**Abdominal Aorta and Right External Iliac Artery**

- **Coeliac trunk T12**
- **Superior mesenteric L1**
  - Renal
  - **Inferior mesenteric L3**
  - Bifurcation L4
  - Inferior epigastric
  - Deep circumflex iliac
  - Cremasteric branch via deep inguinal ring
  - Common iliac
  - Lumbar/spinal
  - Median sacral
  - Internal iliac
  - External iliac
  - Superior pubic branch
  - Ureteric branches
  - Gonadal
  - Suprarenal branch
  - Suprarenal
  - Apical, upper, posterior, middle & lower branches of renal

**Relations of aorta**

- **Left lateral:** Sympathetic chain
- **Right lateral:** IVC, Cisterna chyli
- **Both lateral:** Azygos veins, para-aortic nodes, coeliac ganglia
- **Anterior:** Pancreas, splenic vein, left renal vein, 3rd part duodenum, mesentery, nodes, autonomic plexus, lesser sac, stomach, omentum, small bowel
- **Posterior:** T12-L4 vertebrae, left lumbar veins
PRINCIPLES OF BOWEL ARTERIAL SUPPLY

COELIAC TRUNK

DIVISIONS OF GUT

FOREGUT

Coeliac Axis

MIDGUT

Superior mesenteric

HINDGUT

Inferior mesenteric

COELIAC TRUNK

left gastric

Hepatic

Right gastric

Gastroduodenal

Superior pancreaticoduodenal

Oesophageal branches of left gastric

Short gastrics

Splenic

Left gastro-epiploic (greater curvature & omentum)

Right gastro-epiploic (greater curvature & omentum)

WATERSHED BETWEEN FOREGUT AND MIDGUT

Superior pancreaticoduodenal

2nd part of duodenum

Inferior pancreaticoduodenal
SUPERIOR & INFERIOR MESENTERIC ARTERIES

- Marginal artery
- Superior mesenteric
- Inferior mesenteric
- Left colic with superior & inferior branches
- Appendicular from posterior caecal branch of ileocolic

Note: marginal artery is weak link at junction of mid & hind gut, 2/3 along transverse colon
**Relations of IVC**

**Anterior:** Bile duct, liver, opening of lesser sac, 1st/3rd parts of duodenum, head of pancreas, small bowel, right common iliac artery, root of mesentery, right gonadal artery, portal vein

**Posterior:** Right renal artery, lumbar arteries, right crus of diaphragm, right suprarenal & its artery, bodies of L3, 4, 5 vertebrae, right psoas, right sympathetic chain, right coeliac ganglion

**Note:** NO tributaries from gut
PORTOSYSTEMIC ANASTOMOSES

1 Lower oesophagus
Portal: Oesophageal branches of left gastric veins
Systemic: Azygos veins

2 Upper anal canal
Portal: Superior rectal vein
Systemic: Middle/inferior rectal veins

3 Umbilical
Portal: Veins of ligamentum teres
Systemic: Superior/inferior epigastric veins

4 Bare area of liver
Portal: Hepatic/portal veins
Systemic: Inferior phrenic veins

5 Patent ductus venosus (rare)
Portal: Left branch of portal vein
Systemic: Inferior vena cava

6 Retroperitoneal
Portal: Colonic veins
Systemic: Body wall veins
LUMBAR PLEXUS
L1,2,3,4,5

- Subcostal (T12)
- Iliohypogastric (L1)
- Ilio-inguinal (L1)
- Lateral femoral cutaneous n passing under or through lateral margin of inguinal ligament
- Femoral n
  - (ANT DIVS L2,3,4)
  - (POST DIVS L2,3,4)

- Genitofemoral (L1,2)
- Lumbosacral trunk (L4,5)
- Obturator n
  - (ANT DIVS L2,3,4)

- T12
- L1
- L2
- L3
- L4
- L5

- Subcostal n
- Iliohypogastric n
- Ilio-inguinal n

- Lateral cutaneous n of thigh
- Ns to psoas
- N to iliacus
- Femoral n
  - (Posterior divisions of L2, 3, 4)
- Genitofemoral n
  - (Anterior divisions of L2, 3, 4)
- Obturator n