

Male Genital Organs

The Prostate, Vas Deferens, Seminal Vesicles & Ejaculatory Ducts

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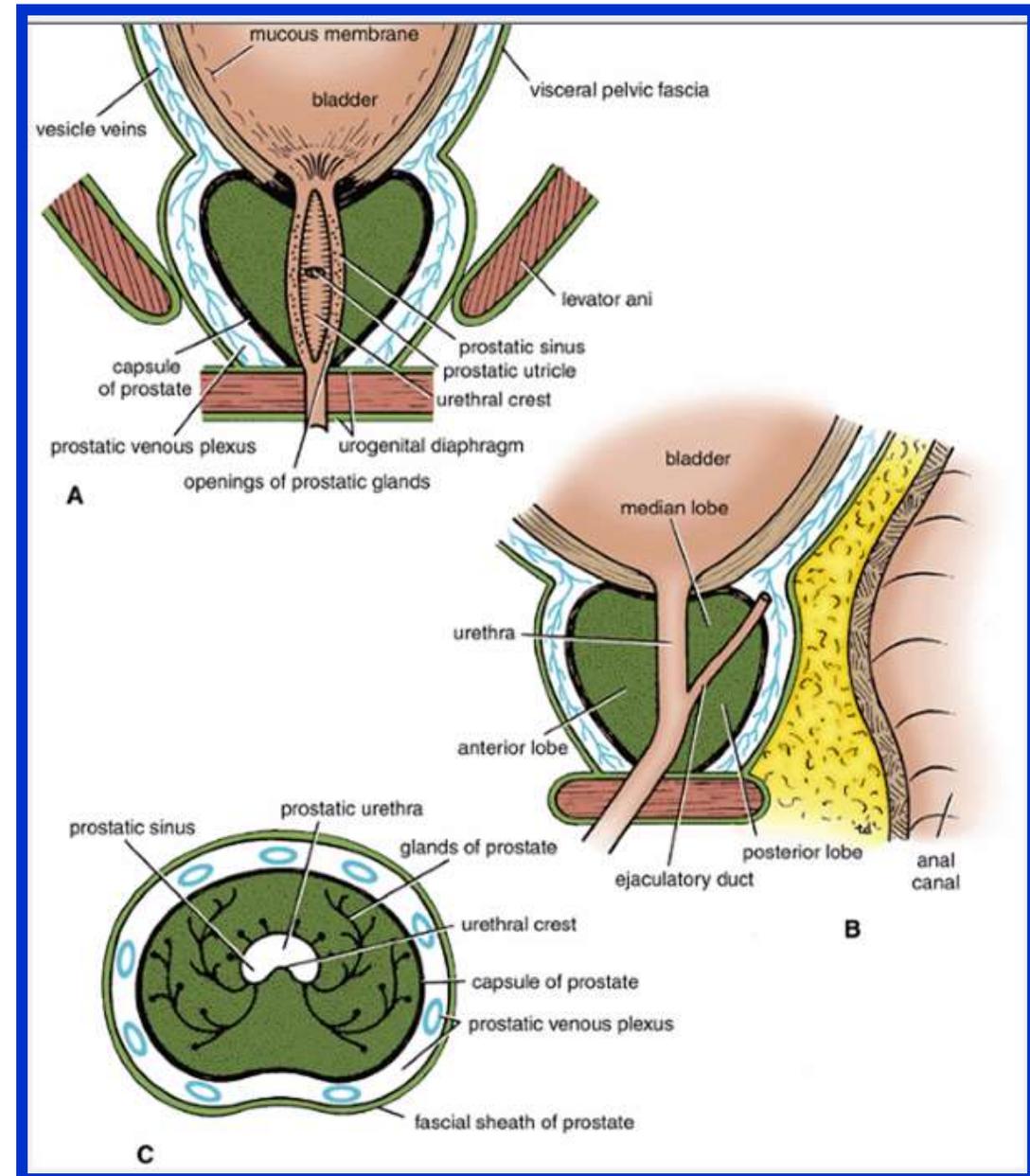
2022-2023

Wednesday 17 May 2023

Male Genital Organs

Prostate

- ❖ The prostate is a **fibromuscular glandular organ** that surrounds the prostatic urethra
- ❖ The glandular part makes up approximately **two thirds** of the prostate; the **other third** is fibromuscular.
- ❖ It is about **1.25 in. (3 cm)** long and lies between:
The neck of the bladder above and **The Urogenital diaphragm** below



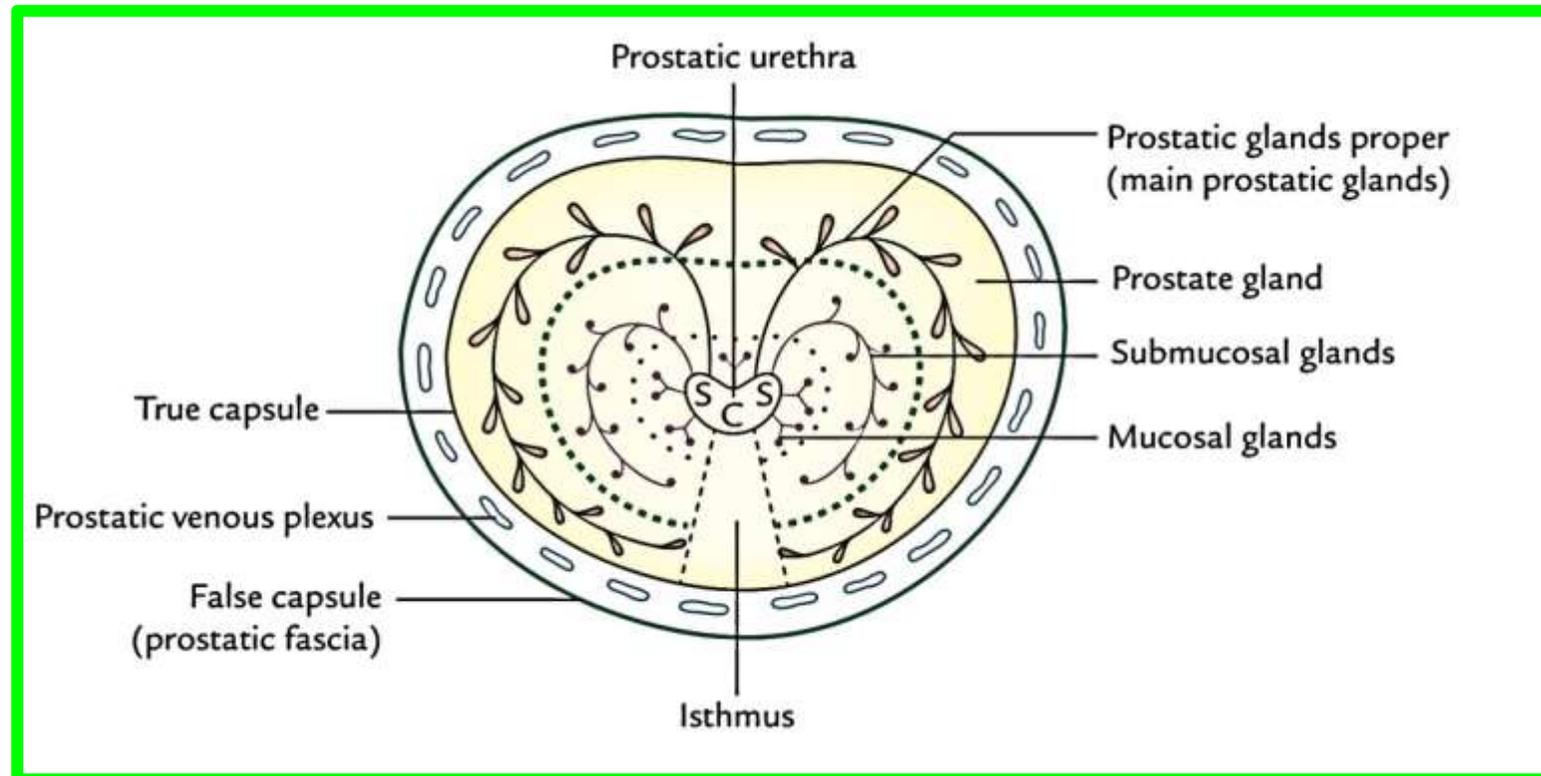
Prostate

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**** The prostatic capsule:**

- 1- True capsule:** thin fibrous sheath surrounds the gland.
- 2- False capsule:** the visceral layer of pelvic fascia.(continuous anterolaterally with the **puboprostatic ligaments**, and dense posteriorly, continuous with **the rectovesical septum**).

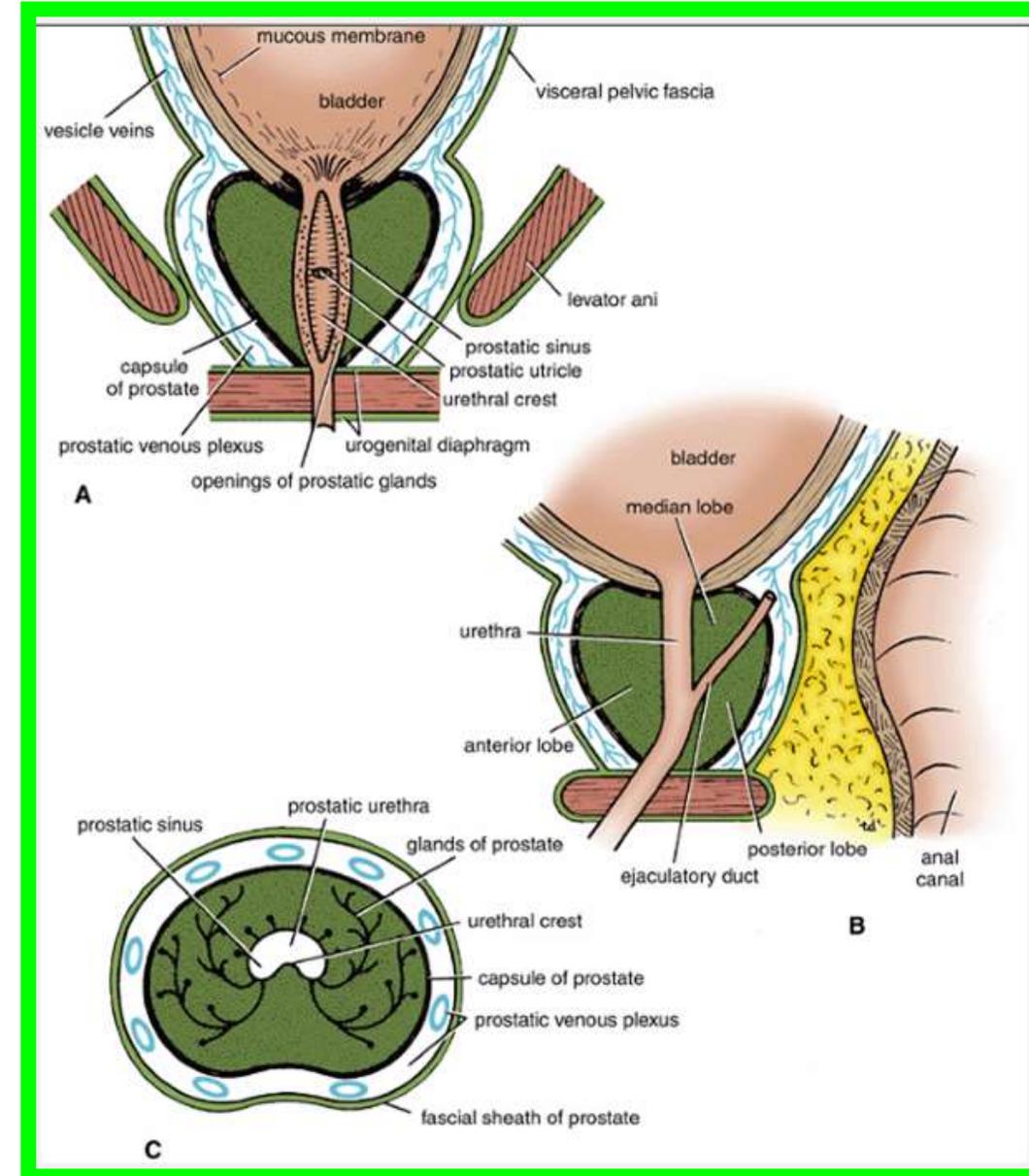
The prostatic venous plexus lies between both capsules.



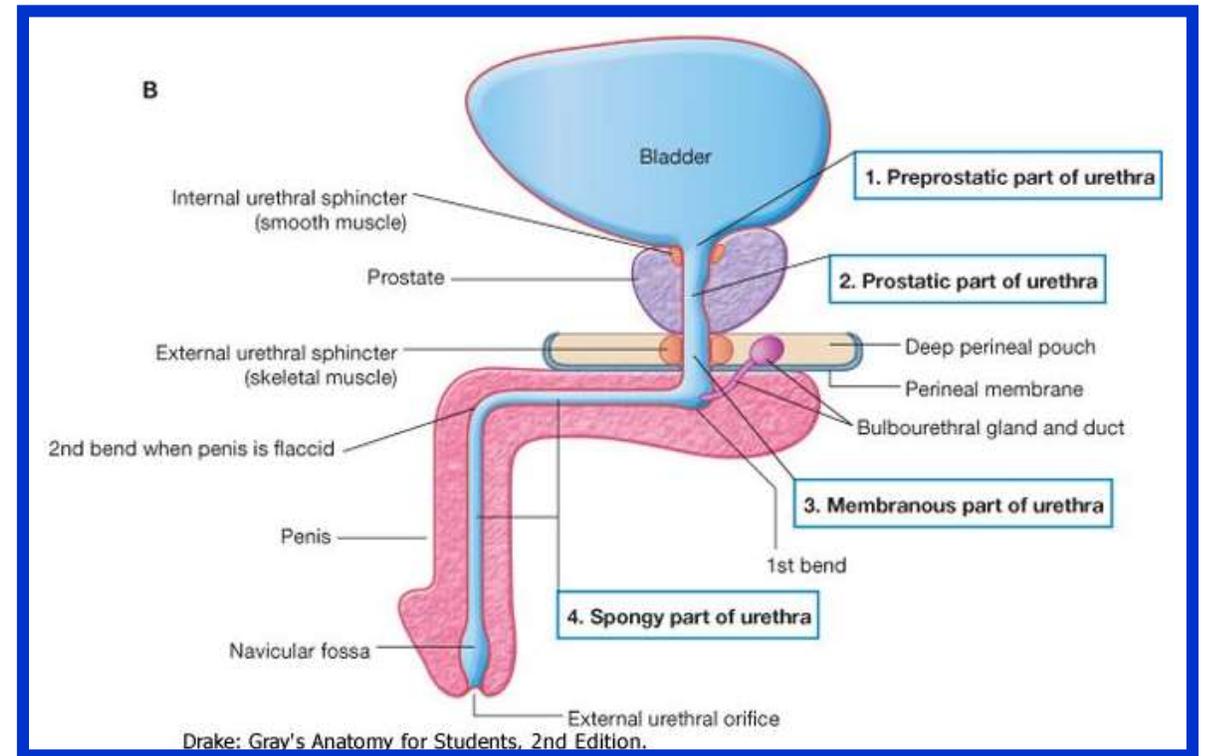
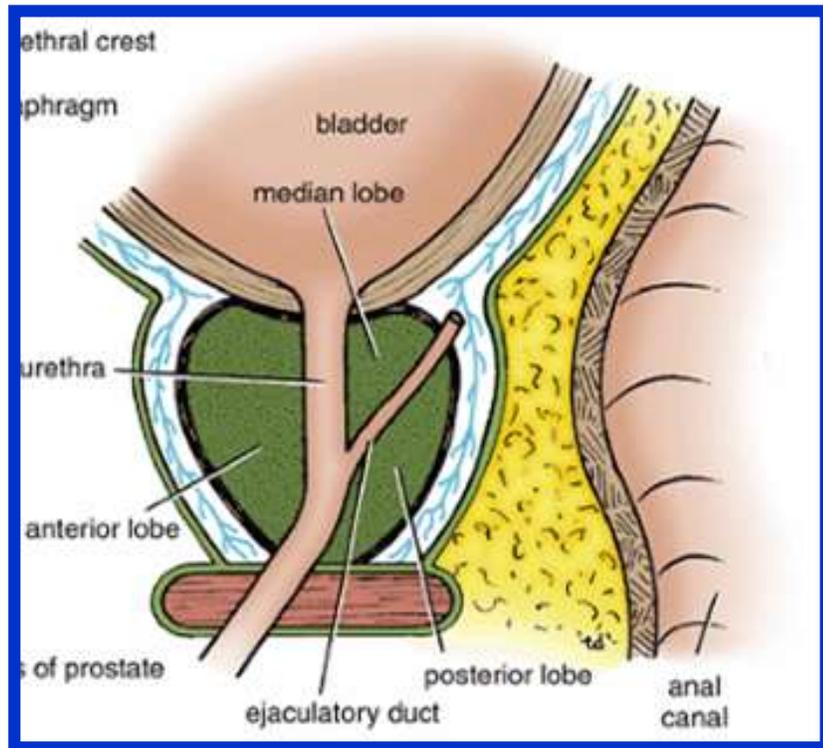
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Prostate

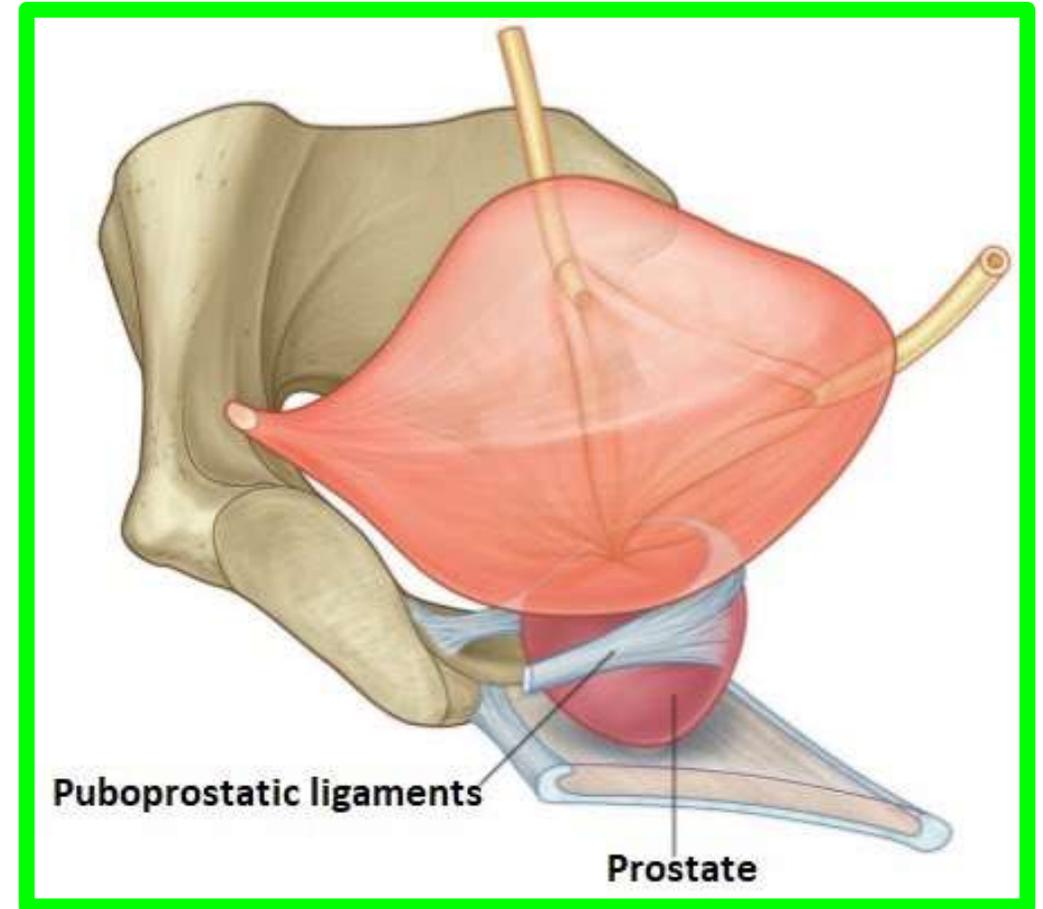
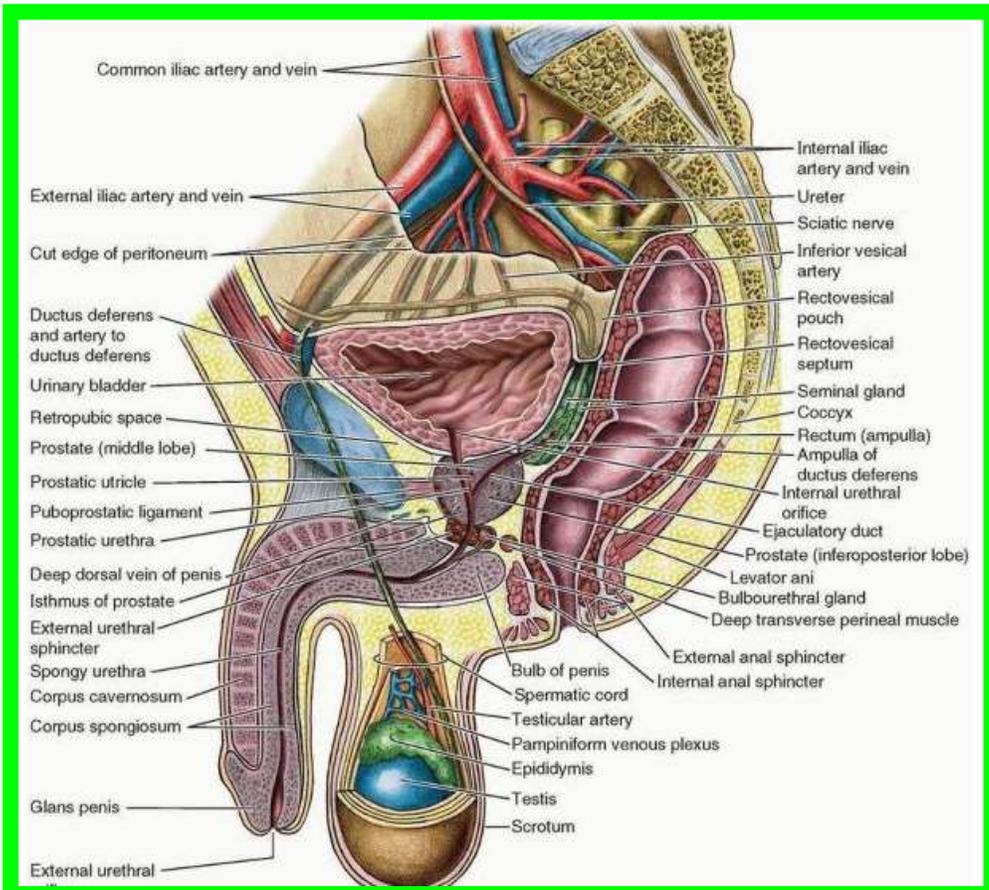
- ❖ The somewhat conical prostate has:
 - ❖ **A base**, which lies **against the bladder neck** above
 - ❖ **An apex**, which lies against **the urogenital diaphragm** below.
- **The two ejaculatory ducts** pierce the upper part of the posterior surface of the prostate to open into **the prostatic urethra** at the lateral margins of **the prostatic utricle**.



- ❖ **Superiorly:** The base of the prostate is continuous with the neck of the bladder, the smooth muscle passing without interruption from one organ to the other.
- ❖ The urethra enters the center of the base of the prostate
- ❖ **Inferiorly:** The apex of the prostate lies on the upper surface of the urogenital diaphragm. The urethra leaves the prostate just above the apex on the anterior surface



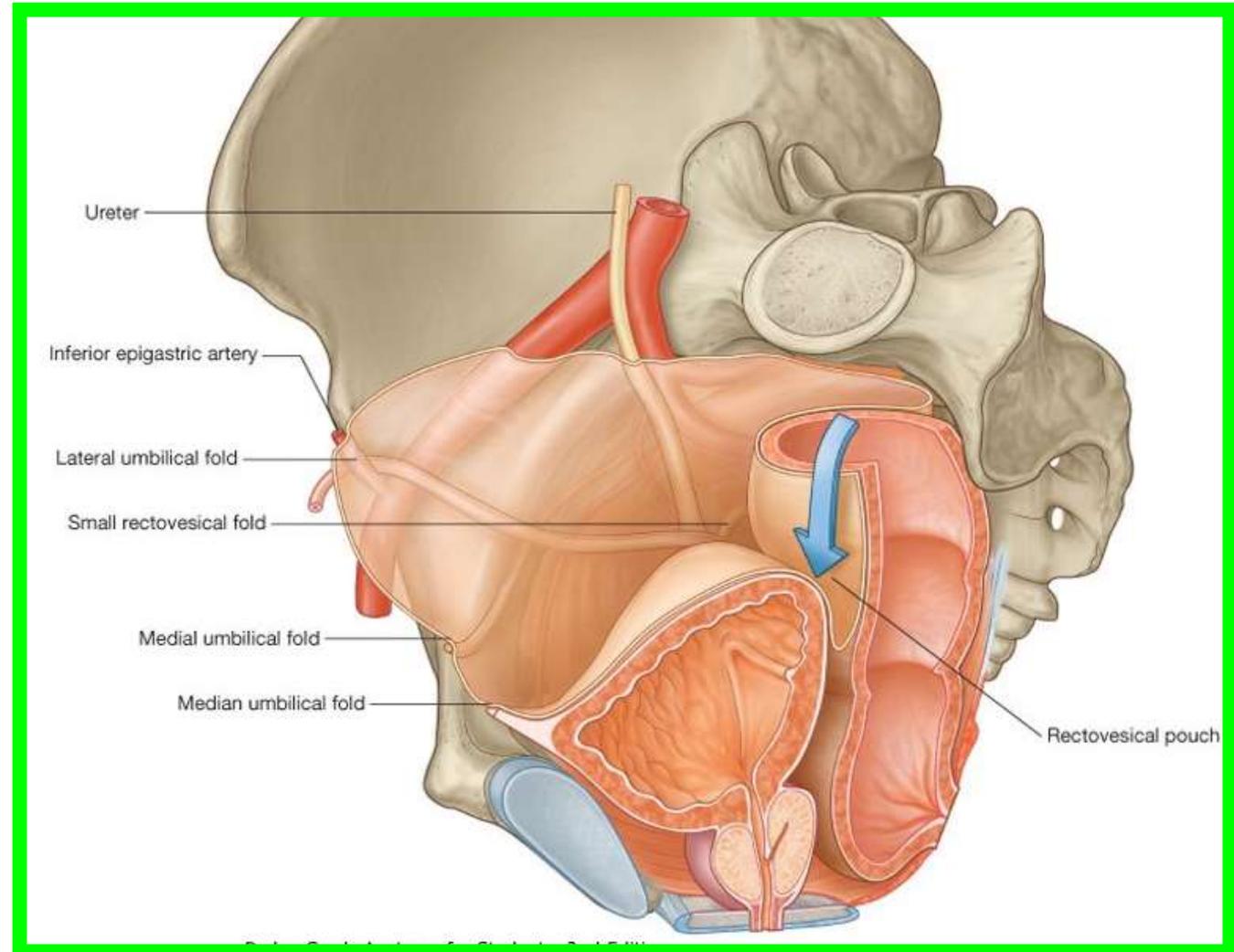
- ❖ **Anteriorly:** The prostate is related to **the symphysis pubis**, separated from it by the extraperitoneal fat in the retropubic space (**cave of Retzius**).
- ❖ The prostate is connected to the posterior aspect of the pubic bones by **the fascial puboprostatic ligaments**



Prostate

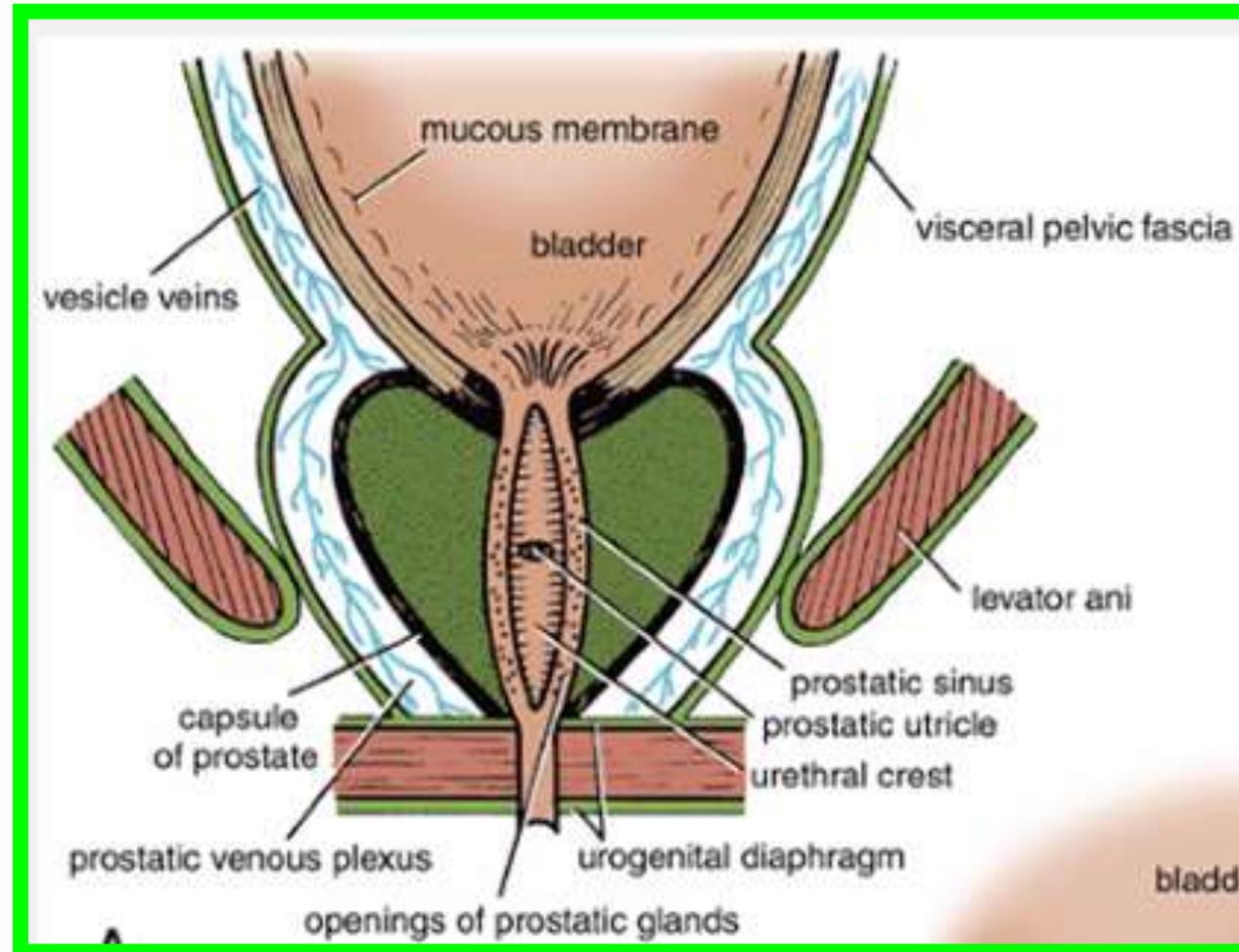
- ❖ **Posteriorly:** The prostate is closely related to the anterior surface of **the rectal ampulla** and is separated from it by **the Rectovesical septum (fascia of Denonvilliers)**

This septum is formed in fetal life by the fusion of the walls of the lower end of the Rectovesical pouch of peritoneum, which originally extended down to **the perineal body**



Prostate

- ❖ **Laterally:** The prostate is embraced by the anterior fibers of the **levator ani** as they run posteriorly from the pubis



Prostate

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** Structures of the Prostate:

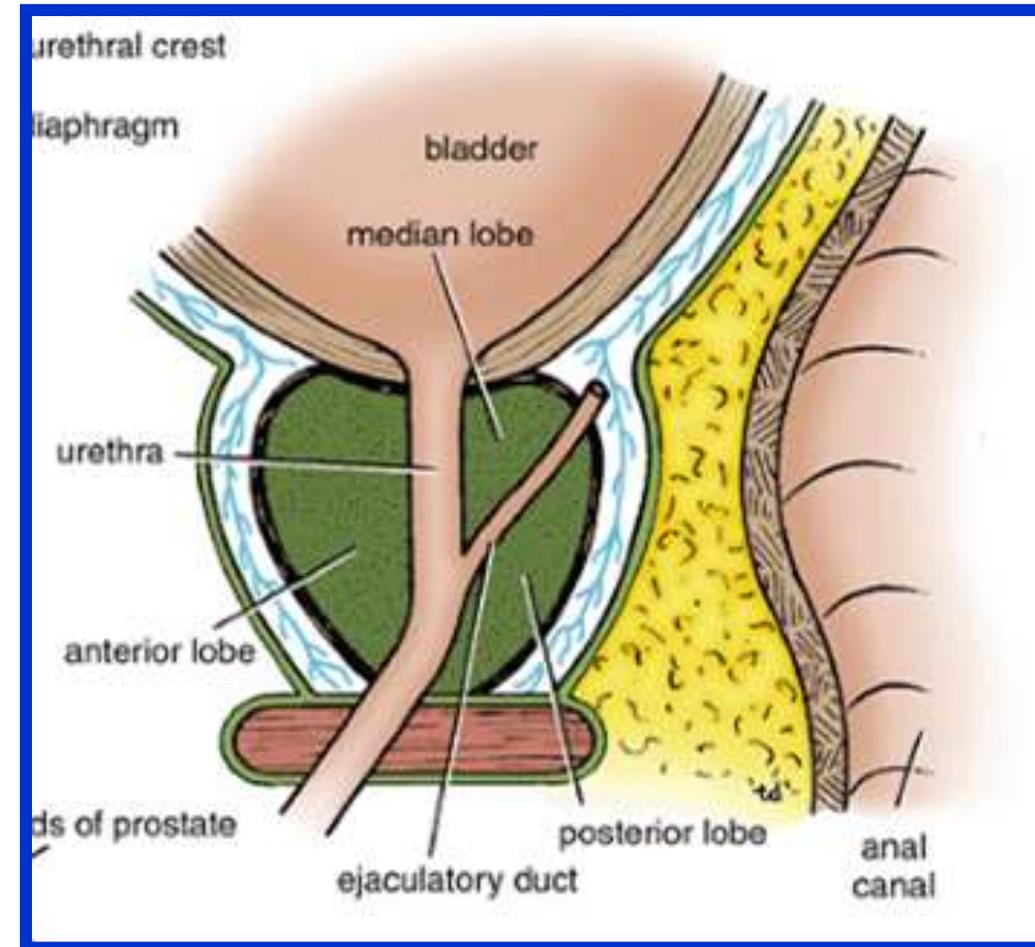
1- **Glandular tissues** are formed of glands. Their ducts open into the prostatic sinus.

2- **Muscular tissue** are arranged into 3 layers:

A. Peripheral, immediately beneath the fibrous capsule.

B. Central, around the urethra

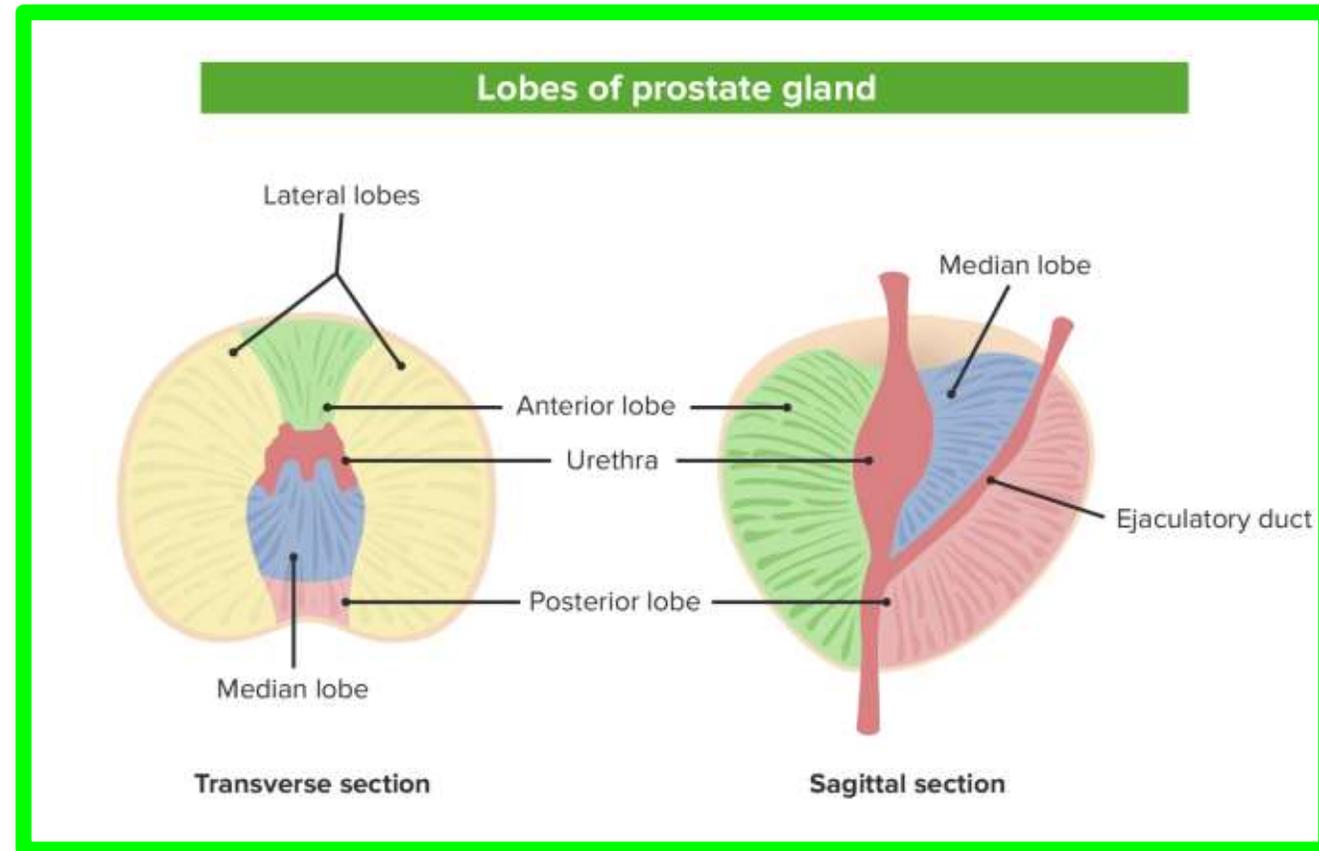
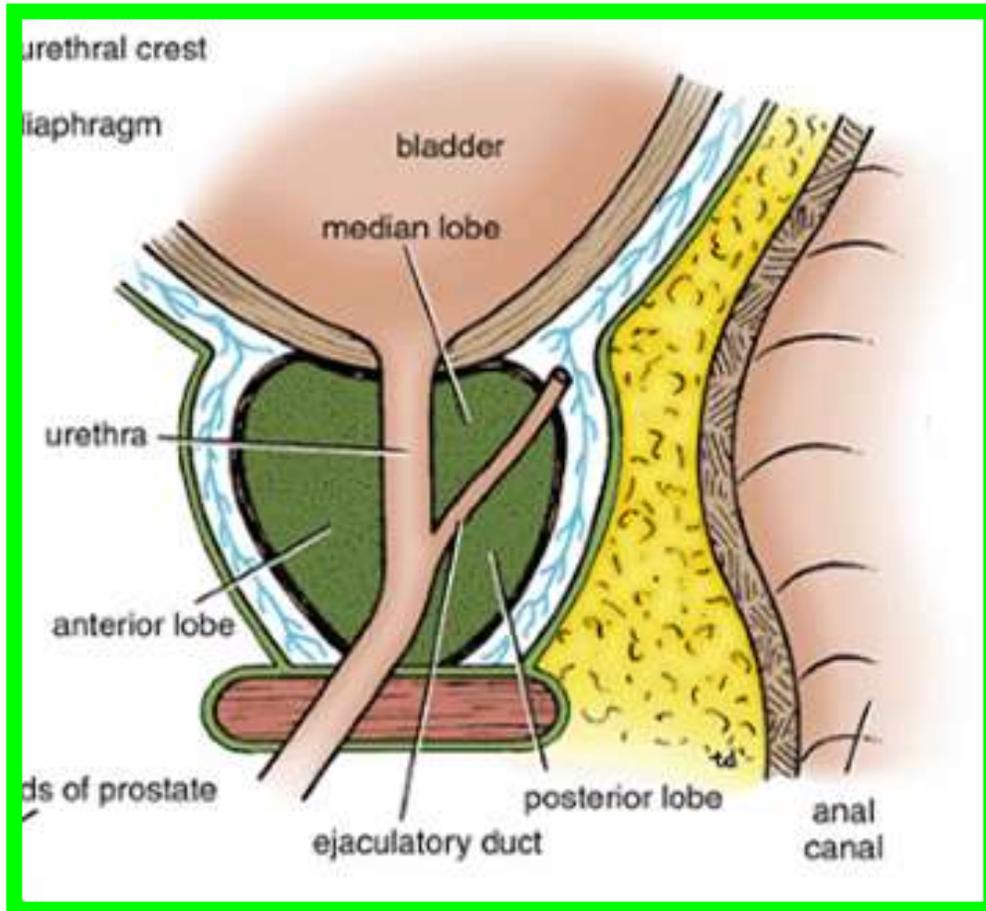
C. Intermediate layer form meshes in which the glandular structure embedded.



Prostate

❖ The prostate is incompletely divided into five lobes.

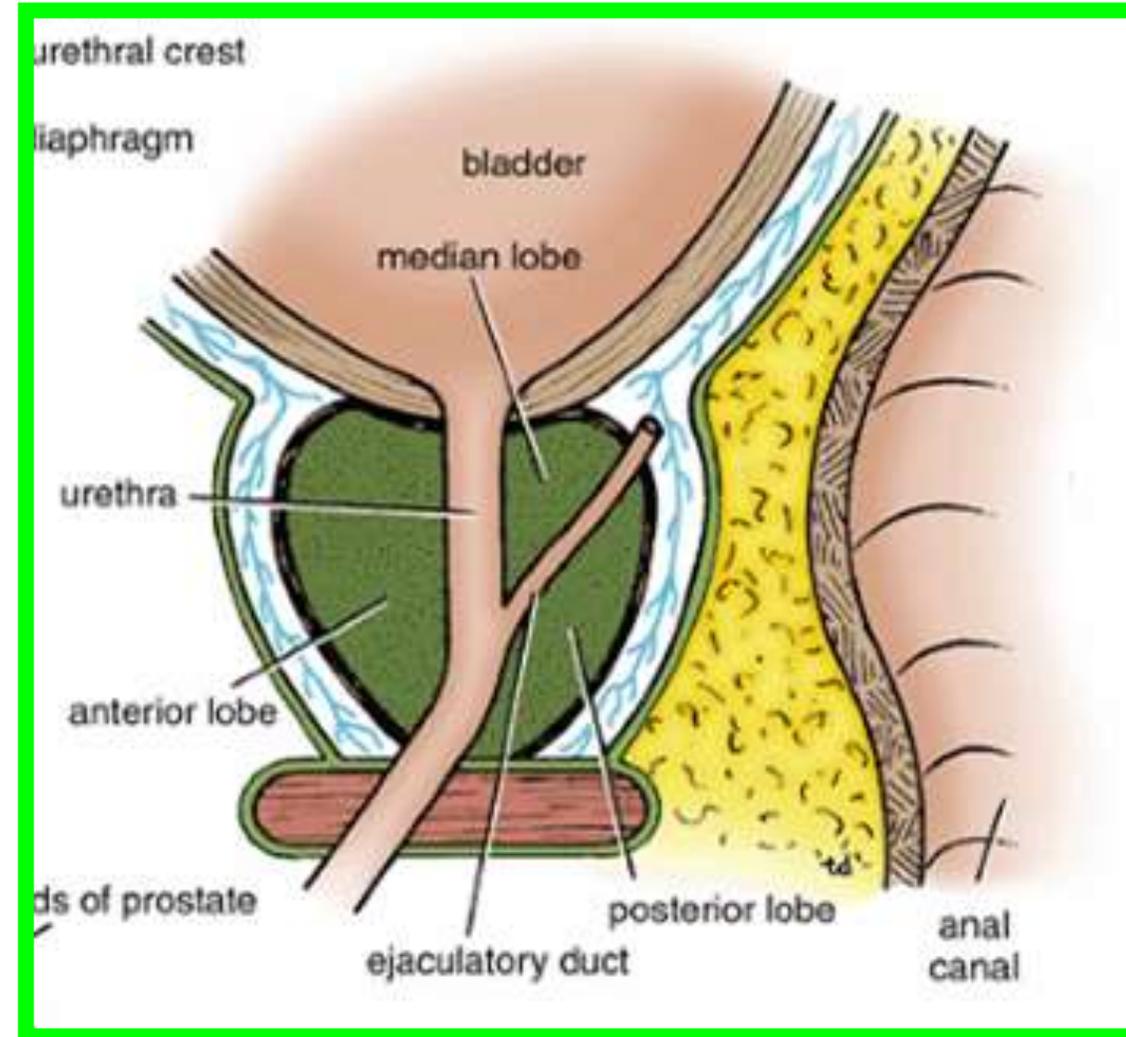
❖ The **anterior lobe** lies in front of **the urethra** and is devoid of glandular tissue..



Prostate

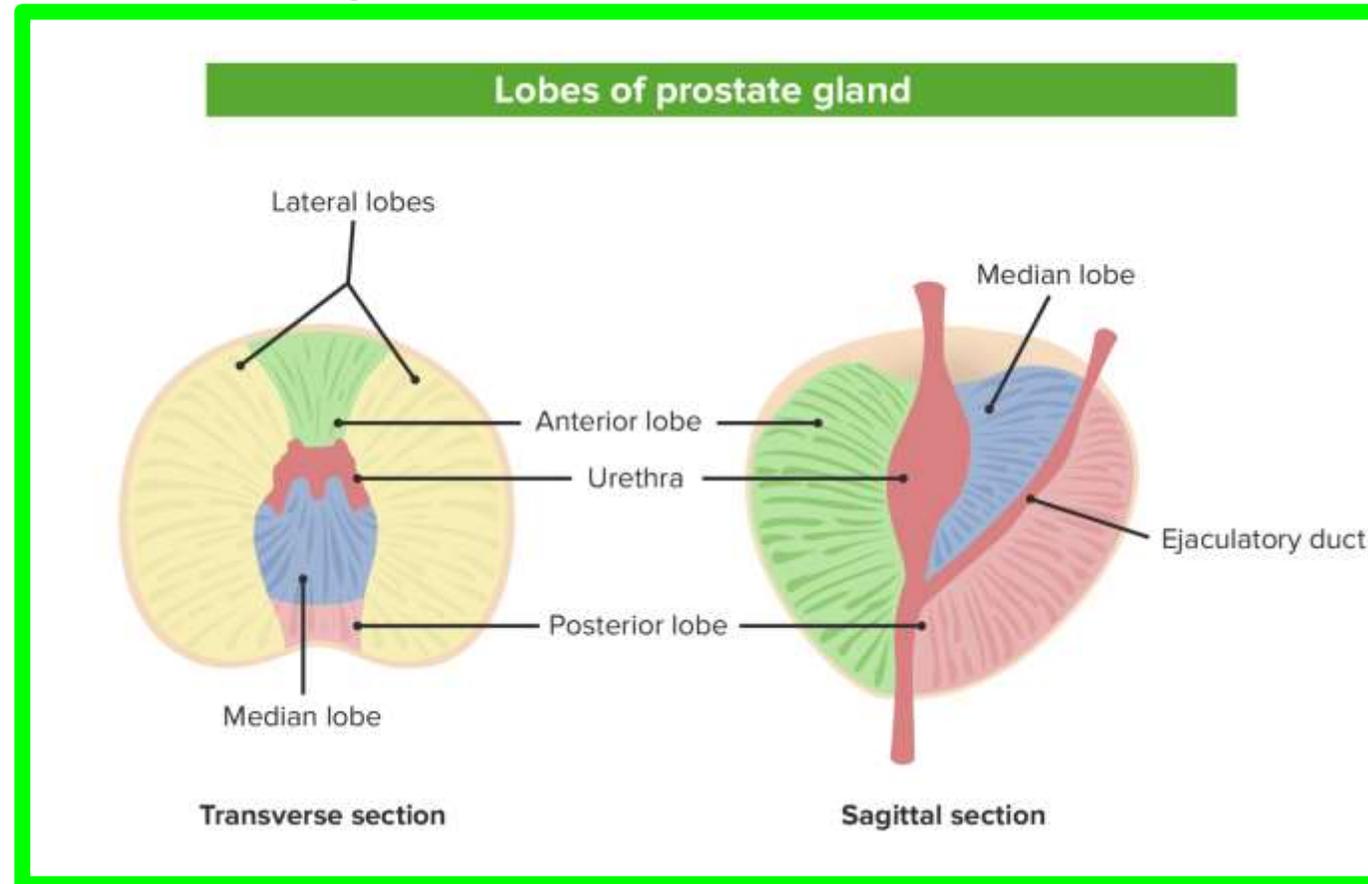
❖ **The median, or middle lobe** is the wedge of gland situated between **the urethra** and **the ejaculatory ducts**. Its upper surface is related to the trigone of the bladder; it is rich in glands.

❖ **The posterior lobe** is situated behind **the urethra** and below the **ejaculatory ducts** and also contains glandular tissue. (is readily palpable by digital rectal examination).



Prostate

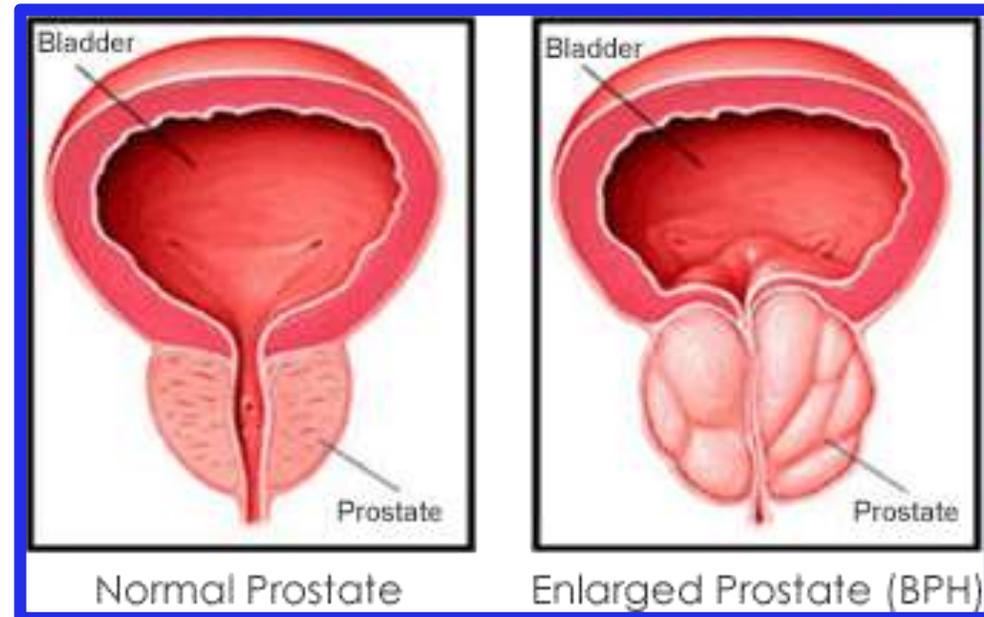
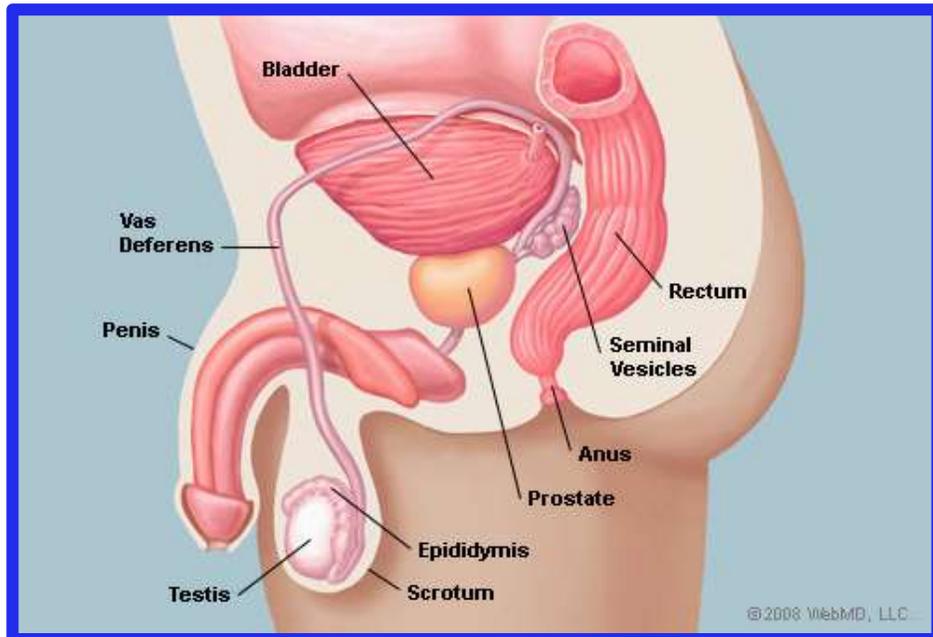
- ❖ The right and left lateral lobes lie on either side of the urethra and are separated from one another by a shallow vertical groove on the posterior surface of the prostate.
- ❖ The lateral lobes contain many glands.



Male Genital Organs

Function of the Prostate

- ✓ The prostate produces a thin, milky fluid containing citric acid and acid phosphatase that is added to the seminal fluid **at the time of ejaculation**.
- ✓ The smooth muscle, which surrounds the glands, **squeezes the secretion into the prostatic urethra**.
- ✓ The prostatic secretion is alkaline and helps **neutralize the acidity in the vagina**.
- ✓ Prostatic fluid provides **about 15–30%** of the volume of semen.

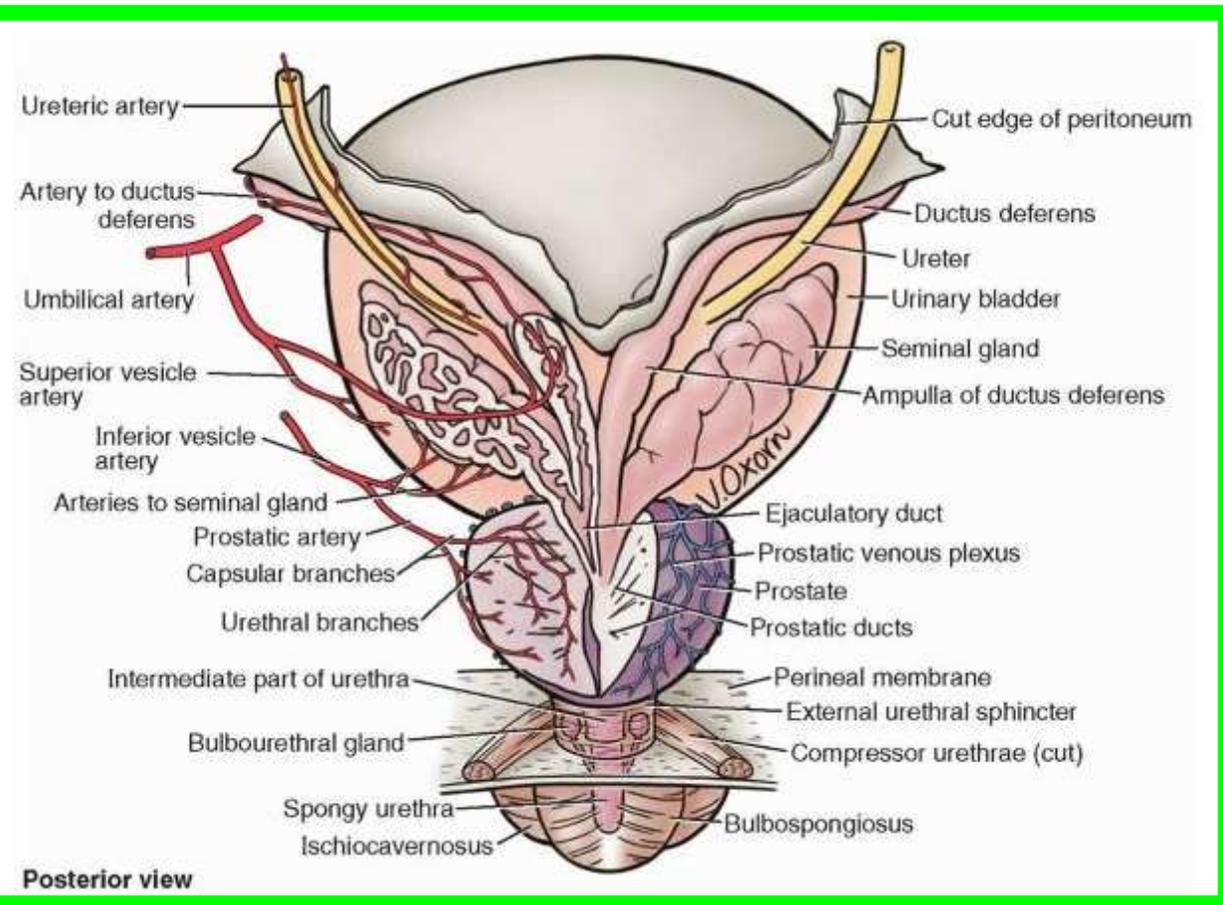


Prostate

** Arterial supply

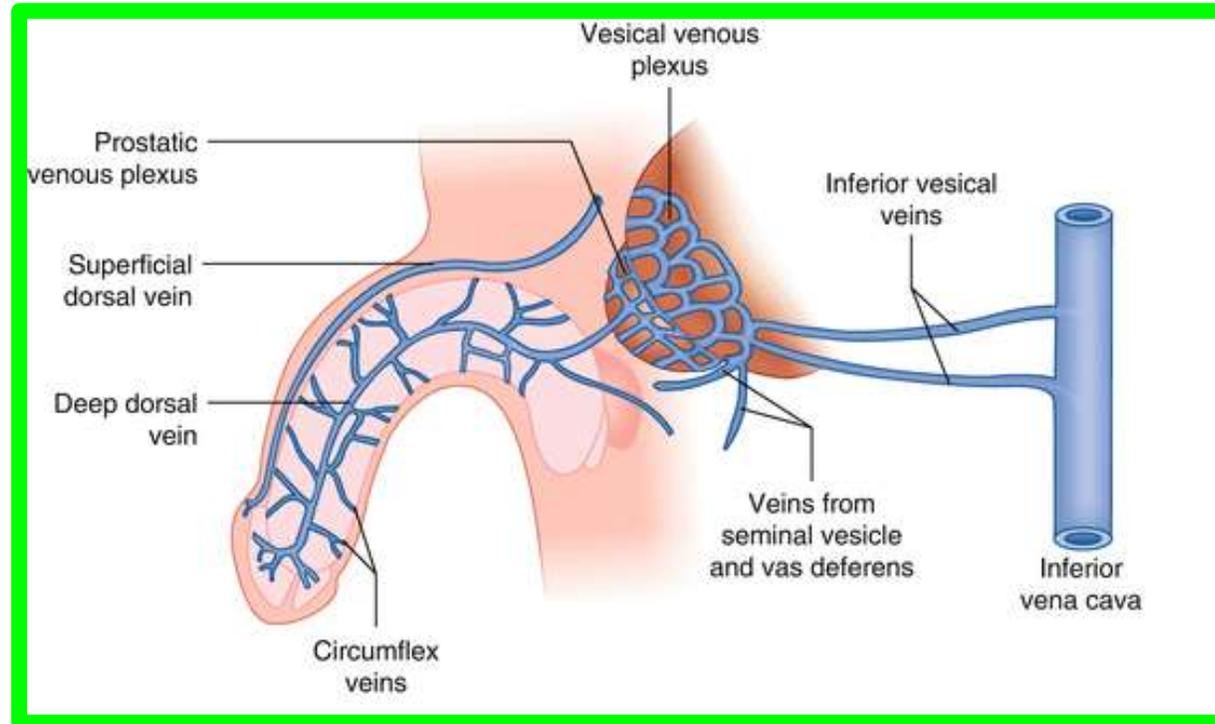
The prostatic arteries are mainly branches of the internal iliac artery especially:

- ❖ the inferior vesical arteries and also
- ❖ the internal pudendal
- ❖ the middle rectal arteries.



**** Venous drainage:** The veins form the **prostatic venous plexus**, between the fibrous capsule of the prostate and the prostatic sheath

The **prostatic plexus** receives the **deep dorsal vein of the penis** and numerous vesical veins and drains into the **internal iliac veins**.



❖ The plexus is continuous superiorly with the **vesical venous plexus** and communicates posteriorly with the **internal vertebral venous plexus**

Prostate

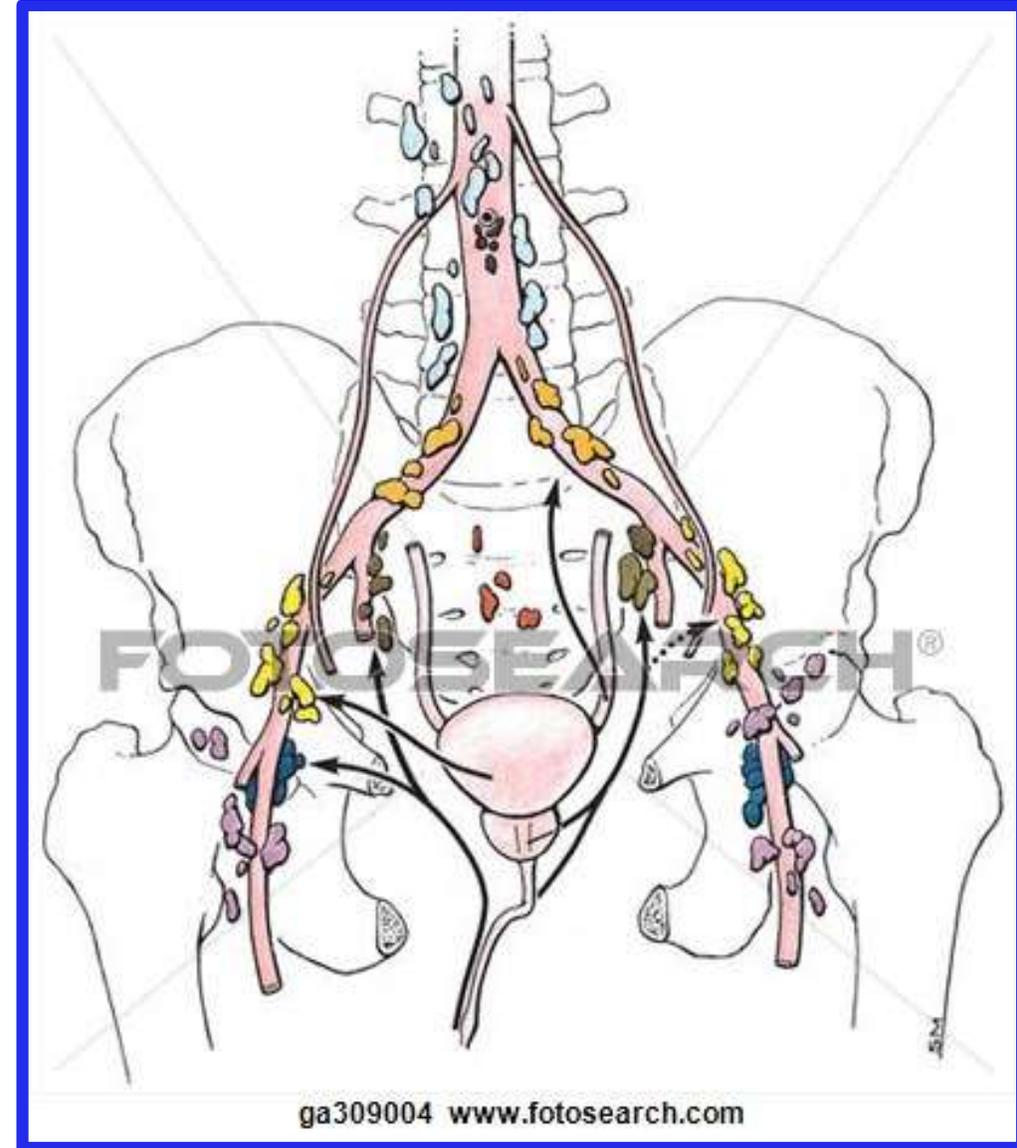
Lymph Drainage

Drain chiefly into the **internal iliac nodes**, but some pass to the **sacral lymph nodes**

Nerve Supply

Inferior hypogastric plexuses.

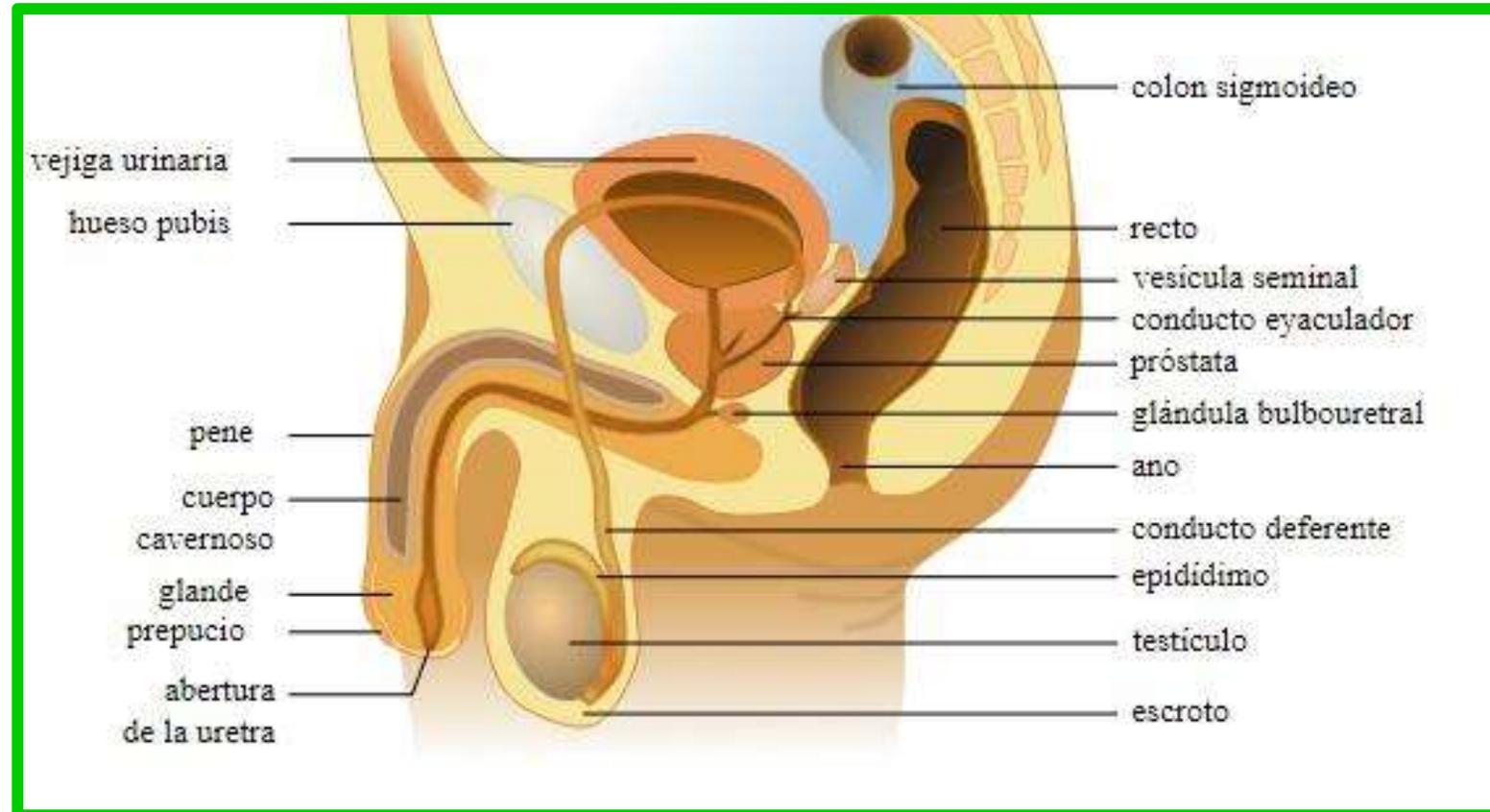
The sympathetic nerves stimulate the smooth muscle of the prostate during ejaculation



BULBO-URETHRAL GLANDS

The two pea-size **bulbo-urethral glands** (**Cowper glands**) lie posterolateral to the **intermediate part of the urethra**, largely embedded within the external urethral sphincter. The ducts of the bulbo-urethral glands pass through the perineal membrane adjacent to the intermediate urethra and open through minute apertures into **the proximal part of the spongy urethra** in **the bulb of the penis**.

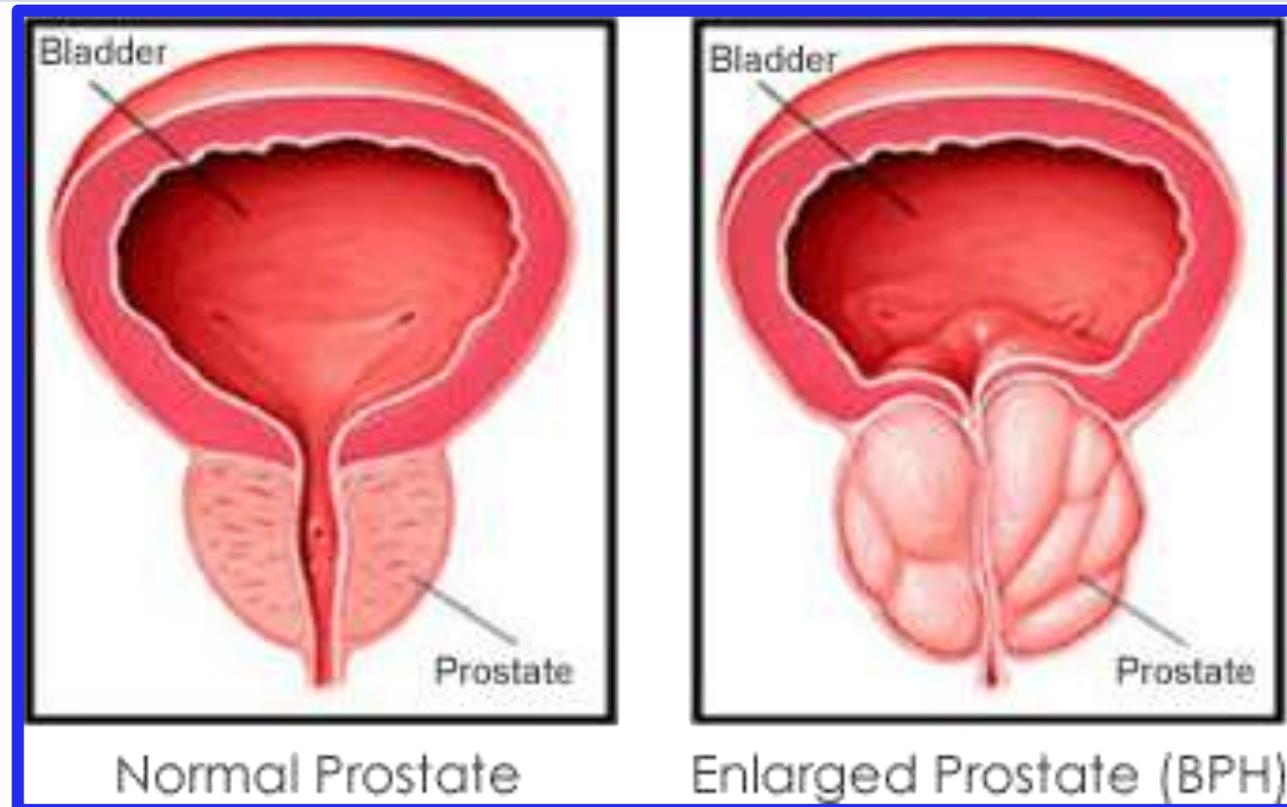
Their mucus-like secretion enters the urethra during sexual arousal, contributing less than **1% of semen**.



Prostatic Enlargement

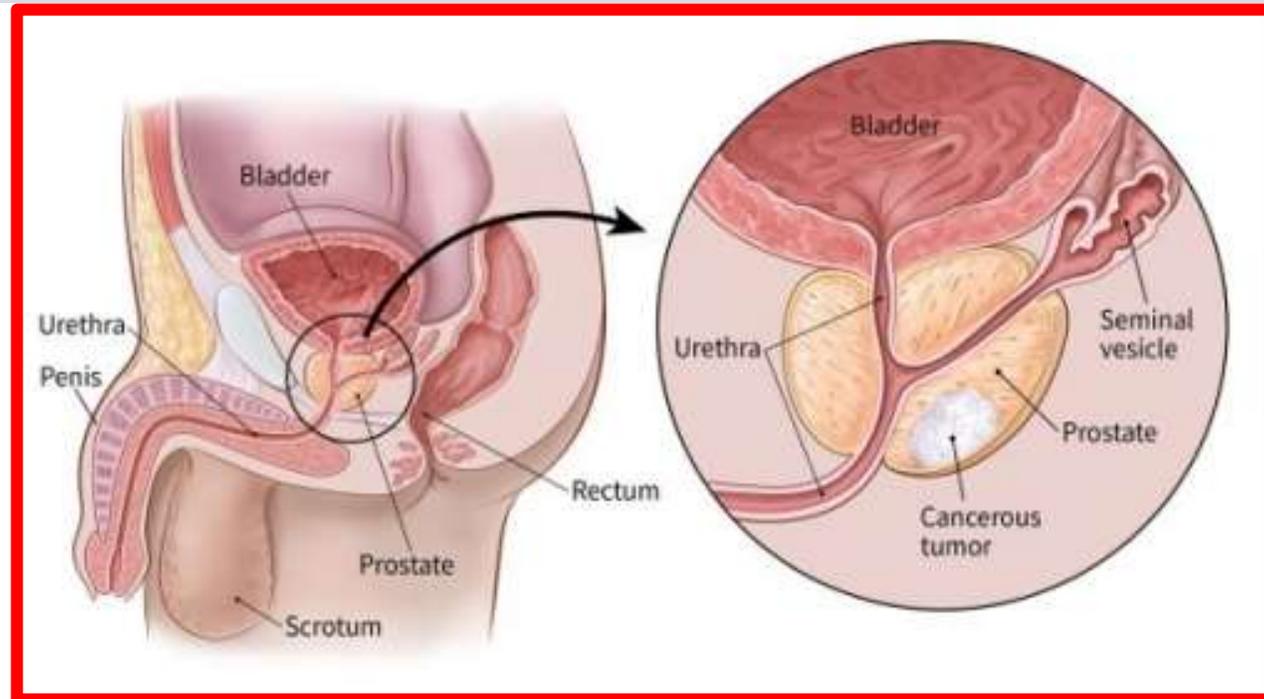
The prostate is of medical interest because benign enlargement or **benign hypertrophy of the prostate (BHP)** is common after middle age.

An enlarged prostate projects into the urinary bladder and impedes urination by distorting the prostatic urethra. **The median lobe usually enlarges the most and obstructs the internal urethral orifice.**



Prostatic Cancer

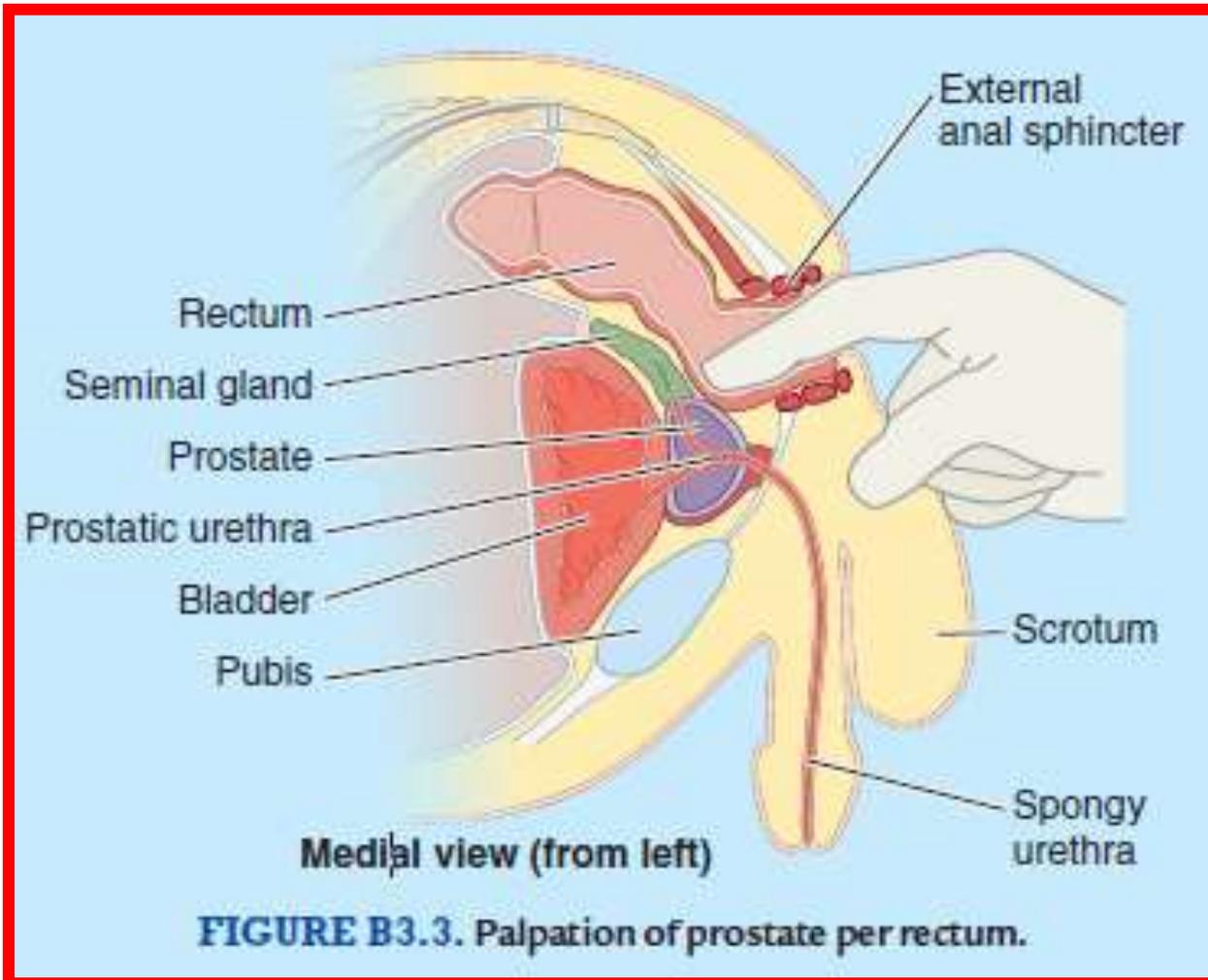
□ Prostatic cancer is common in men **older than 55 years** of age. In most cases, the cancer develops in the posterolateral region. This may be palpated during a digital rectal examination. A malignant prostate feels hard and often irregular. In advanced stages, cancer cells metastasize (spread) to the **iliac and sacral lymph nodes** and later to distant nodes and bone. **The prostatic plexus**, closely associated with the prostatic sheath, gives passage to parasympathetic fibers, which give rise to the cavernous nerves that convey the fibers that cause penile erection



Prostatectomy

❑ A major concern regarding **prostatectomy** is that **impotency** may be a consequence.

❑ All or part of the prostate, or just the hypertrophied part, is removed (transurethral resection of the prostate **[TURP]**).



Vas (Ductus) Deferens

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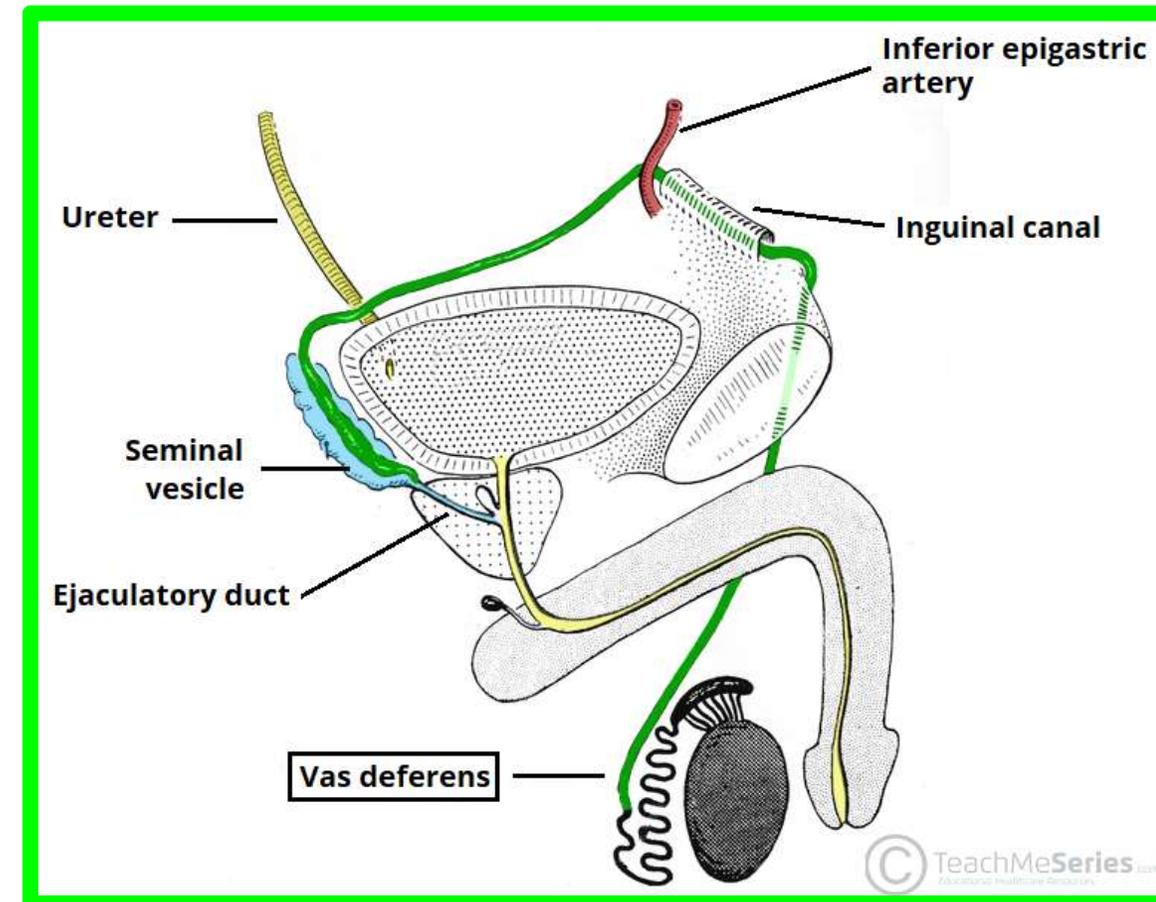
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- ✓ It is a thick cord-like tube, about **45 cm long**.
- ✓ It carries and stores the sperms.
- ✓ It begins from **the tail of the epididymis**.

** Course and relations:

- 1- Scrotal part:** ascends on the back of the testis and medial to the epididymis.
- 2- Inguinal part:** runs in the inguinal canal **through the spermatic cord**.
- 3- Pelvic part:** curves around the inferior epigastric artery.



Vas (Ductus) Deferens

❖ Then, it descends downwards and backwards on the following structures;

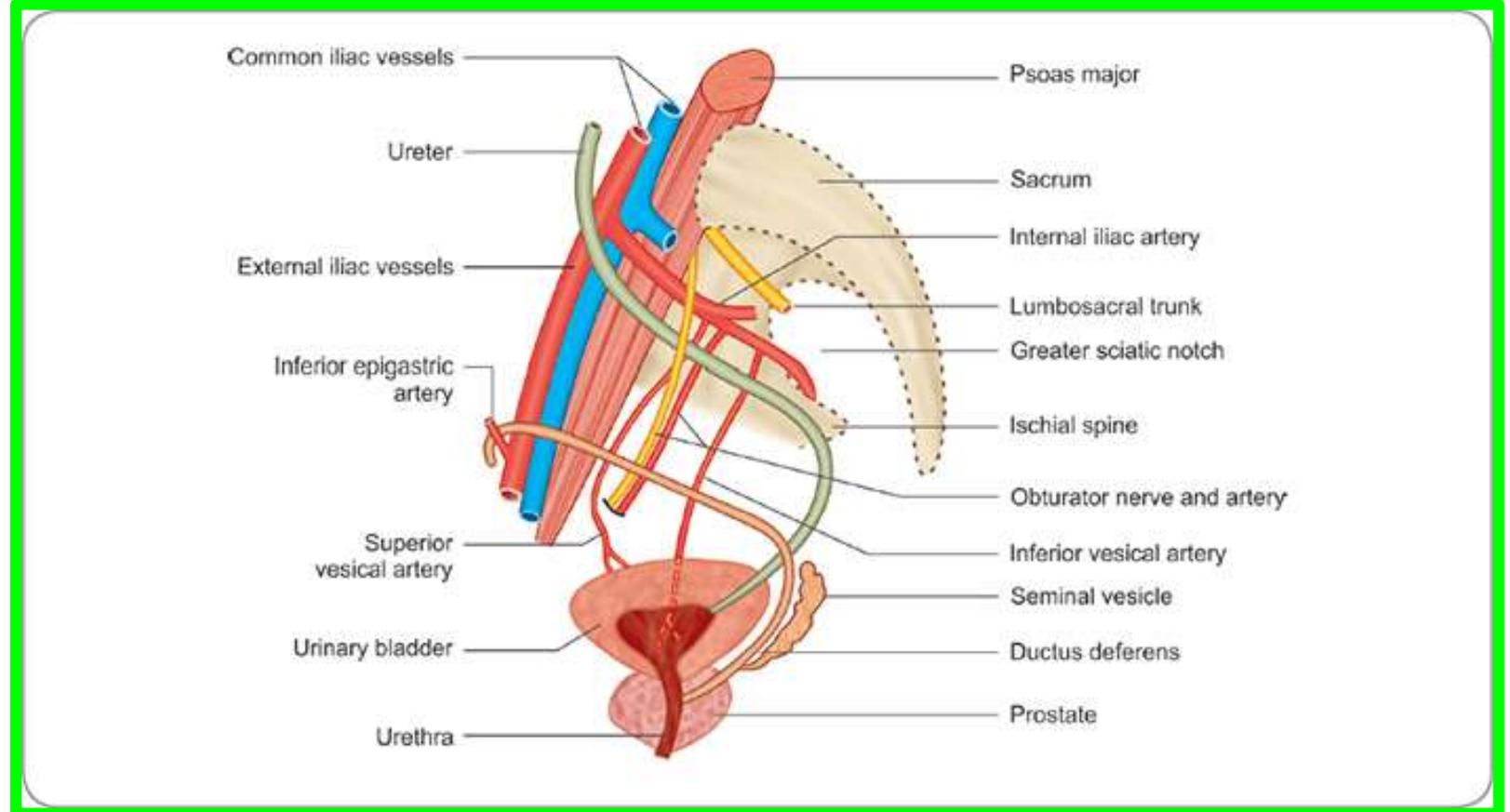
1- External iliac vessels.

2- Superior vesical (obliterated umbilical) artery

3- Obturator nerve.

4- Obturator vessels.

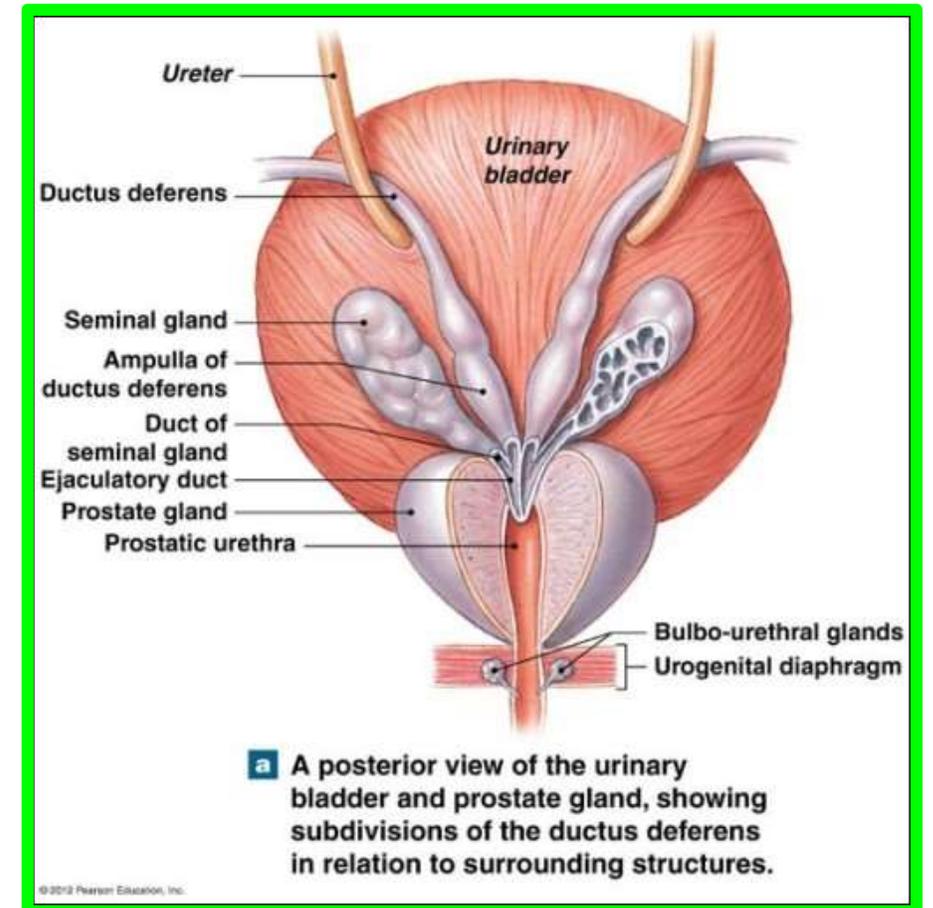
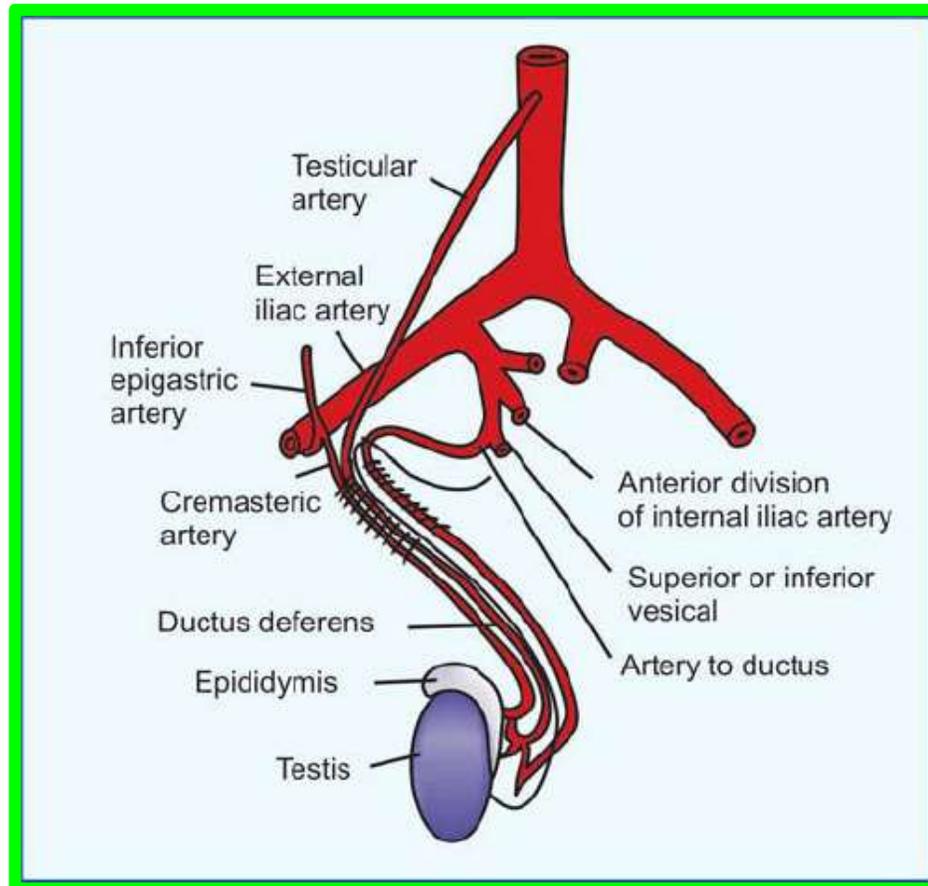
Then, It curves medially crossing above the ureter then behind the base of the urinary bladder.



Vas (Ductus) Deferens

**** Termination:** it ends by forming the ampulla which join the seminal vesicle to form **the ejaculatory duct**.

**** Arterial supply:** artery of the vas deferens.

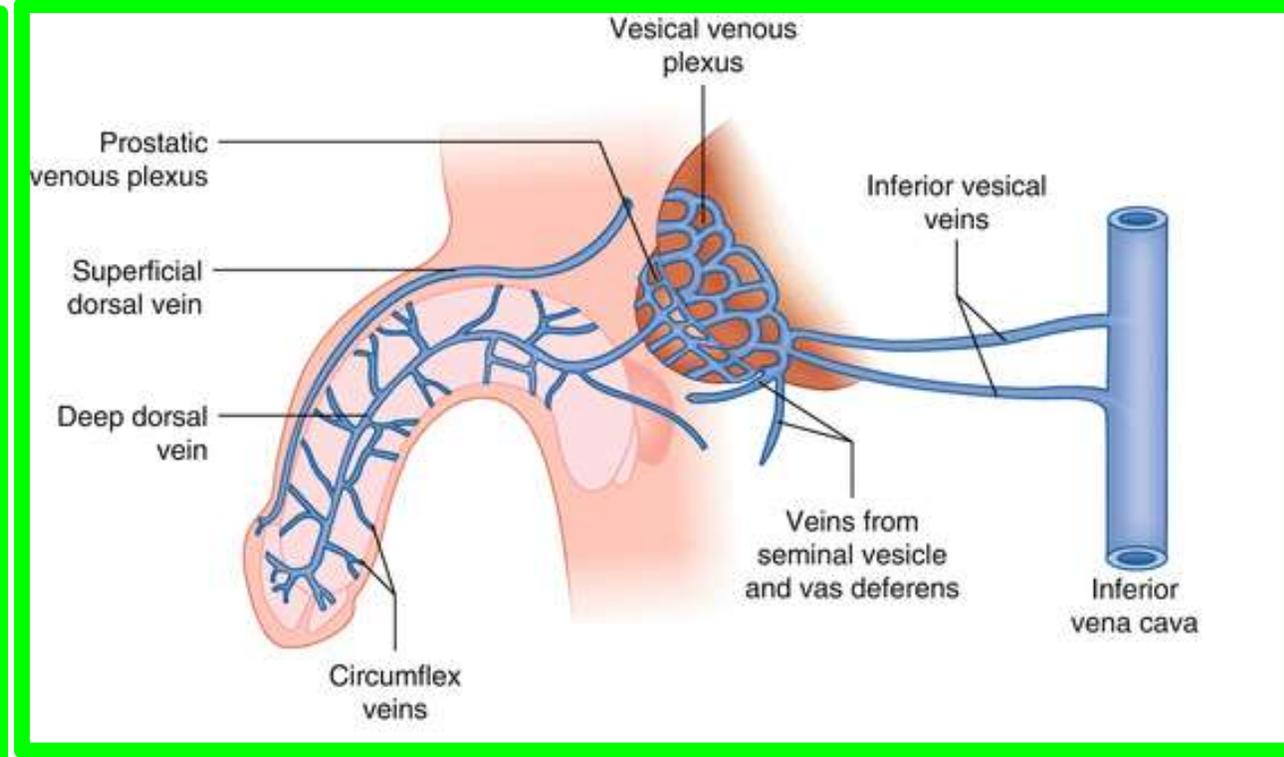
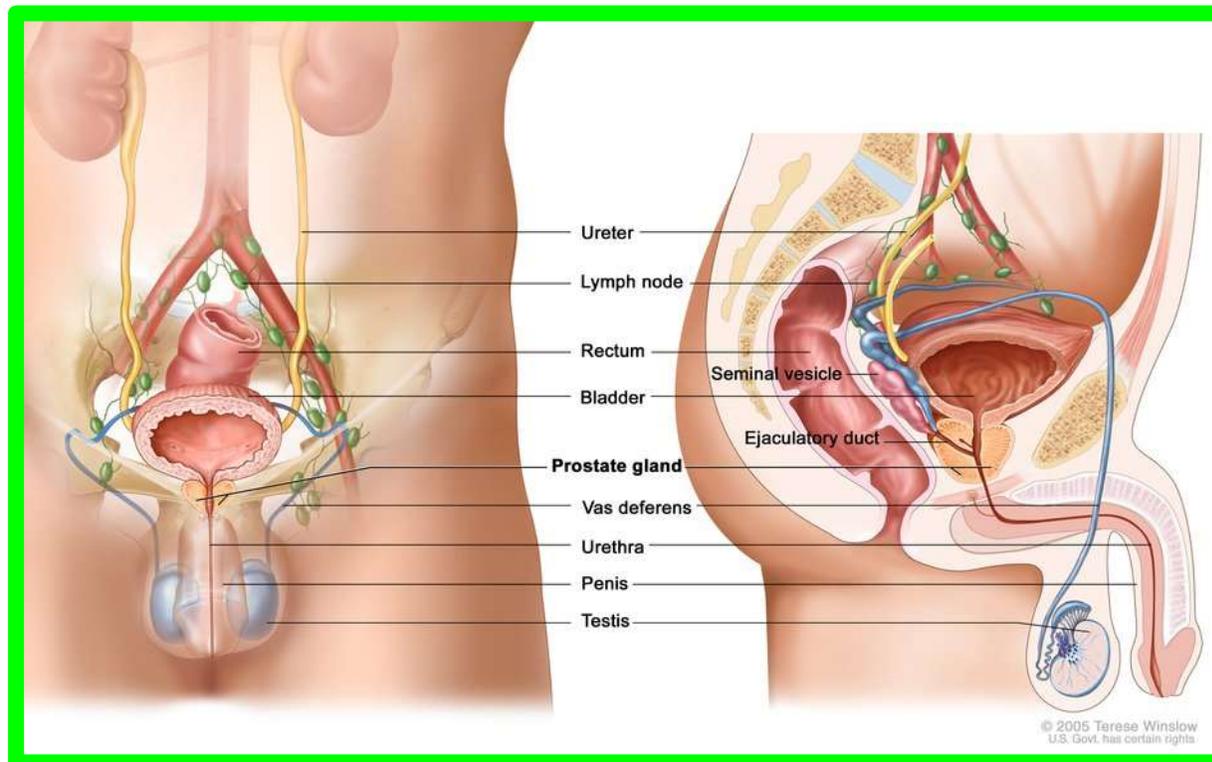


Vas (Ductus) Deferens

** Venous drainage: vesical plexus of veins.

** Nerve supply: vesical plexus of nerves.

** Lymphatic drainage: into the external iliac lymph nodes.

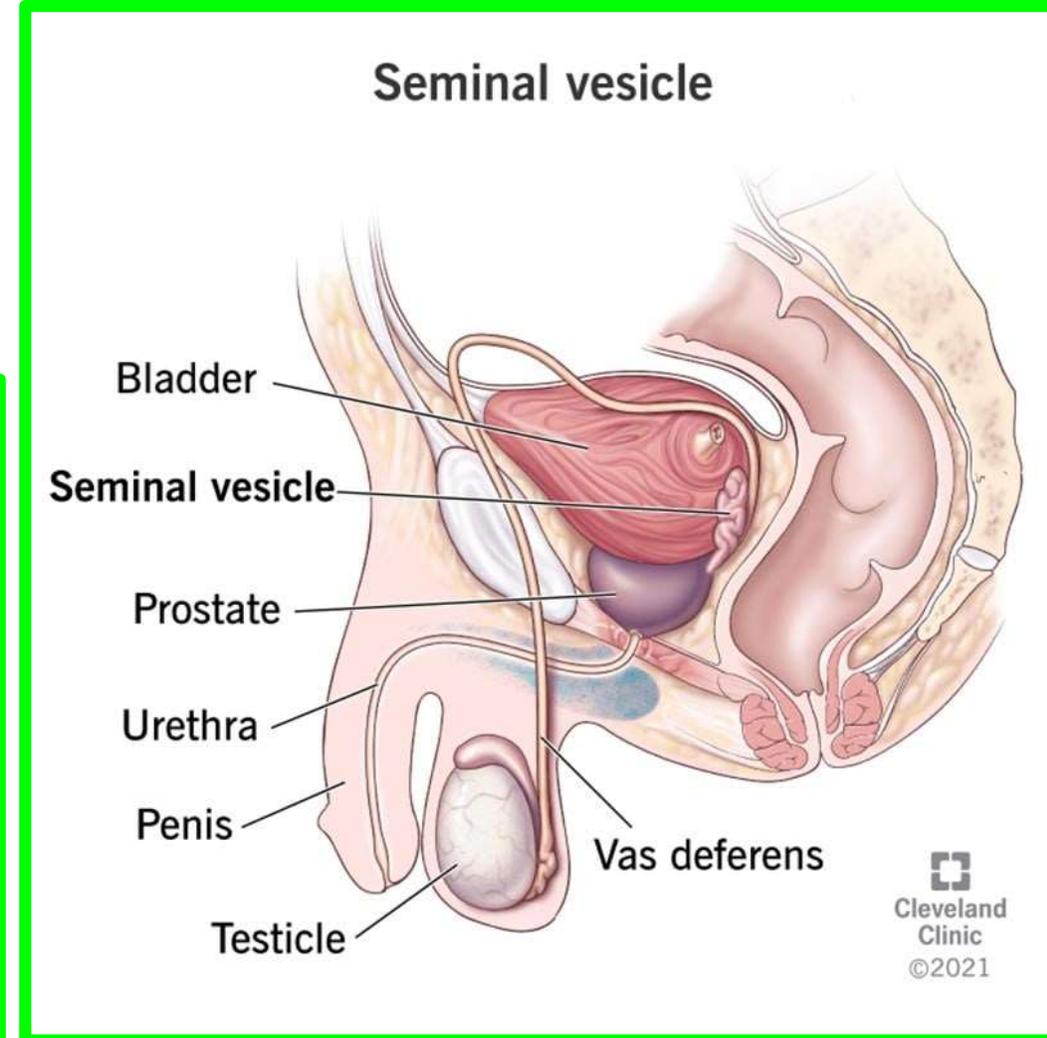
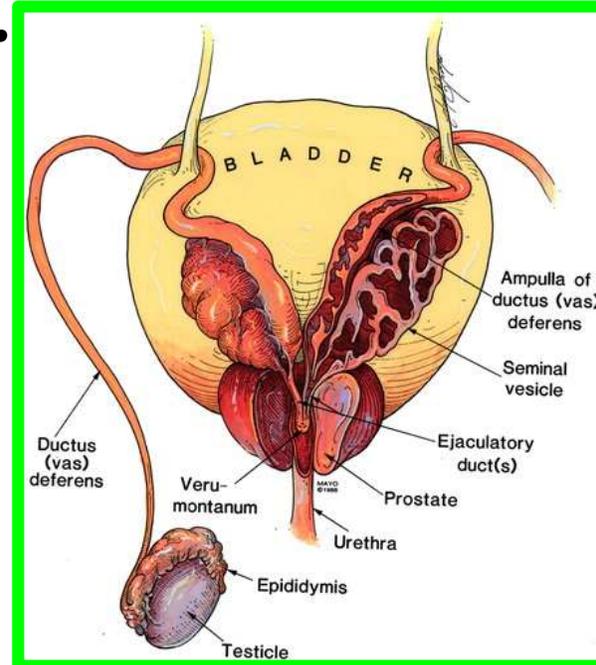


Seminal Vesicles

- ❖ One on each side
- ❖ It is a **sacculated and coiled pouch** which is nearly **5 cm** in length.

** Relations:

- a- **Anteriorly:** base of the urinary bladder
- b- **Posteriorly:** the rectum.
- c- **Medially:** ampulla of the vas deferens.
- d- **Laterally:** levator ani.

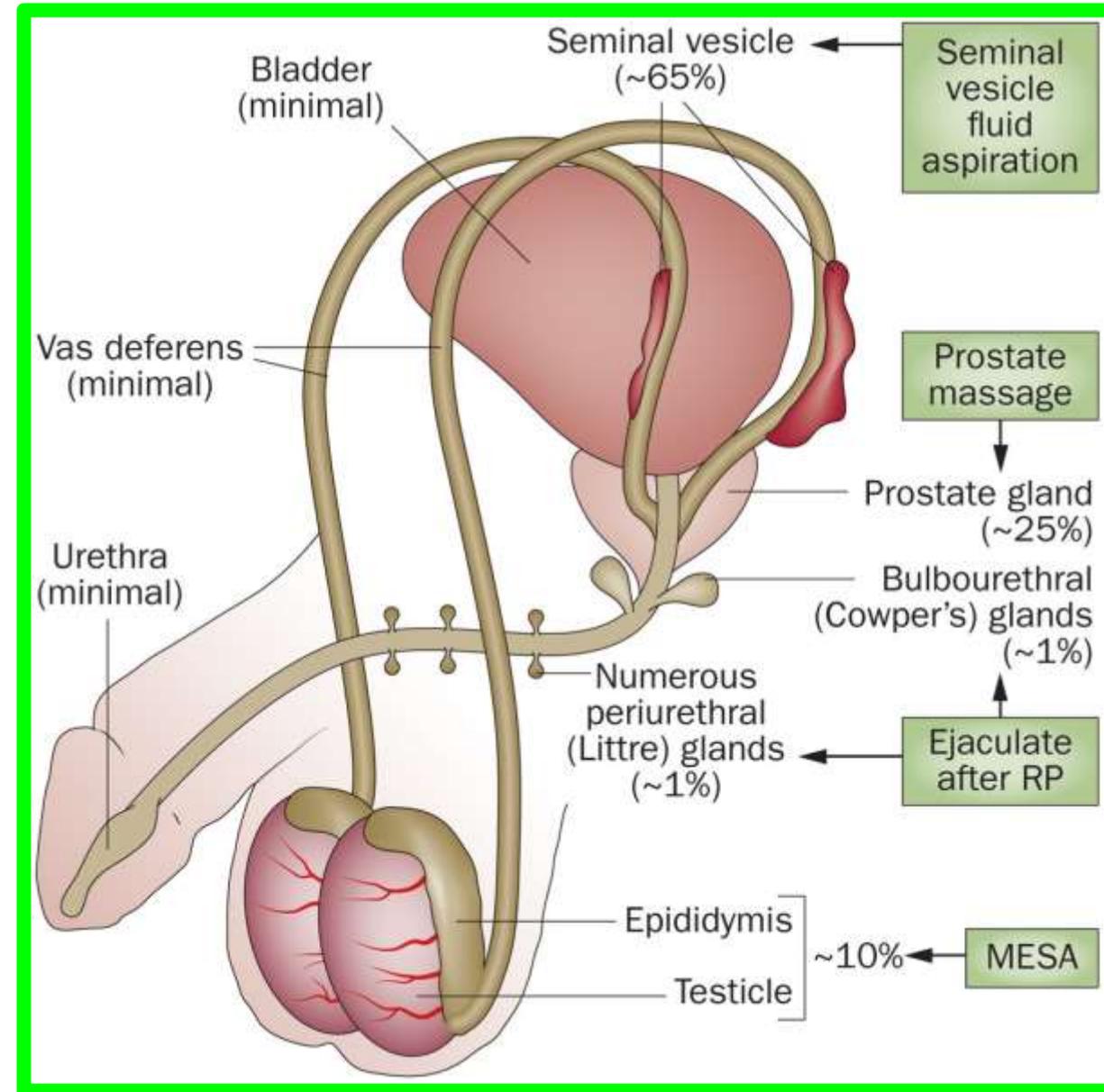


Seminal Vesicles

**** Ends:** It unites with ampullae of the vas deferens to form ejaculatory duct.

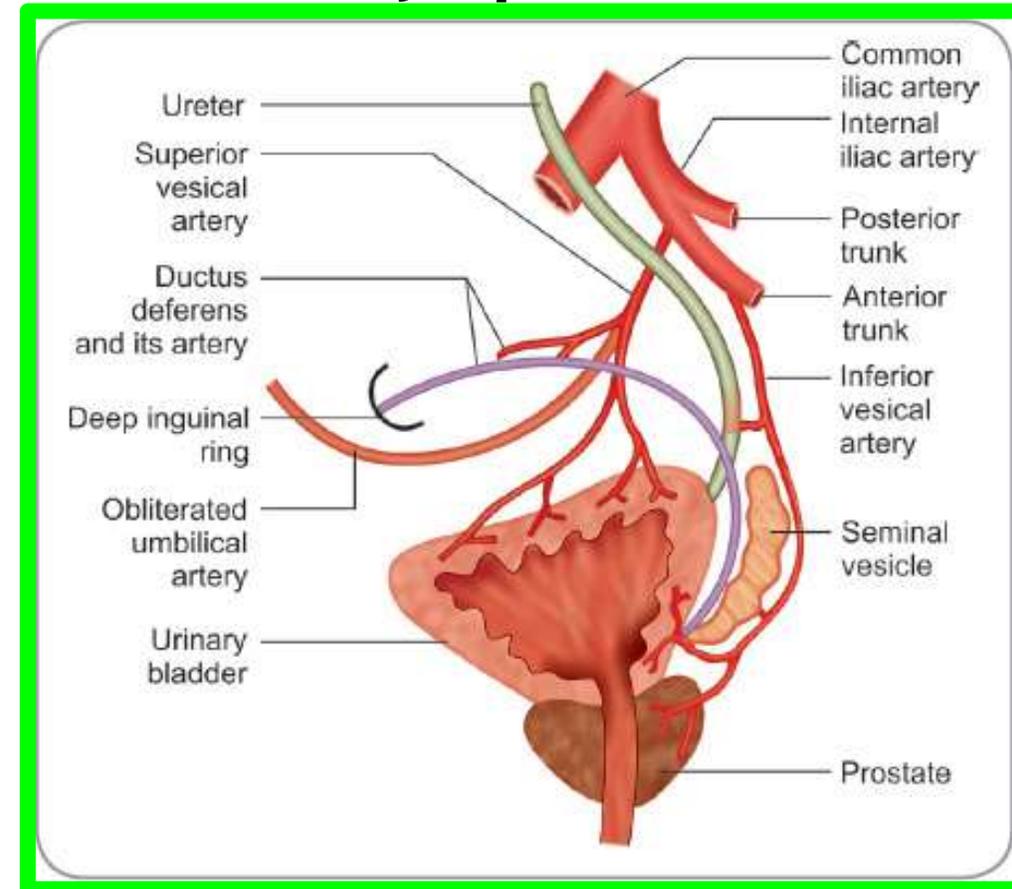
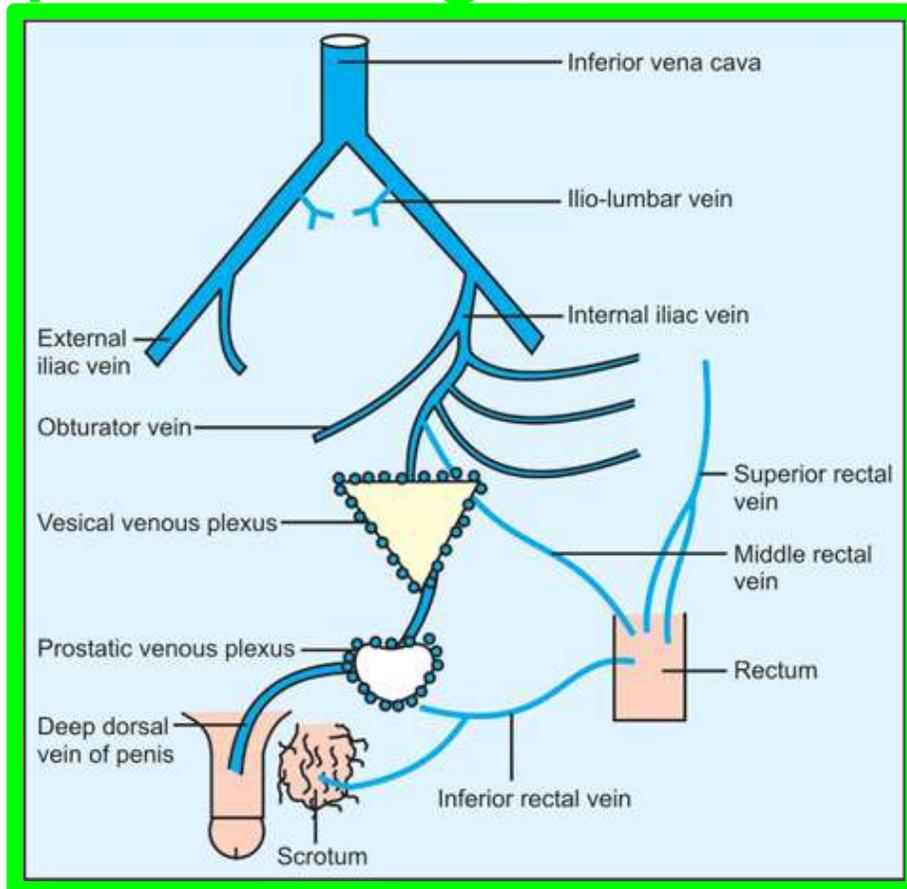
**** Function:** the seminal vesicles are glands which contract during ejaculation.

❖ Their secretions constitute the greater amount of the seminal fluid.



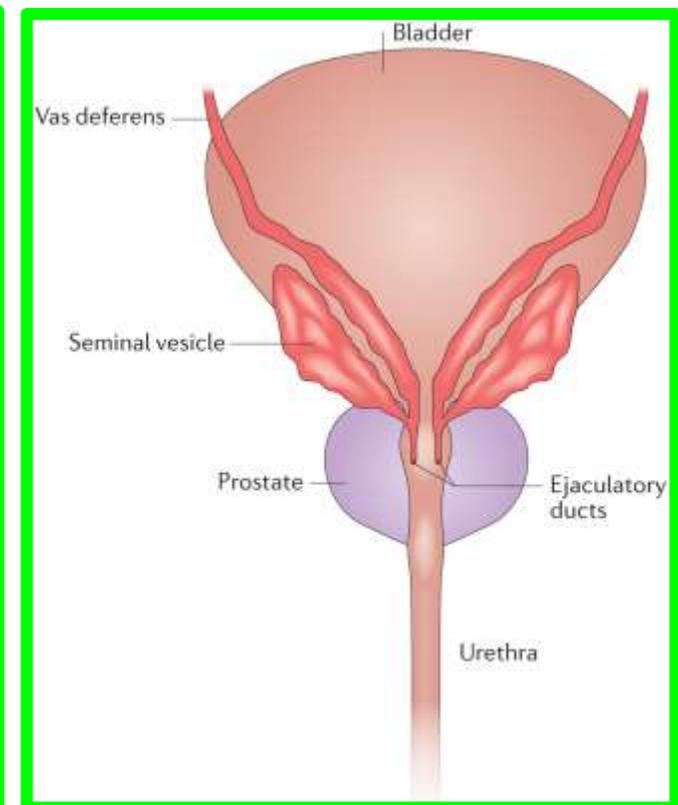
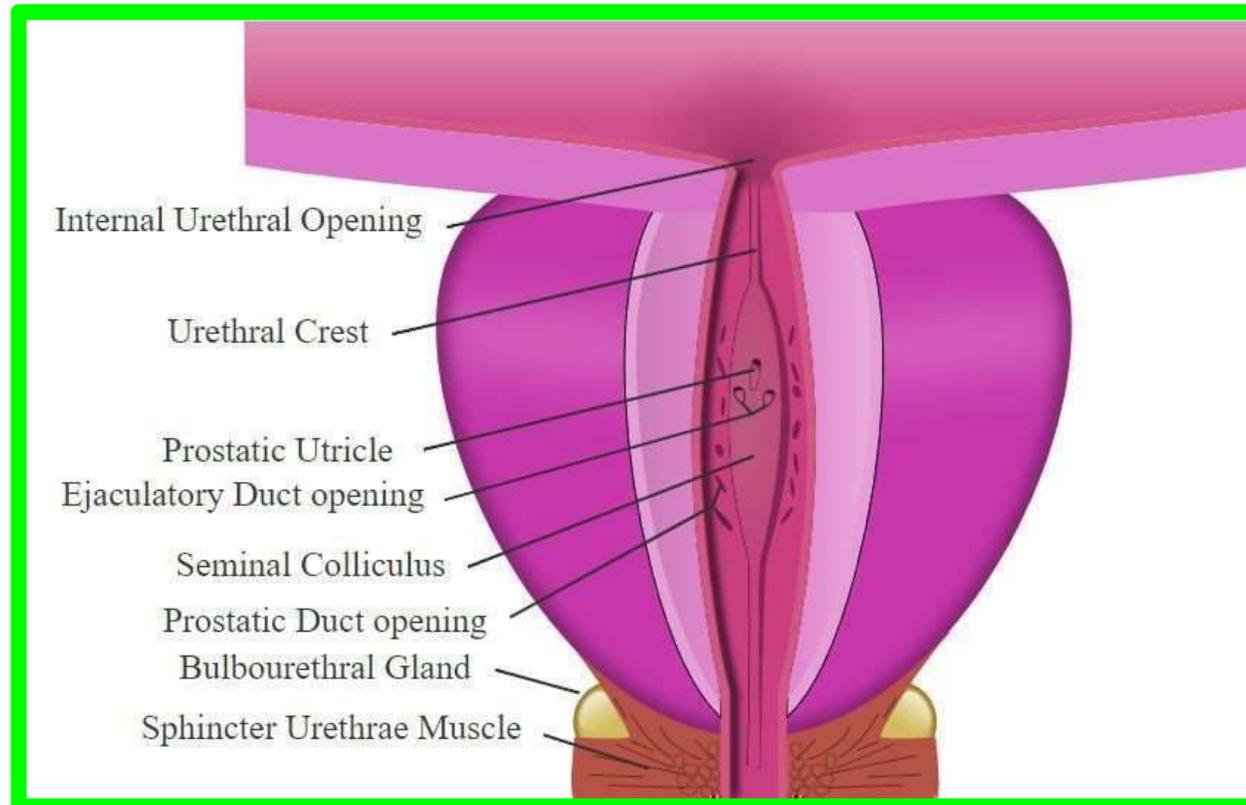
Seminal Vesicles

- ** Arterial supply:** from the inferior vesical artery.
- ** Venous drainage:** into the vesical venous plexuses.
- ** Nerve supply:** the vesical plexus of nerves.
- ** Lymphatic drainage;** into the internal and external iliac lymph nodes.



Ejaculatory Ducts

- ** Formation;** it is formed by the union of the **ampulla of the vas deferens** with **the seminal vesicle** behind the neck of the urinary bladder.
- ❖ It is a very narrow duct, **2 cm long** which immediately passes through the base of the prostate gland.
- ❖ It opens into **the seminal colliculus** of **the prostatic urethra**.





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