

وسهلا



أهلا

يُمنع أخذ السلايدات بدون  
إذن المحرر واي اجراء  
يخالف ذلك يقع تحت طائلة  
المسؤولية القانونية  
جميع المعلومات للاستخدام  
التعليمي فقط

الأستاذ الدكتور يوسف حسين

كلية الطب - جامعة مؤتة - الأردن

دكتورة من جامعة كولونيا المانيا

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الواتس 00201224904207

# Anatomy of Kidney

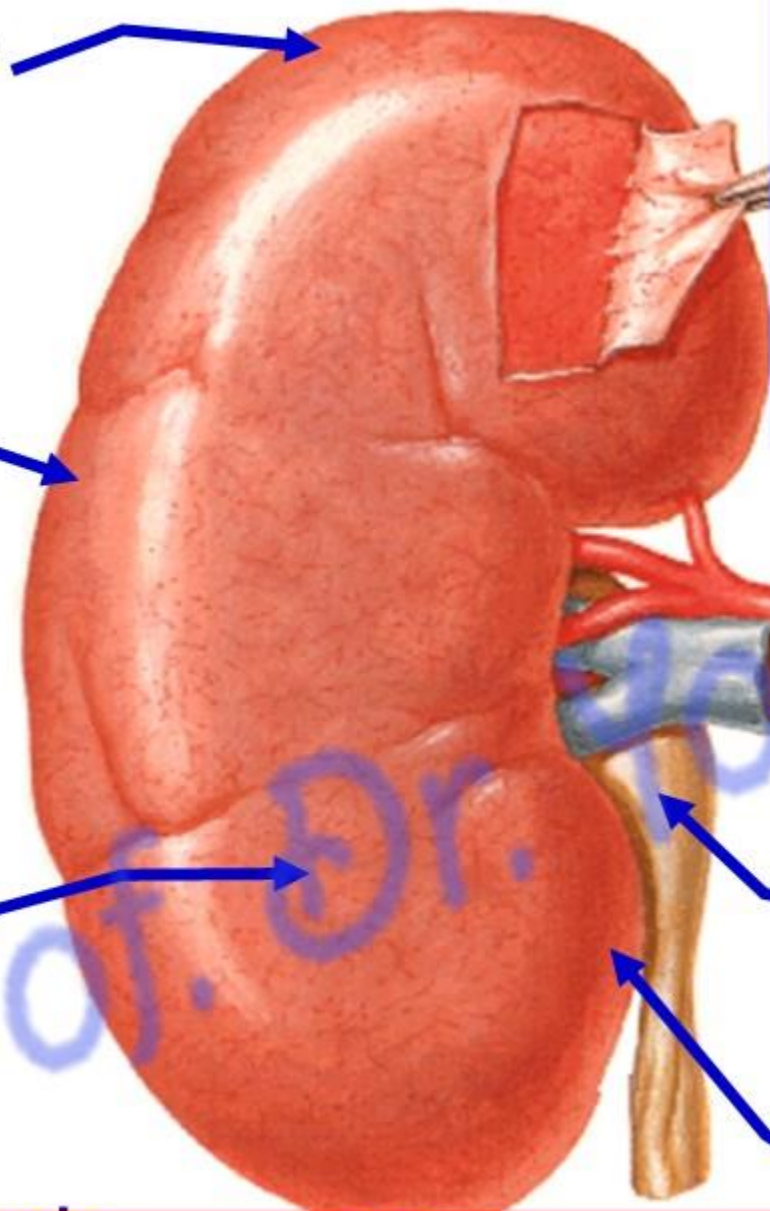
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Upper pole

Lateral border

Anterior surface

Lower pole



**\*\* Size;** 12 cm long, 6 cm wide, 3 cm thick.

**\*\* Position:** kidneys lie behind the peritoneum of the posterior abdominal wall.

**\*\* Weight,** 150 gm in male and 135 gm in females.

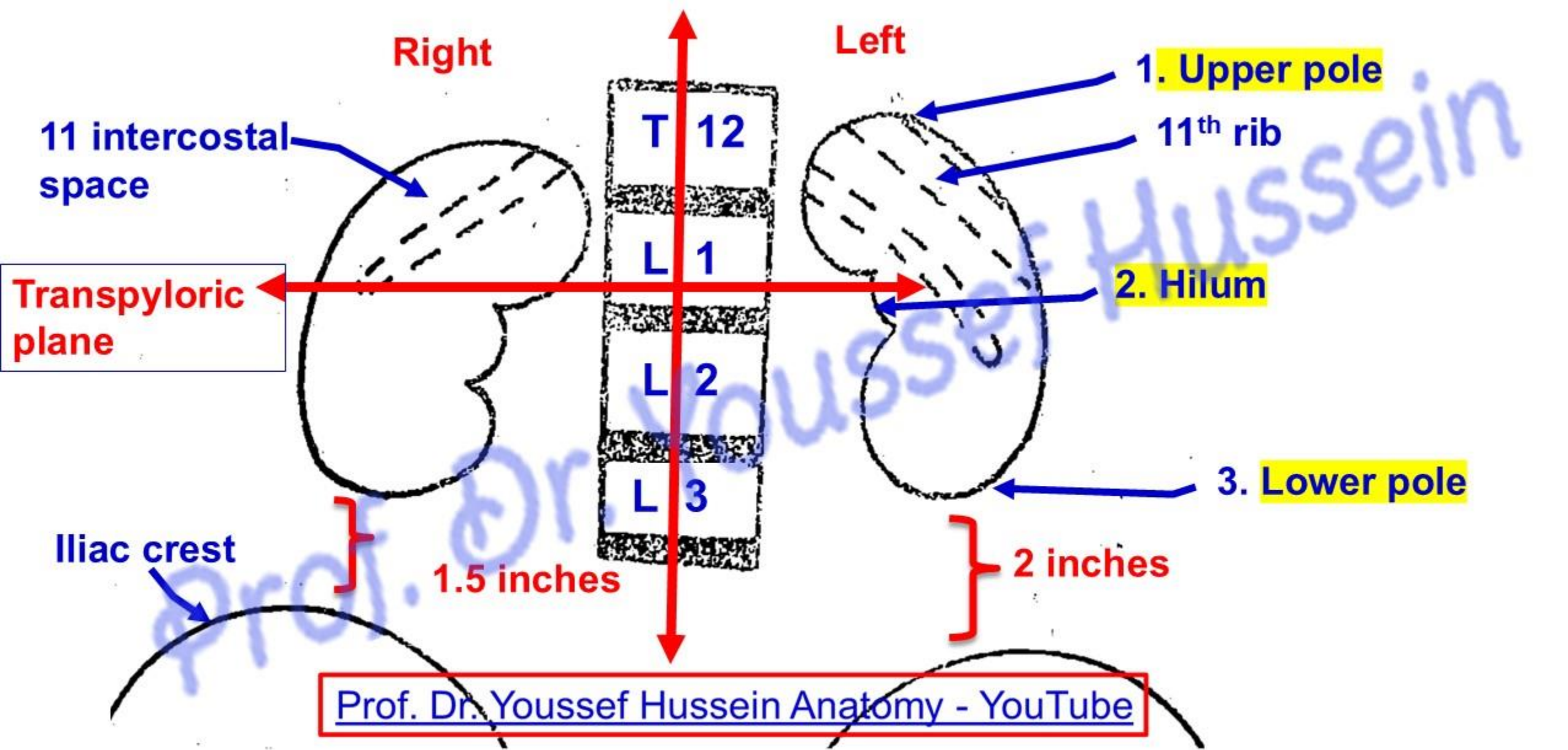
**Hilum** in middle of medial border at level of **transpyloric plane (L1)**

Renal artery

Renal vein

Pelvis of ureter

Medial border



**Surface anatomy of kidneys (anterior)**

- **Surface anatomy of Anterior surface of the kidney**

- The left kidney is higher than the right kidney because the large size of right lobe of liver.

**1- The upper pole** is one inch from the median plane.

a- The left kidney reaches the 11<sup>th</sup> rib.

b- The right kidney reaches 11<sup>th</sup> intercostals space.

**2- The hilum;** is 2 Inches from the median plane.

a- The left kidney lies above the transpyloric plane.

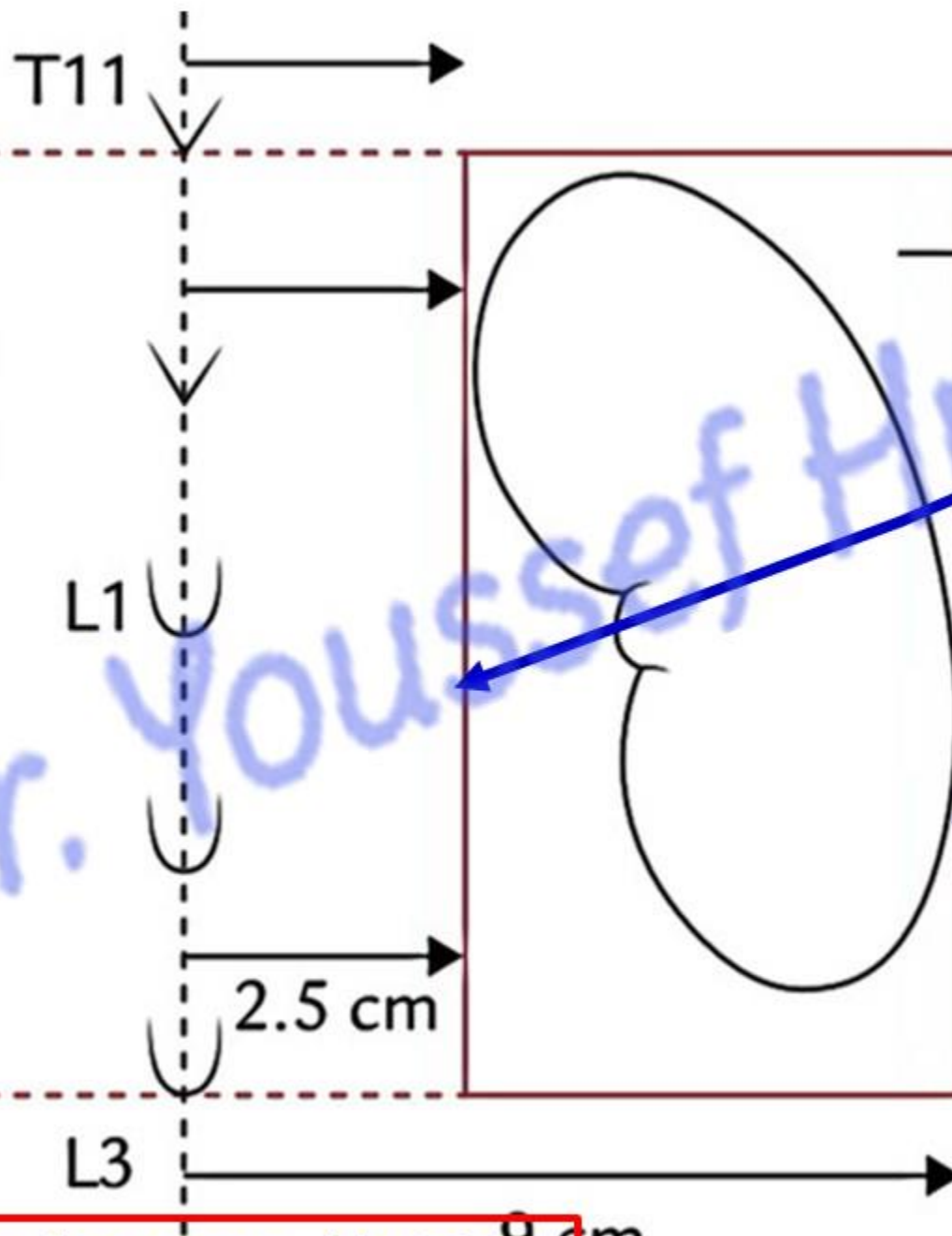
b- The right kidney lies below the transpyloric plane.

**3- The lower pole** is 3 inches from the median plane.

a- The left kidney lies 2 inches above the iliac crest.

b- The right kidney lies 1.5 inches above the iliac crest

Upper horizontal line at T 11



**Morris's parallelogram**  
**Surface anatomy of kidneys (posterior)**

Medial vertical line at 2.5 cm from median plane

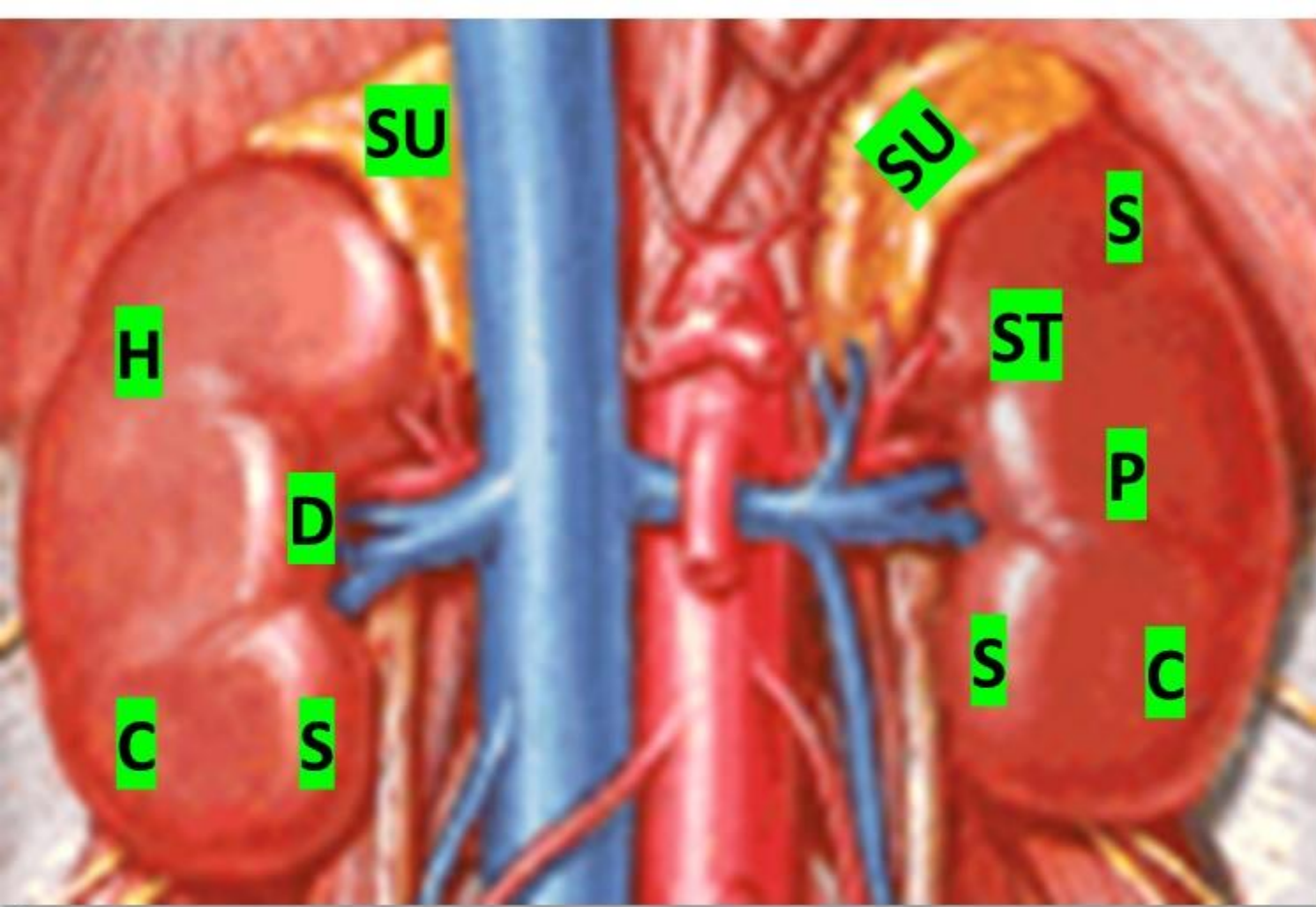
Lateral vertical line at 9 cm from median plane

Lower horizontal line at L3



# Relations of Kidney

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## Relations of the anterior surface

### Bare areas of R. Kidney:

- 1) R. suprarenal gland.
- 2) 2nd part of the duodenum.
- 3) Right colic flexure.

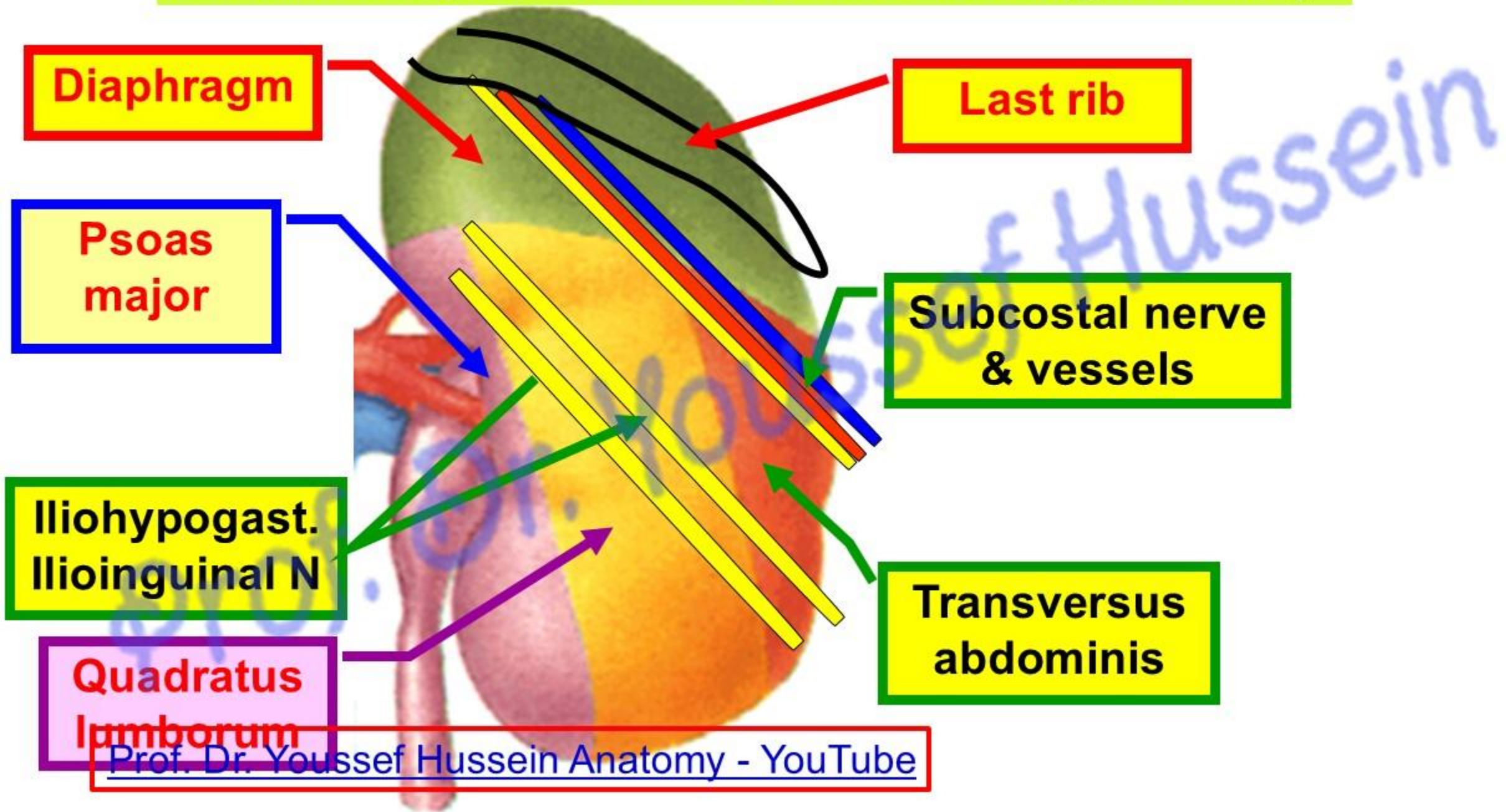
### Bare areas of L. Kidney:

- 1) L. suprarenal gland.
- 2) Pancreas.
- 3) Left colic flexure.

1- Right suprarenal gland: upper medial part, 2- Right lobe of the liver: upper lateral part, 3- Second part of the duodenum: in front of the hilum, 4- Coils of small Intestine: lower medial part, 5- Right colic flexure: lower lateral part.

1- Left suprarenal gland: upper medial part, 2- Spleen: upper lateral part, 3- Body of pancreas and splenic vessels: middle part, 4- Stomach: triangular area between the left suprarenal gland, spleen and pancreas, 5- Left colic flexure : lower lateral part, 6- Coils of small intestine: lower medial part.

# Relation of posterior surface of The right kidney



# Relation of posterior surface of The left kidney

11 & 12 ribs

Diaphragm

Subcostal  
nerve & vs

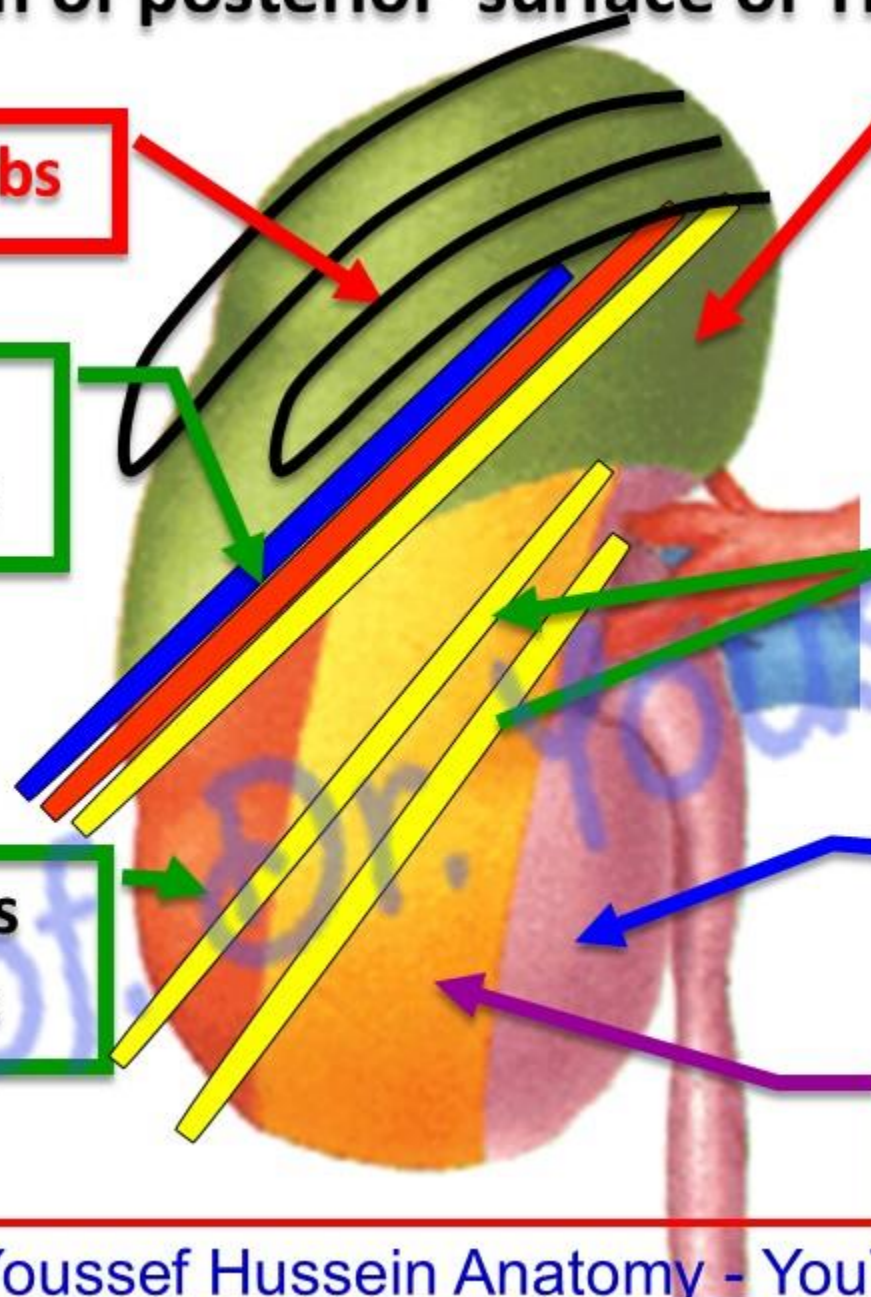
Iliohypogast  
Ilioinguinal N

Transversus  
abdominis

Psoas major

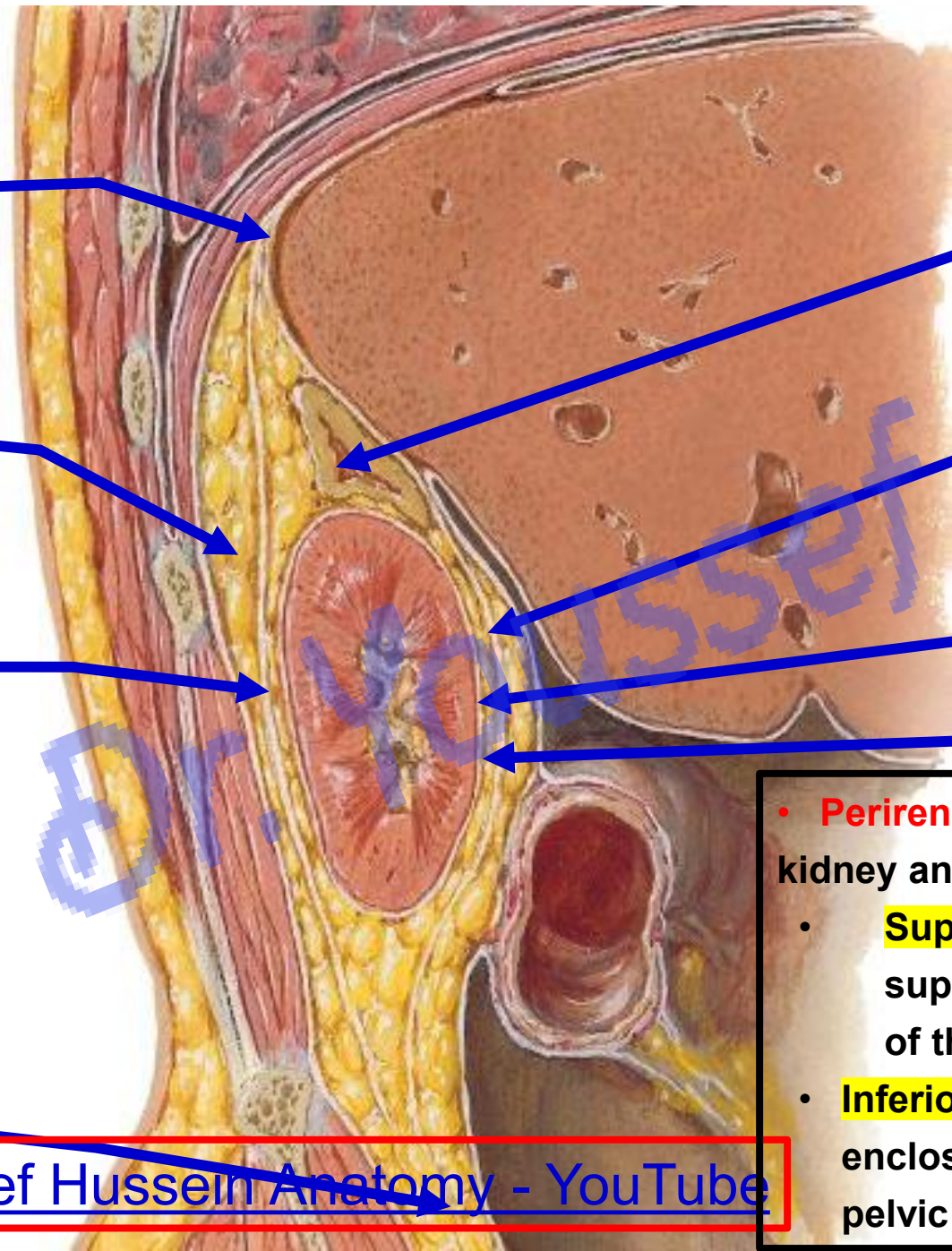
Quadratus  
lumborum

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# Coverings of Kidney

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Fascia of diaphragm

Suprarenal gland

Pararenal fat

Anterior layer of perirenal fascia

Posterior layer of perirenal fascia

Fibrous capsule

Perirenal fat

Pelvic fascia

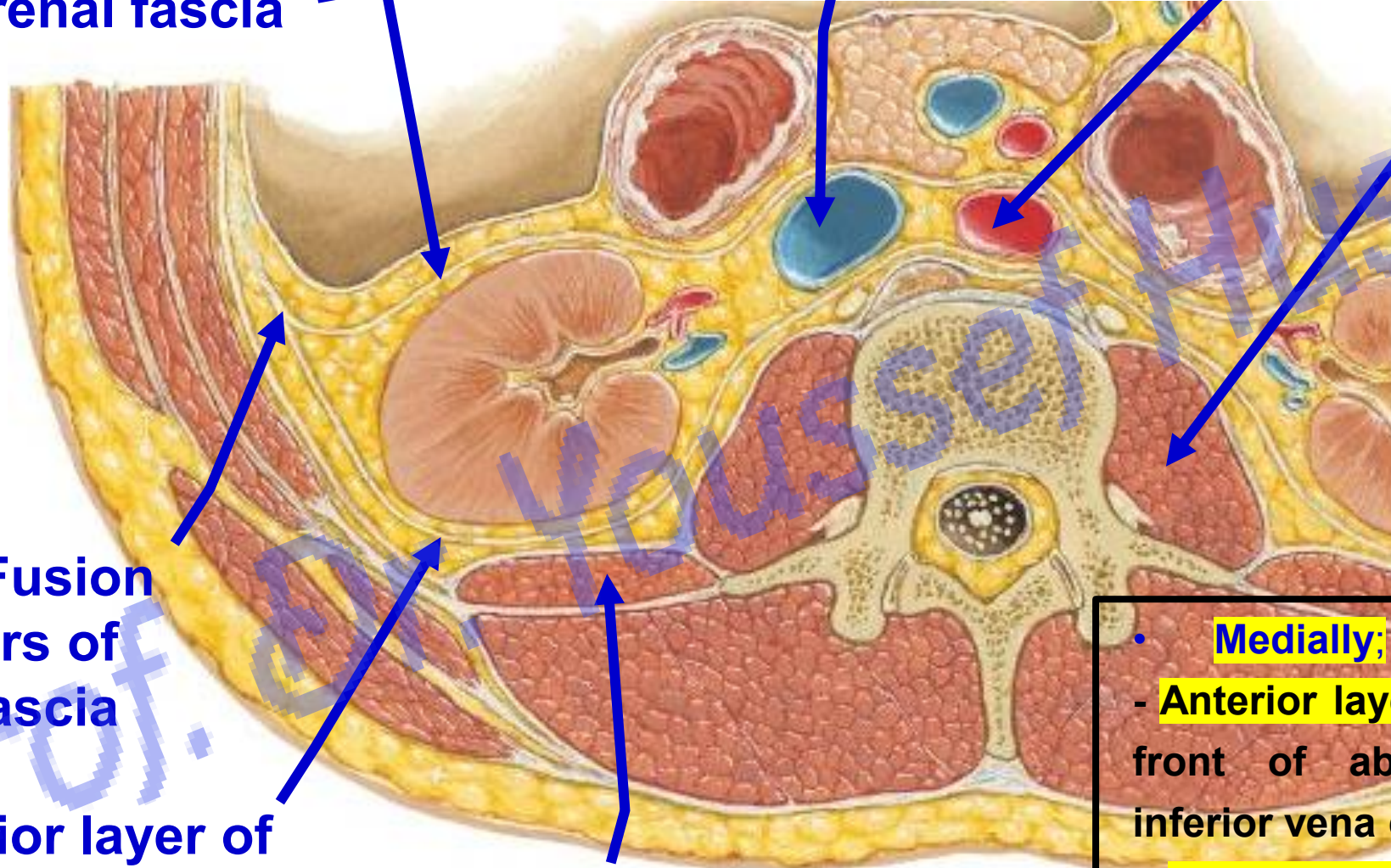
- **Perirenal fascia (Zuckerkandl):** surrounds kidney and perirenal fat.
- **Superiorly,** the two layers fuse above the suprarenal gland and connected with fascia of the diaphragm.
- **Inferiorly,** the two layers remain separate, enclosing the ureter, and continues with the pelvic fascia.

Anterior layer of perirenal fascia

IVC

Abdominal aorta

Psoas major



Laterally: Fusion of two layers of perirenal fascia

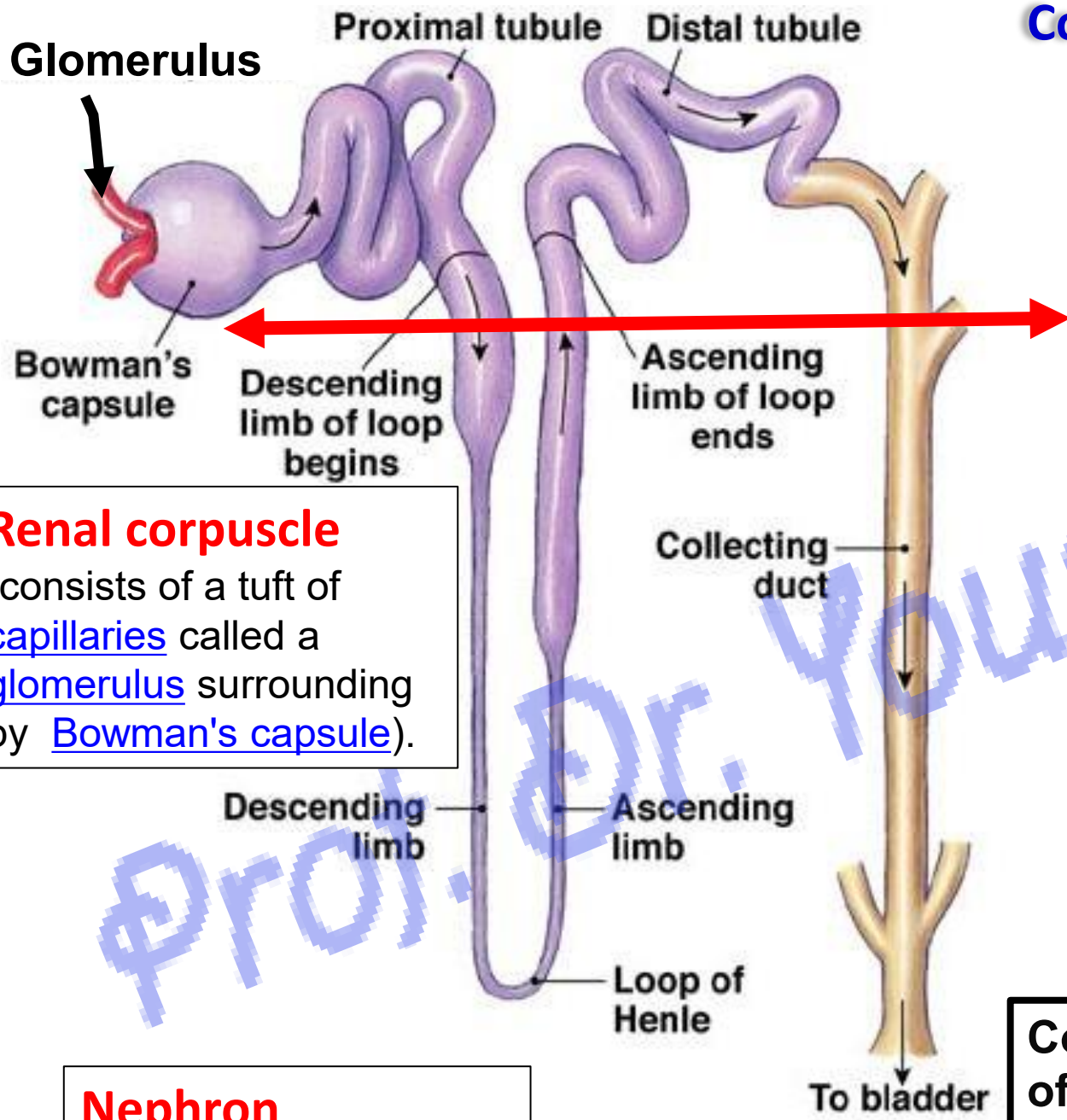
Posterior layer of perirenal fascia

Quadratus lumborum

- **Medially;**
  - **Anterior layer** fuse with fascia in front of abdominal aorta and inferior vena cava.
  - **Posterior layer** fuse with fascia covering psoas major, quadratus lumborum

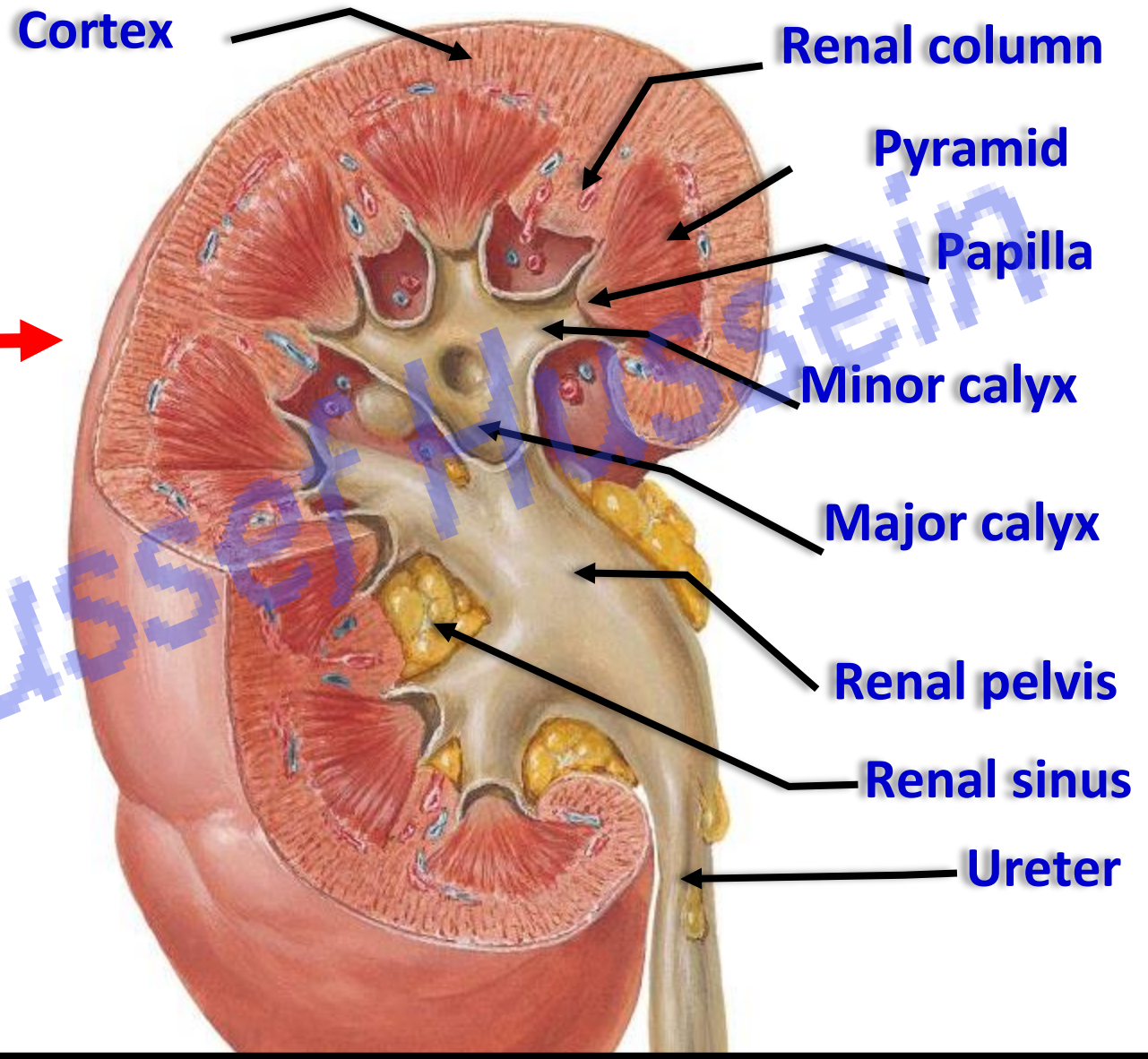
# Structure of Kidney

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**Renal corpuscle**  
 (consists of a tuft of capillaries called a glomerulus surrounding by Bowman's capsule).

**Nephron**



**Collecting tubules-- larger papillary ducts (ducts of Bellini) --minor calyces --major calyces -- renal pelvis--- ureter**



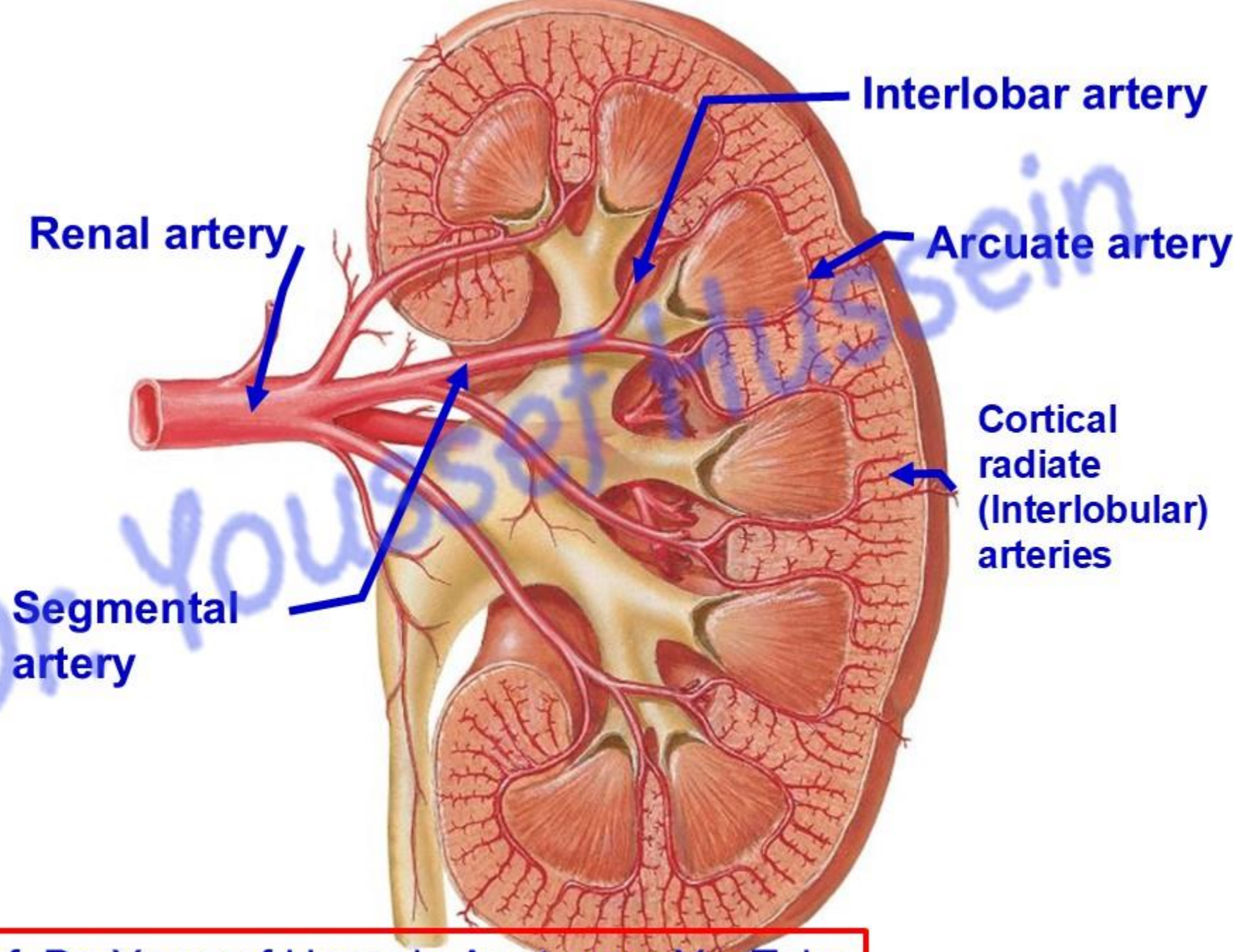
**Blood supply  
Segments of  
Kidney**

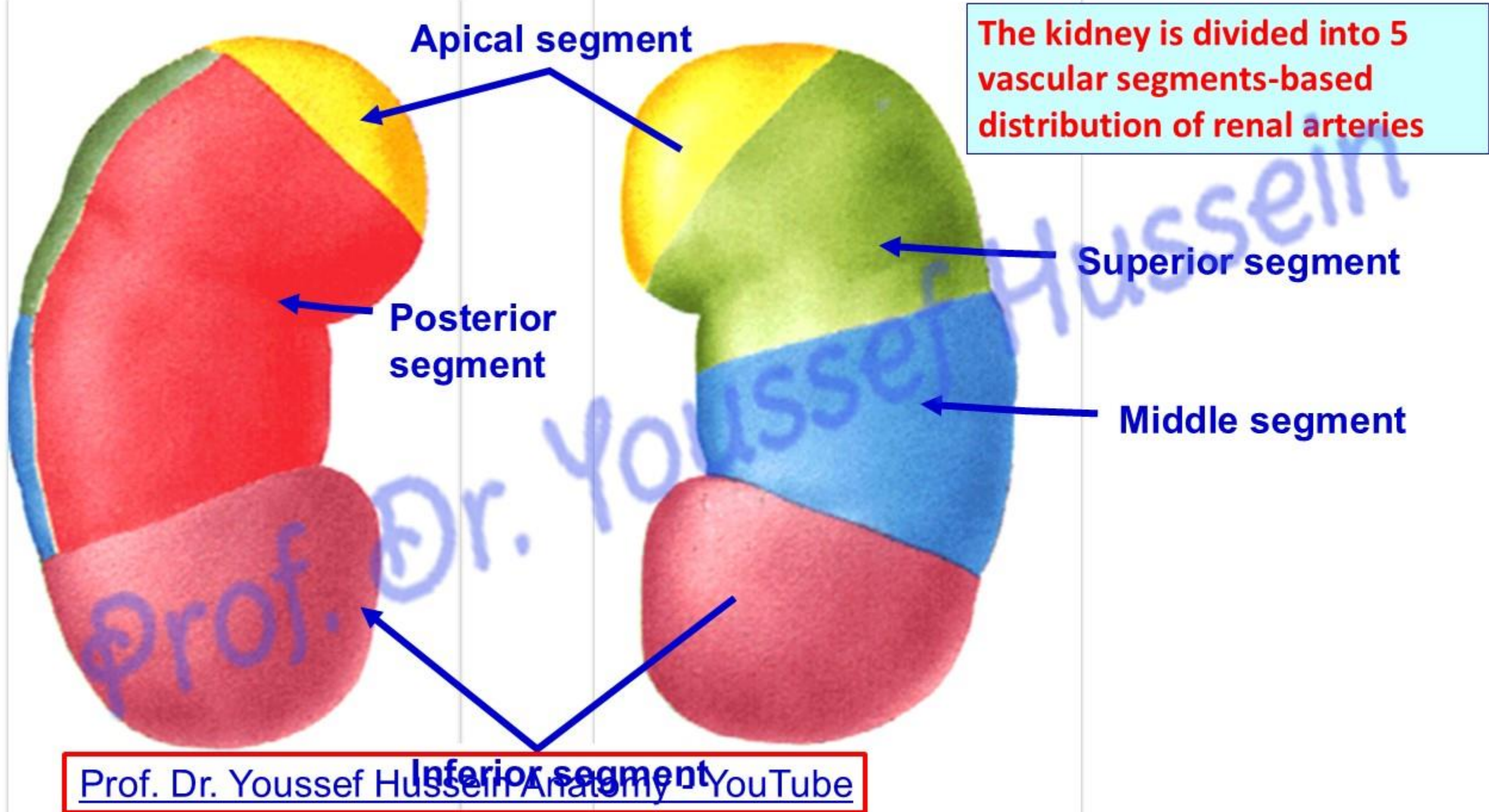
**\*\* Arterial supply, Renal artery** from abdominal aorta.

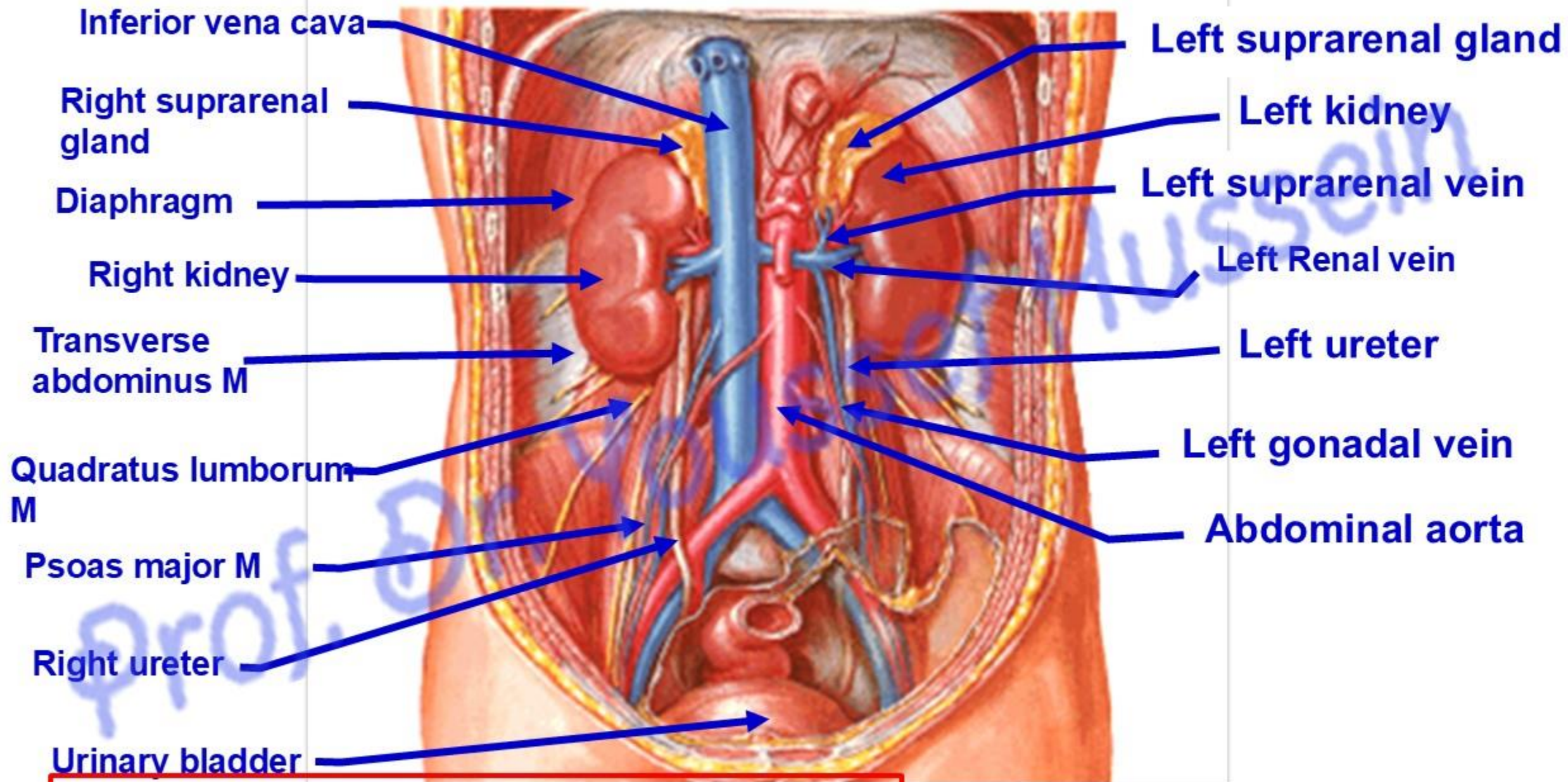
**\*\* Venous drainage, Renal veins** end into inferior vena cava.

**• Tributaries of left renal vein:**

- 1) Kidney.
- 2) Suprarenal vein.
- 3) Gonadal (testicular or ovarian) vein **on the Left only**





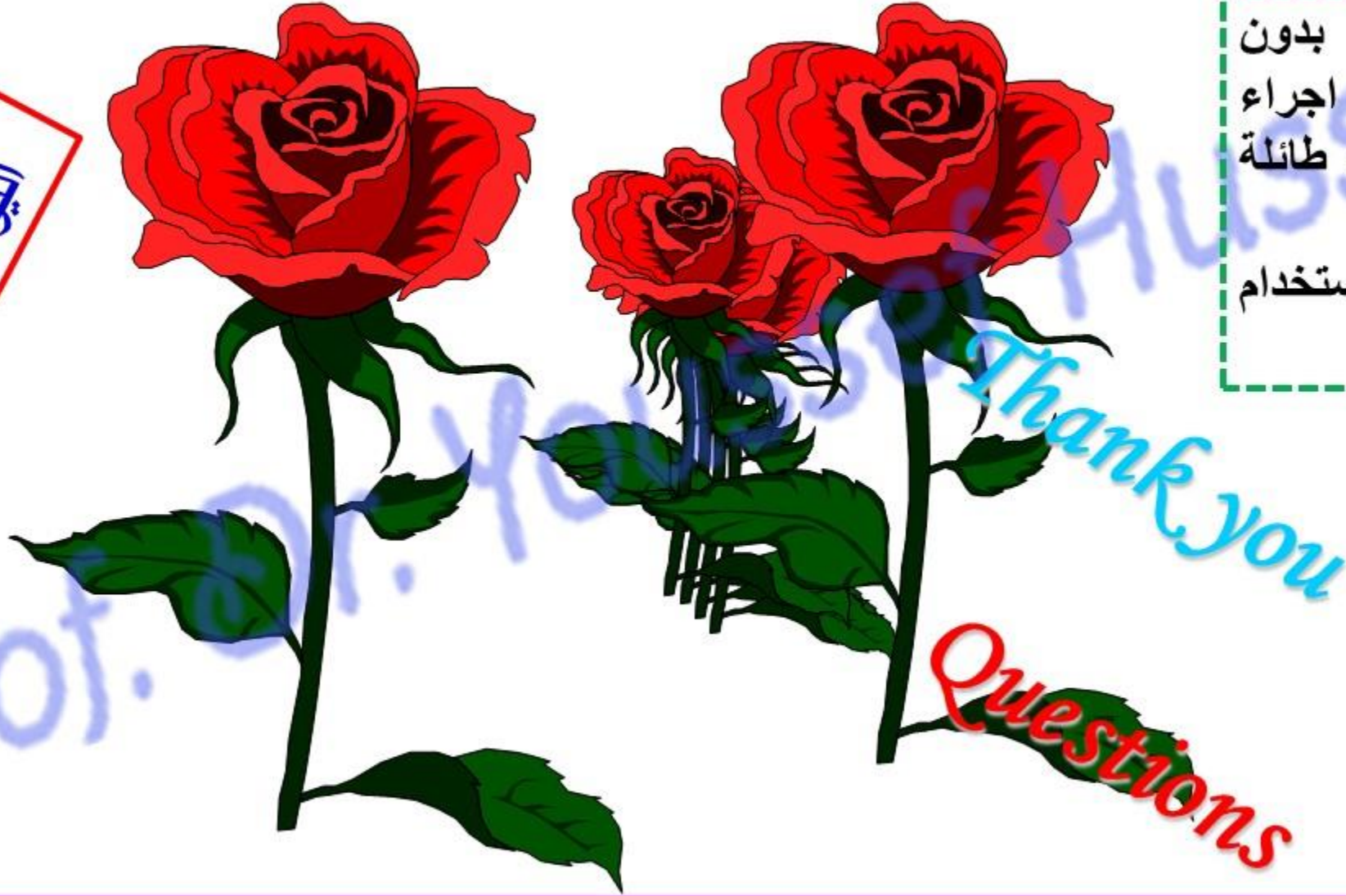


- **Kidney swelling** is felt in the renal angle (between the 12th rib and lateral border of sacrospinalis muscle).
- **The pattern of arterial supply** is useful in doing incision of the kidney.
- The relatively avascular plane between the posterior segment and other segments extends to the convex lateral border of the kidney forming bloodless **line of Brodel that** used for surgical incisions in the kidney to avoid injury of large renal blood vessels.
- **Kidney stone (renal calculus or nephrolith)** is formed by combination of a high level of calcium with oxalate, phosphate, urea, uric acid, and cystine.
- Stone is collected in calyces of the kidney or in the ureter.
- Common signs of kidney stones include **colicky pain referred to lower abdomen and groin**, vomiting, urinary frequency and urgency, and pain during urination.

[https://www.youtube.com/channel/UCVSNqbibj9UWYaJdd\\_cn0PQ](https://www.youtube.com/channel/UCVSNqbibj9UWYaJdd_cn0PQ)

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