

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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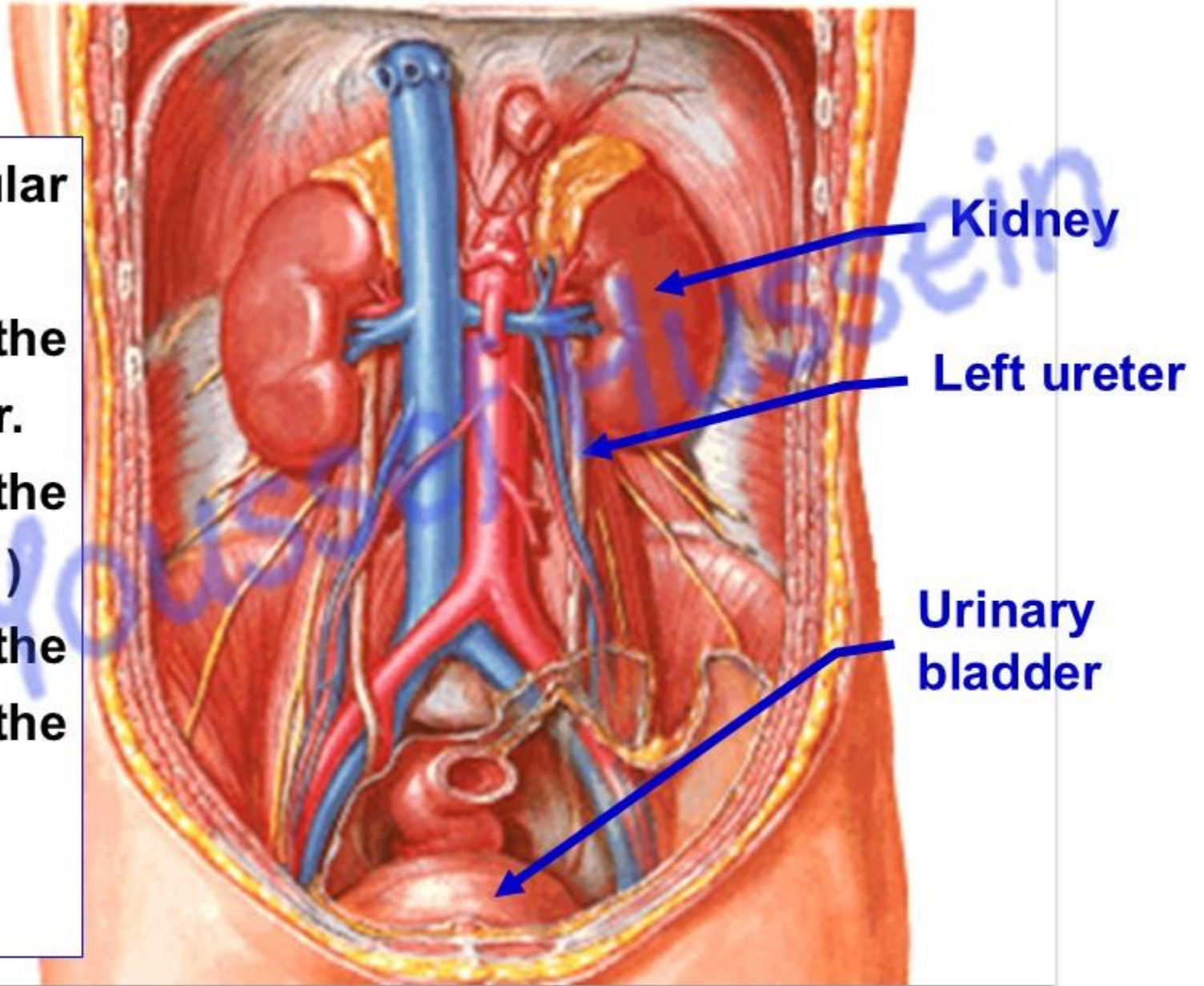
Anatomy of Ureter

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- The ureters are 2 muscular tubes.
- They convey urine from the kidneys to the urinary bladder.
 - **** Begin**, from hilum of the kidney at transpyloric plane (L 1)
 - **** Termination**, opening into the posterosuperior angle of the urinary bladder.
 - **** Length**; It is about 25-30 cm



Abdominal part

Anterior relations

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Anterior relations

Right gonadal vessel

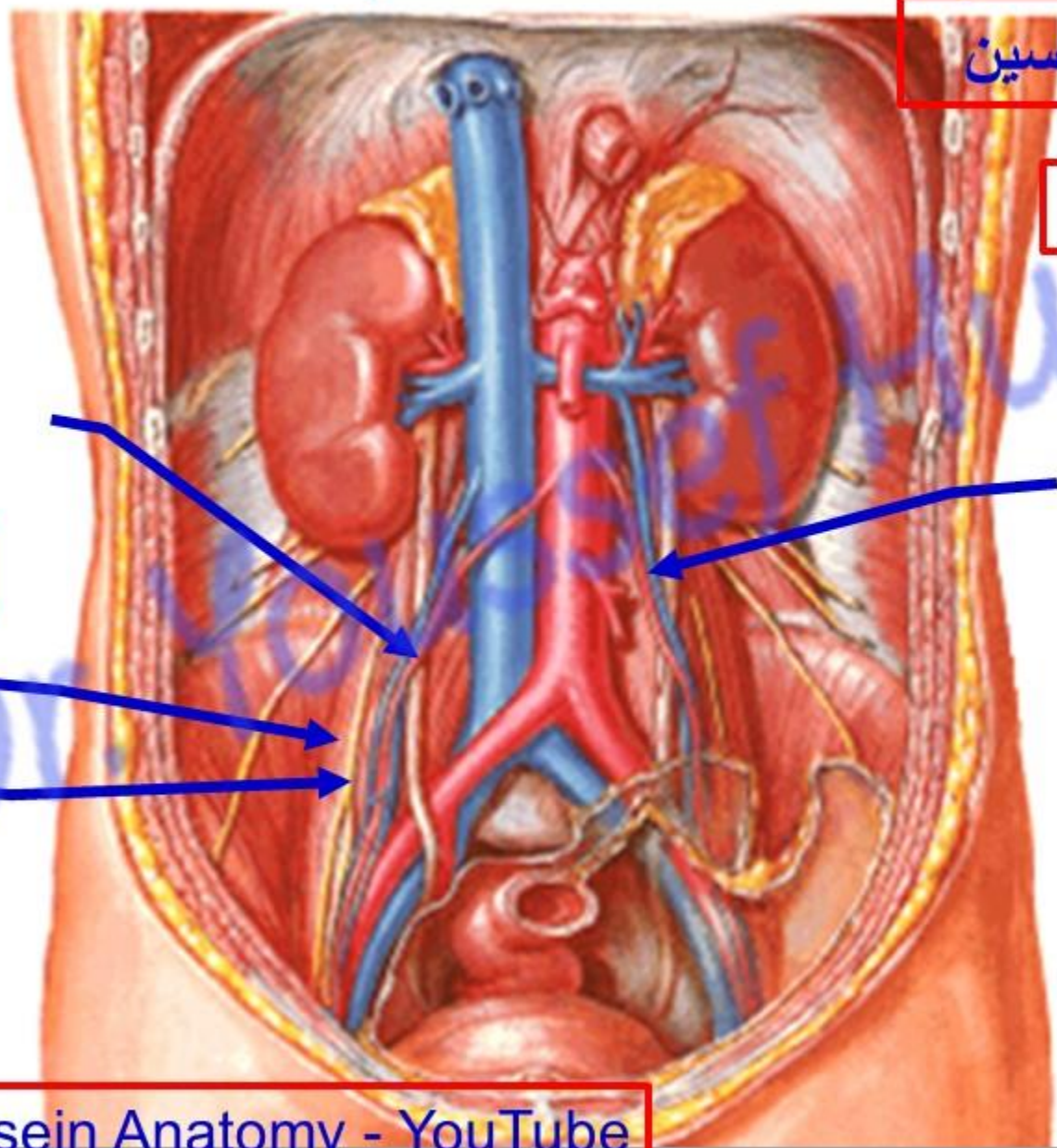
Left gonadal vessel

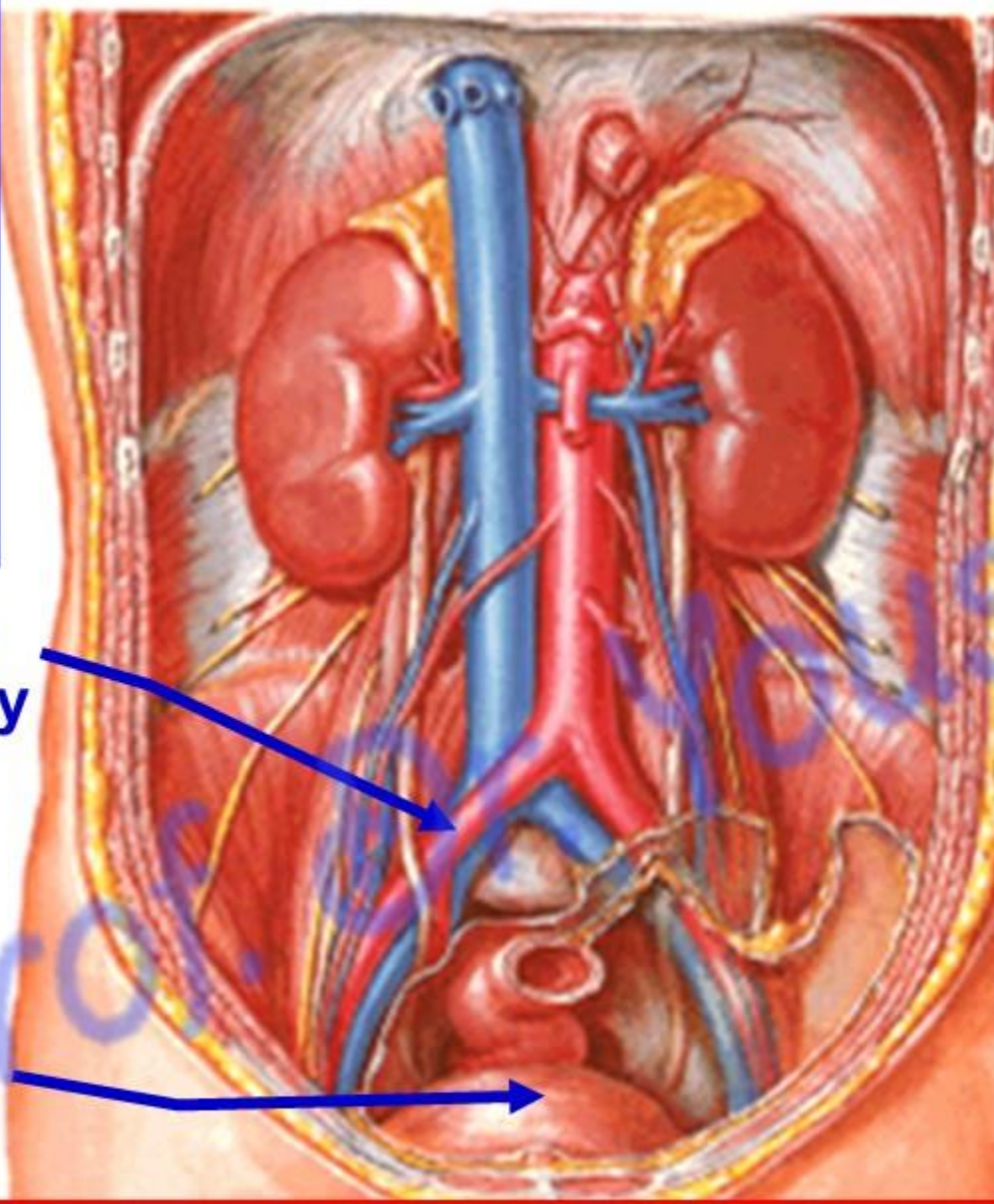
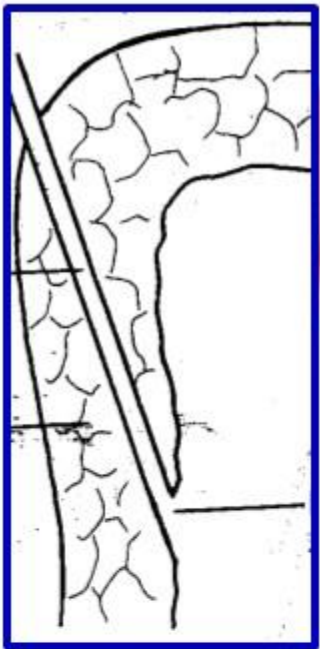
Posterior relations

Sigmoid colon

Psoas major M

Genitofemoral N





Common iliac artery

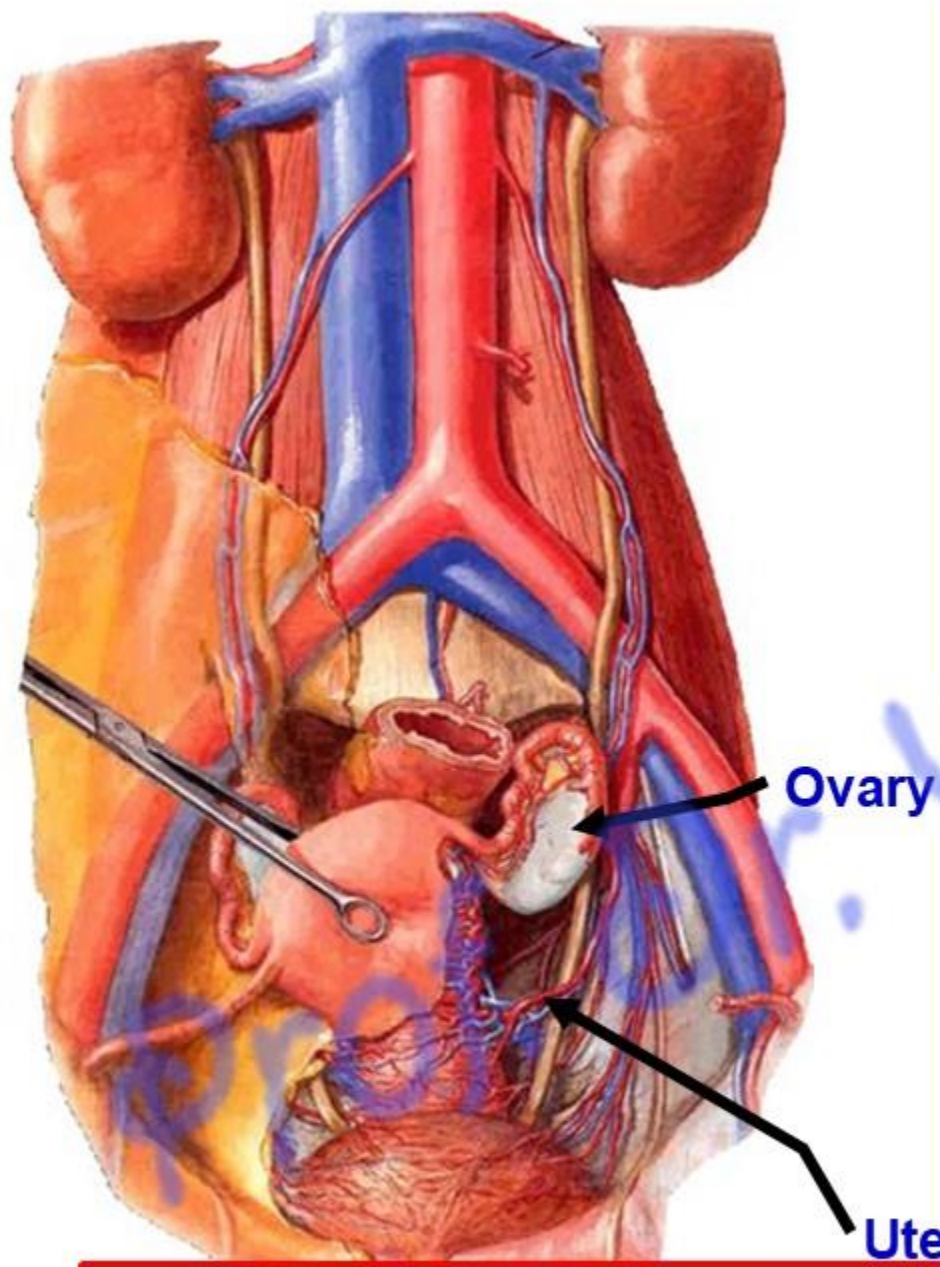
Urinary bladder

• Pelvic Part of the Ureter

- It **enters** pelvis by crossing bifurcation of common iliac artery.
- It **descends** on lateral wall of the pelvis, Opposite **ischial spine**, it curves anteromedially to the angle of the urinary bladder.

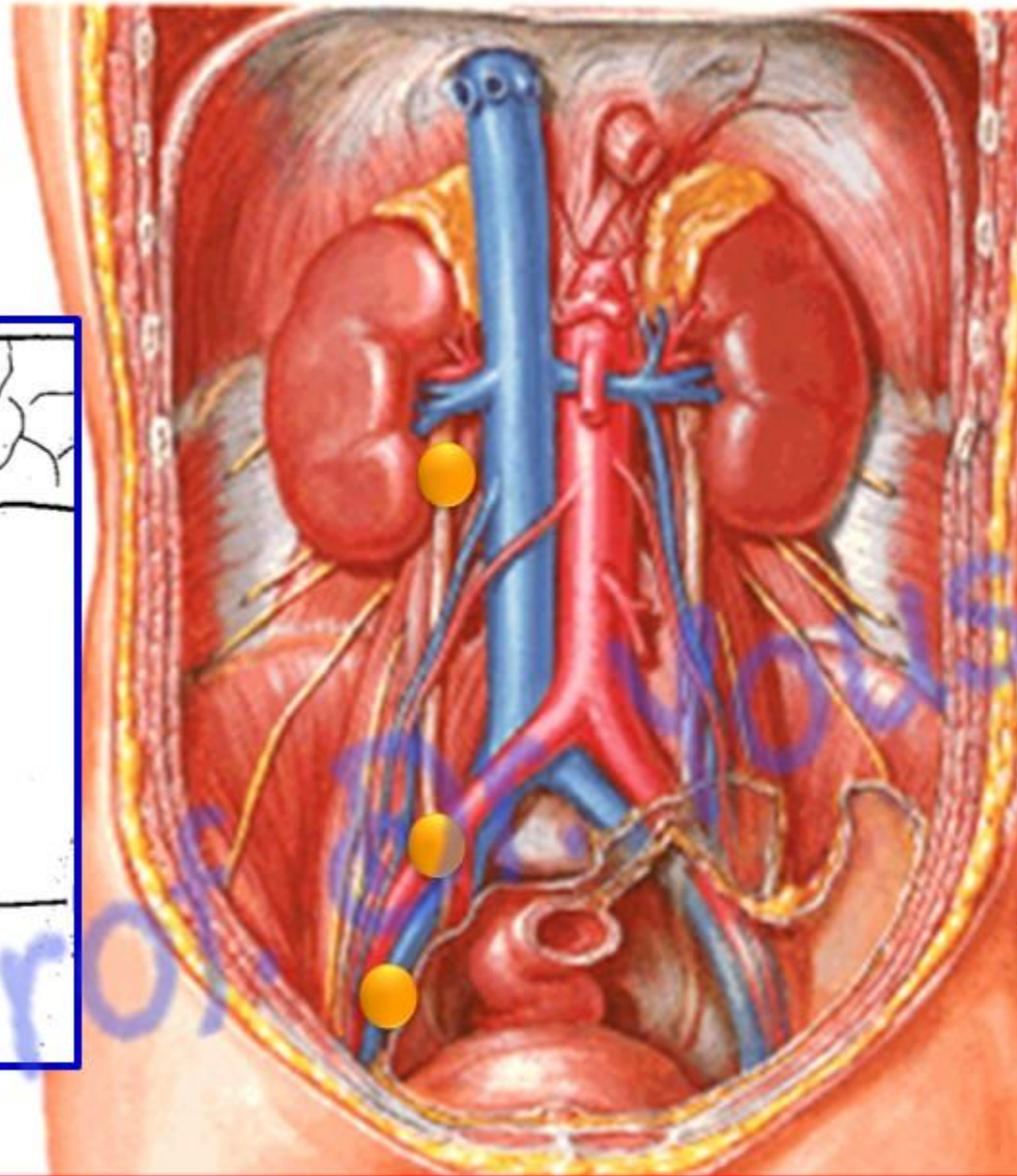
• Intramural part

- It runs oblique through urinary bladder wall approx. 1.5–2 cm before opening
- **The Valve Mechanism (Anti-Reflux):** As the bladder fills, increased intravesical pressure compresses this thin-walled segment against the surrounding detrusor muscle in the bladder wall, acting as a passive flap-valve to prevent regurgitation of urine.



- **** Relations of the pelvic part**

- It crosses obturator nerve and vessel.
- **A- In the male**, It is crossed by vas deferens.
- **B- in female**, it is crossed by uterine artery (**water under bridge**).
- It forms posterior boundary of the **ovarian fossa**.
- Then runs **on lateral aspect of the cervix and upper part of the vagina** to reach the bladder.
- **Vascular Relations**, the ureter passes anterior to the internal iliac artery, but is crossed anteriorly by the uterine artery
- **Clinical Significance:** the ureter is highly susceptible to accidental injury during hysterectomy (when ligation of the uterine vessels occurs) or while repairing a vaginal vault



- **Normal constrictions of ureter**

- Which are common sites for renal calculi (kidney stones) to become lodged.

- 1- Pelviureteric junction.

- 2- Crossing the bifurcation of common iliac artery at the pelvic brim.

- 3- At ischial spine (curvature of ureter).

- 4- Intramural part (inside the wall of urinary bladder).

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IVP

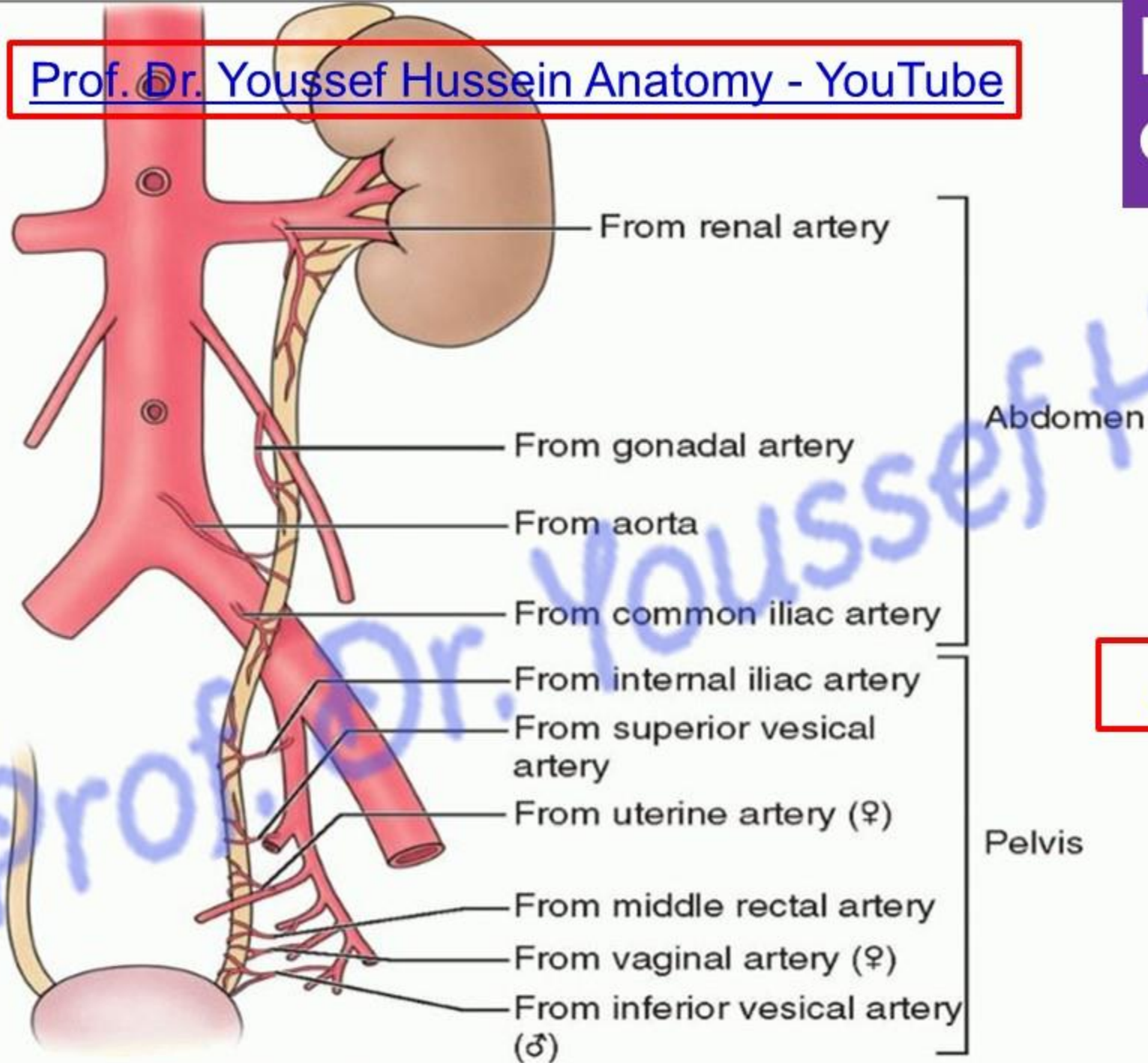
Intravenous pyelogram

- Ureter descends downwards and slightly medially opposite the tips of transverse processes of the lumbar vertebrae.
- Then, it descends in front of the sacroiliac joint.

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Blood supply of the ureter



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- **The ureter is identified at operation by**

a- it appears as thick muscular tube and visual identification of its characteristic anatomical course, particularly as it crosses the common iliac artery bifurcation

b- It shows Peristalsis Stimulation: Touching or pinching the ureter lightly, causing it to undergo visible peristaltic contraction.

C- It gives urine on aspiration.

- **Nerve supply**

- Sympathetic from T 11 to L 1.

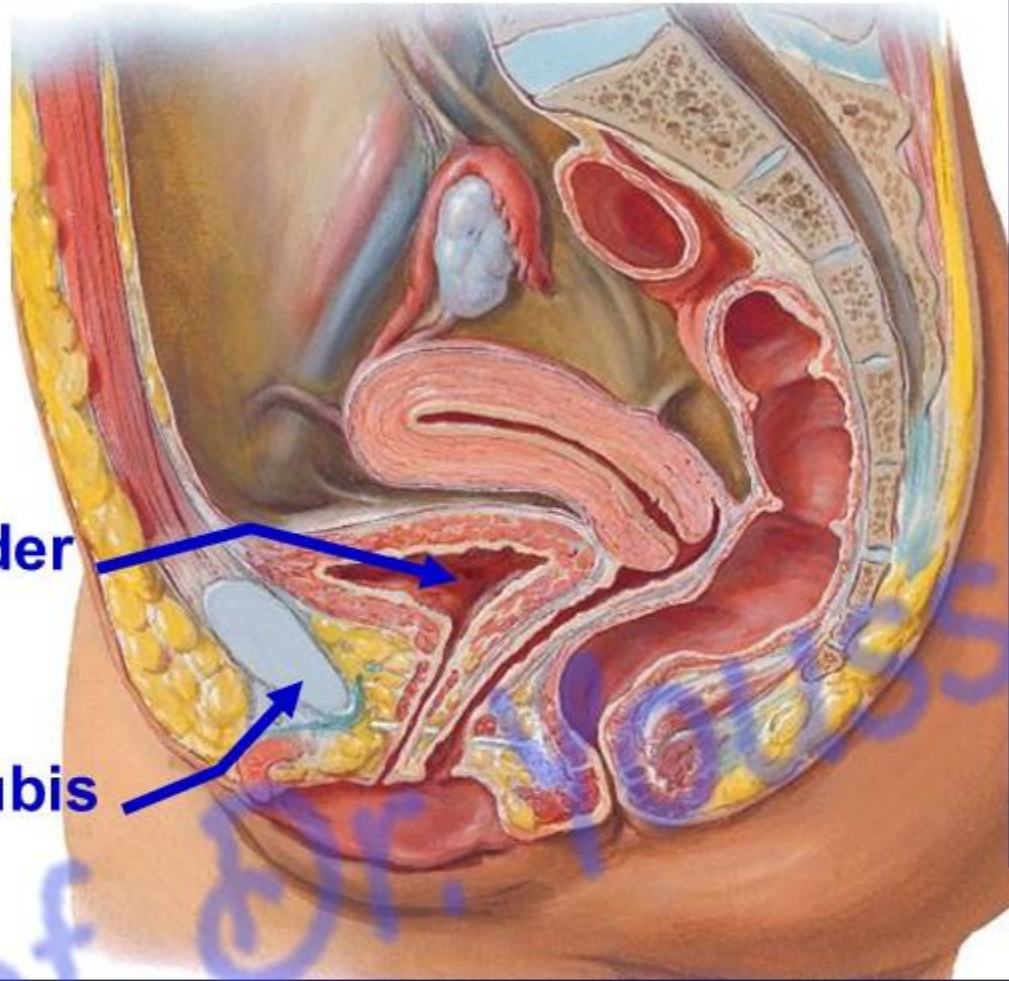
- Parasympathetic S 2, 3, 4.

- **Renal pain is referred to** the groin and external genitalia which are supplied by genitofemoral nerve (L1&2).

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Anatomy of Urinary bladder

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Urinary bladder

Symphysis pubis

** Position:

- 1- **During childhood**, it is an abdominal organ because the pelvis is narrow.
- 2- **At puberty**, lies in pelvic cavity.
 - When the bladder is **distended**, it raises above the upper border of the symphysis pubis and becomes behind the anterior abdominal wall.

** Function and capacity:

- It is a muscular reservoir to the urine.
- The average capacity of the bladder is 400 - 500 cc.

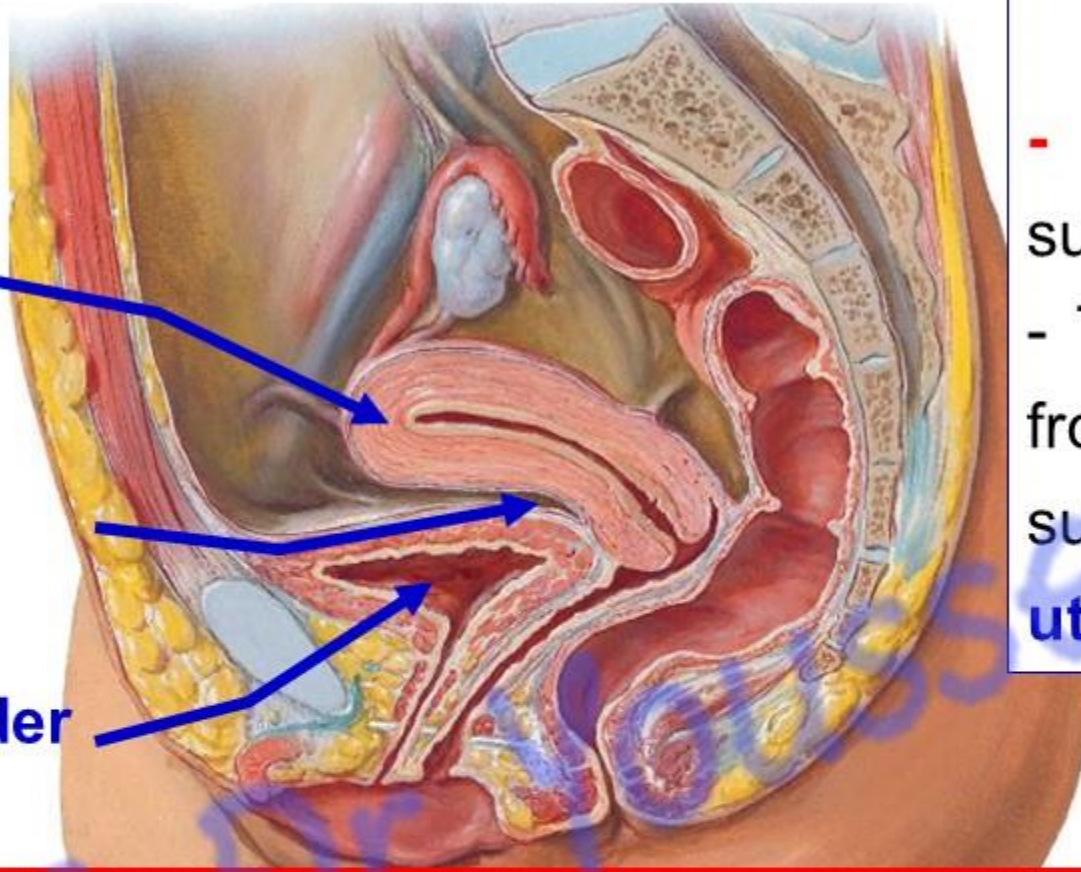
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Uterus

**Uterovesical
pouch**

Urinary bladder

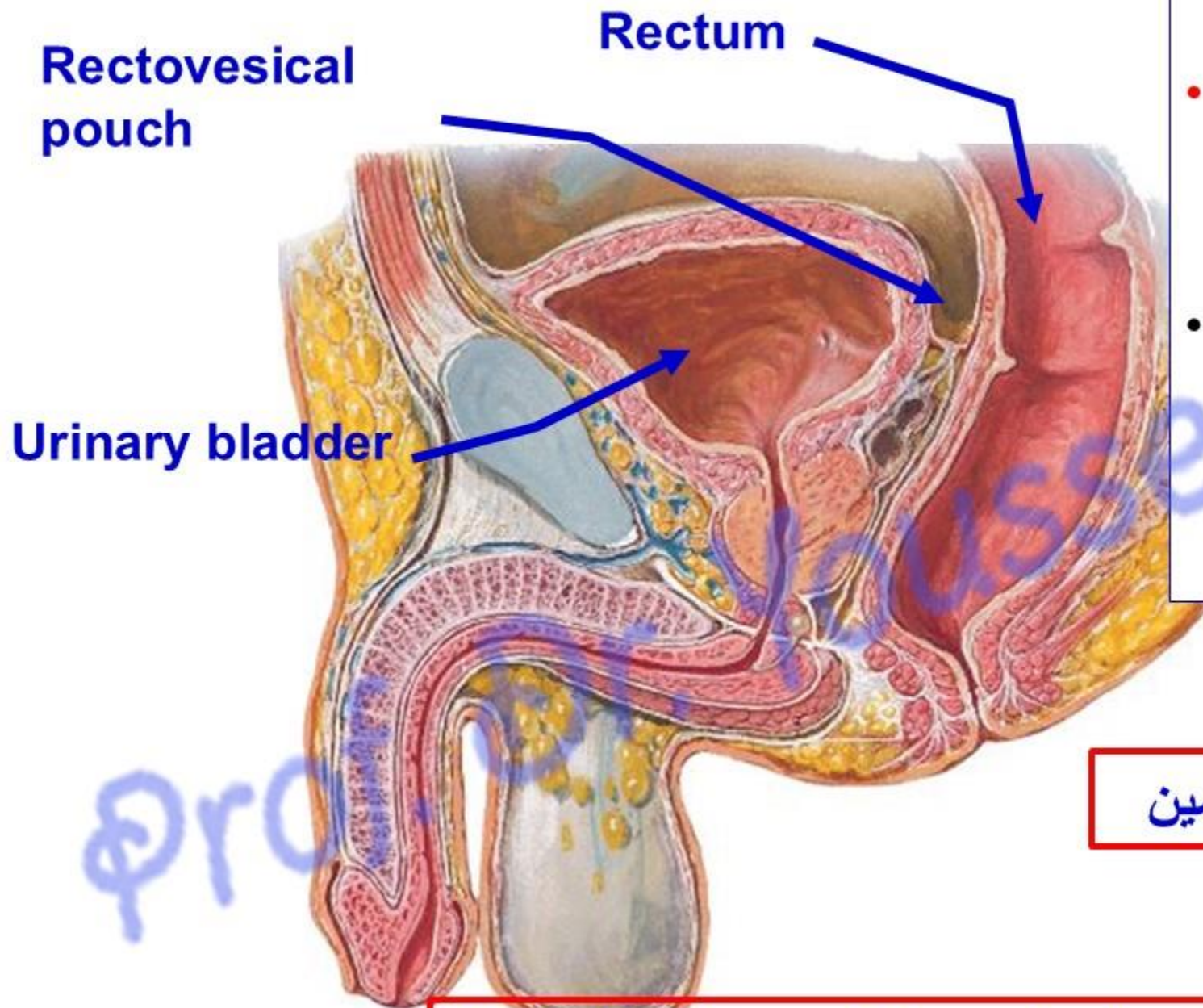


**** Peritoneal covering**

- **In female** only the superior surface is covered by peritoneum.
- The reflection of the peritoneum from the uterus to the superior surface of the bladder forming the **uterovesical pouch**.

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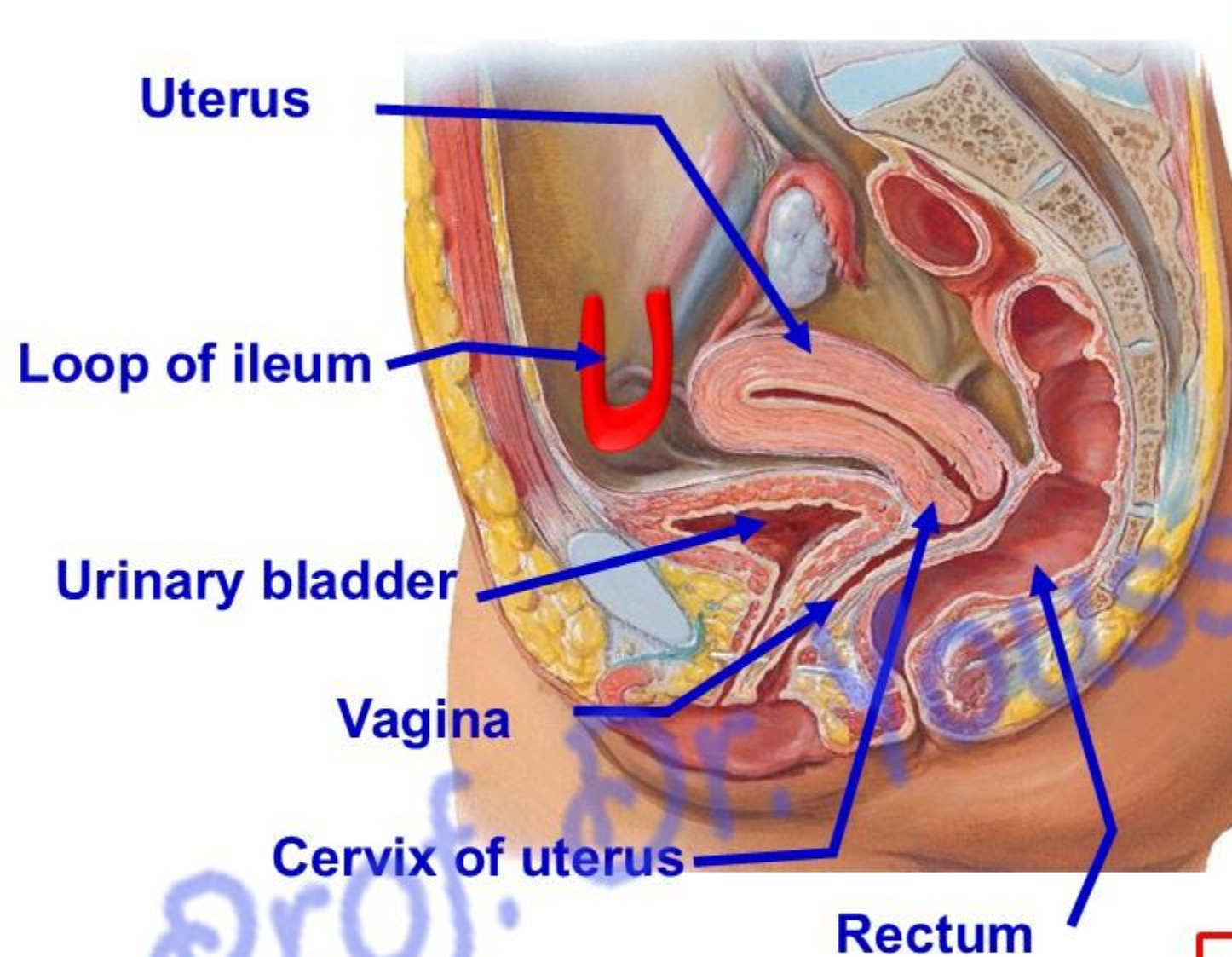


**** Peritoneal covering**

- **In male** the peritoneum covers the superior surface and upper part of the base.
- The reflection of the peritoneum from the rectum to the upper part of the base forming **rectovesical pouch**.

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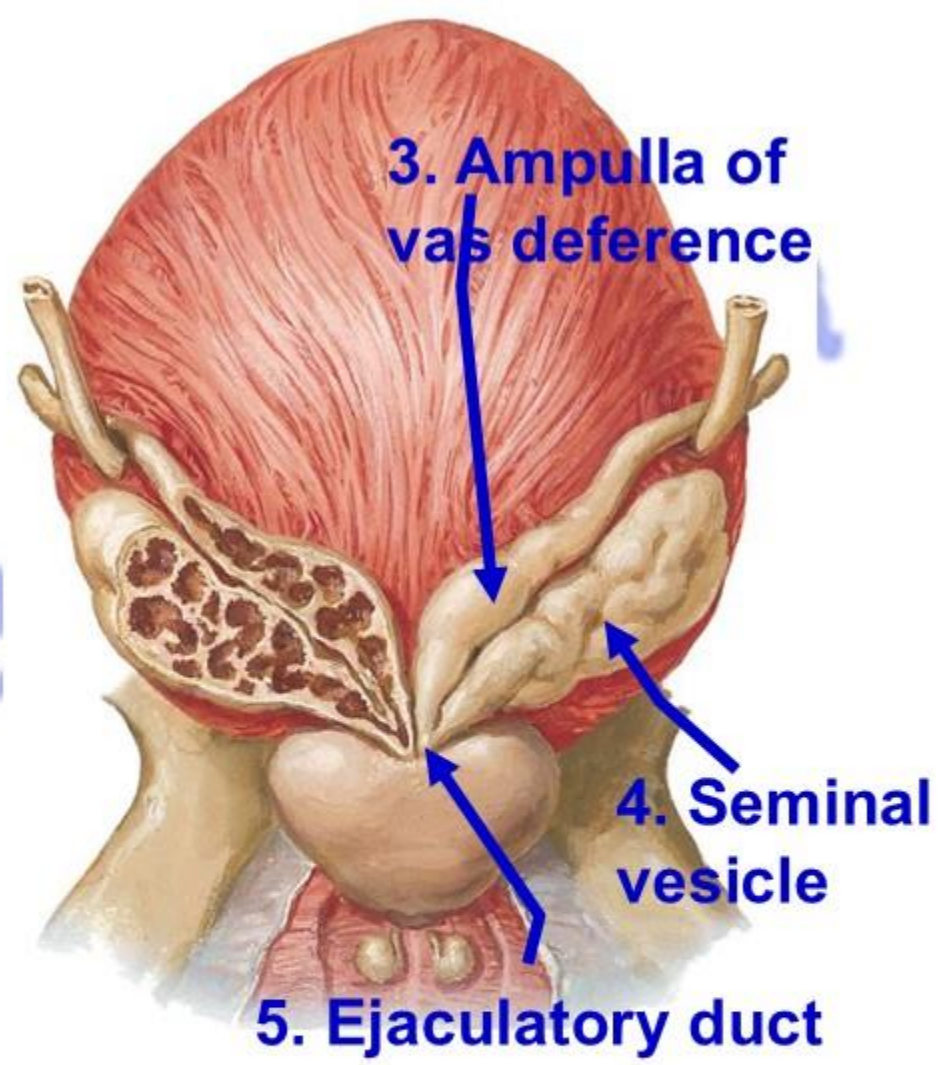
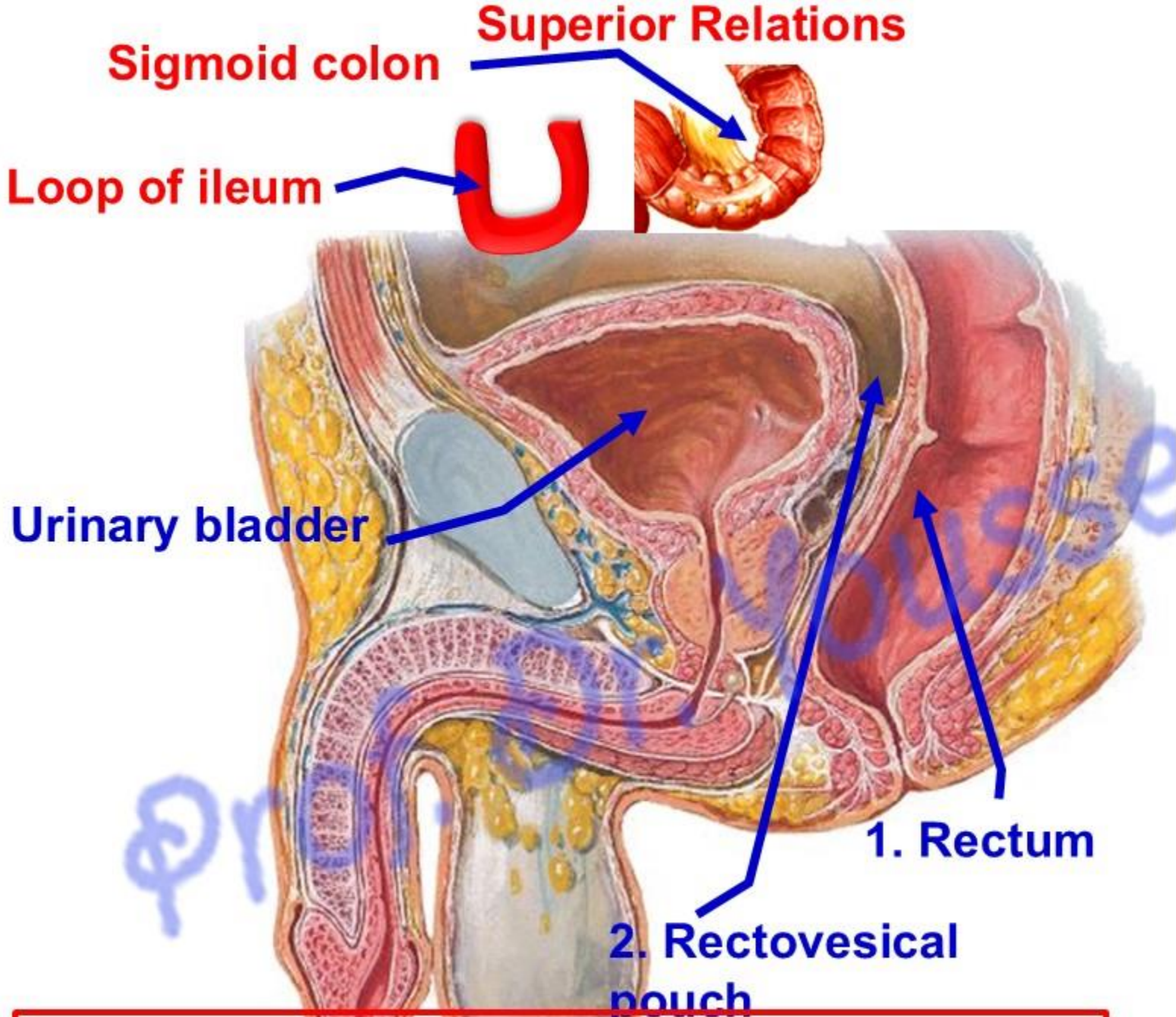
• **Relations of Superior surface In female:**

- 1) Anterior surface of uterus
- 2) Loop of ileum

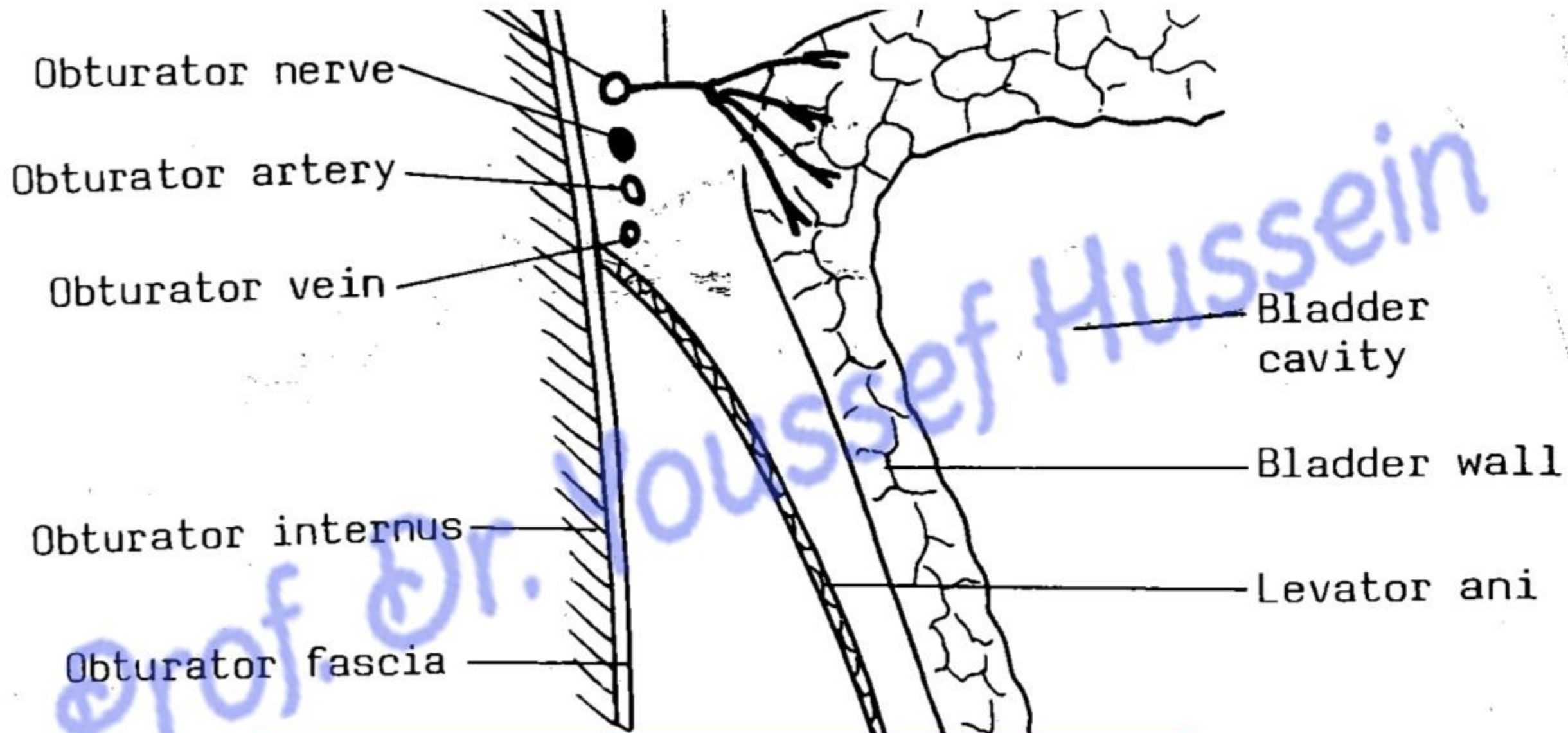
• **Posterior relations**

- 1) Cervix of the uterus.
- 2) Vagina.
- 3) Rectum

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Posterior Relations male



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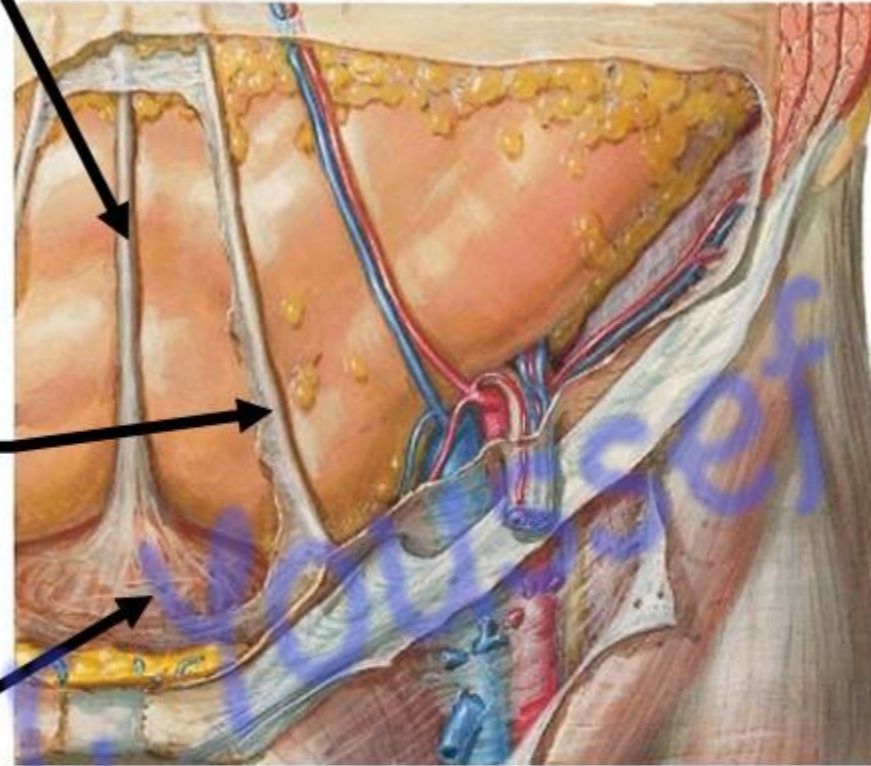
- Inferolateral surfaces in both sex

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Median umbilical ligament to the apex (obliterated urachus) if patent urine discharge from umbilicus

Two medial umbilical ligaments obliterated umbilical arteries if patent blood discharge from umbilicus

Urinary bladder



• Ligaments of urinary bladder

• Two lateral ligaments from the neck to the pelvic fascia

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Puboprostatic ligament: between body of pubis and prostate in **male**)

Pubovesical ligament: between body of pubis and neck of the bladder in **female**).

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*** Arterial supply of urinary bladder:**

1- **Superior vesical arteries** from internal iliac artery.

2- **Inferior vesical artery** (**male**) or **vaginal artery** (**female**) from internal iliac artery.

* **Venous drainage:** venous plexus; drain into the internal iliac vein.

**** Lymphatic drainage:**

1- Mostly into the external iliac lymph nodes.

2- Partly Into the internal iliac, and common iliac lymph nodes.

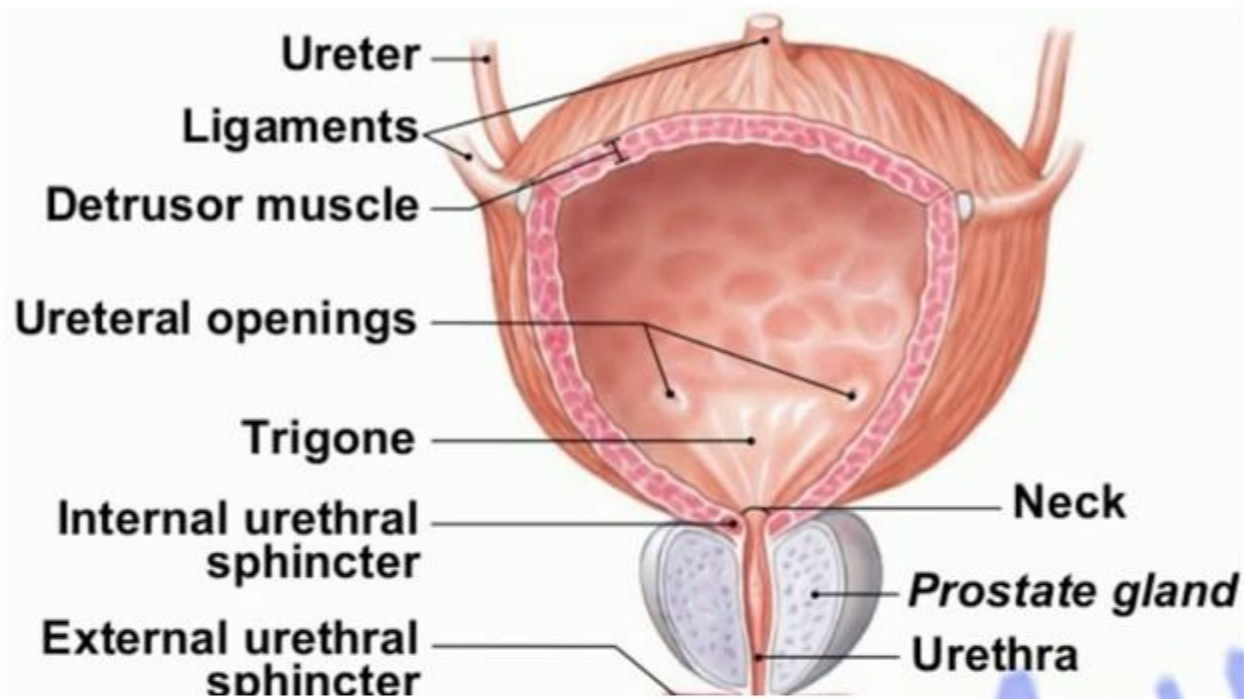
**** Nerve supply:**

a- **Sympathetic** from T11, 12 and L 1, 2 segments of the spinal cord.

b- **Parasympathetic** from S 2, 3, 4.

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- **Internal (mucosa) of urinary bladder**
 - It is lined by transitional epithelium (endoderm) and shows folds except the trigone (**mesoderm**).
 - **Trigone**
 - This is a triangular area on the **posterior** wall of the bladder wall.
 - The mucosa of trigone is **sensitive, smooth, vascular, and elastic**.
 - It is bound by 3 lines connecting 2 ureteric openings and internal urethral opening.
 - **Internal urethral meatus** is situated at the apex of the trigone.
 - **In male,**
 - **Uvula of urinary bladder** is a slight elevation behind the internal urethral meatus.
 - It is produced by the median lobe of the prostate

Clinical Notes

• Reflex Bladder – Spinal Cord Transection Above T12

- It occurs because the sacral reflex arc remains intact while the connection to the brain is lost.
- Thus, The bladder empties automatically when full

• Flaccid Bladder – Spinal Cord Transection Below T12

- A type of neurogenic bladder where the detrusor muscle cannot contract.
- This lower motor neuron lesion leaves the bladder unable to empty, leading to overdistension, high risk of infection, kidney damage, and overflow incontinence

Urine Retention

- Urinary retention is the inability to fully or partially empty the bladder, causing pain, discomfort, and potential complications like kidney damage.
- It can be acute (sudden, severe, medical emergency as catheter) or chronic (long-term, gradual).
- Common causes include prostate enlargement, obstructions by stone, infections, nerve issues, and medication side effects

• Micturition (Urination)

- Is initiated by stimulating **stretch receptors in the detrusor muscle** in the bladder wall by increasing volume of urine.

- Can be assisted by contraction of the abdominal muscles, which increases the intraabdominal and pelvic pressures.

- **Involves the following processes:**

1. **Sympathetic [GVE]** induce relaxation of the bladder wall and constrict the internal urethral sphincter, **inhibiting emptying**.

2. Impulses (**GVA**) arise from stretch receptors in the bladder wall and enter the spinal cord (S2–S4) then to the micturition center in the **brain**.

3. **Parasympathetic (GVE)** to the bladder musculature induce contraction of the detrusor muscle and relaxation of the internal urethral sphincter, **enhancing the micturition**.

4. **General somatic efferent (GSE)** fibers in the pudendal nerve cause voluntary relaxation of the external urethral sphincter, and the bladder begins to void.

5. **At the end of micturition**, external urethral sphincter contracts, and bulbospongiosus muscles expel the last few drops of urine from the urethra.

https://www.youtube.com/channel/UCVSNqbibj9UWYaJdd_cn0PQ

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Thank You

Questions

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