



# The Ureter

---

**DR. AHMED SALMAN**

**ASSOCIATE PROFESSOR OF ANATOMY**

## The ureters:

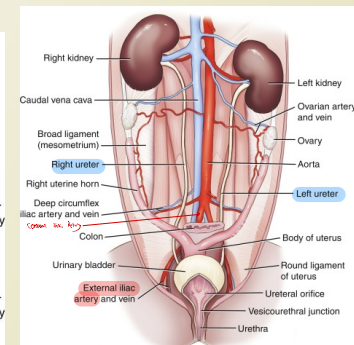
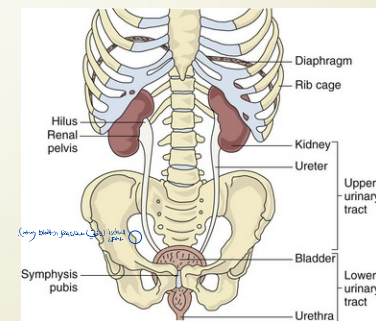
The ureters are muscular tubes which convey urine from kidneys to the urinary bladder.

The ureter lies behind and adheres to the parietal peritoneum of the posterior abdominal wall.

The ureter is about 10 inches (25 cm) and has 2 parts; abdominal and pelvic, each is 5 inches long.

- The ureter has two parts: an abdominal part and a pelvic part. The abdominal part begins at the renal pelvis and descends along the posterior abdominal wall until it reaches the common iliac artery, which it crosses (or the external iliac artery) before entering the pelvis. In the pelvis, it descends along the anterior wall of the greater sciatic foramen on the pelvic floor until it reaches the ischial spine, where it turns to enter the bladder at an oblique angle. This oblique angle prevents the regurgitation of urine into the ureter.
- Abdominal part as kidney retroperitoneal structure
  - (Pelvic Part starts when crossing the Artery).

Dr Ahmed Salman



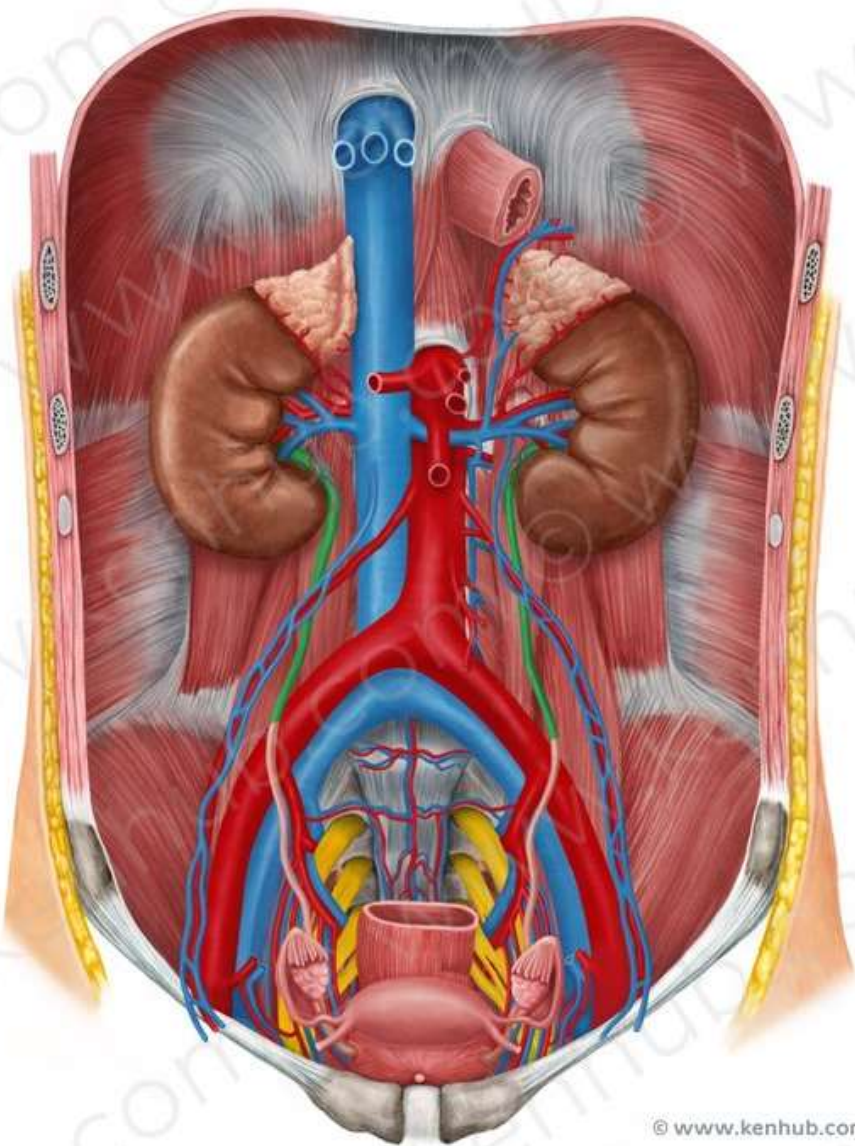
## Course of the ureter

### The abdominal part

- Begins from the lower end of the renal pelvis (it is the pelvi-ureteric junction),
- It descends downwards and medially on psoas major muscle towards the pelvic brim.
- It crosses the *end* of the common or beginning of the external iliac artery to become the pelvic part.

### The pelvic part

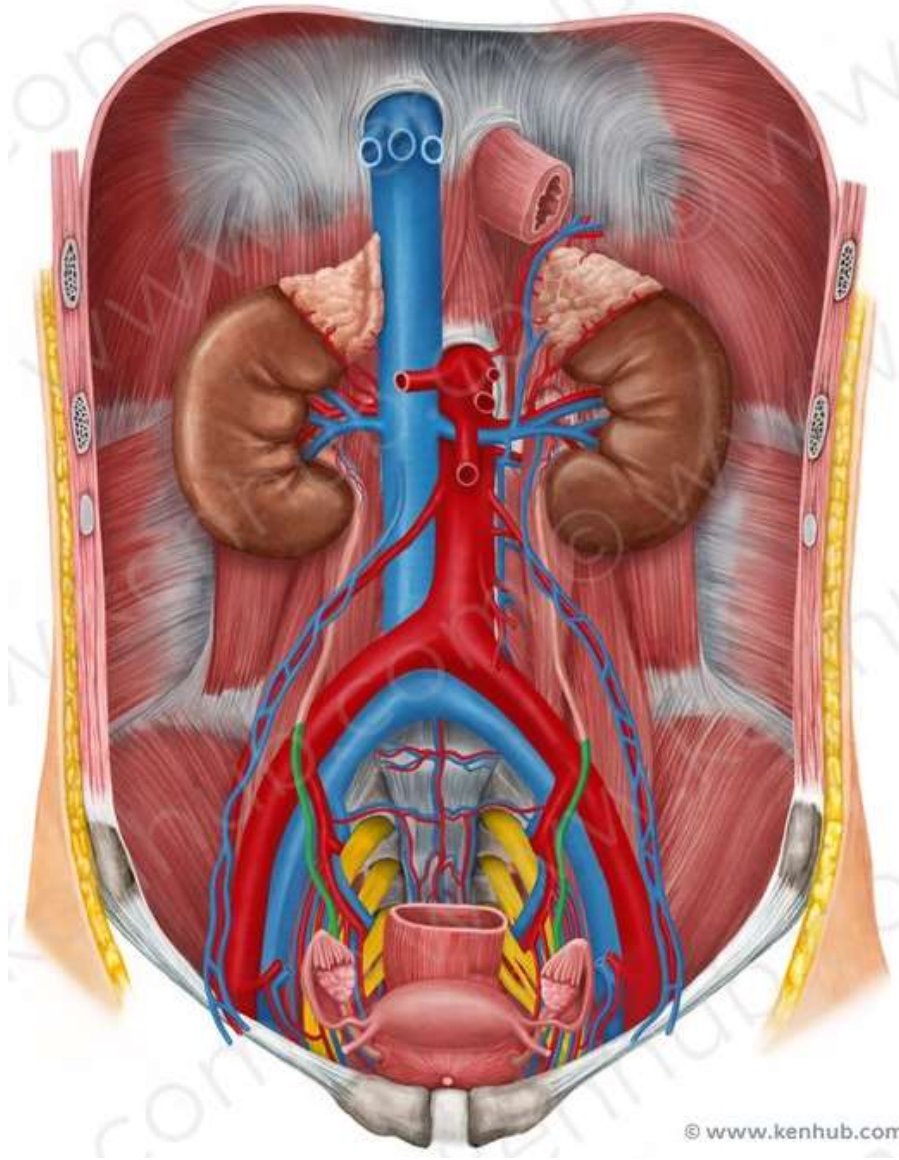
- Descends downwards and backwards along the anterior margin of greater sciatic foramen till the ischial spine. It forms posterior boundary of the ovarian fossa.
- It runs forwards on pelvic floor to open in the wall of the urinary bladder.
- It is crossed by the vas deferens in **male** and uterine artery in **females**.
- It pierces the wall of the bladder obliquely to open at the superolateral angle of the trigone.
- This oblique termination of the ureter prevents regurgitation of urine from bladder to the ureter



© www.kenhub.com



**The abdominal part**



© www.kenhub.com



**The pelvic part**

## Relations of the abdominal part of ureter:-

### Posterior Relation (BOTH SIDES)

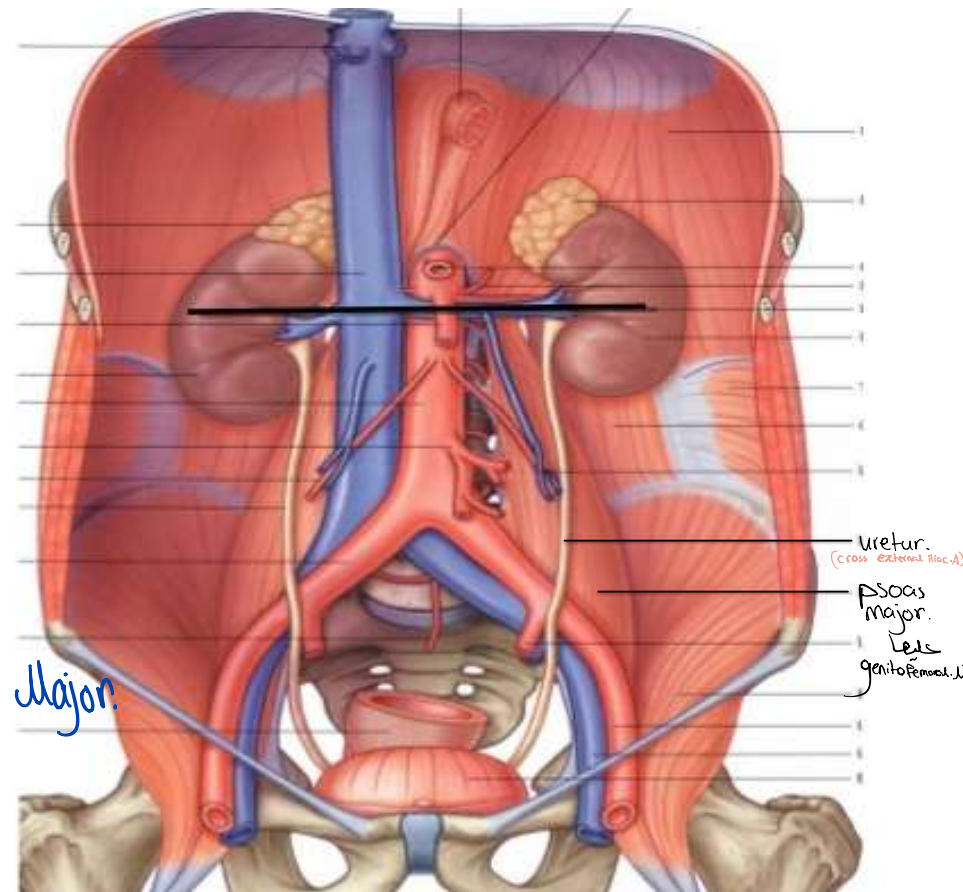
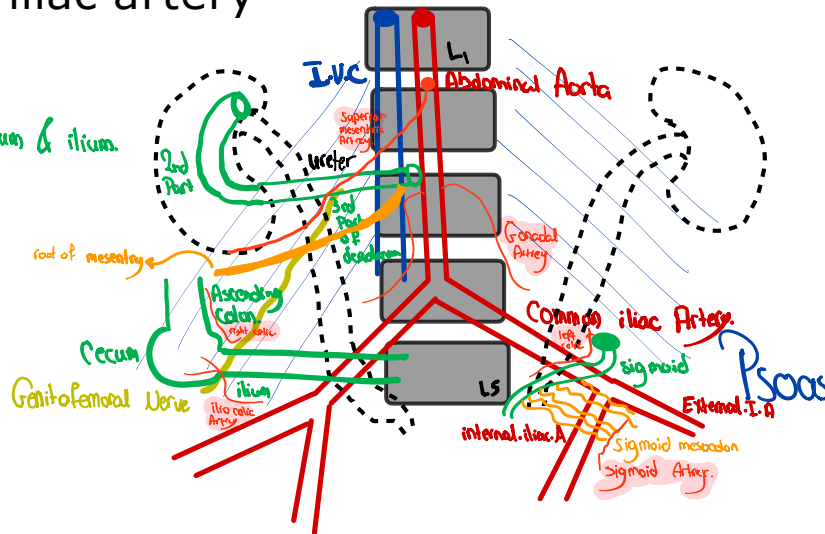
1. Psoas major muscle separating the ureter from the tips of the transverse processes of the lumbar vertebrae (2-5)
2. Genitofemoral nerve
3. Termination of common or beginning of external iliac artery

- Right side:

- 3rd Part of duodenum & ilium.

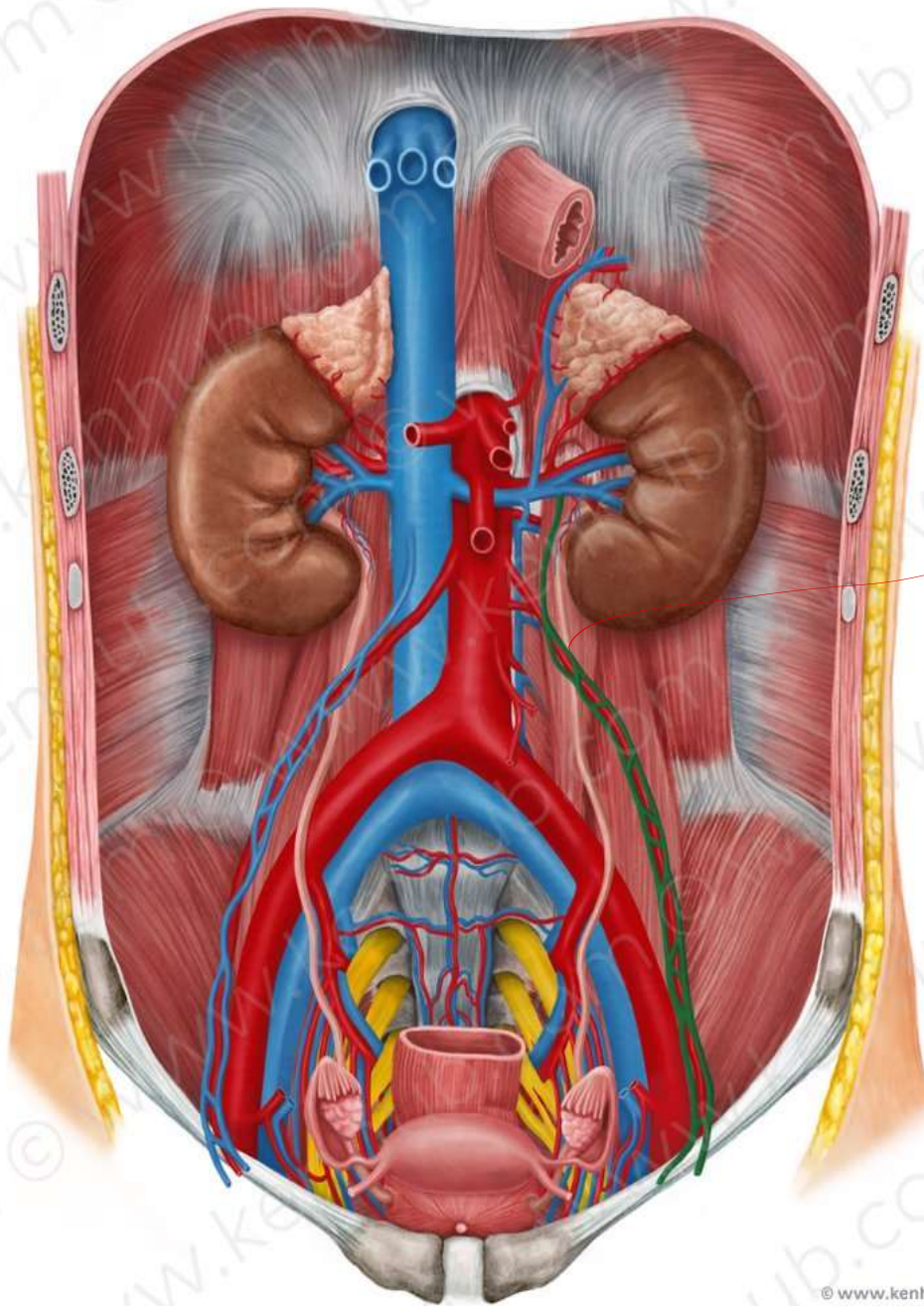
- Left side:

- Sigmoid



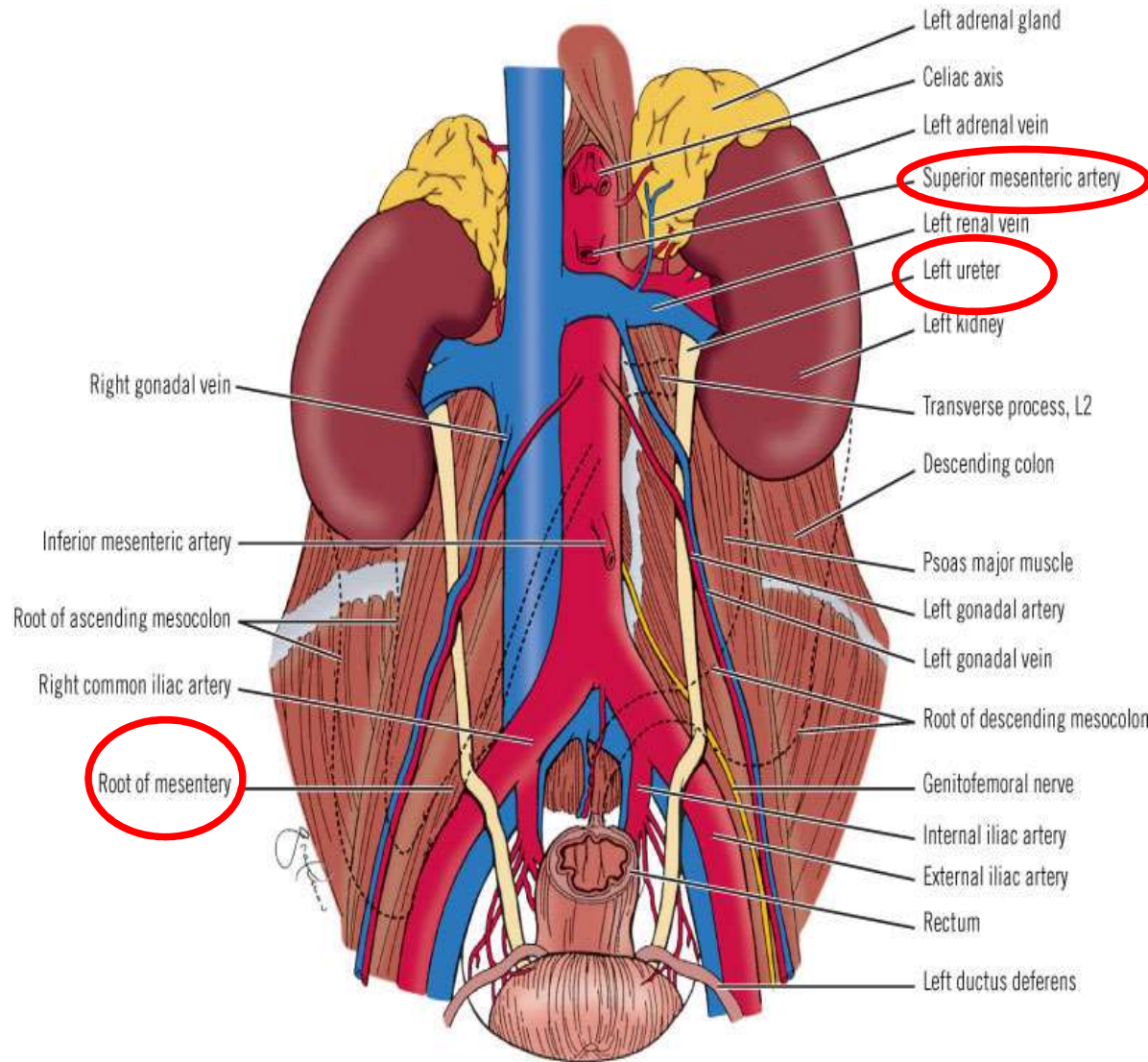
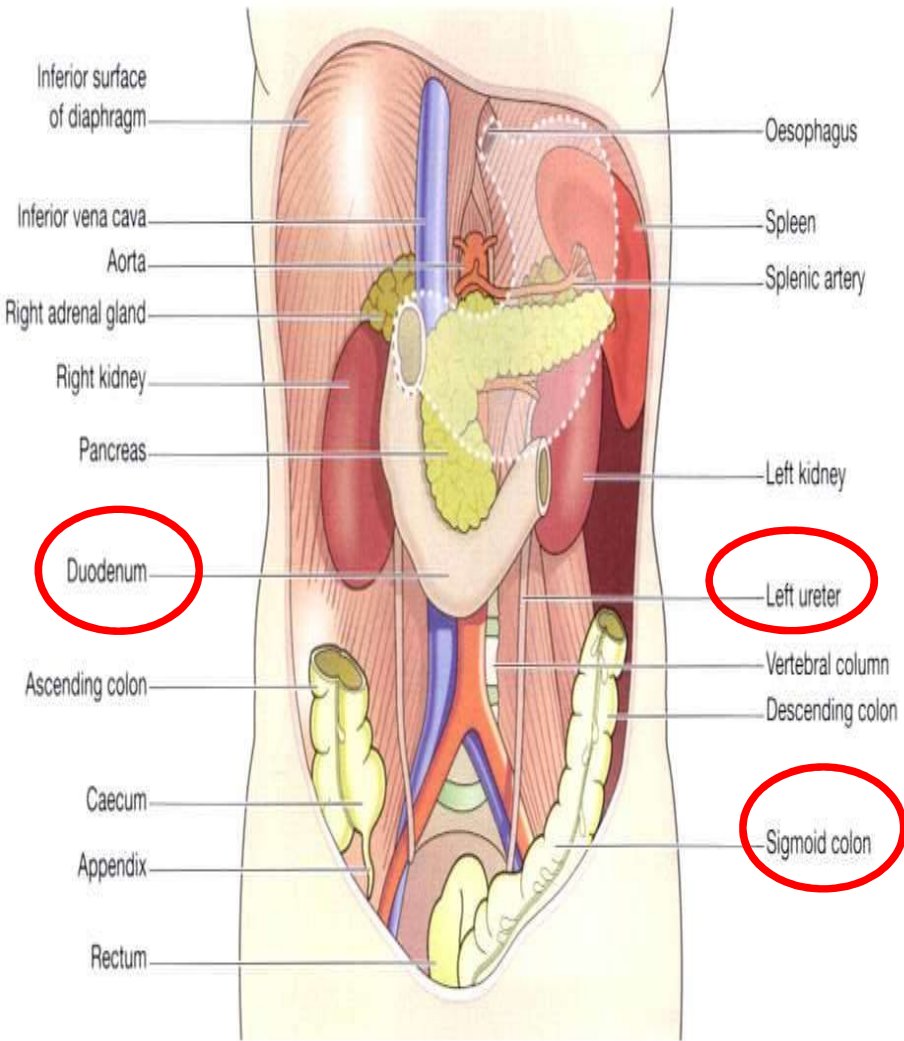
## Anterior and medial relations

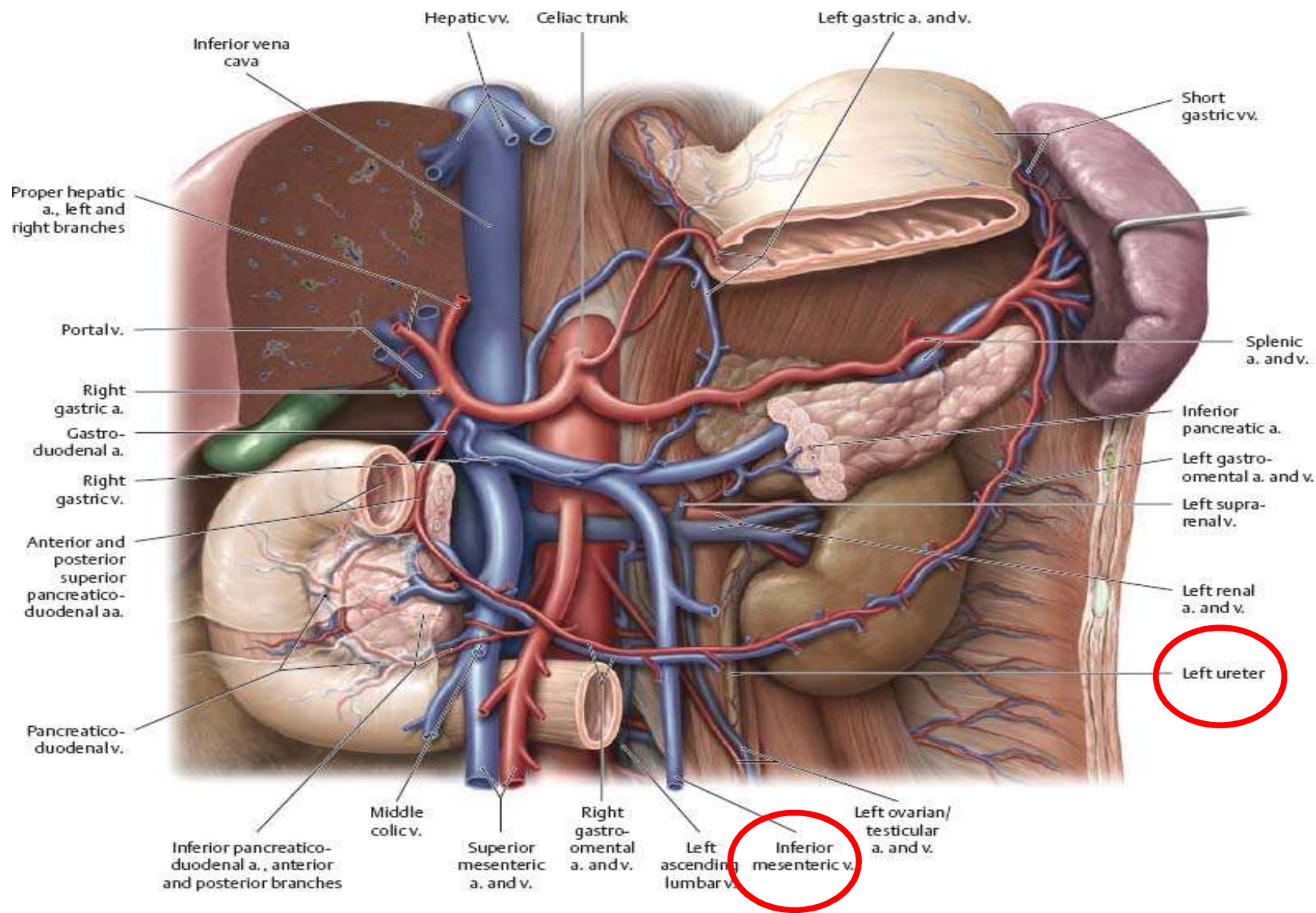
|  | Right ureter  | Left ureter  |
|--|---|--|
| <b>Anterior relation</b><br><i>Intestinal structures</i> | <ol style="list-style-type: none"> <li>1. Third part of the duodenum at its beginning</li> <li>2. Terminal ileum near the pelvic brim</li> </ol>                                  | <ol style="list-style-type: none"> <li>1. Sigmoid colon near the pelvic brim</li> </ol>  |
| <i>Peritoneal elements</i>                               | <ol style="list-style-type: none"> <li>1. Parietal peritoneum of the posterior abdominal wall</li> <li>2. Root of the mesentery</li> </ol>  | <ol style="list-style-type: none"> <li>1. Parietal peritoneum of the posterior abdominal wall</li> <li>2. Apex of sigmoid mesocolon <u>with its intersigmoid recess</u></li> </ol> |
| <i>vessels</i>   | <ol style="list-style-type: none"> <li>1. Right gonadal vessels</li> <li>2. Superior mesenteric vessels</li> <li>3. Right colic vessels</li> <li>4. Ilio-colic vessels</li> </ol> | <ol style="list-style-type: none"> <li>1. Left gonadal vessels</li> <li>2. Left colic vessels</li> <li>3. Sigmoid vessels</li> </ol>   |
| <b>Medial relation</b>                                   | <ul style="list-style-type: none"> <li>• <b>Inferior</b> vena cava</li> </ul>   | <ul style="list-style-type: none"> <li>• <b>Inferior</b> mesenteric vein</li> </ul>  |



gonadal vessels.

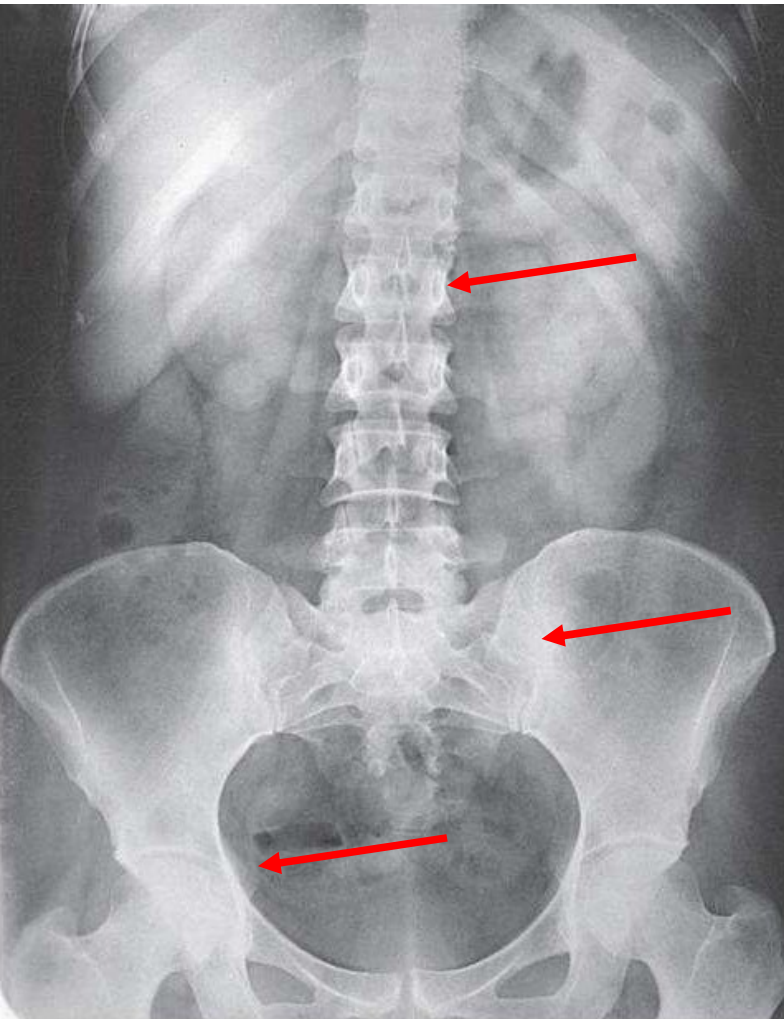
**Left ovarian vein**



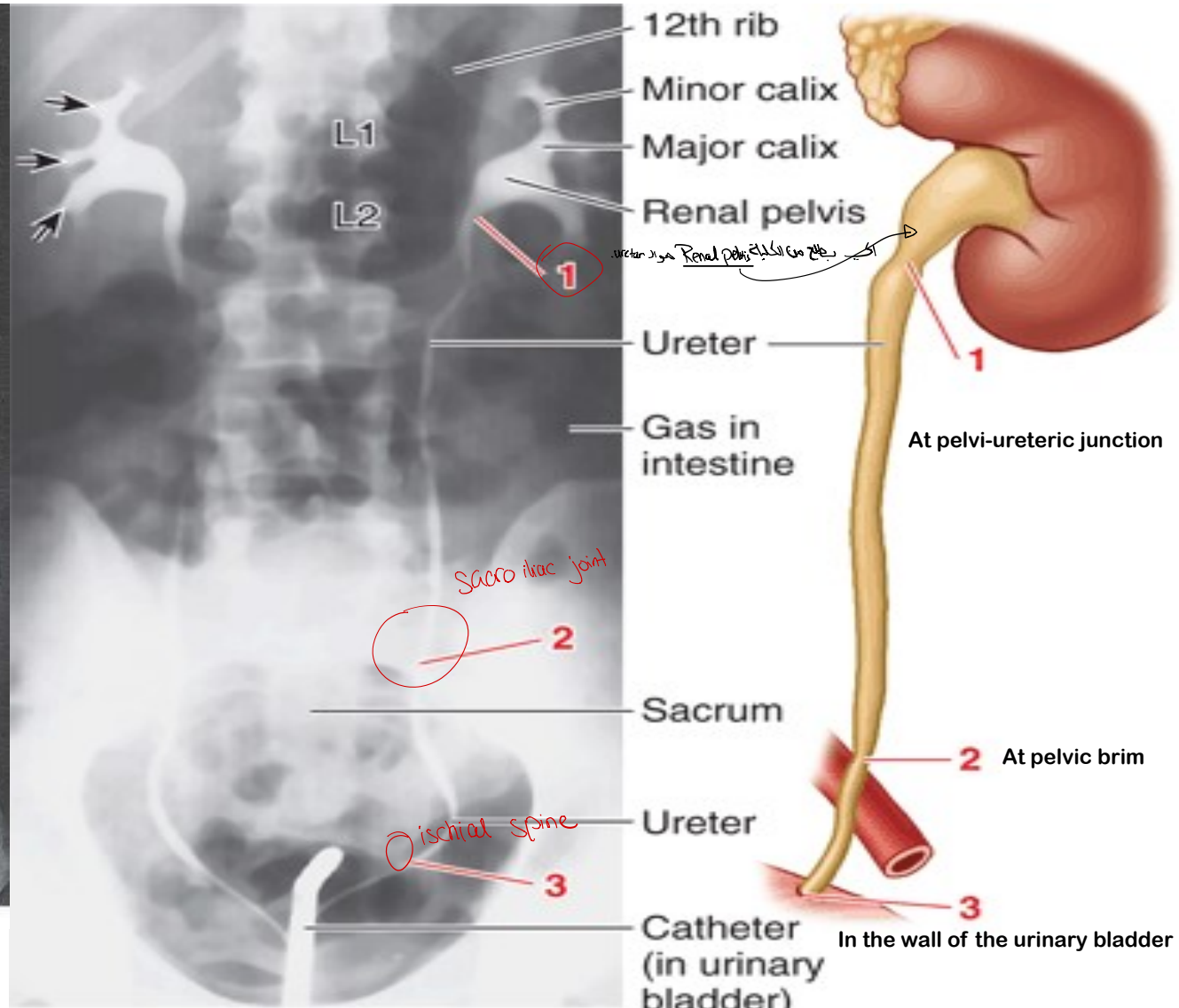


## Constrictions of the ureters

| Site of constriction  | Corresponding bony Level                              |
|---|---|
| At pelvi-ureteric junction  | Near the tip of the transverse process of L2 vertebra |
| At pelvic brim  | In front of sacroiliac joint.                         |
| In the wall of the urinary bladder<br><b>(it is the <i>narrowest point</i> of the whole ureter)</b> | Just medial to the ischial spine.                     |



Mosby items and derived items © 2007, 2003, 1999 by Mosby, Inc., an affiliate of Elsevier Inc.



(A) Anteroposterior pyelogram

(B)

## **Nerve supply :-**

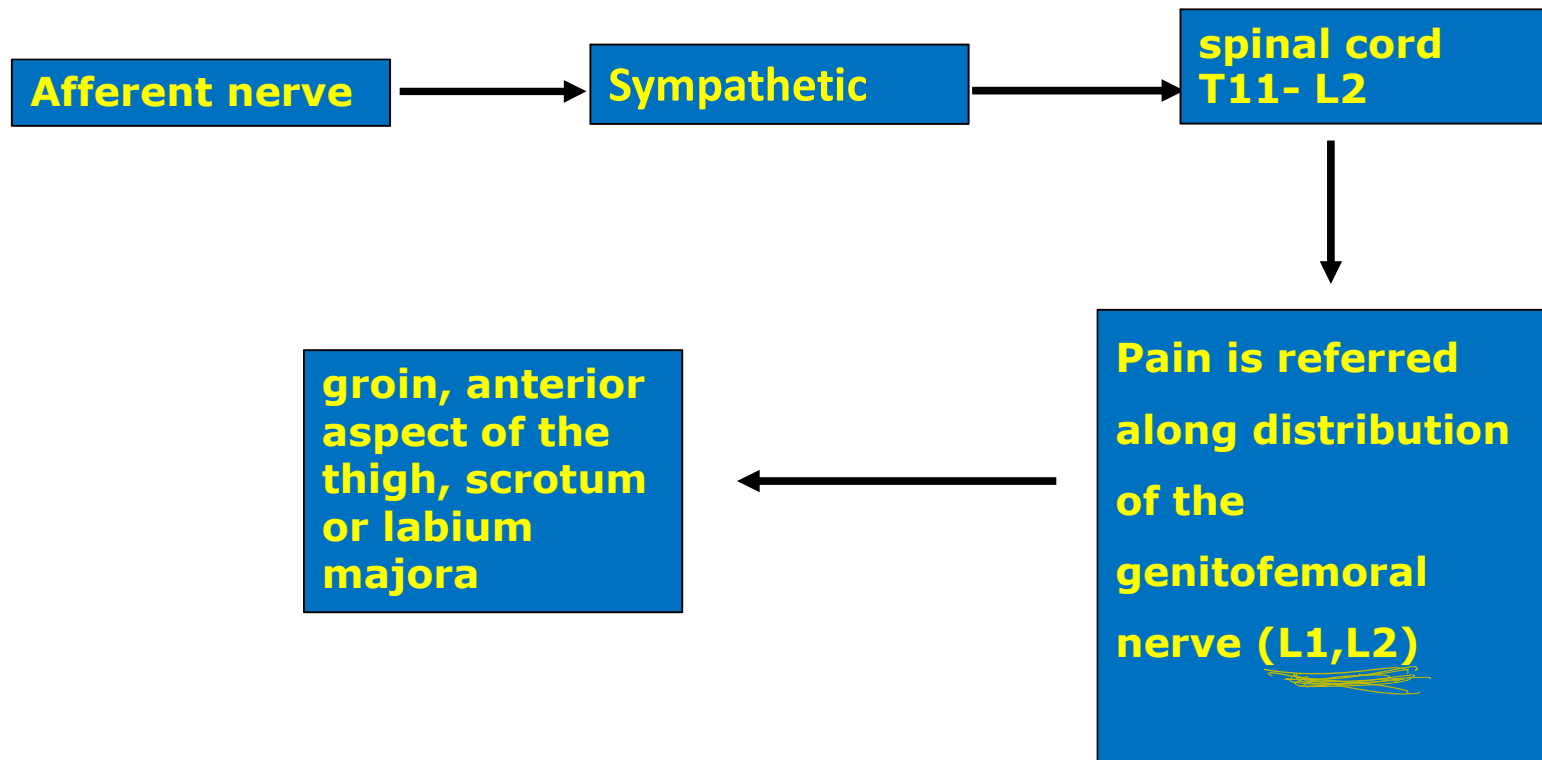
- ✓ The ureter receives sympathetic fibers from T11 – L2 segments of spinal cord.
- ✓ Sensory fibers from the ureter enter the spinal cord through the same segments.
- ✓ Ureteric colic begins in the loin and is referred to groin, anterior aspect of the thigh through genitofemoral nerve (L1,L2) and scrotum or labium majora

## **Surface markings :-**

The ureter begins at a point on the transpyloric plane, 5 cm from the midline

It enters the bladder at the pubic tubercle.

# Ureteric Pain



## Arterial blood supply :-

- ❖ Abdominal part receives branches from renal artery, abdominal aorta, gonadal and common iliac arteries
- ❖ Pelvic part receives branches from vesical, middle rectal and uterine arteries

## Lymph drainage:-

To lateral aortic, common iliac lymph nodes.

\* انتبه على الاتجاهات (R, L) لأنها عكس الاتجاهات .



Photo: USA/Winney Collection

**Intra Venous Urogram**  
**IVU**



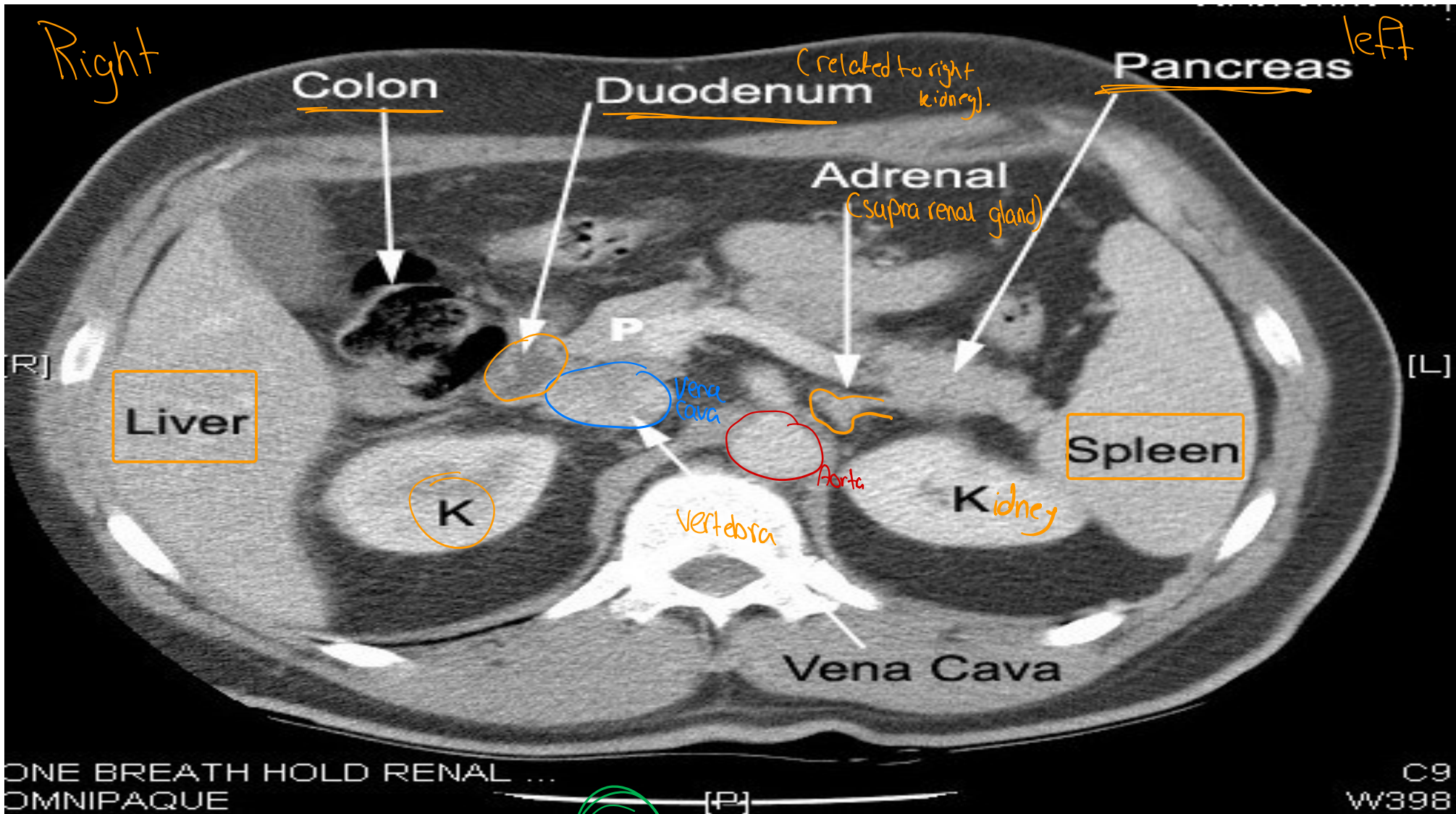
**IVU**

- تفتق مادة بتو من الدم وبتجربها  
Absorption by kidney & secretion in urine.  
- For detecting kidney Pathway  
(indicating kidney function).



**KUB**

Kidney, Ureter, Bladder  
- X ray show bones & stones.



# MRI Abdomen

DR AHMED SALMAN



Thank you!

