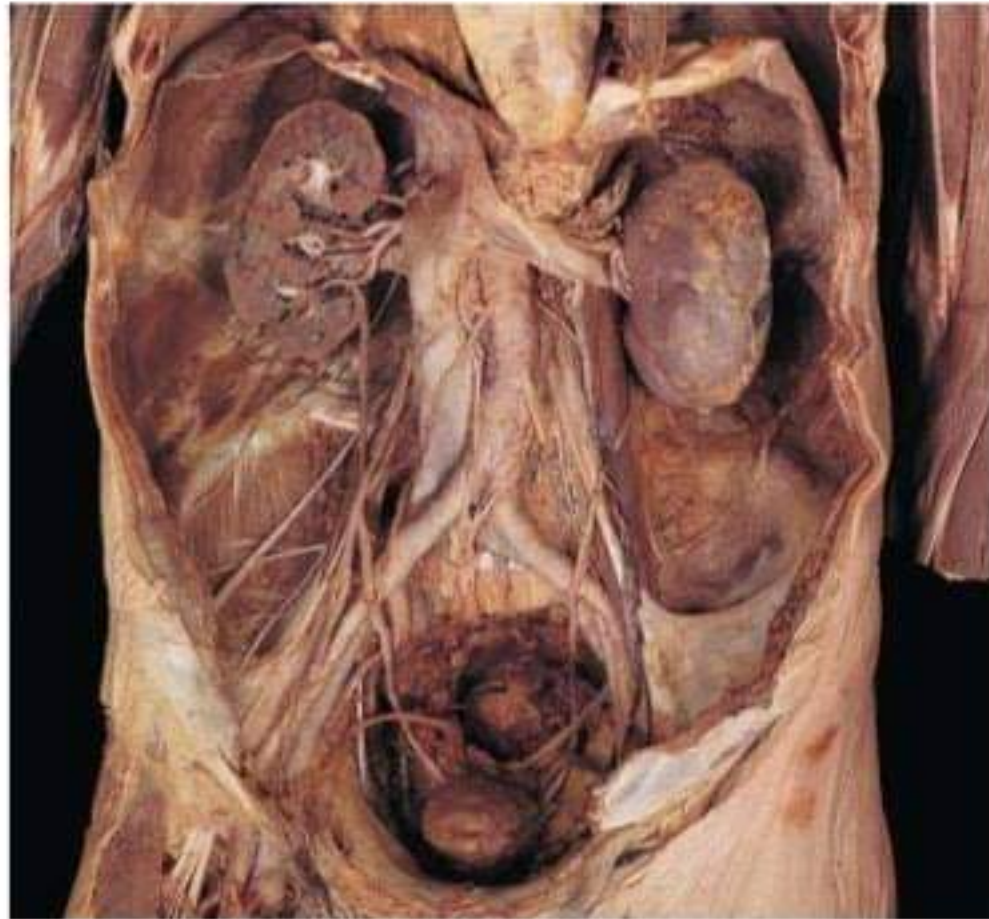
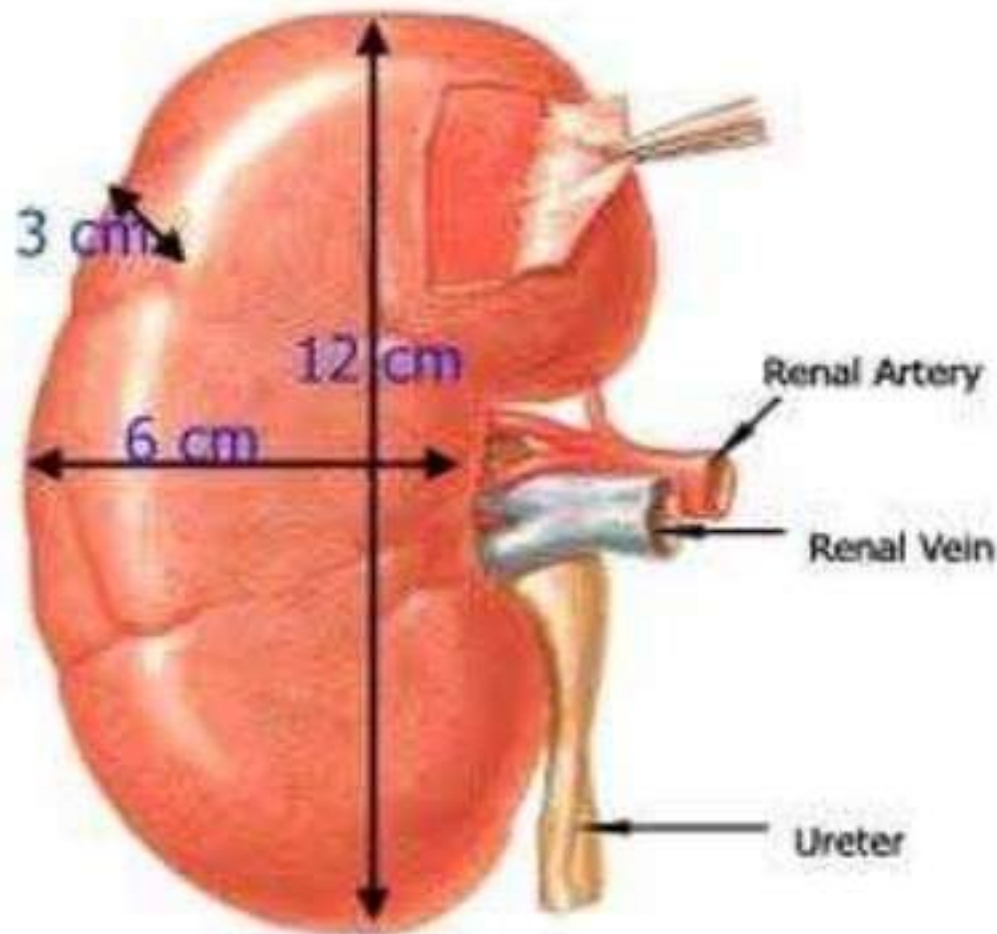
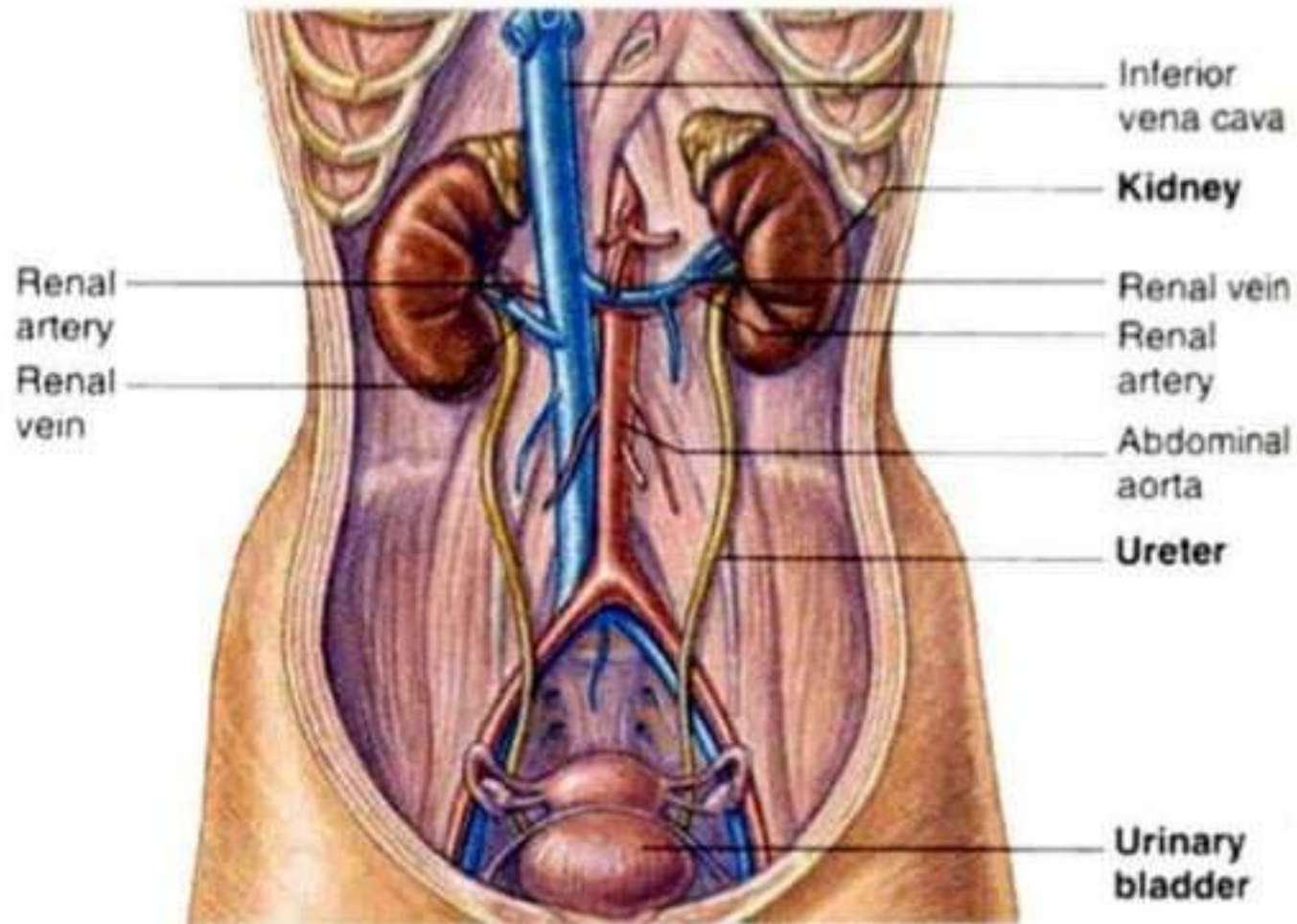




RENAL ANATOMY



- ☀ Bean shaped
- ☀ Weight
 - ✖ Females 135g
 - ✖ Males 150g
- ☀ Poles, surfaces, borders & hilum

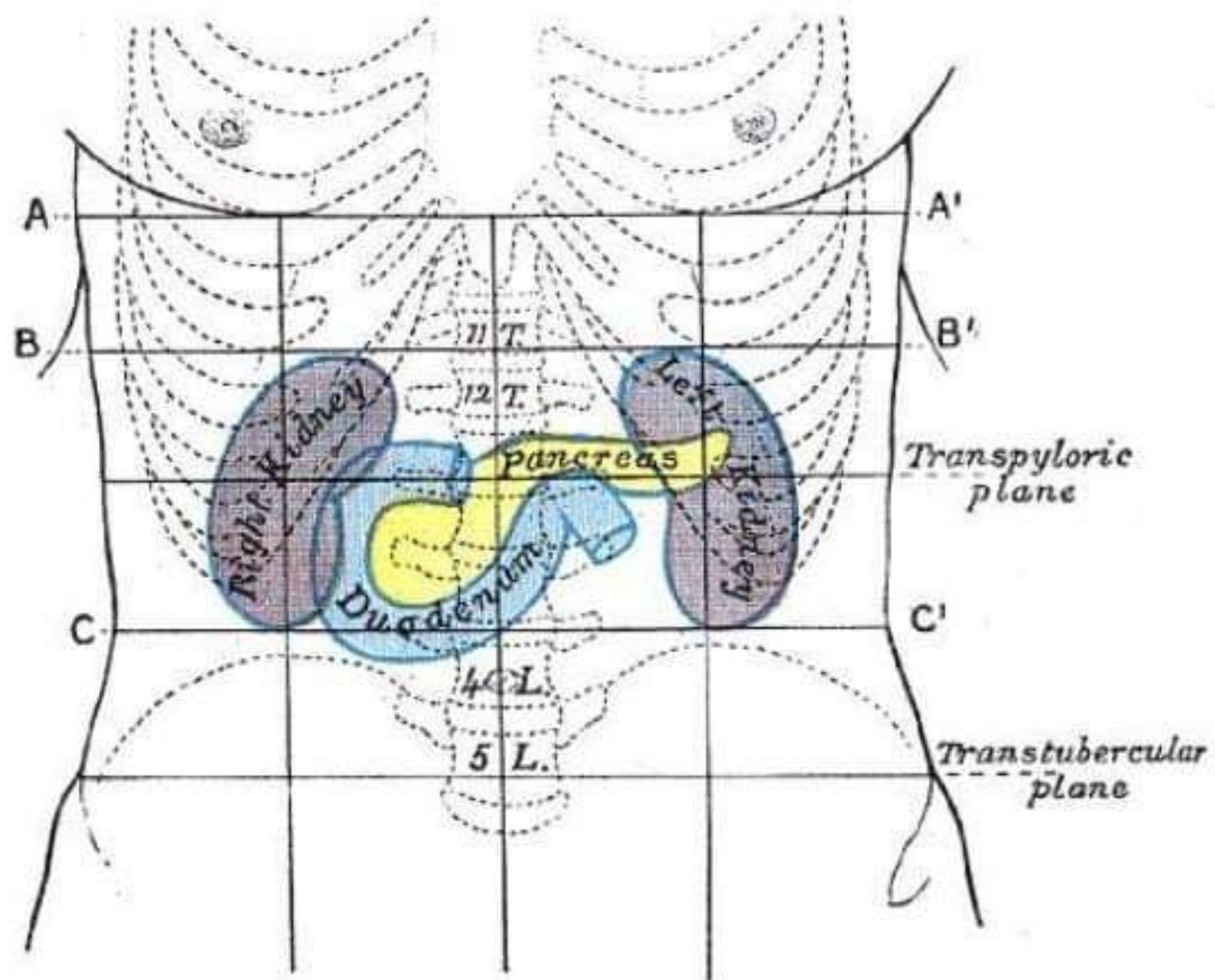


LOCATION AND LONG AXIS

SURFACE MARKING

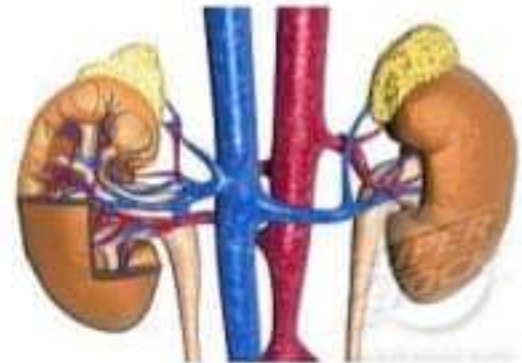
Morris parellelogram

- 2 horizontal lines-T11 & L3 spine
- 2 vertical lines- 2.5 & 9cm from median plane
- Hilum 5cm from median plane, near the level of transpyloric plane,
 - ❖ Little above it in the left
 - ❖ Little below it in the right

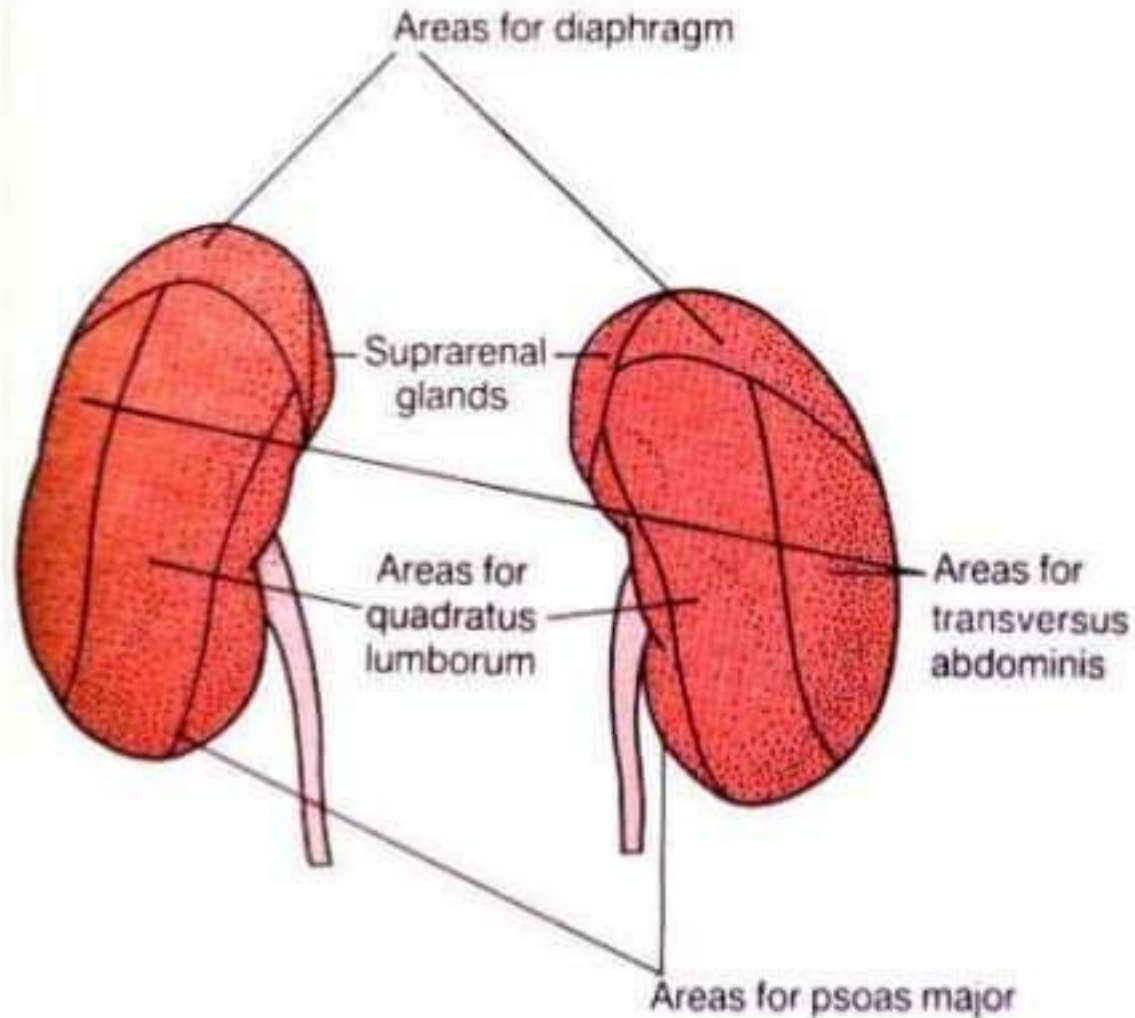


RELATIONS

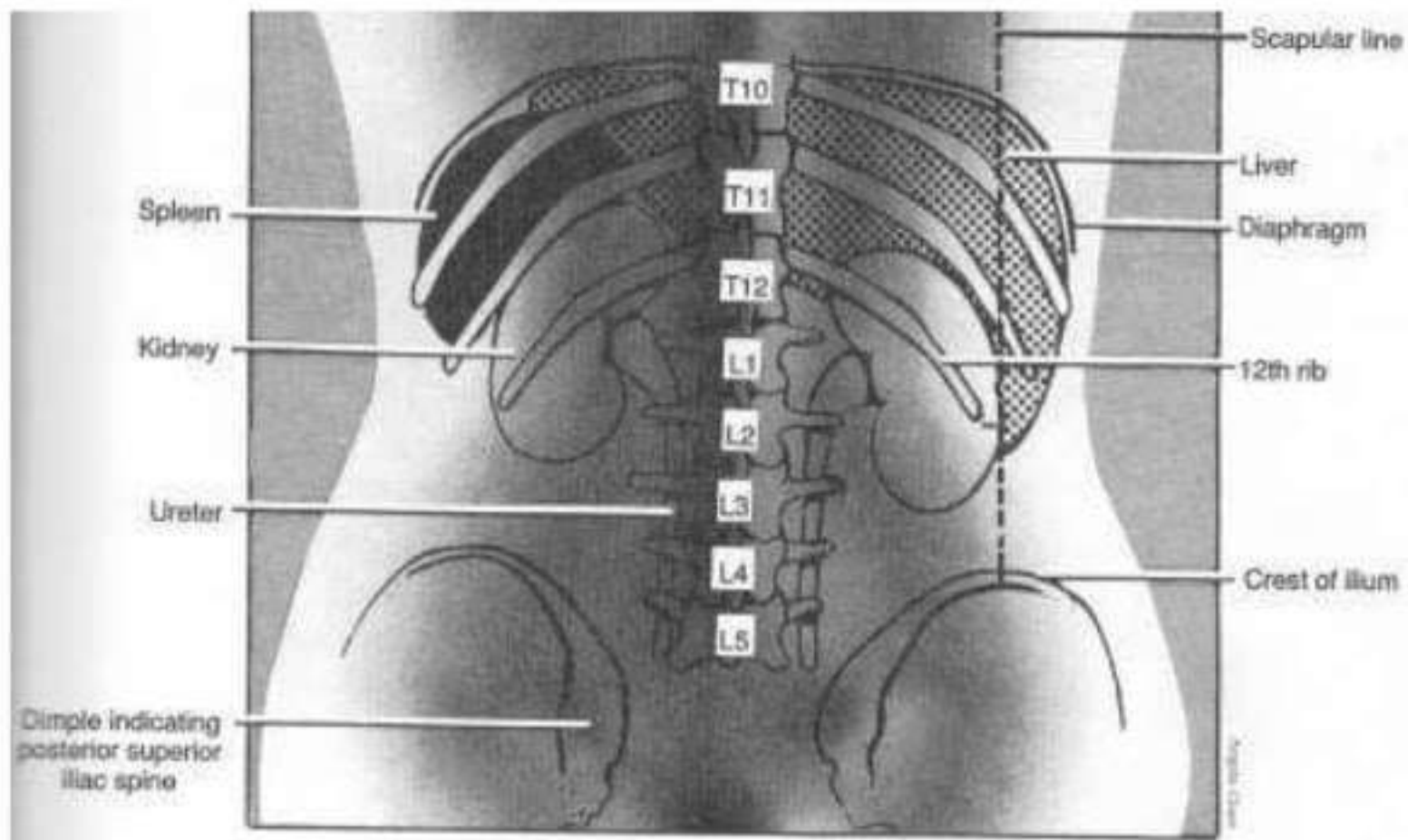
- ☀ **UPPER POLE –**
Suprarenal gland
- ☀ **LOWER POLE -2.5cm**
above iliac crest
- ☀ **MEDIAL BORDER**
 - ✕ Above hilum –adrenal gland
 - ✕ Below hilum - ureter



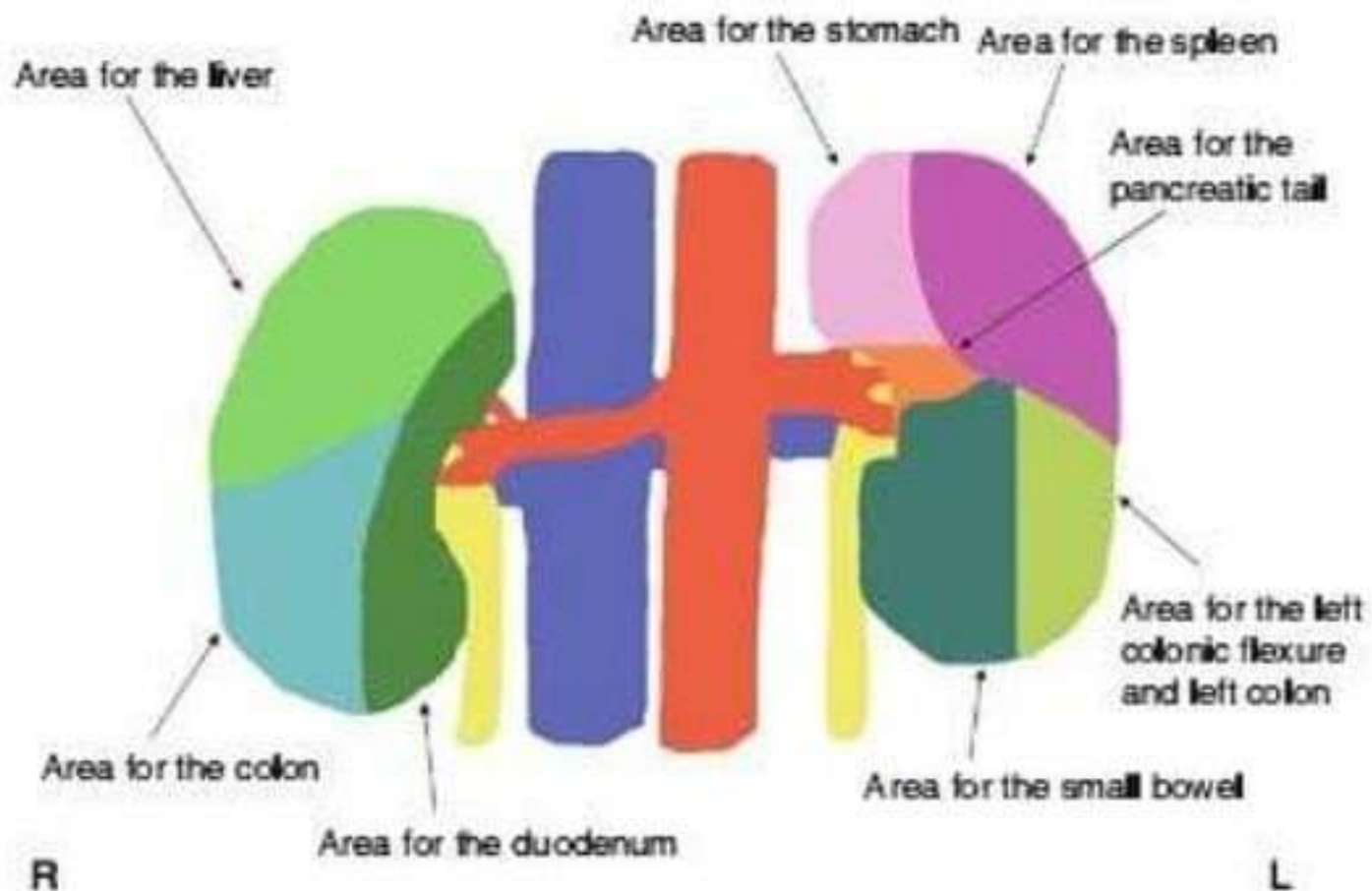
POSTERIOR



POSTERIOR



ANTERIOR



LATERAL BORDER

RIGHT-

Right lobe of liver
Hepatic flexure of
colon

LEFT

Spleen
Descending colon

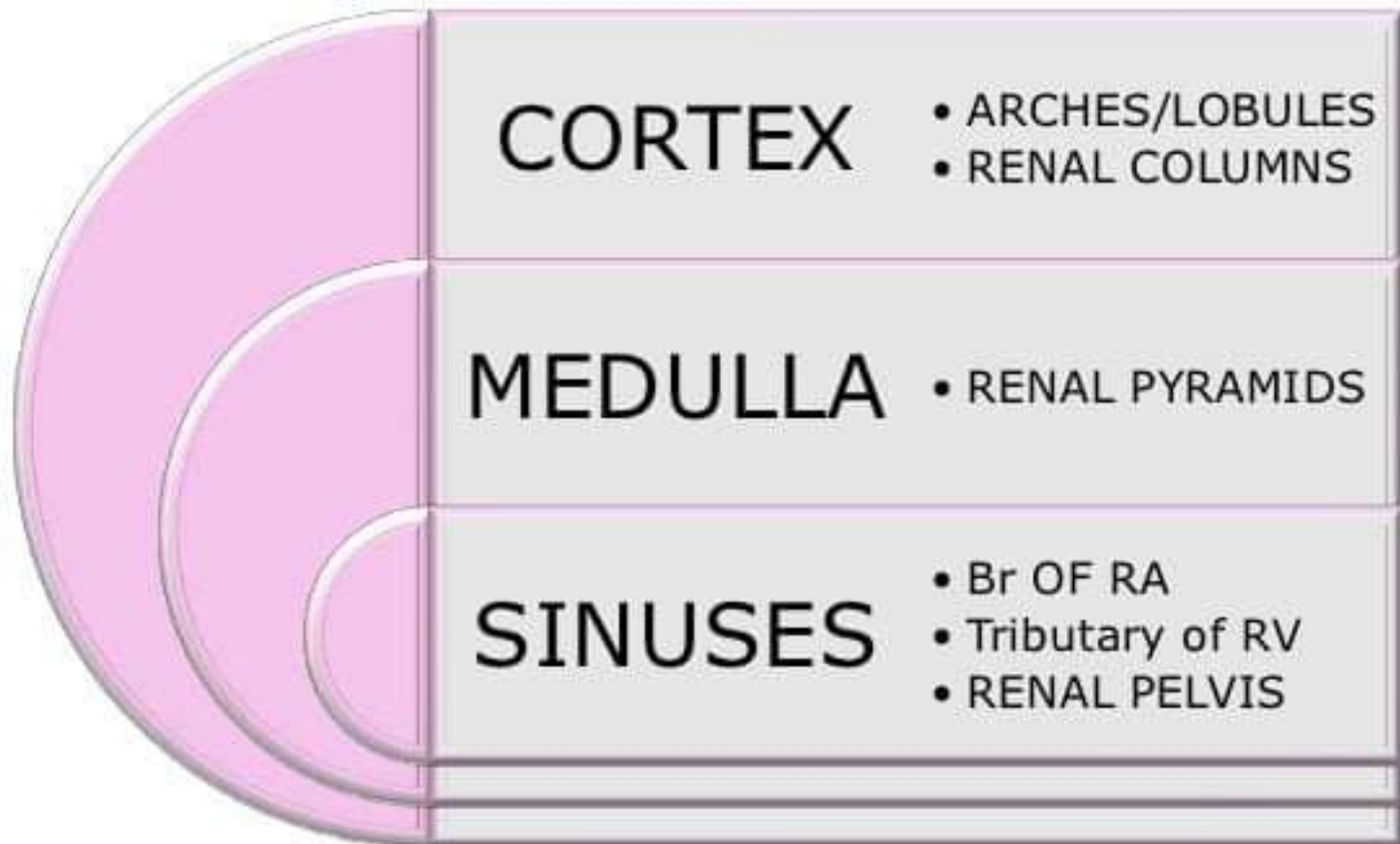


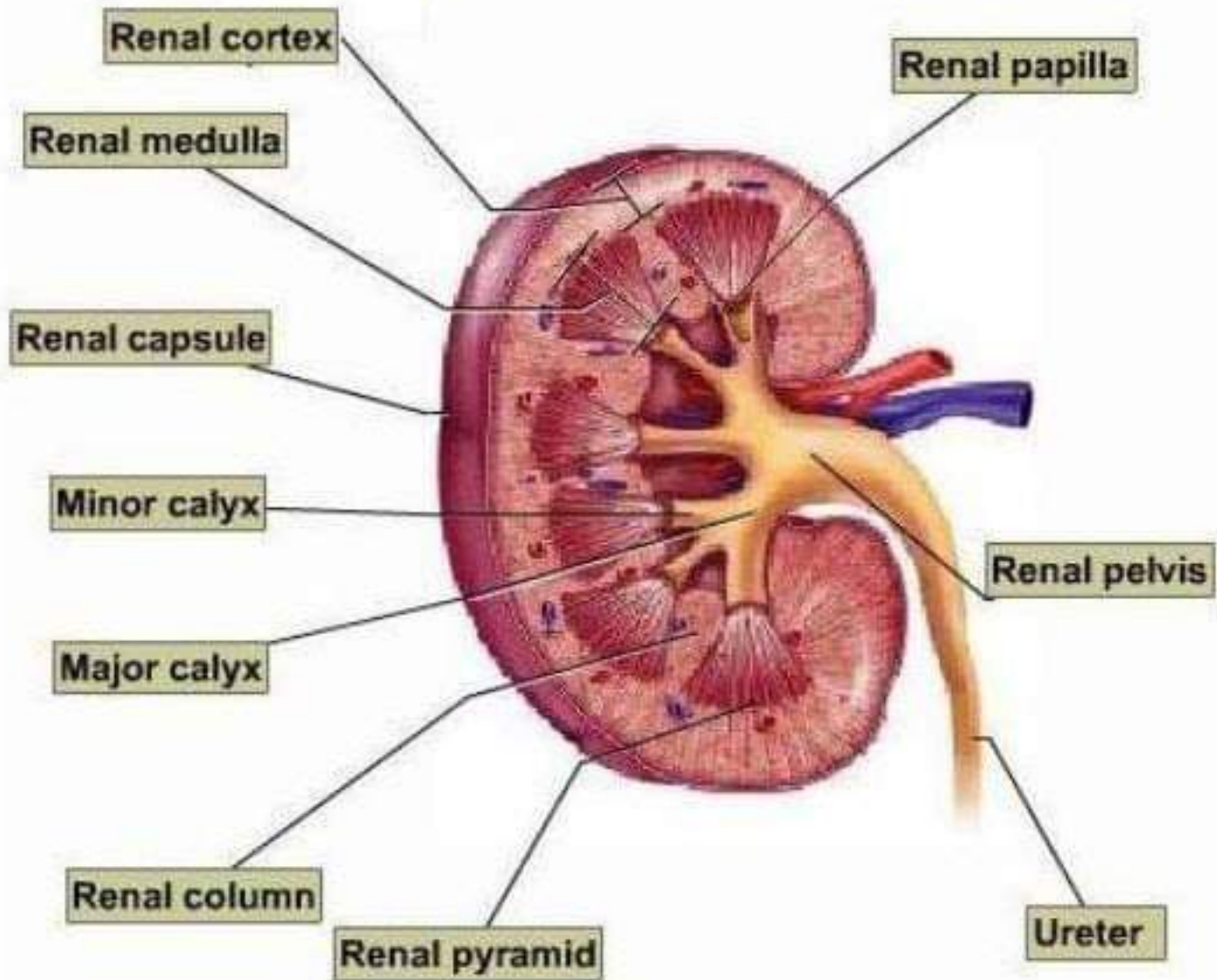
10000173 (2) © www.shutterstock.com

CAPSULES/COVERINGS

- ▣ Fibrous capsule
- ▣ Perirenal/perinephric fat
- ▣ Renal fascia
- ▣ Fascia of Gerota
- Ⓢ Anterior – fascia of Toldt
- Ⓢ Posterior – fascia of Zuckerkandl
- ▣ Pararenal/paranephric fat

STRUCTURE





HISTOLOGY

Secretory part

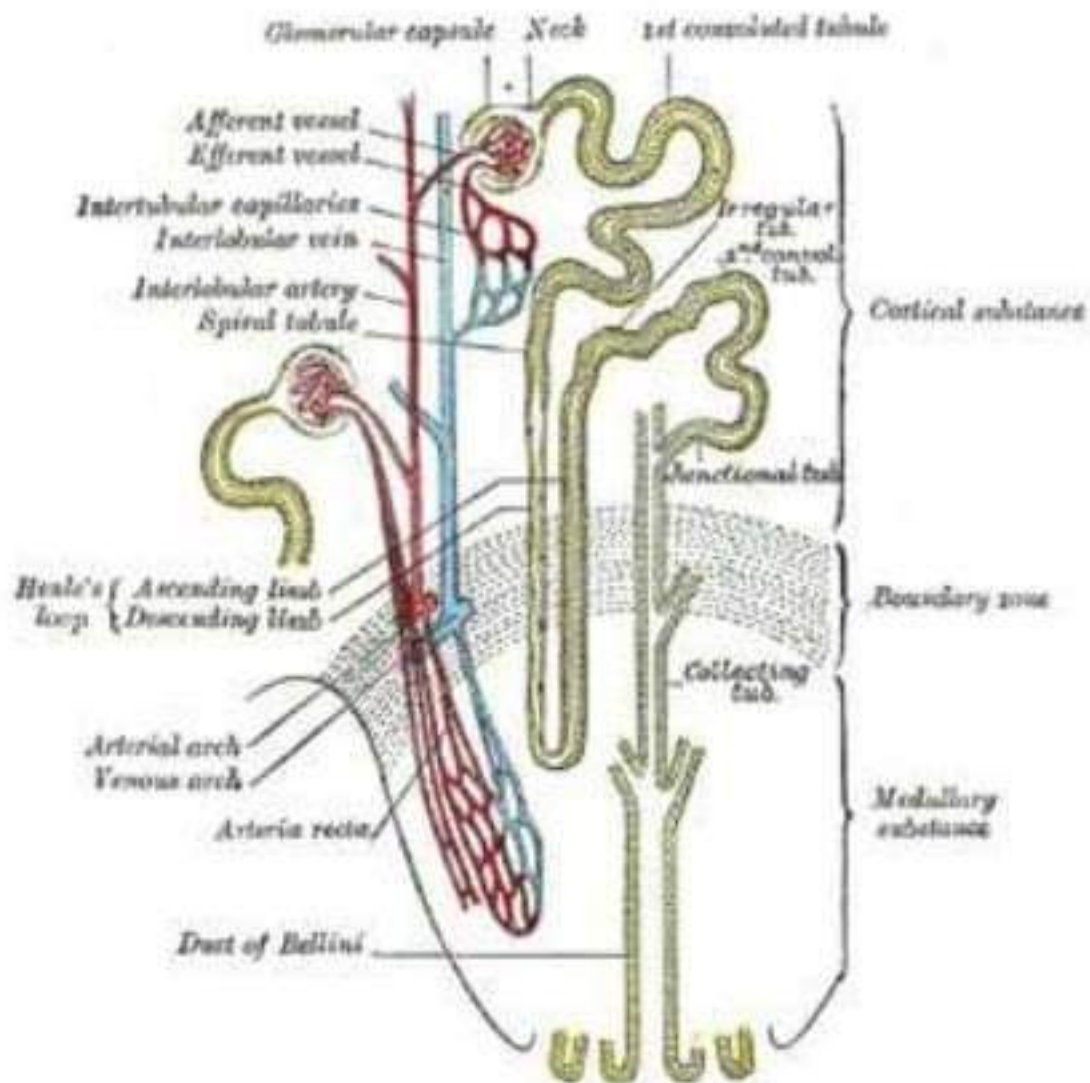
- **Corpusels**
- **Tubules**

Collecting tubule

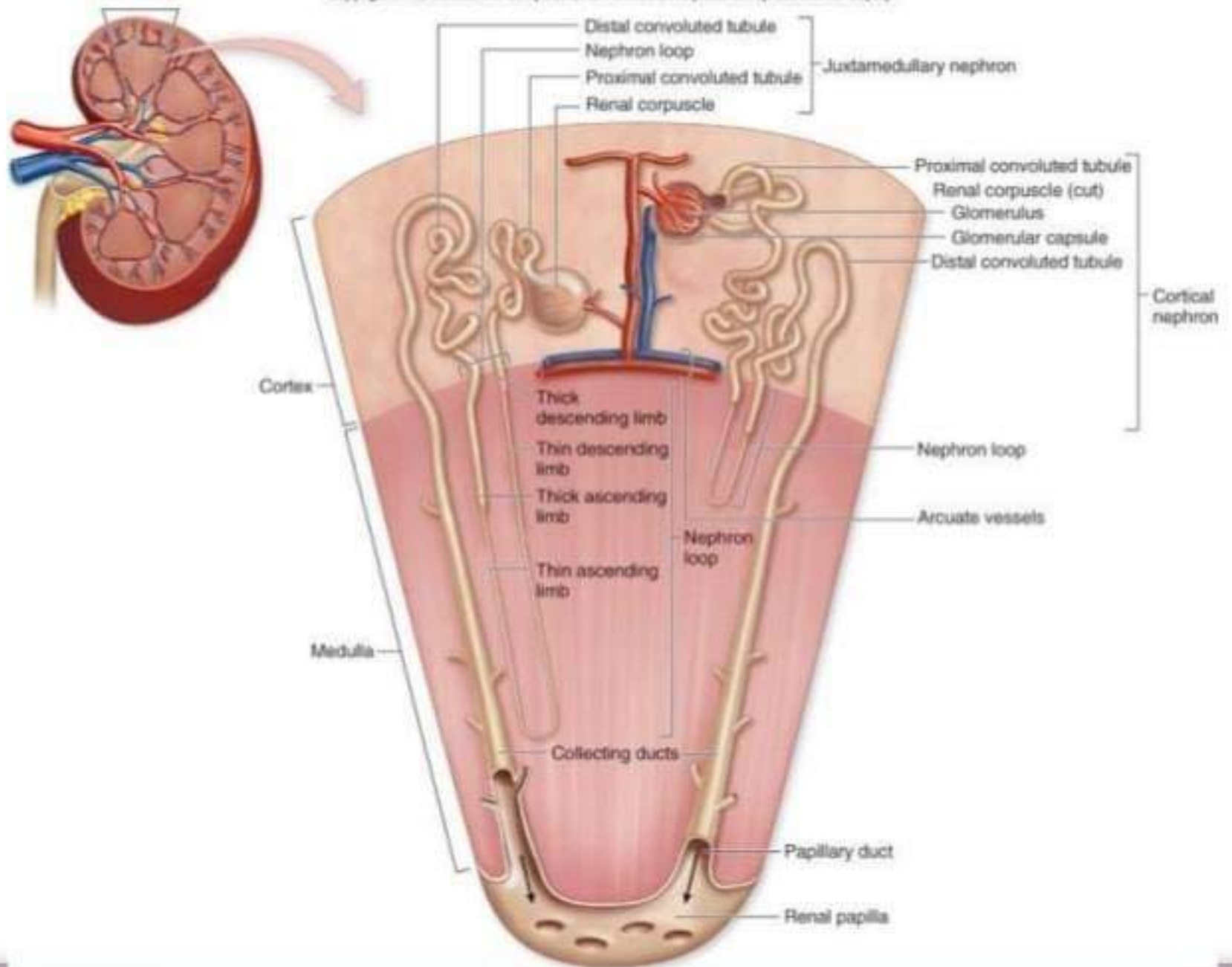
- **Ducts of bertini**

Juxtaglomerular apparatus

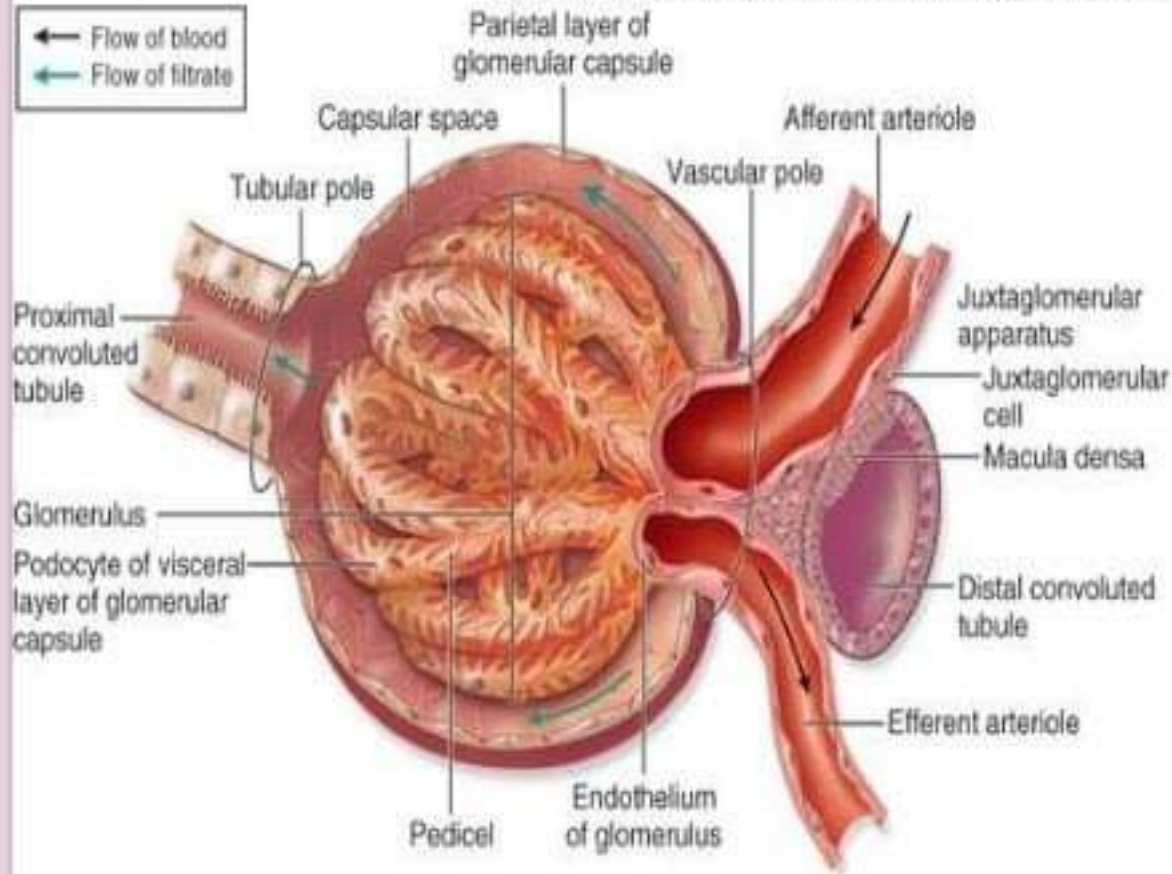
- **Macula densa**
- **JG cells**
- **Mesangial cells**



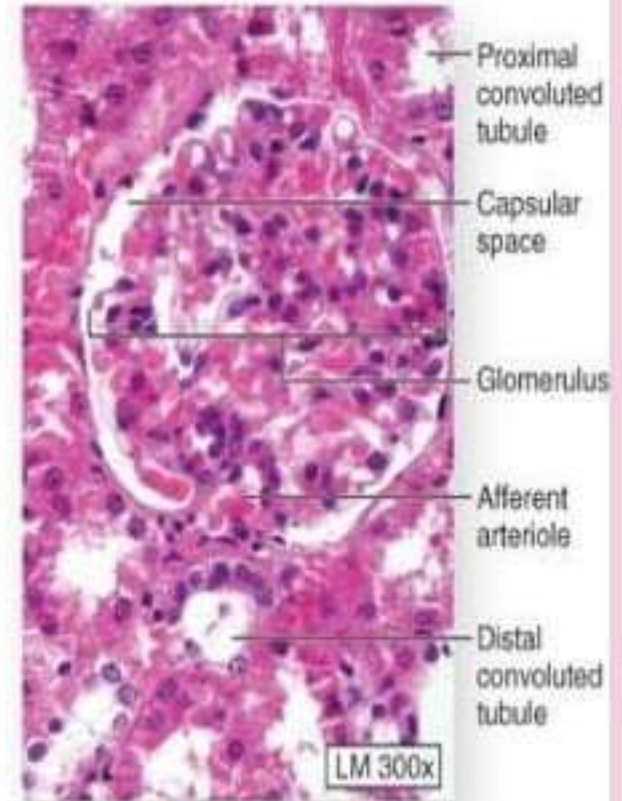
NEPHRON, THE FUNCTIONAL UNIT OF KIDNEY



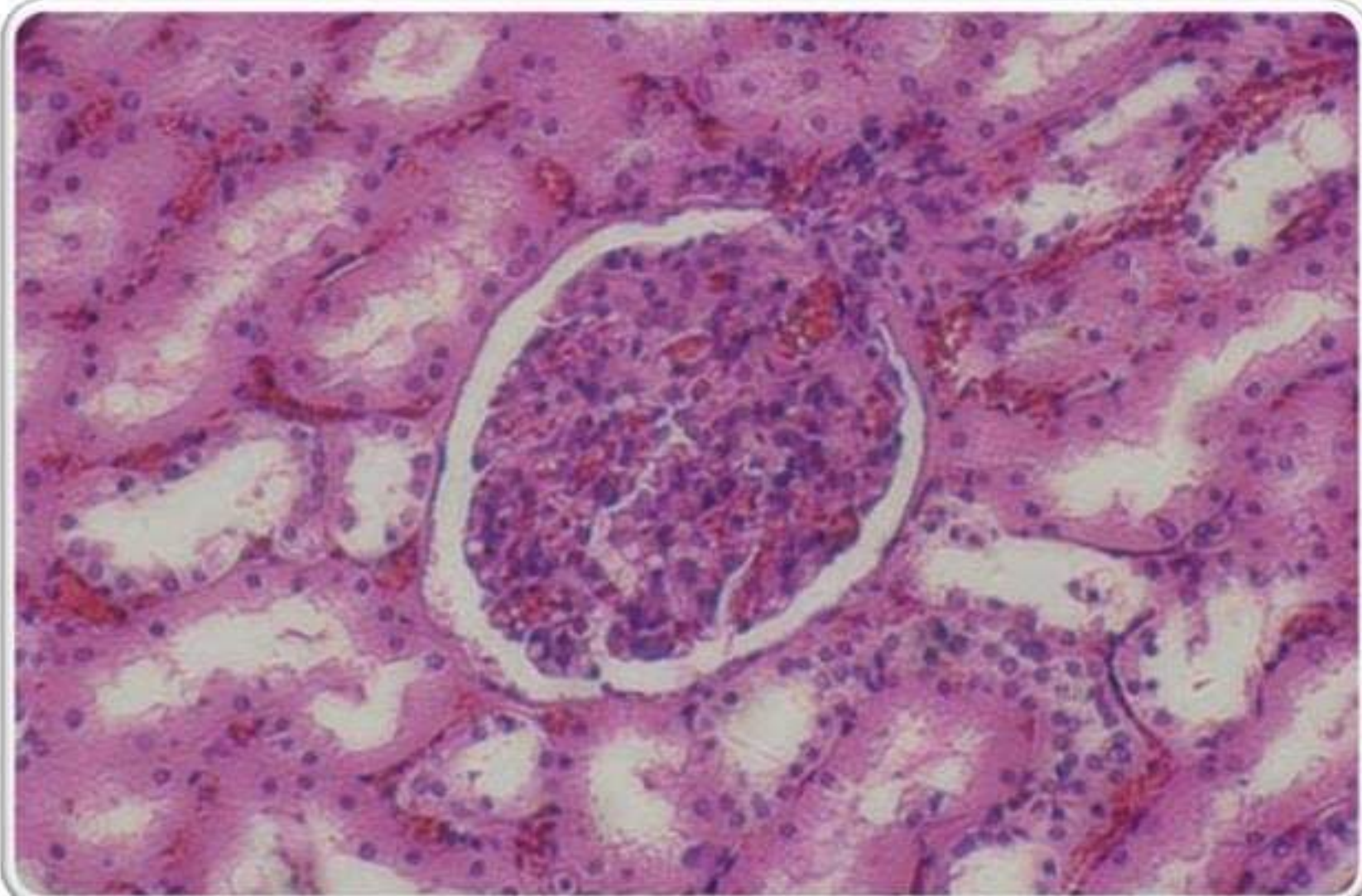
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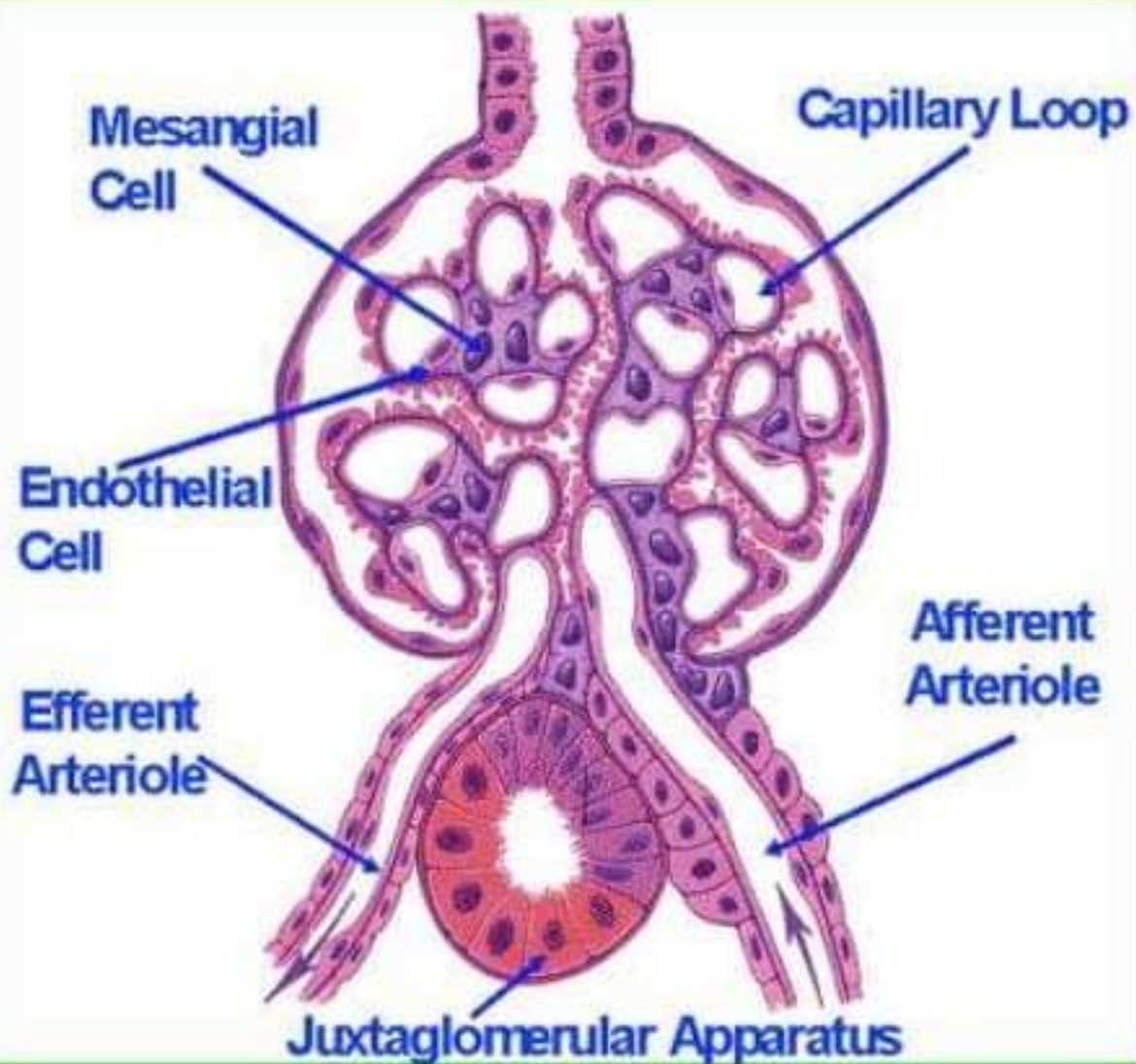
(a) Renal corpuscle



(b)



NORMAL KIDNEY

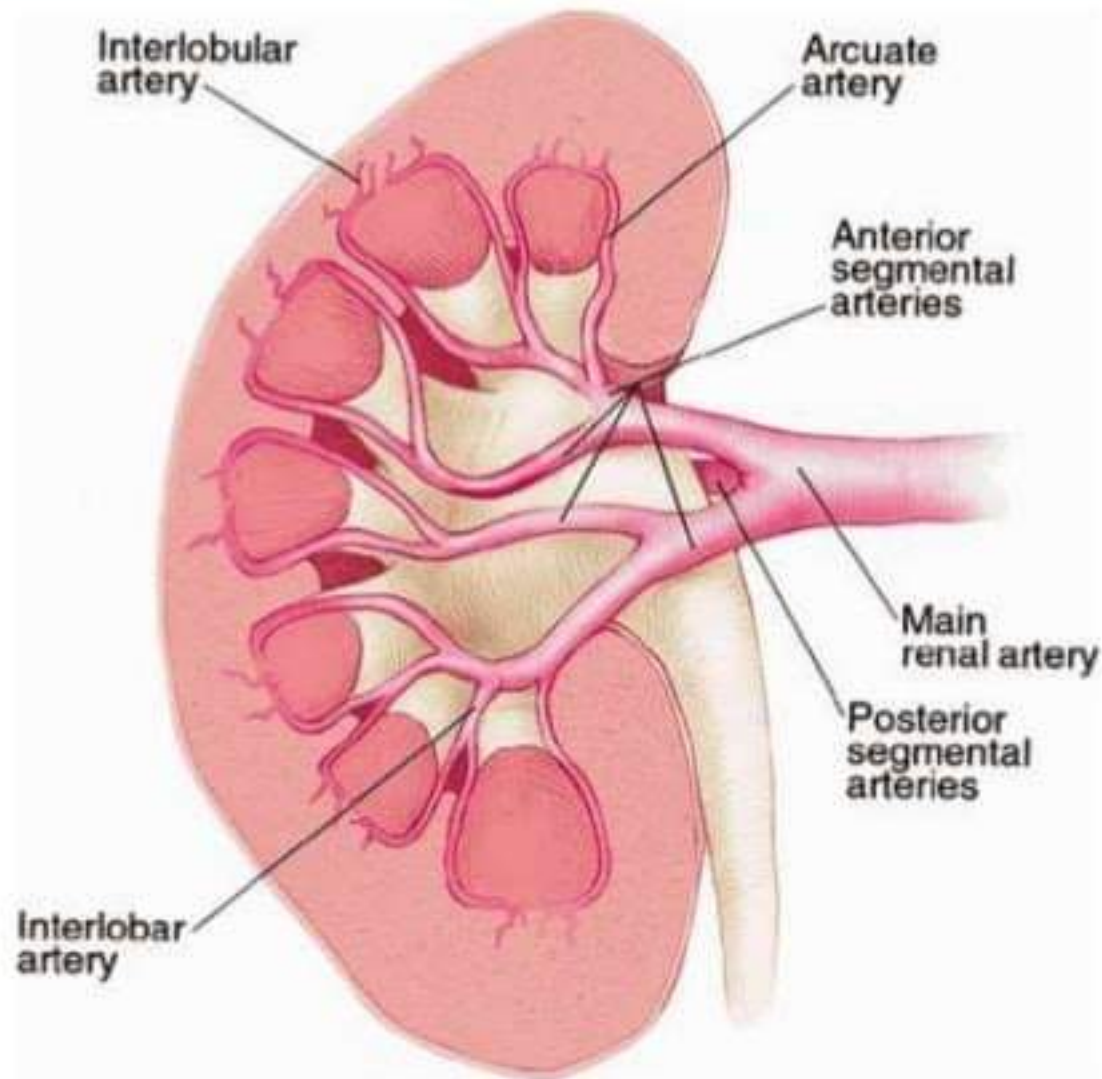


BLOOD SUPPLY

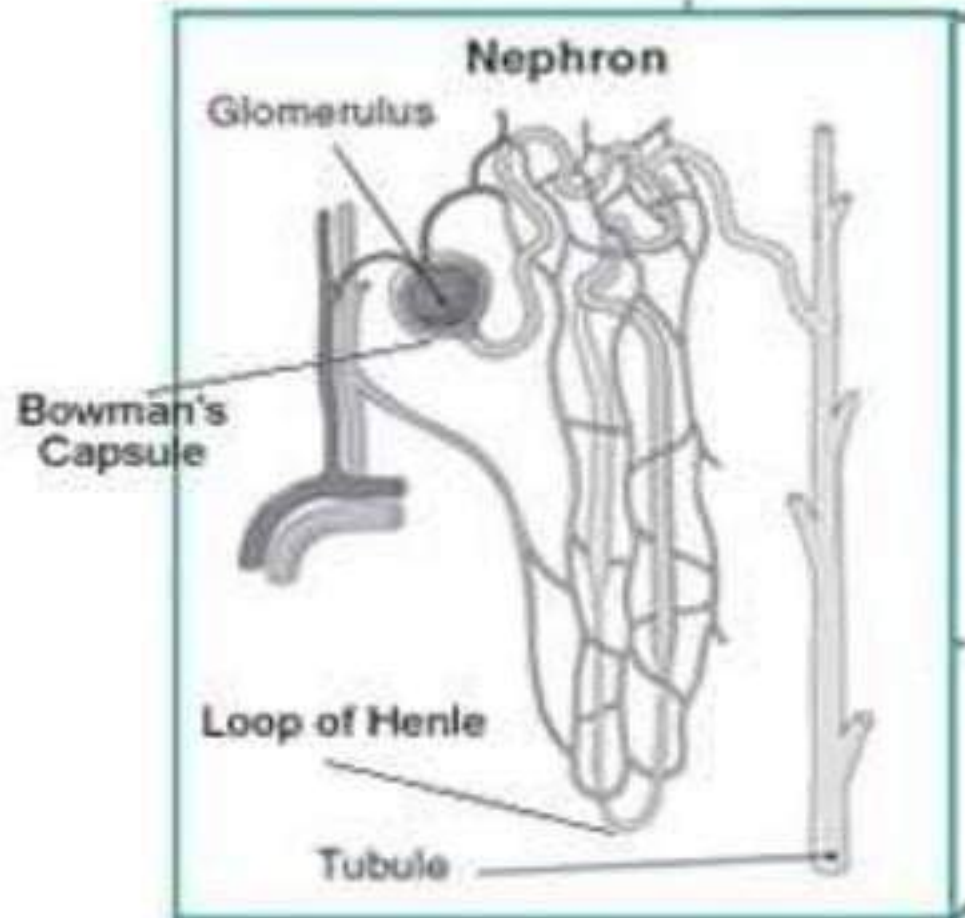
Arterial supply

- Renal artery
- Accessory renal artery
- ✓ End arterial supply
- ✓ Renal portal system





Arterial supply



**PORTAL
CIRCUL-
ATION**

Medullary circulation

Fast

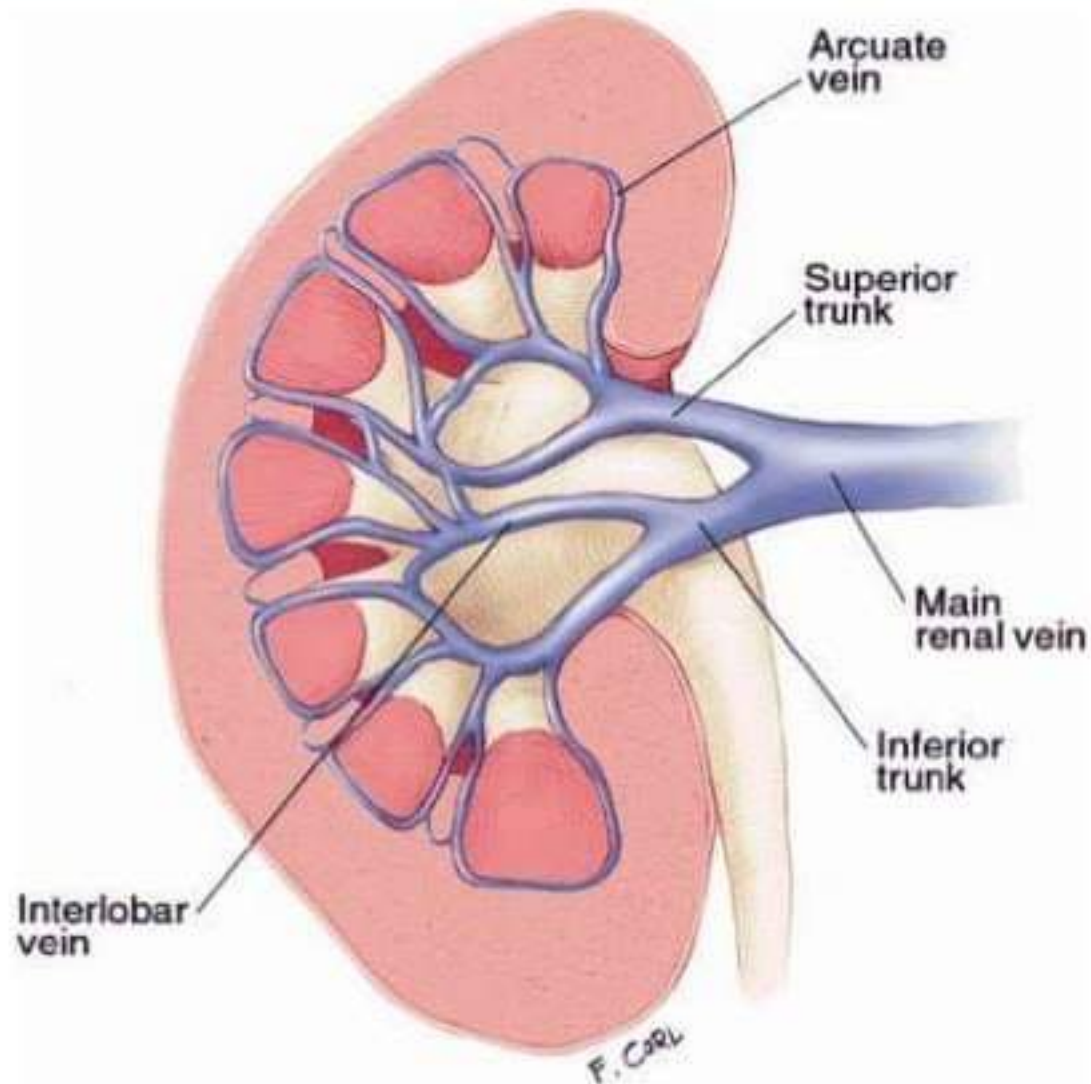
Counter current systems

Venous drainage

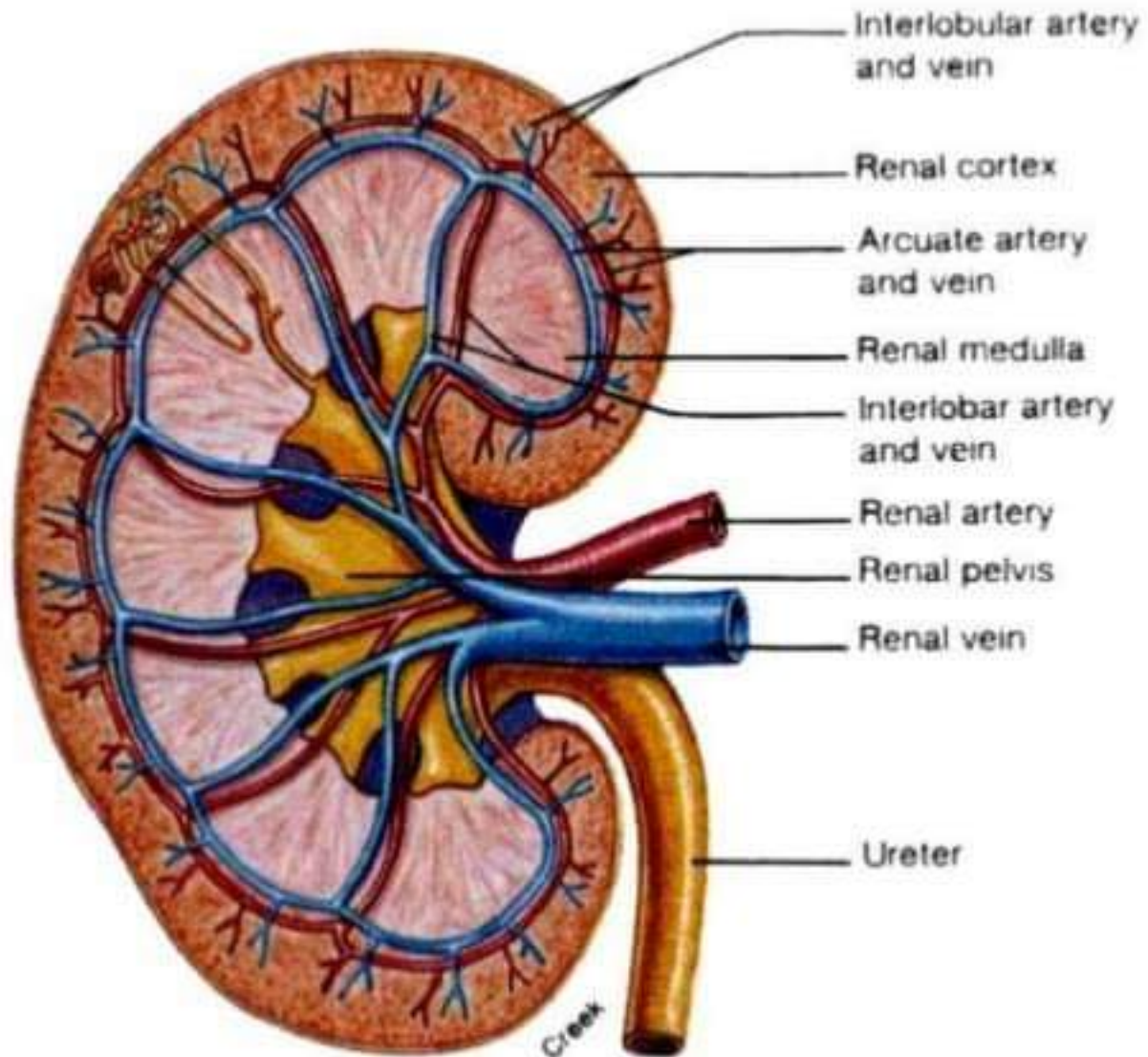
**Starts from peritubular
capillary plexus**

Renal vein drains to IVC



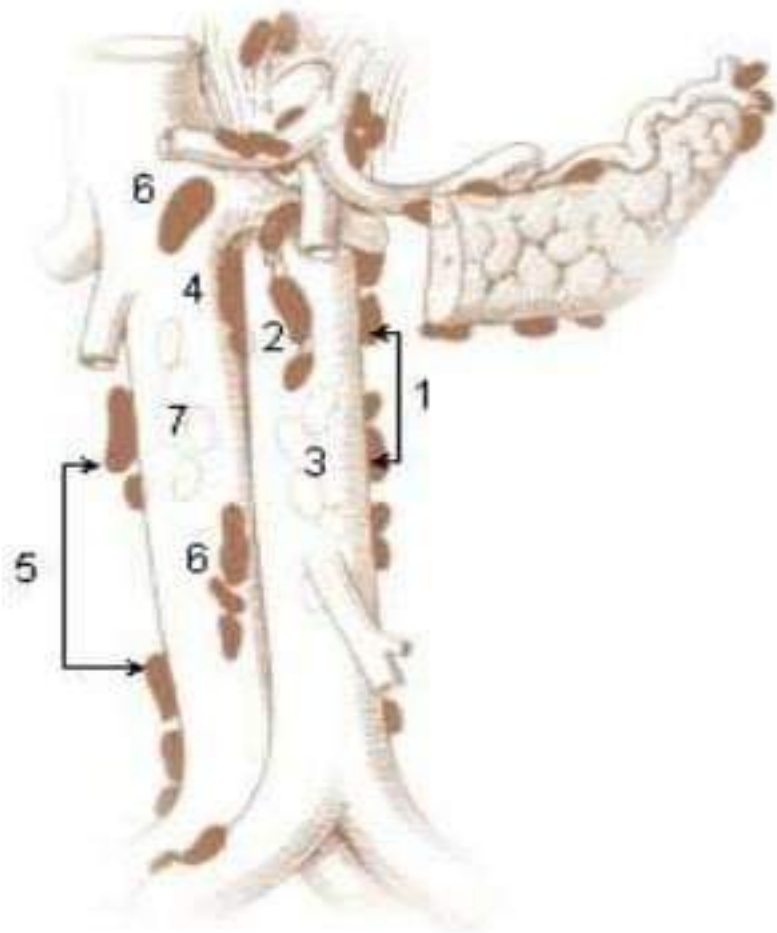


Venous drainage



Source: Fox, S.I., Human Physiology, 6th ed., pg. 529.

LYMPHATIC DRAINAGE



Lateral aortic
nodes located
at the origin
of renal
arteries

NERVE SUPPLY

- ☛ Renal plexus from coeliac plexus
- ☛ Sympathetics – T10-L1
- ☛ Afferents – T10 – T12



DEVELOPMENT



- ❖ **Metanephros- nephron**
- ❖ **Ureteric bud of mesonephric duct- collecting duct & renal papillae.**
- ❖ **Initially sacral**
- ❖ **Ascends to lumbar region**
- ❖ **Initially lobulated**