



SNS COLLEGE OF ALLIED HEALTH SCIENCES
SNS Kalvi Nagar, Coimbatore - 35
Affiliated to Dr MGR Medical University, Chennai



DEPARTMENT: ALLIED HEALTH SCIENCES
COURSE NAME: ANATOMY

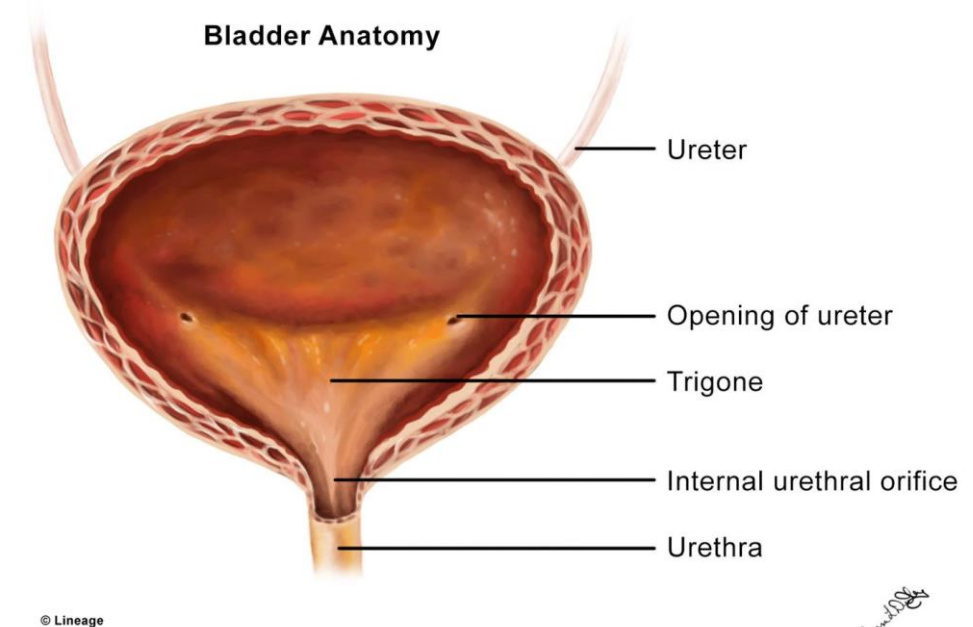
Unit: Anatomy of Urinary Bladder
**Topics: Parts, External Features, Blood Supply &
Nerve Supply**



URINARY BLADDER



- Urinary Bladder is a **hollow muscular organ.**
- It lies in **anterior part of pelvic cavity**
- **Lies behind the pubic bones within pelvis**
- It is the area of temporary **store house of urine**
- From urinary bladder urine flows through urethra for voiding
- Urinary bladder has a muscle called **detrusor muscle**
- Detrusor muscle will do mass contraction for expelling of urine

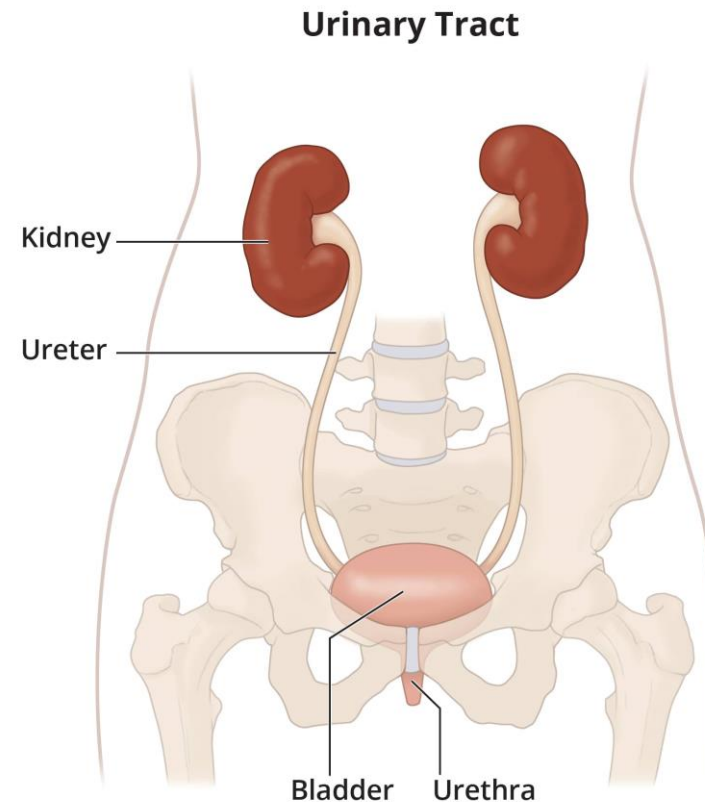




SIZE, SHAPE & POSITION



- The bladder changes its size, shape and position according to the amount of urine it present
- Empty bladder is in the **anterior part of pelvic cavity.**
- When it gets filled it becomes **abdomino pelvic organ**, reaching up to the umbilicus or even higher.
- Normal capacity of bladder is about 200 – 300 cc.

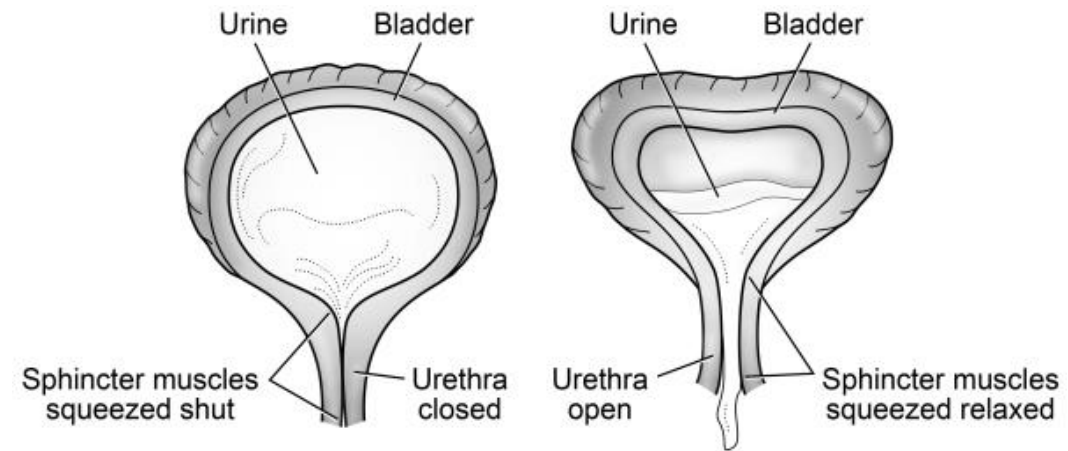




URINARY BLADDER – CAPACITY



- Normal capacity of bladder in an adult is about 200cc.
- Filling of urine beyond 220 cc causes a **desire to micturate** and bladder is usually emptied when filled about 250 cc.
- Filling up to 500 cc is tolerated but beyond this becomes **painful**.
- Referred pain is felt in the lower part of anterior part of anterior abdominal wall, perineum and penis.

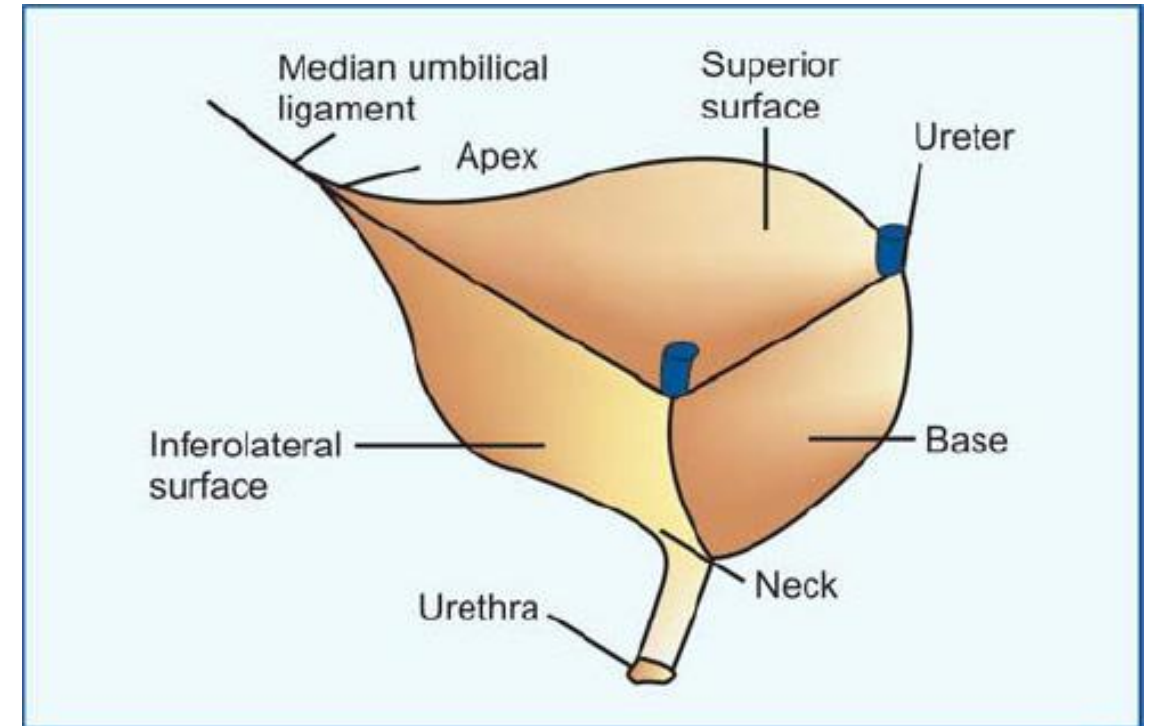




EXTERNAL FEATURES OF URINARY BLADDER



- An empty bladder is **tetrahedral** in shape.
- **4 angles** - Apex, base, two lateral angles.
- **4 surfaces** – Superior, posterior and 2 inferolateral.
- **4 borders** – Posterior, anterior, 2 lateral borders.
- Full bladder is oval in shape





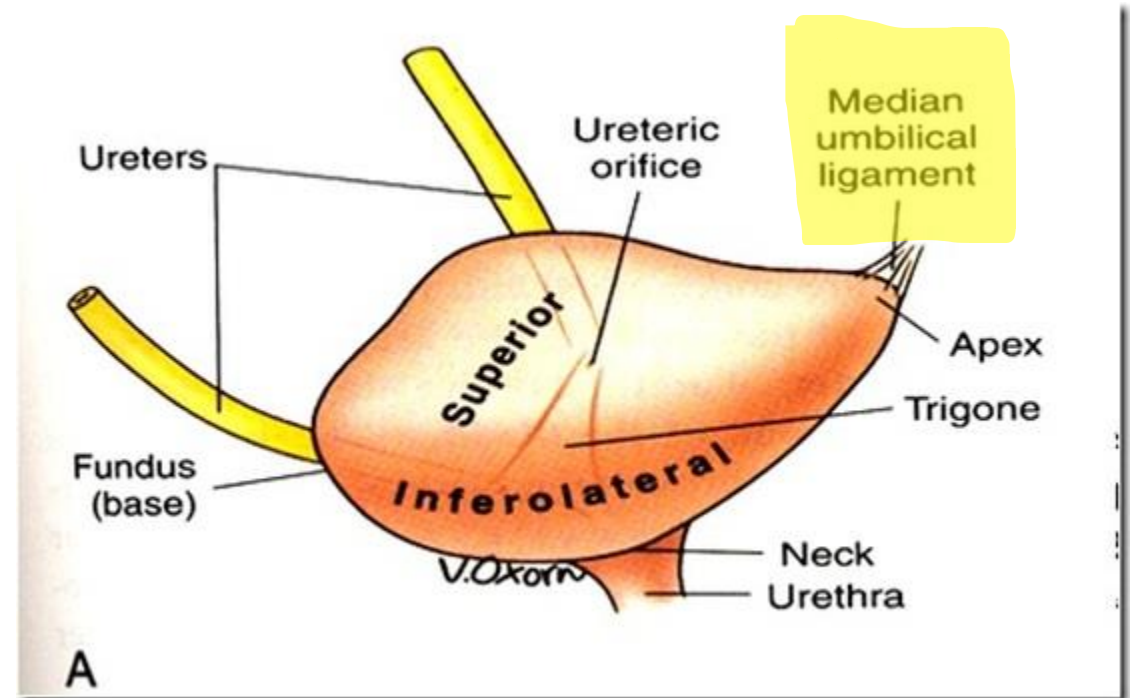
ASSESSMENT – I



- Muscle present in urinary bladder -----
- Position of the empty urinary bladder -----
- Filling of urine beyond 220 cc causes -----
- Shape of the empty bladder -----
- Shape of full bladder -----

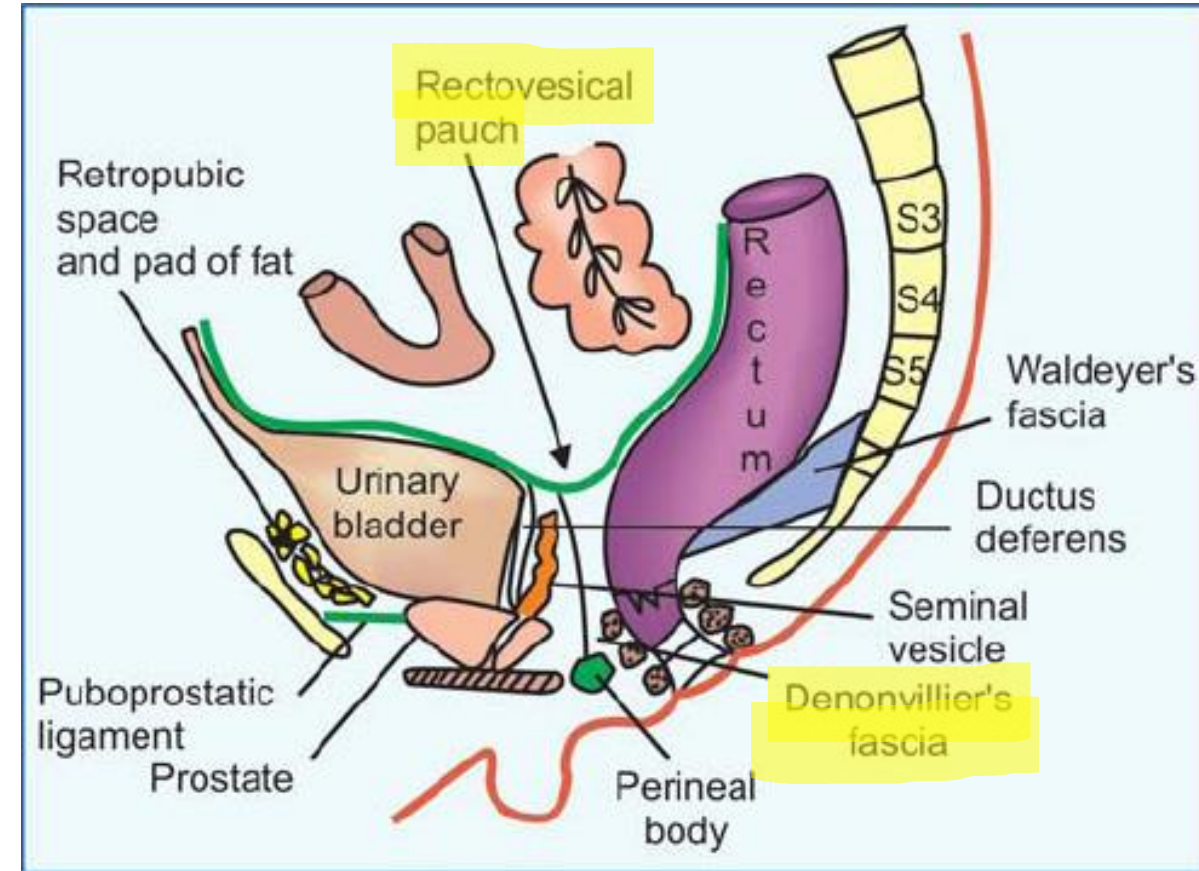
APEX OF URINARY BLADDER

- Pointed anteriorly and lies behind the upper margin of the **pubic symphysis**
- It is connected to the umbilicus of the **median umbilical ligament** (Remnant of urachus)



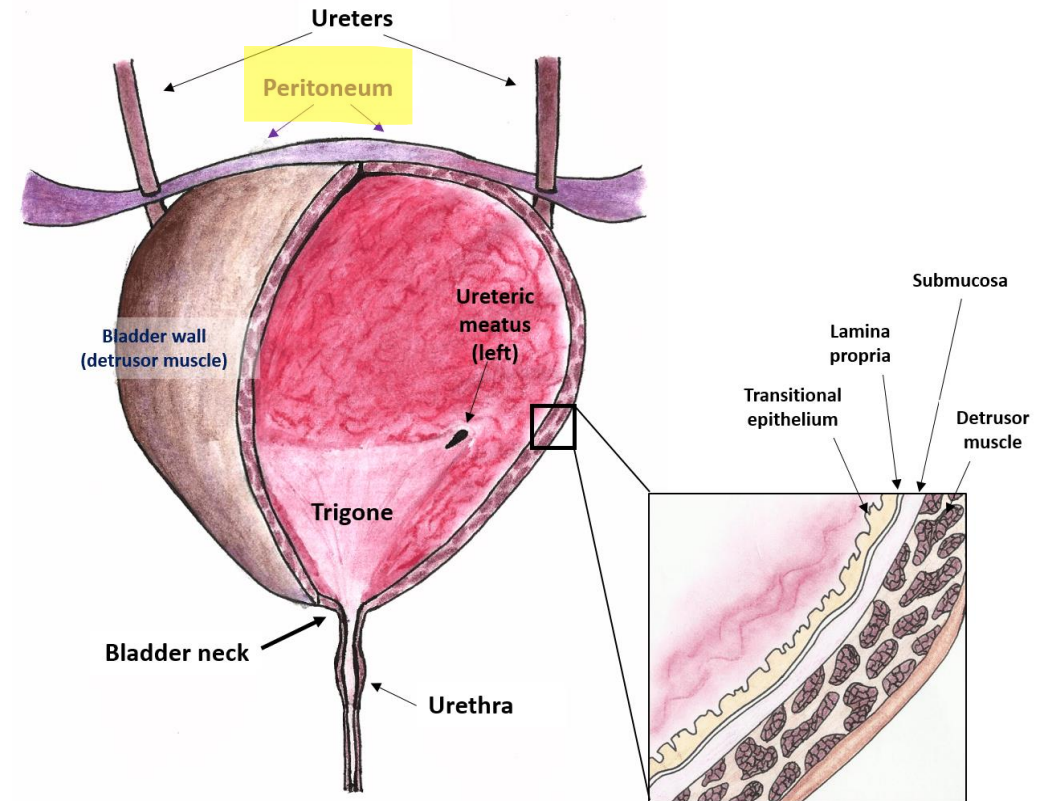
BASE OF URINARY BLADDER

- Superolateral angles are joined by **ureters**
- Inferior angle gives rise to **urethra**
- Upper part of posterior surface is covered by **peritoneum**
- Upper part of base is separated from the rectum by **rectovesical pouch**
- Lower part of the posterior surface is related to seminal vesicles and vas deferens (males) and it separates rectum by **rectovesical fascia of Denovilliers**
- Posterior surface is related to uterus and vagina (females)



SUPERIOR SURFACE OF URINARY BLADDER

- Covered with peritoneum
- Related to coils of ilium and sigmoid colon



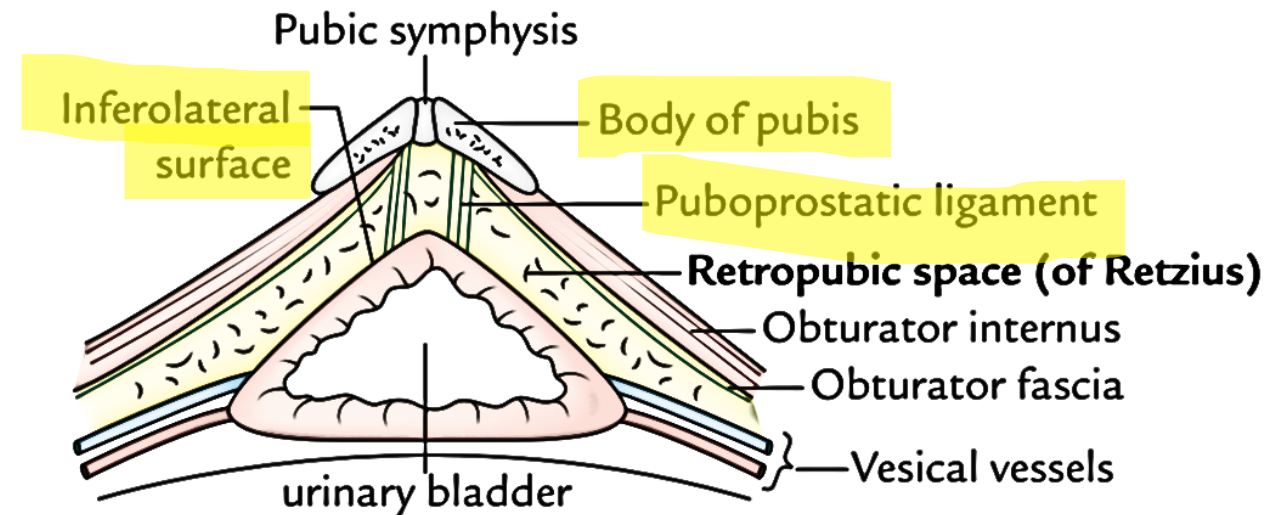
© Myrto @ PatrasAnatomy

INFEROLATERAL SURFACE OF URINARY BLADDER

- They are devoid of peritoneum

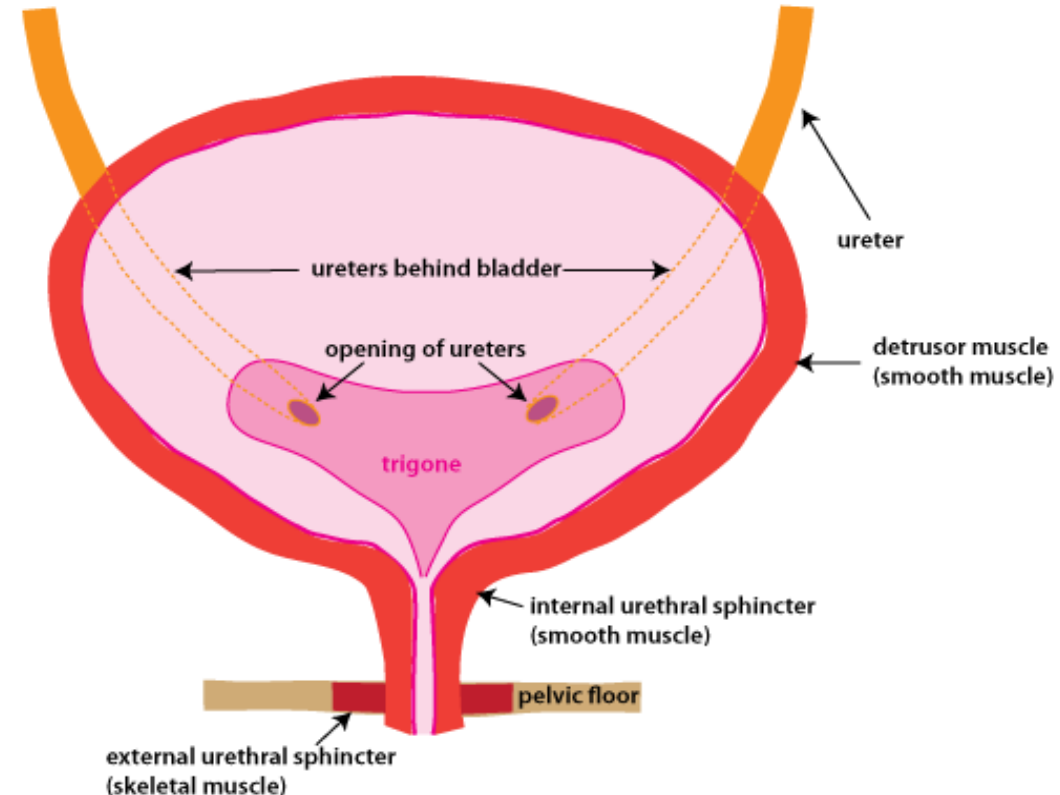
Related to,

- Retropubic pad of fat
- Pubic Bone
- Levator ani muscle
- Puboprostatic Ligament – Male
- Pubovesical Ligament – Female



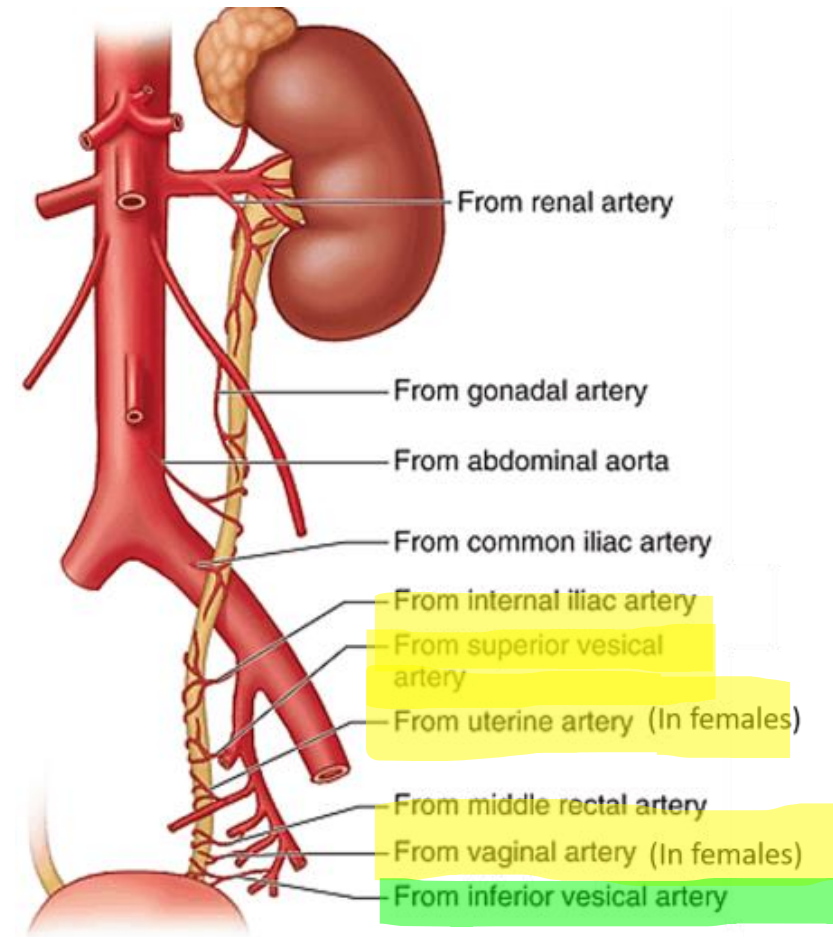
INTERIOR OF URINARY BLADDER

- The mucous is thrown into folds which get obliterated when the bladder is full.
- Small triangular area over the lower part of base of bladder, mucosa is smooth (no folds) due to its firm attachment to muscular coat.
- This area is called **trigone**. It is pink in color.
- In the upper lateral angles **ureters** open.
- In the inferior angle there is **internal urethral orifice**.



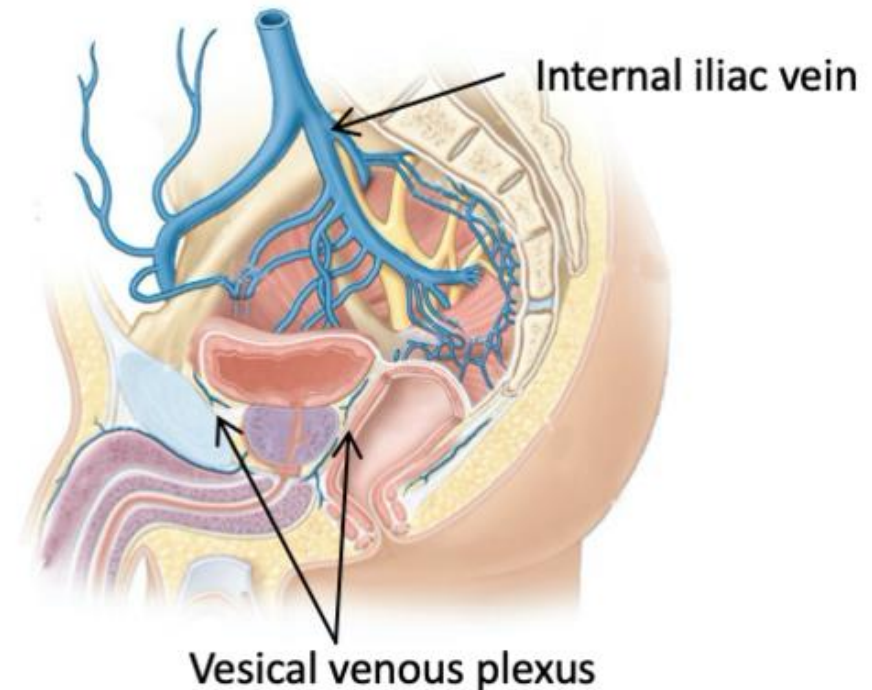
ARTERIAL BLOOD SUPPLY

- **Superior and Inferior Vesicle artery**
(Branches of Internal Iliac Artery)
- Additional blood supply is derived from **obturator and inferior gluteal arteries**
- In female, **uterine and vaginal arteries** instead of Inferior Vesicle artery



VENOUS BLOOD SUPPLY OF URINARY BLADDER

- In male, **venous plexus** around the urinary bladder and prostate drain into **inferior vesical vein**
- Superior vesical drains the bladder
- Both superior and inferior vesical vein drains into **internal iliac vein**
- In female, venous plexus around the **urinary bladder vaginal and uterovaginal vein** and then into internal iliac vein





NERVE SUPPLY OF URINARY BLADDER



- It's supplied by the parasympathetic, sympathetic, and somatic fibres.

- **Sympathetic:**

contraction of the internal urethral sphincter and relaxation of the detrusor muscle allows the bladder to fill and prevents emptying.

- **Visceral non - pain:**

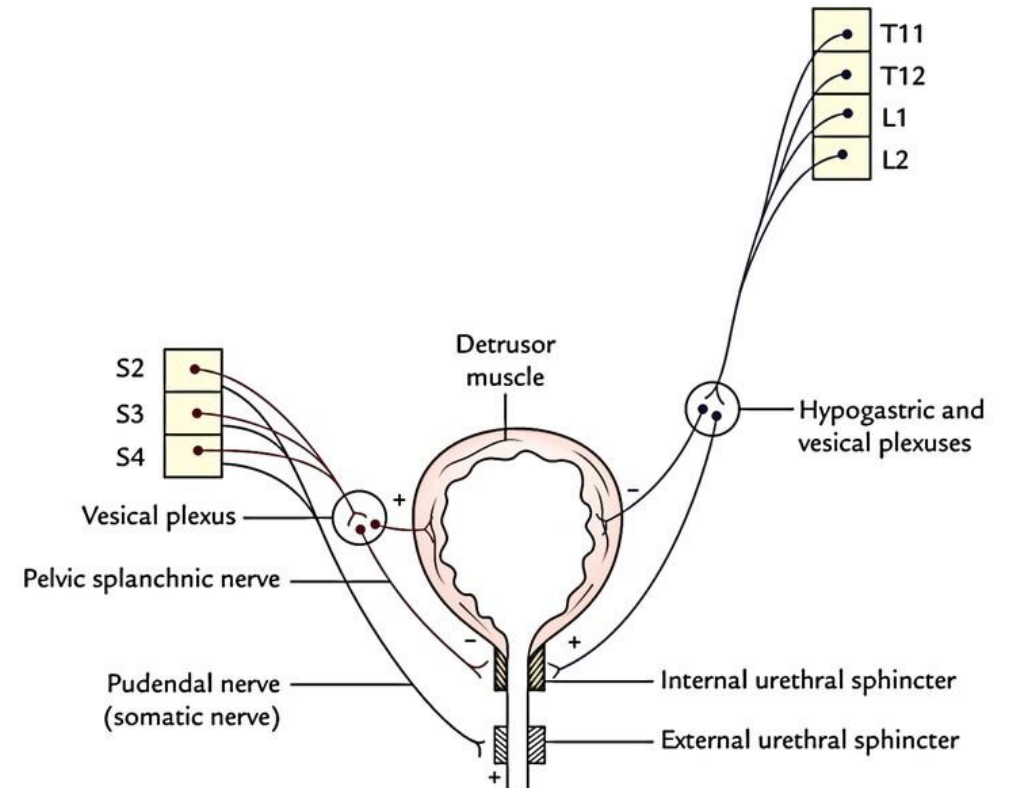
Stretch receptors in bladder wall (esp. trigone) detect “fullness”

- **Parasympathetic:**

Contraction of the detrusor muscle, relaxation of internal urethral sphincter.

- **Somatic motor (voluntary):**

Pudendal nerve maintains tonic contraction of external urethral sphincter until voluntarily inhibited.





ASSESSMENT – II



- The apex of the bladder connected to a ligament called -----
- What is rectovesical fascia of Denovilliers?
- Superior part of bladder is covered by -----
- Small triangular area over the lower part of base of bladder is called -----
- Which artery is present instead of Inferior Vesicle artery in female -----
- What are the Nerve supply of urinary bladder



THANK YOU



Reference:

<https://www.earthslab.com/anatomy/urinary-bladder/#content-nerve-supply>

<https://patient.uwhealth.org/healthfacts/7564>

<https://www.niddk.nih.gov/health-information/urologic-diseases/urinary-tract-how-it-works>

<https://step1.medbullets.com/renal/112038/bladder--urethra-anatomy>

<https://www.quora.com/Is-the-blood-flow-in-the-urinary-system-and-the-blood-flow-through-the-kidneys-the-same-one>

<https://anatomyqa.com/ureter/>

<https://www.earthslab.com/anatomy/urinary-bladder/>