

Abdomen - retroperitoneal space

extraperitoneal space	1/ retroperitoneal space 2/ preperitoneal space 3/ subperitoneal (infraperitoneal) space
retroperitoneal space	organs: suprarenal gland, kidney, renal pelvis, ureter vessels: abdominal aorta + its branches, inferior v. cava + its tributaries lymphatics: iliac and lumbar lnn., cisterna chyli nerves: lumbar plexus, sympathetic trunk and sympathetic ganglia, autonomic plexuses
abdominal aorta	course: level of Th12 - L4 vertebrae at level of iliac crest: aortic bifurcation – left and right common iliac aa. at level of terminal line: common iliac a. – external and internal iliac aa.
branches	<p>parietal branches:</p> <ul style="list-style-type: none">inferior phrenic aa. – superior suprarenal aa.lumbar aa.median sacral a. <p>visceral paired branches:</p> <ul style="list-style-type: none">middle suprarenal aa. (level of L1 vertebra)renal aa. (level of L1 vertebra) – inferior suprarenal aa.testicular / ovarian aa. (level of L2 vertebra) <p>visceral unpaired branches:</p> <ul style="list-style-type: none">1/ celiac trunk (level of Th12 vertebra)<ul style="list-style-type: none">left gastric a.<ul style="list-style-type: none">gastric brr., esophageal brr.splenic a.<ul style="list-style-type: none">pancreatic brr., splenic brr.,short gastric aa.,left gastroepiploic (gastroomental) a.<ul style="list-style-type: none">gastric brr., epiploic brr.common hepatic a.<ul style="list-style-type: none">proper hepatic a.<ul style="list-style-type: none">right gastric a.right br. – cystic a.left br.gastrooduodenal a.<ul style="list-style-type: none">superior pancreaticoduodenal a.,right gastroepiploic (gastroomental) a.<ul style="list-style-type: none">gastric brr., epiploic brr..2/ superior mesenteric a. (level of L1 vertebra)<ul style="list-style-type: none">inferior pancreaticoduodenal a. – anterior and posterior brr.jejunal aa. (1 - 2 arcades) – straight aa.ileal aa. (3 and more arcades) – straight aa.ileocolic a.: ileal br., anterior and posterior cecal aa.,<ul style="list-style-type: none">appendicular a., colic br.right colic a.middle colic a.

3/ inferior mesenteric a. (level of L3 vertebra)
left colic a.
sigmoid aa.
superior rectal a. (anastomoses with middle and inferior rectal aa.)
anastomosis magna (Riolani, Halleri) on left colic flexure
– anastomosis between middle colic a. and left colic aa.

inferior v. cava

course: level of L5 - Th8 vertebrae
parietal tributaries:
common iliac vv. (level of L5 vertebra)
lumbar vv. (level of L1 - L4 vertebrae)
inferior phrenic vv.

visceral tributaries:
renal vv. (level of L1 vertebra)
right renal v.
left renal v. – left testicular / ovarian v., left suprarenal v.
right testicular / ovarian v. (level of L2 vertebra)
right suprarenal v. (level of L1 vertebra)
hepatic vv.

portal v.

arises behind head of pancreas from:
superior mesenteric v. + splenic v.

tributaries of portal v.:
paraumbilical vv.
left gastric v. – esophageal vv.
right gastric v. – prepyloric v.

superior mesenteric v.
pancreaticoduodenal vv., pancreatic vv.,
right gastroepiploic v.,
jejunal vv., ileal vv.,
ileocolic v. – appendicular v.,
right colic v., middle colic v.
splenic v. – pancreatic vv., short gastric vv.,
left gastroepiploic v.
inferior mesenteric v. – left colic v., sigmoid vv.,
superior rectal v.

lymphatics

parietal lymph nodes:
1/ along aorta – left lumbar lnn. (paraaortic):
retroaortic lnn., lateroaortic lnn., preaortic lnn., interaortocaval lnn.
– to left lumbar trunk
2/ along inferior v. cava – right lumbar lnn. (paracaval):
precaval lnn., laterocaval lnn., retrocaval lnn.
– to right lumbar trunk
visceral lymph nodes from abdominal organs:
celiac lnn., superior mesenteric lnn., inferior mesenteric lnn.
– to intestinal trunk
cisterna chyli: right and left lumbar trunks + intestinal trunk

innervation

somatic nerves:

- subcostal nn. (level of Th12 vertebra)
- lumbar plexus (level of L1 – L4 vertebrae)
- iliohypogastric n. (level of L1 vertebra)
- ilioinguinal n. (level of L1 vertebra)

autonomic nerves:

1/ sympathetic part

- from sympathetic trunk to prevertebral ganglia
- greater splanchnic n. (from ganglia Th5 - Th9)
- lesser splanchnic n. (from ganglia Th10 - Th 11)
- least splanchnic n. (from ganglion Th 12)
- lumbar splanchnic nn.

prevertebral ganglia

- celiac ggl., superior mesenteric ggl., aorticorenale ggl., inferior mesenteric ggl.

2/ parasympathetic part

- vagus n.
- pelvic splanchnic nn. (from ganglia S2 - S4)
- intramural ganglia

3/ autonomic plexuses – aortic plexus:

- celiac plexus
- superior and inferior mesenteric plexuses
- intermesenteric plexus
- superior hypogastric plexus: right and left hypogastric nn.
- inferior hypogastric plexus

Porto-caval anastomoses

SVC – superior v. cava
IVC – inferior v. cava

1/ portal v. ← **left gastric v. – esophageal vv.** → azygos v. → SVC

2/ portal v. ← **paraumbilical vv. – abdominal subcutaneous vv.** →
→ lateral thoracic v. → SVC
→ superficial epigastric v. → IVC

3/ portal v. ← **superior rectal v. – middle rectal v.** → internal iliac v. → IVC

4/ portal v. ← inferior mesenteric v. ← left colic v. ← **lumbar vv.** → IVC

Cavo-caval anastomoses

1/ SVC ← internal thoracic v. ← **superior epigastric v. – inferior epigastric v.** →
→ external iliac v. → IVC

2/ SVC ← lateral thoracic v. ← **abdominal subcutaneous. vv.** → superficial epigastric v. →
→ IVC

3/ SVC ← azygos v. ← **ascending lumbar v.** → lumbar vv. → IVC