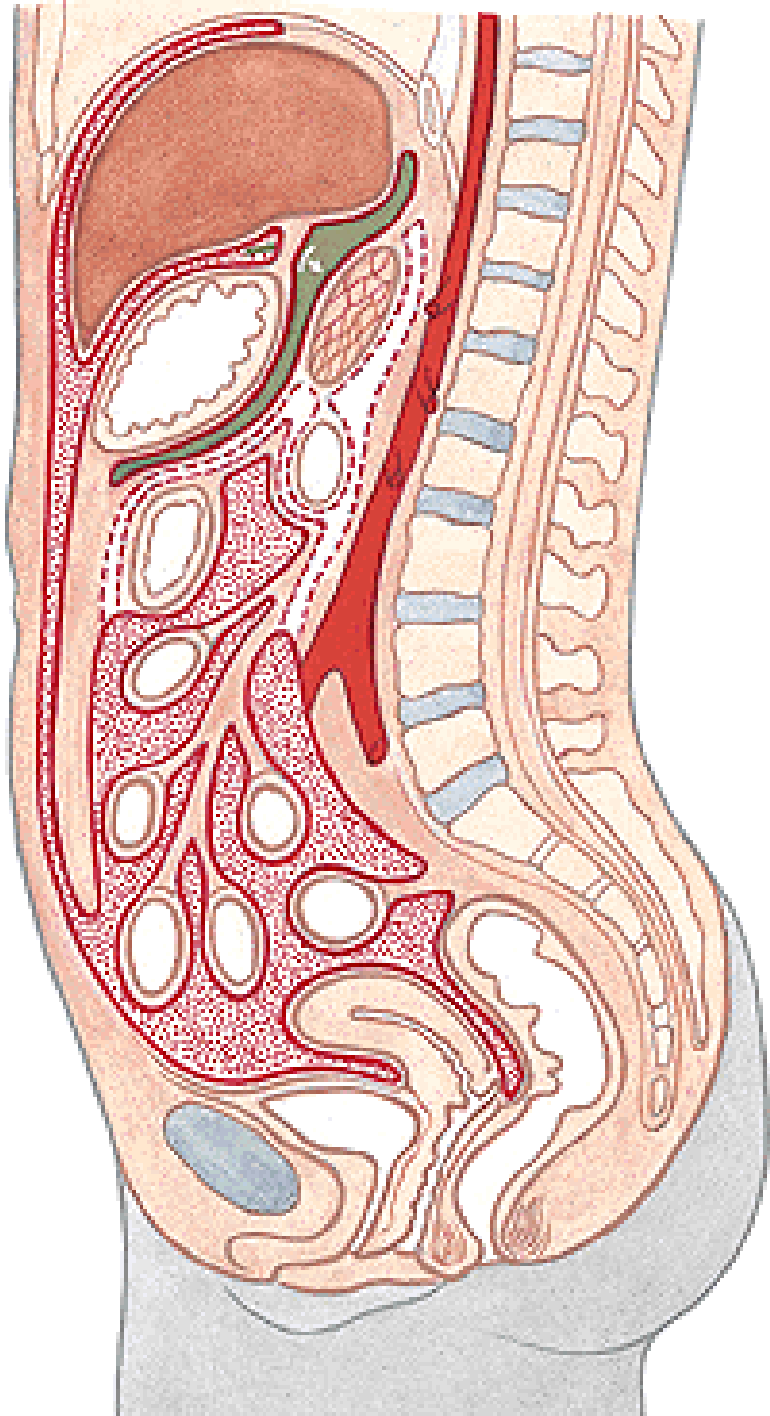
- duodenum
- ileocecum
- colon asc. and desc.
- colon sigmoideum
- bursa omentalis

**Recessus duodenalis
sup., inf., sinister,
retroduodenalis**

Recessus intersigmoideus







Bursa omentalis

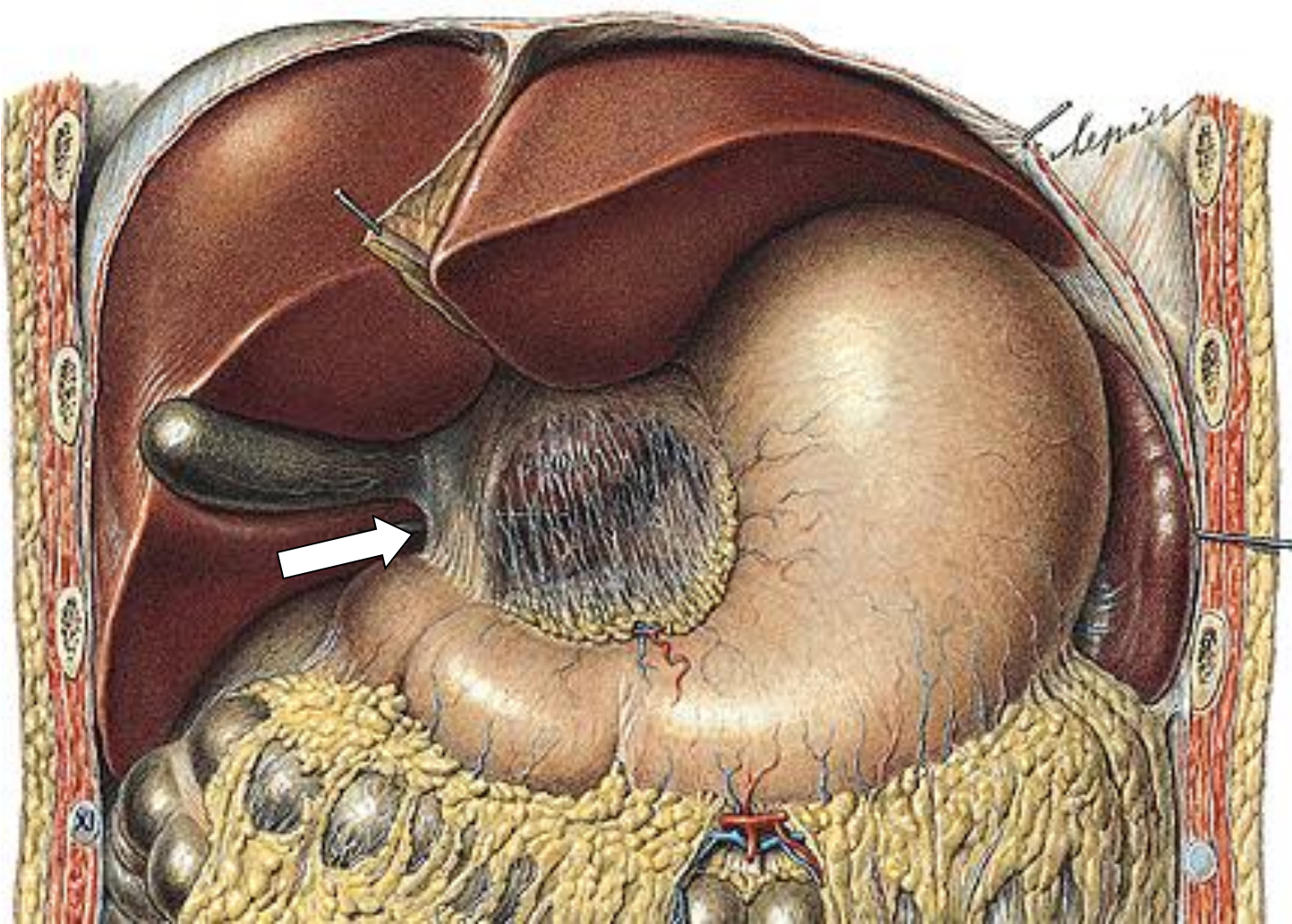
Space in supramesocolic portion of the abdominal cavity

cr: liver, diaphragmatic lobe

ca: colon transversum

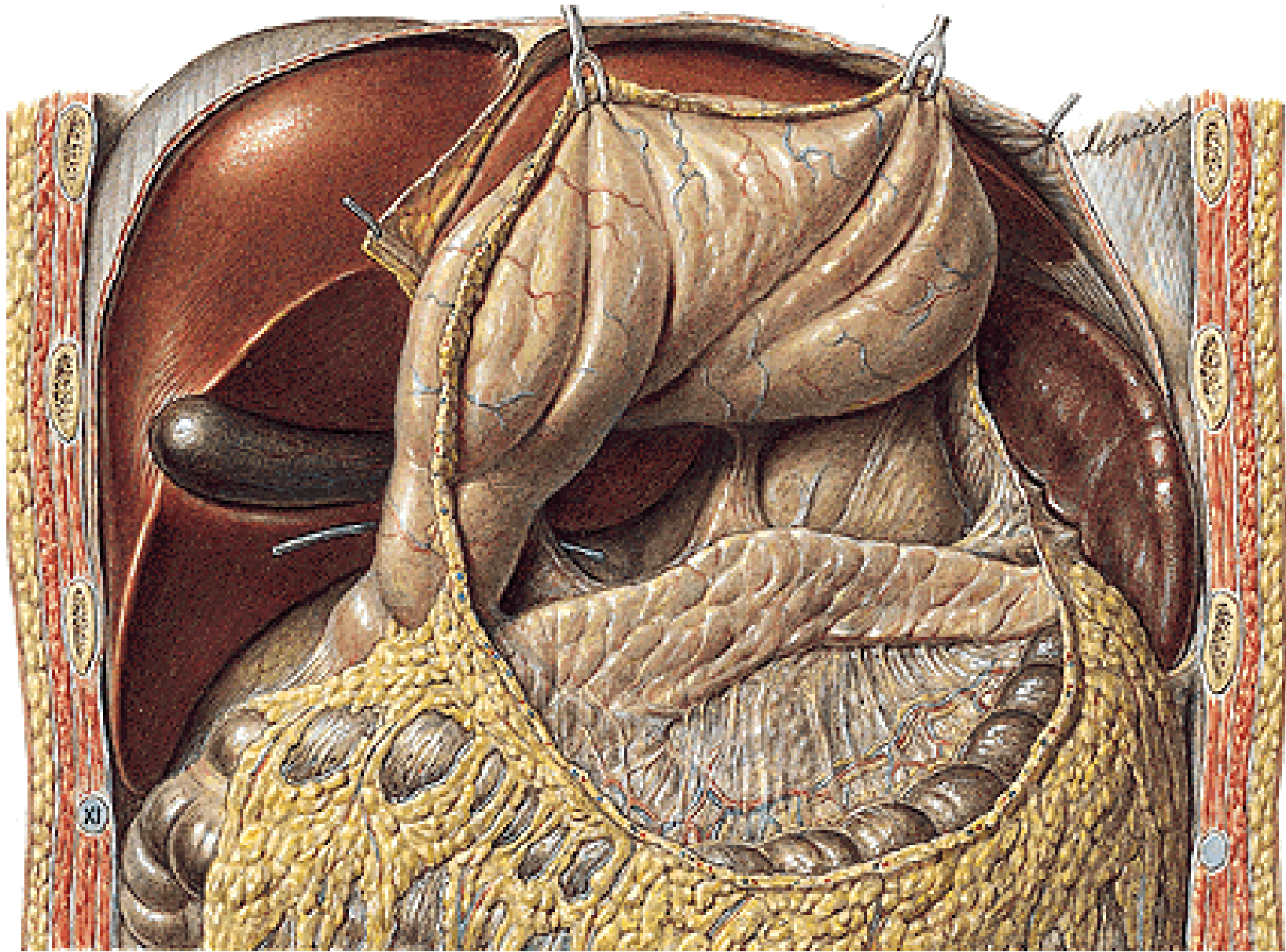
ve: stomach, omentum min.

dors: pancreas, duodenum, kidney



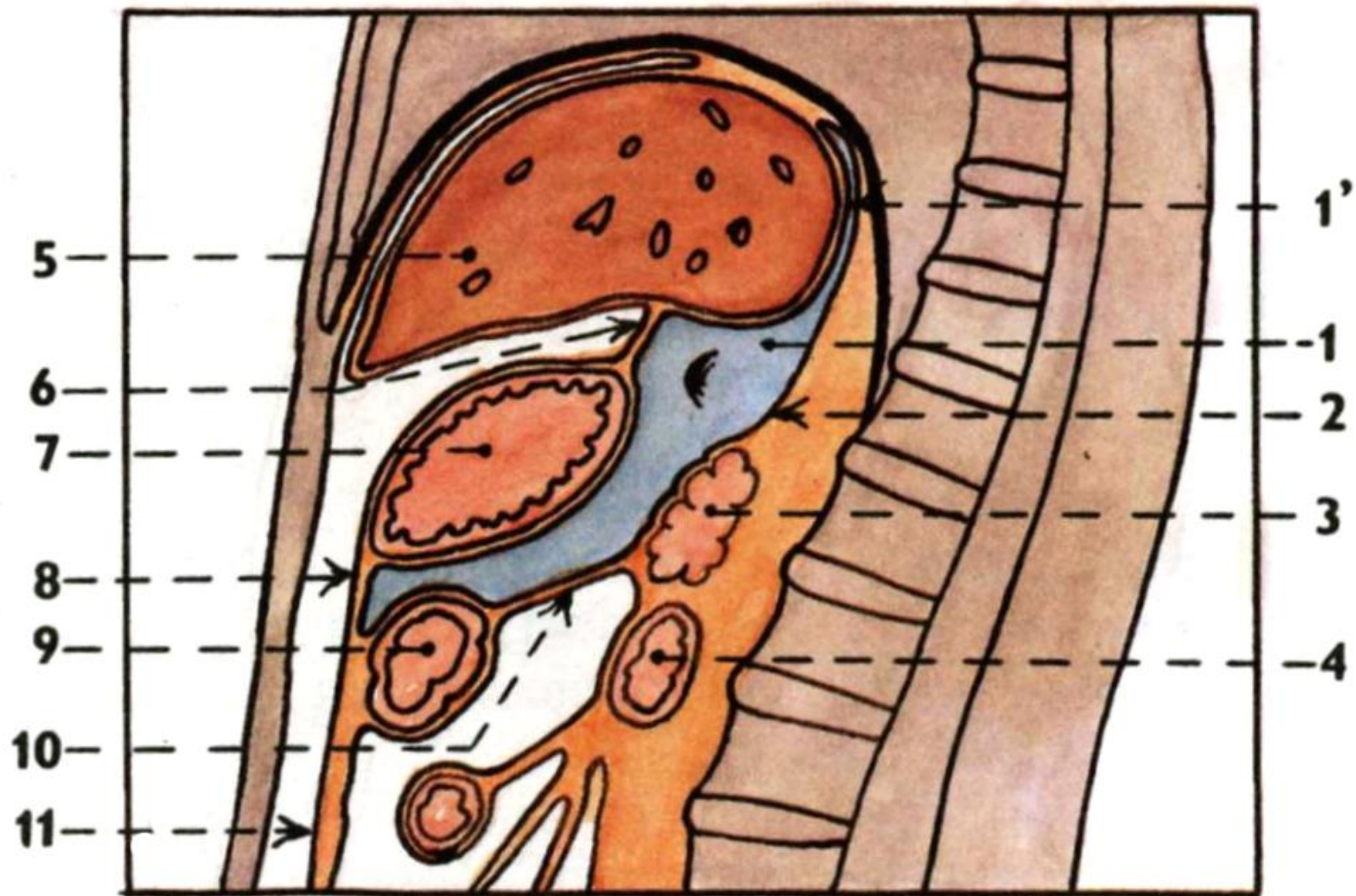
**Foramen
epiploicum
/omentale
(Winslow)**

ve: lig. hepatoduodenale
dors: lig. hepatorenale
cr: liver
ca: duodenum

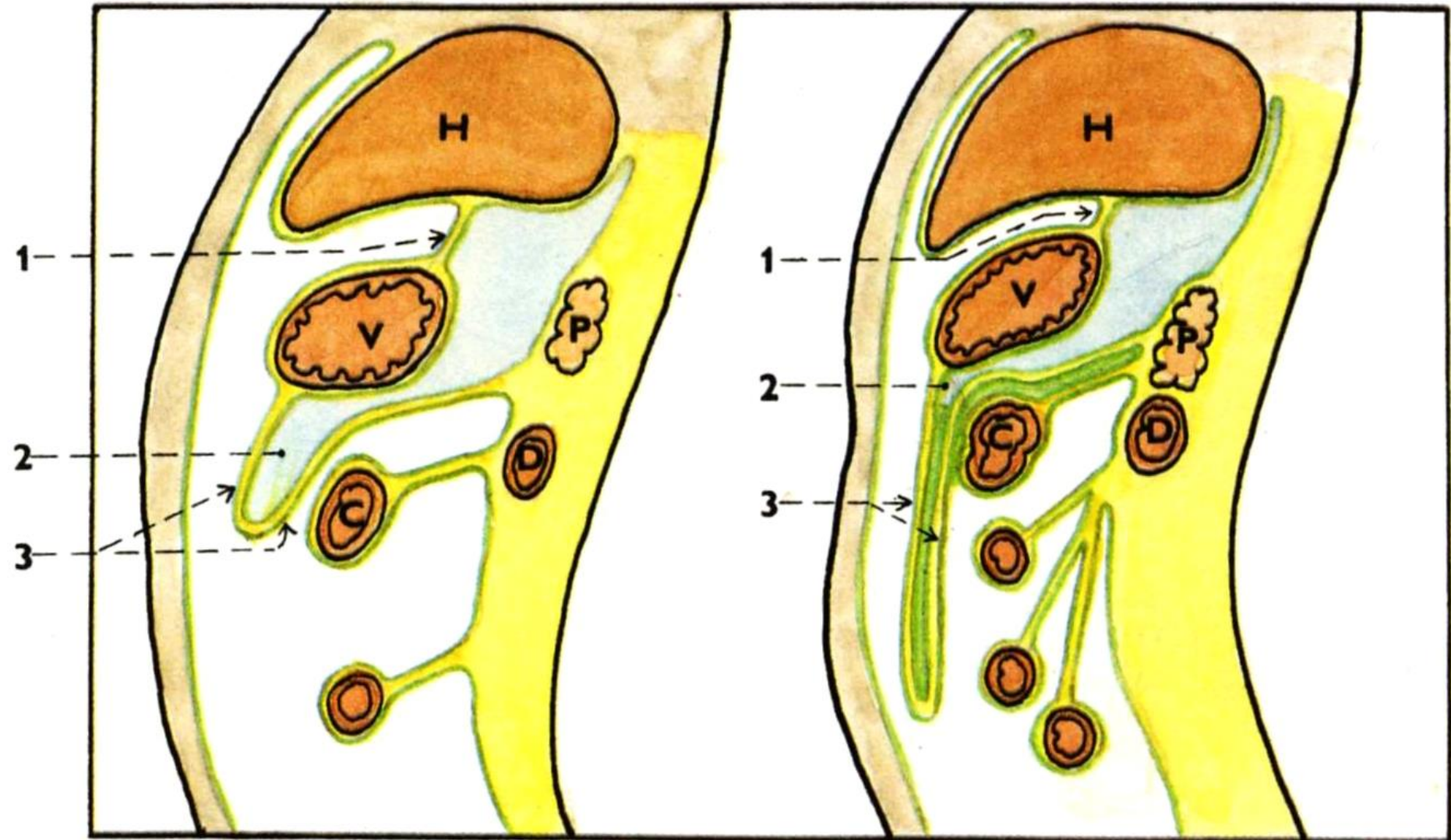


Recessus sup., splenicus, inf.

Bursa omentalis



Recessus inferior bursae omentalis



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**Čihák R: Anatomie 2 (Splanchnologia). Avicenum,
zdravotnické nakladatelství, Praha, 1988.**

Remaining illustrations, photographs, and radiographs were
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**Atlas der Anatomie des Menschen/Sobotta.
Putz,R., und Pabst,R. 20. Auflage. München:
Urban & Schwarzenberg, 1993**