

## 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. (Retroperitoneal)

The ureter is about 10 inches (25 cm) and has 2 parts; abdominal and pelvic, each is 5 inches long. (12.5 cm)

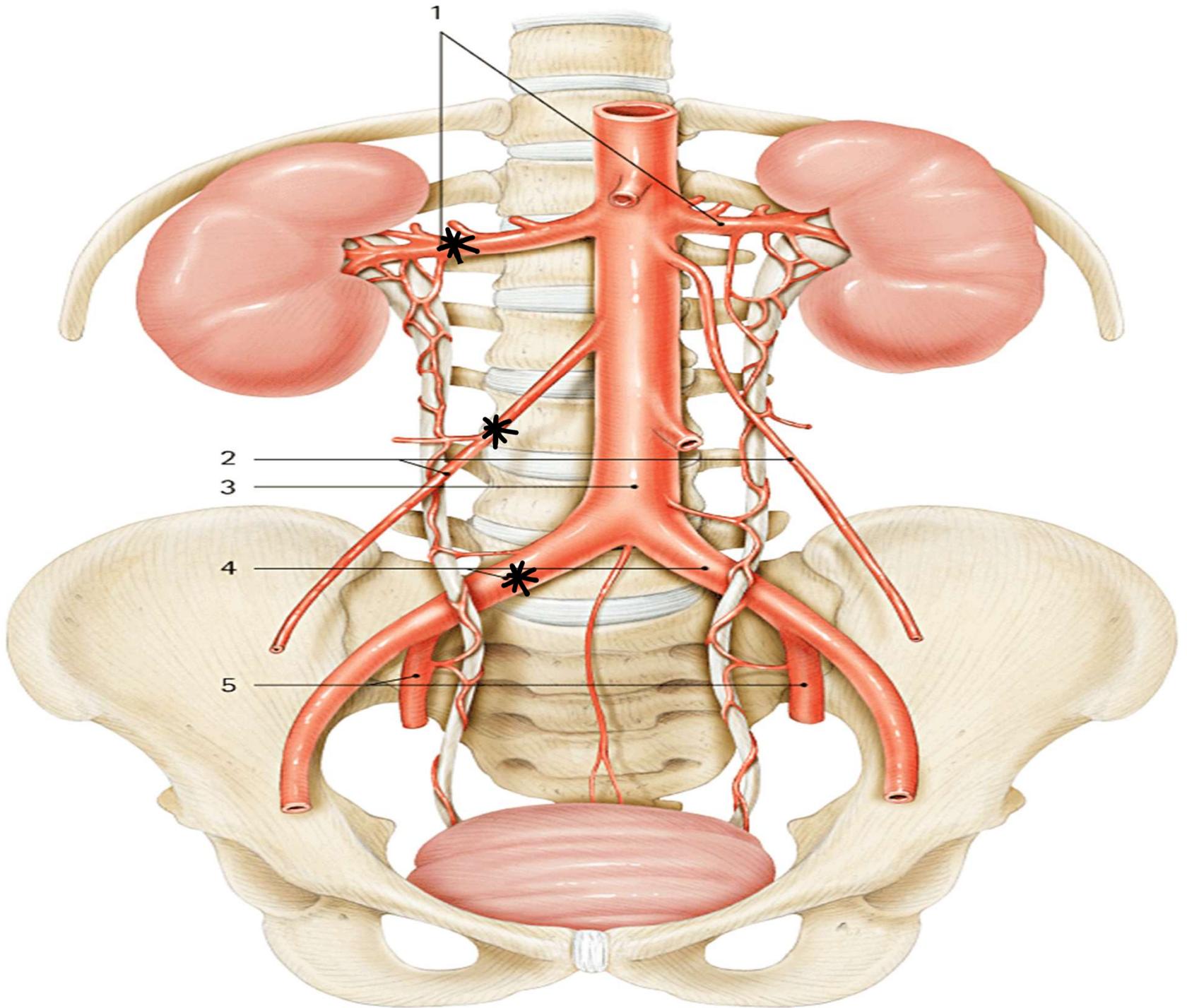
## Course of the ureter

### 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

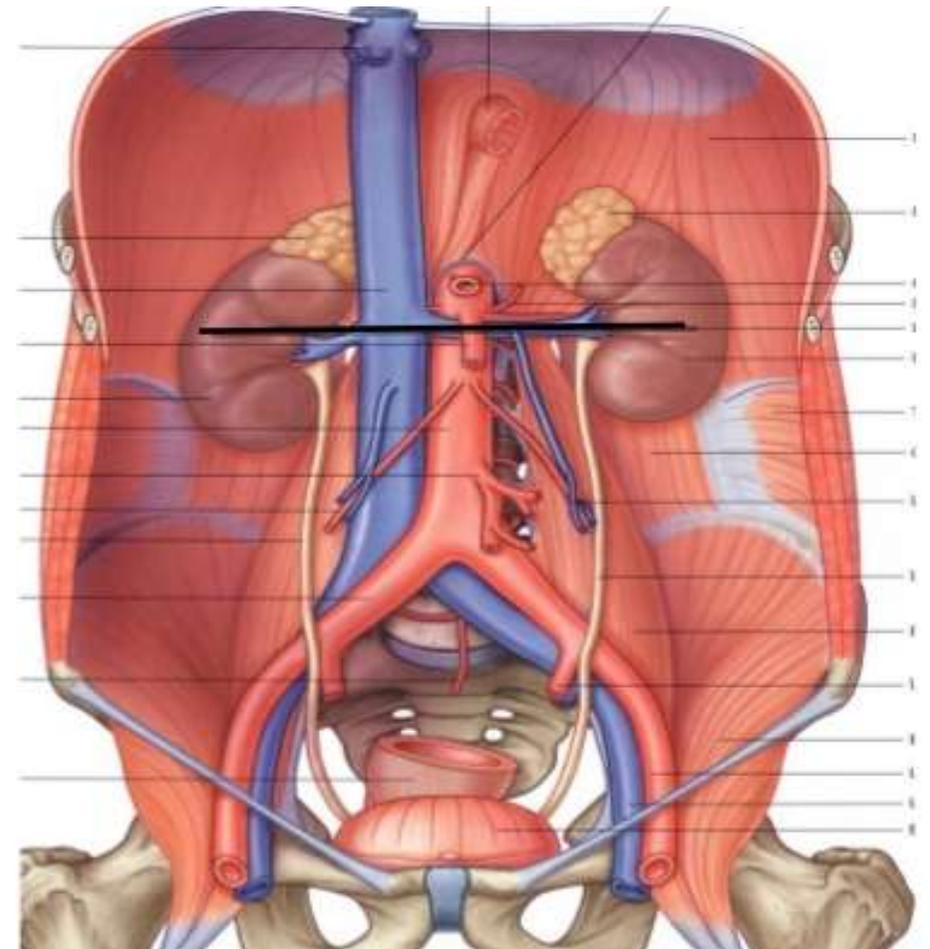
- Descends downwards and backwards along the anterior margin of greater sciatic foramen till the ischial spine. It forms posterior boundary of the ovarian fossa.
- It runs forwards on pelvic floor to open in the wall of the urinary bladder.
- It is crossed by the vas deferens in **male** and uterine 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

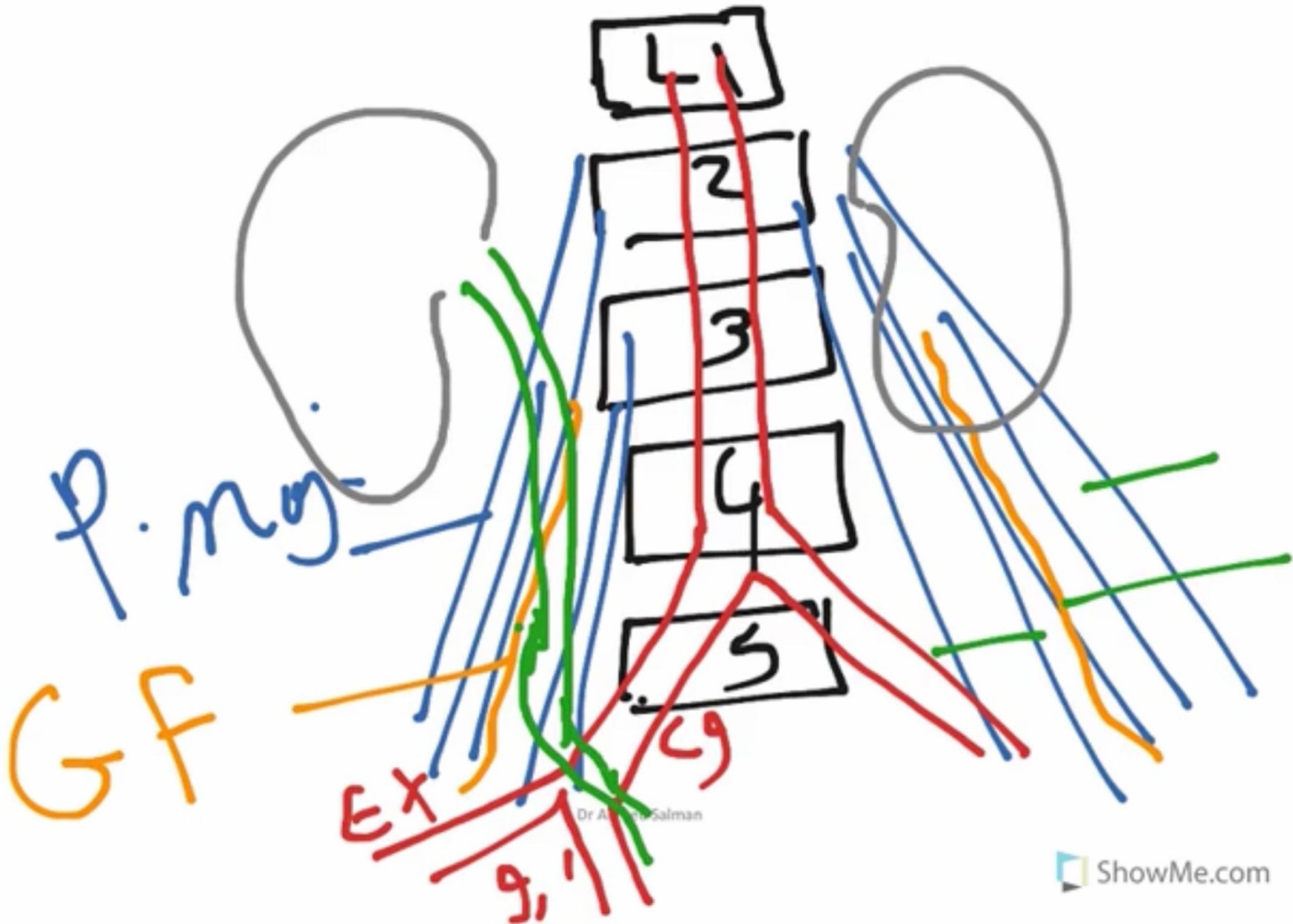


## Relations of the abdominal part of ureter:-

### 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. Genitofernal nerve
3. Termination of common or beginning of external iliac artery

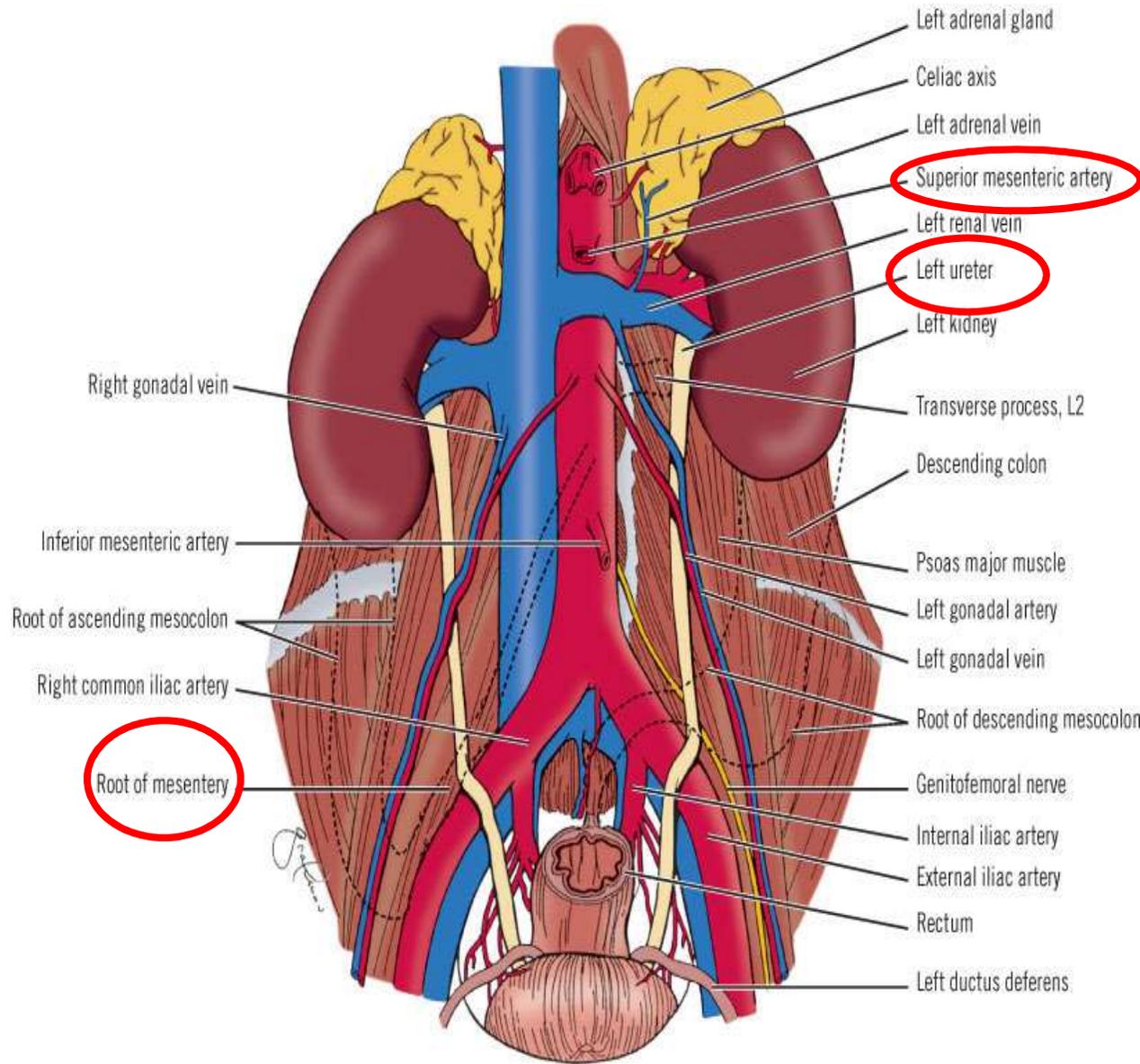
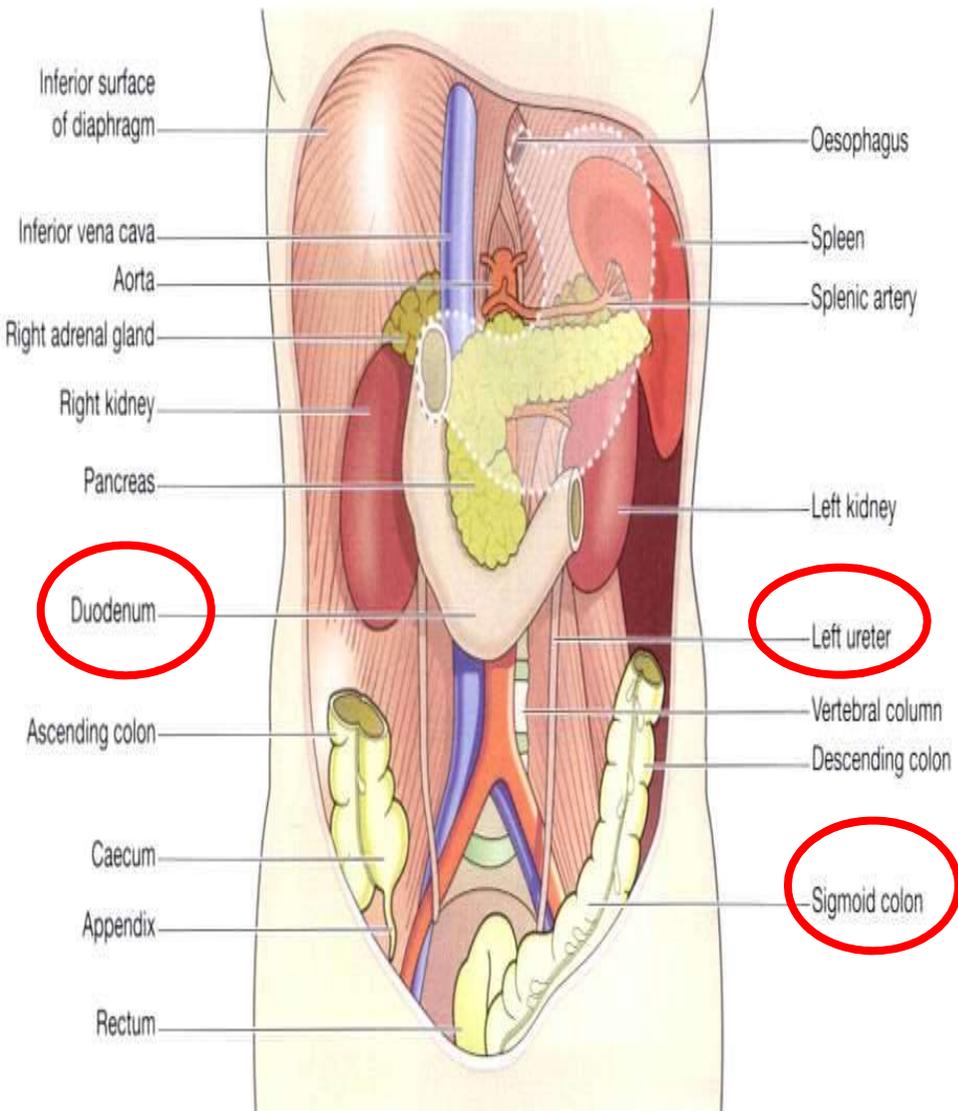


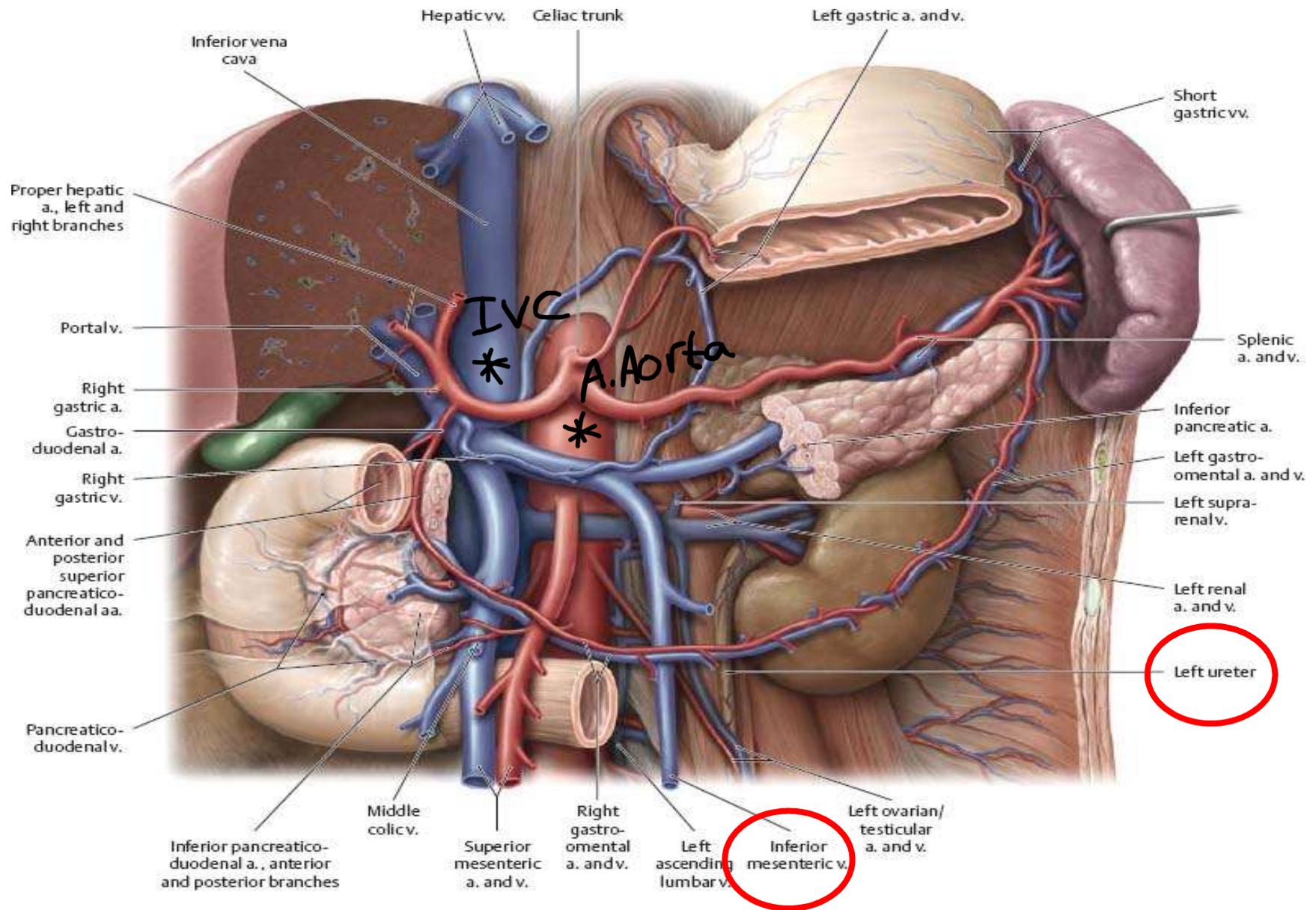


Dr. Ali Salman

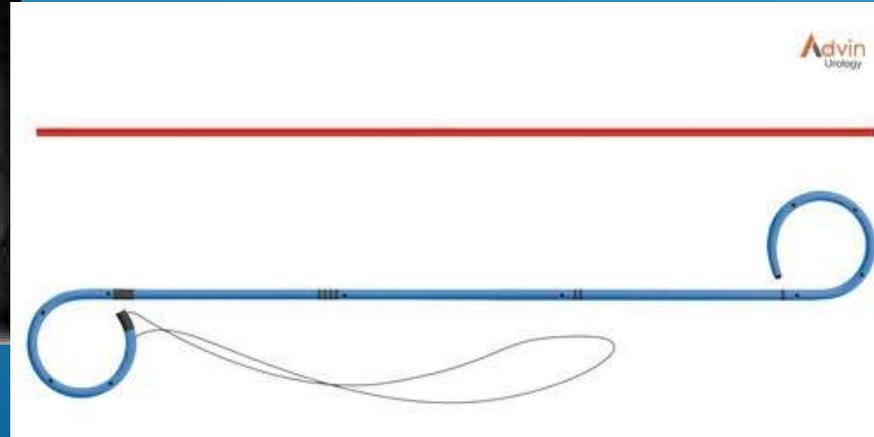
## Anterior and medial relations

	Right ureter	Left ureter
<b>Anterior relation</b> <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>
<b>Peritoneal elements</b>	<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>
<b>vessels</b>	<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>





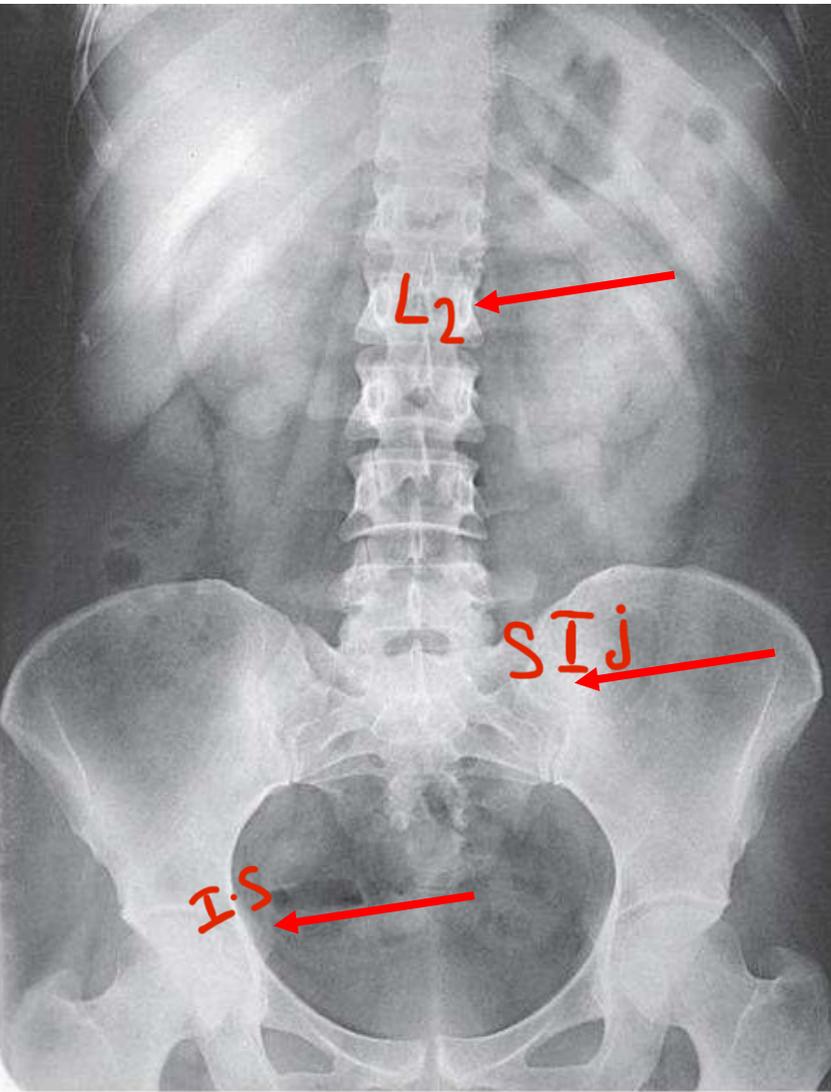
Boshera ` husband complained from sever renal colic , referred to his scrotum and tip of the penis ,IVU revealed ureteric occlusion and the doctor decided to insert double J catheter .



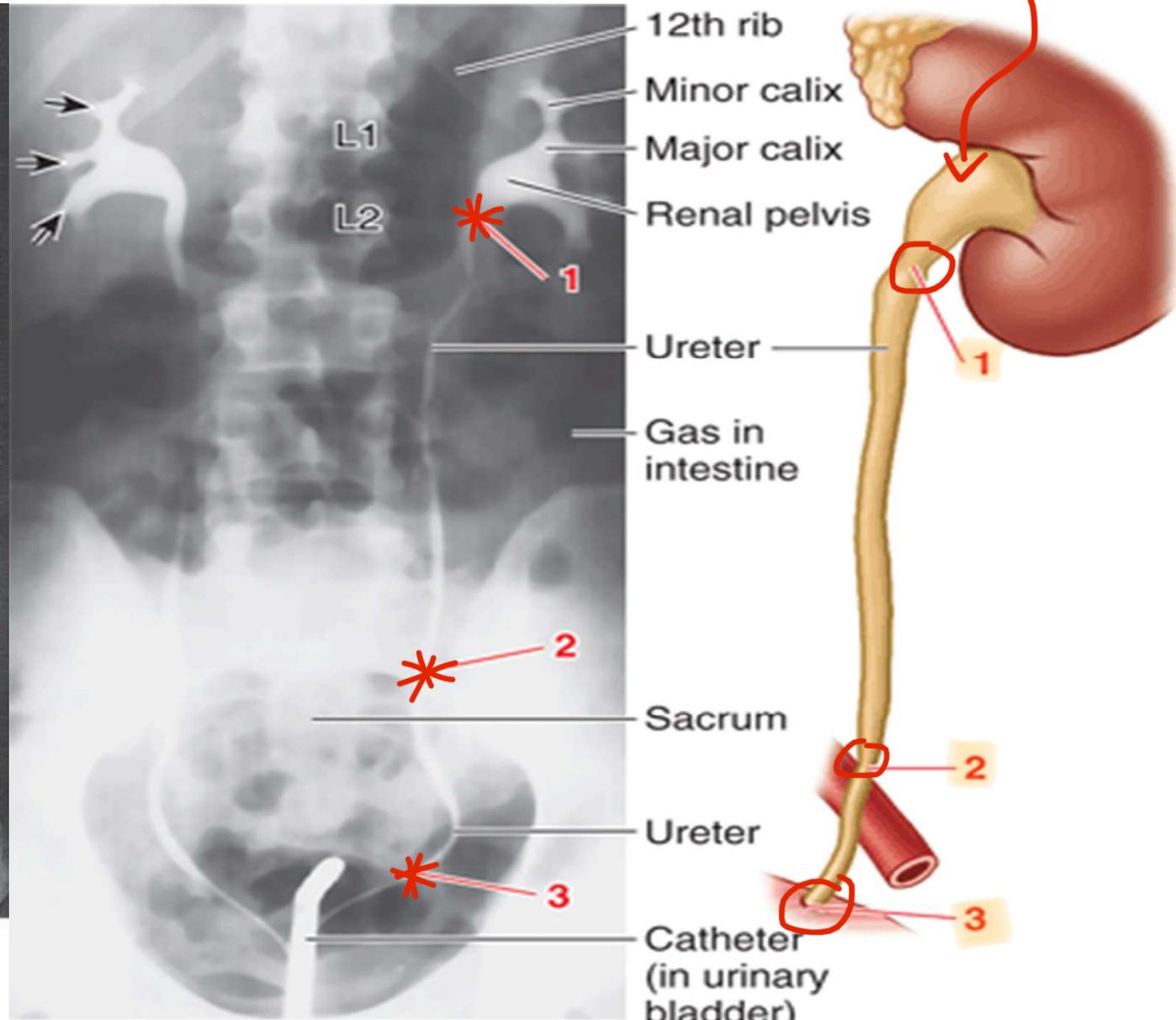
## Constrictions of the ureters (Normally found)

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

\* Hilum of the kidney at the level of L1, pelvi-ureteric junction at L2, How??? because we have firstly renal pelvis that comes from kidney then ureter



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(A) Anteroposterior pyelogram

(B)

## 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.

(Abdominal part)

(Pelvic part)

↳ \*Pelvic part supplied by all visceral branches of internal iliac artery.

### **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.

\* IVU; injection of drug and it will be absorbed by the kidney & secreted by urine so it lines it's pathway from kidney , ureter then bladder.



### Intra Venous Urogram

← IVU

\*used for indication of functions of the kidney



### IVU

\*so, it's possibly the left kidney is surgically removed or not functioning (renal failure)

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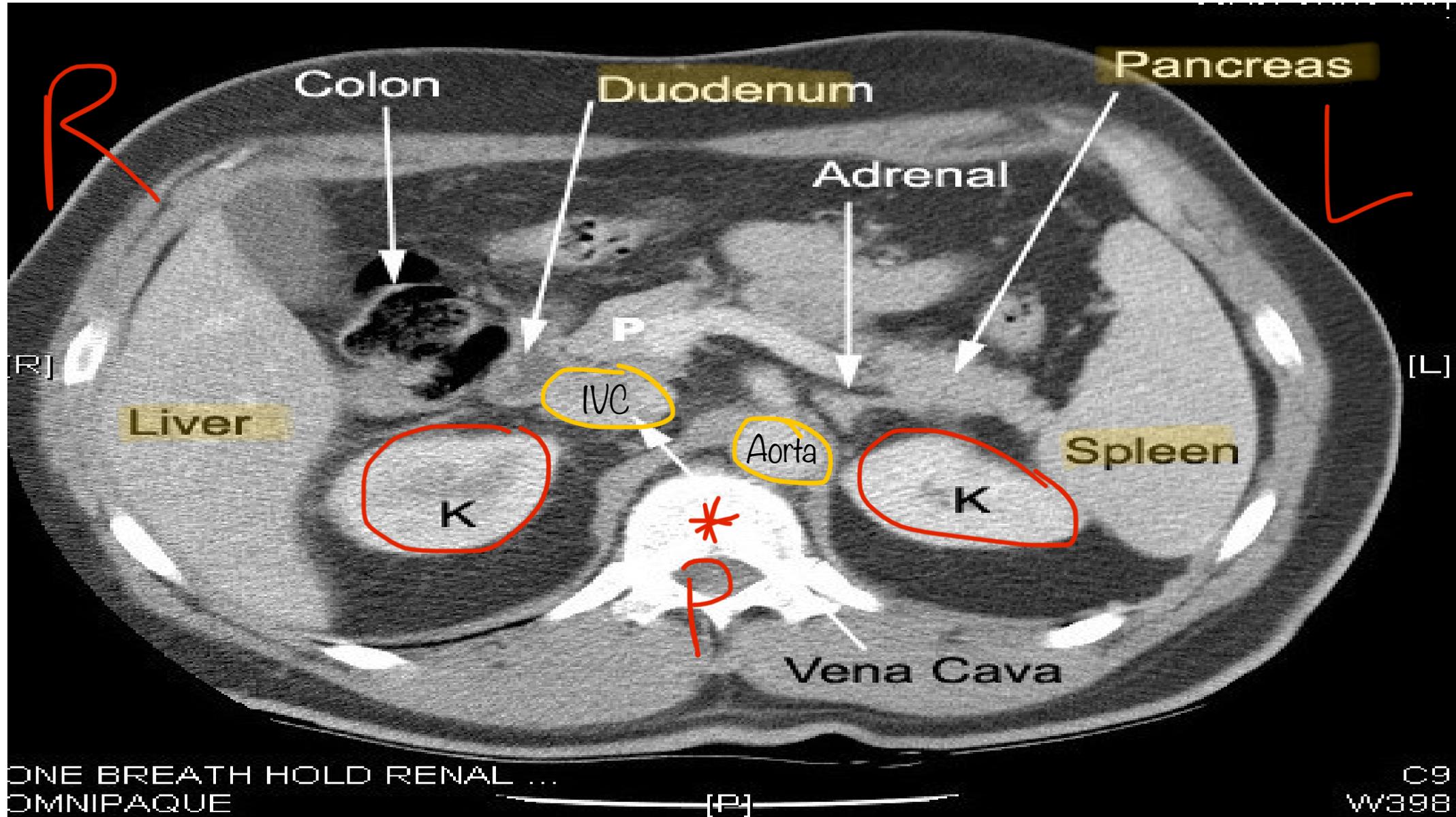


### KUB

(Kidney,ureter,bladder)

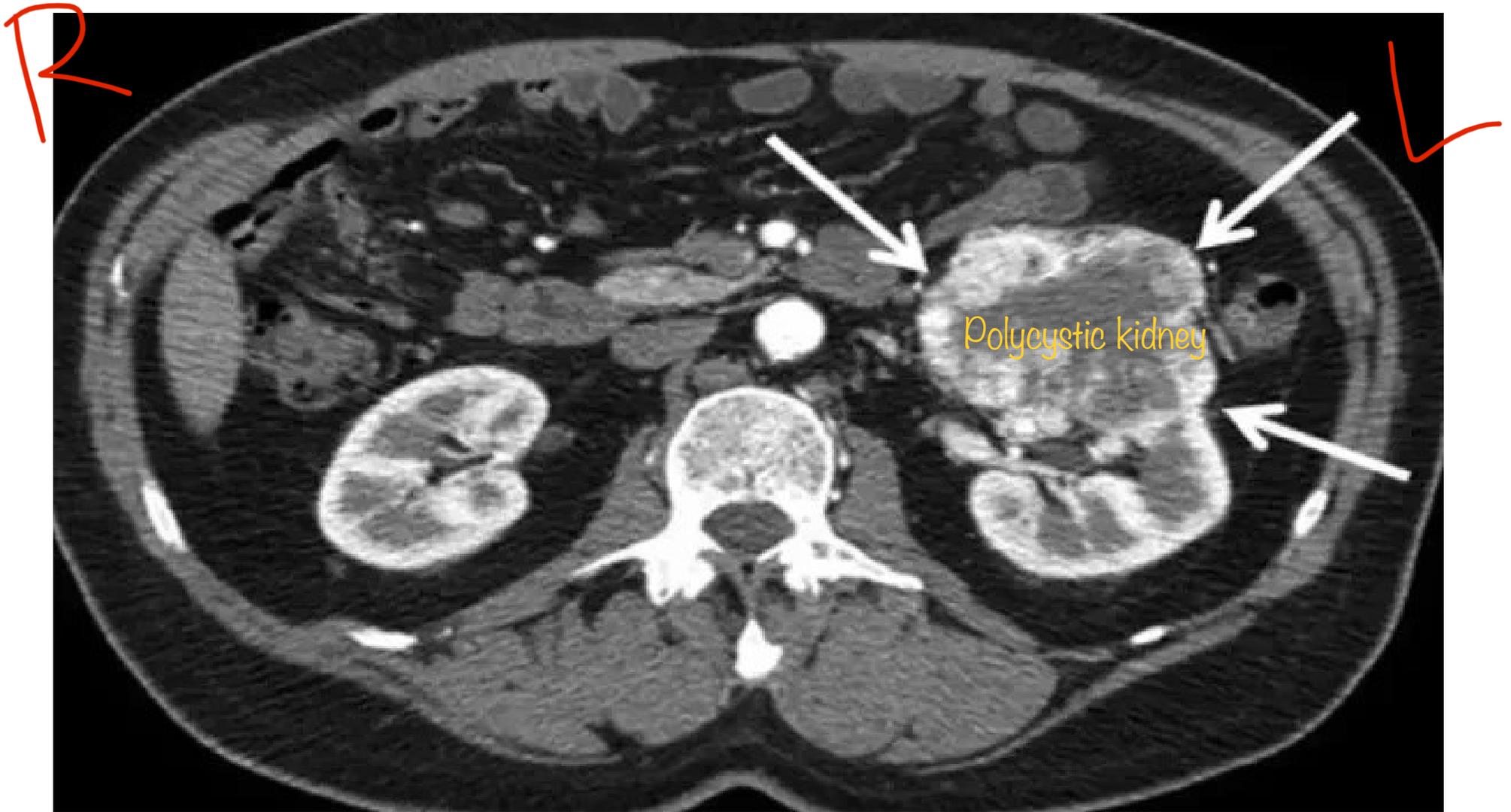
\* it's x-ray that shows if there're stones or not.

\*\* we imagine that we are standing in front of patient's foot



**MRI Abdomen**

\* liver is not clear because of diff. plane of section ( under the level of liver )



## MRI Abdomen

## Ureteric Pain

\*occlusion of ureteric stone ,, the ureter will be contracted by peristaltic movement so the stone goes down.

Renal pain varies from a dull ache to a severe pain in the flank

Renal pain can result from stretching of the kidney capsule or spasm of the smooth muscle in the renal pelvis.

