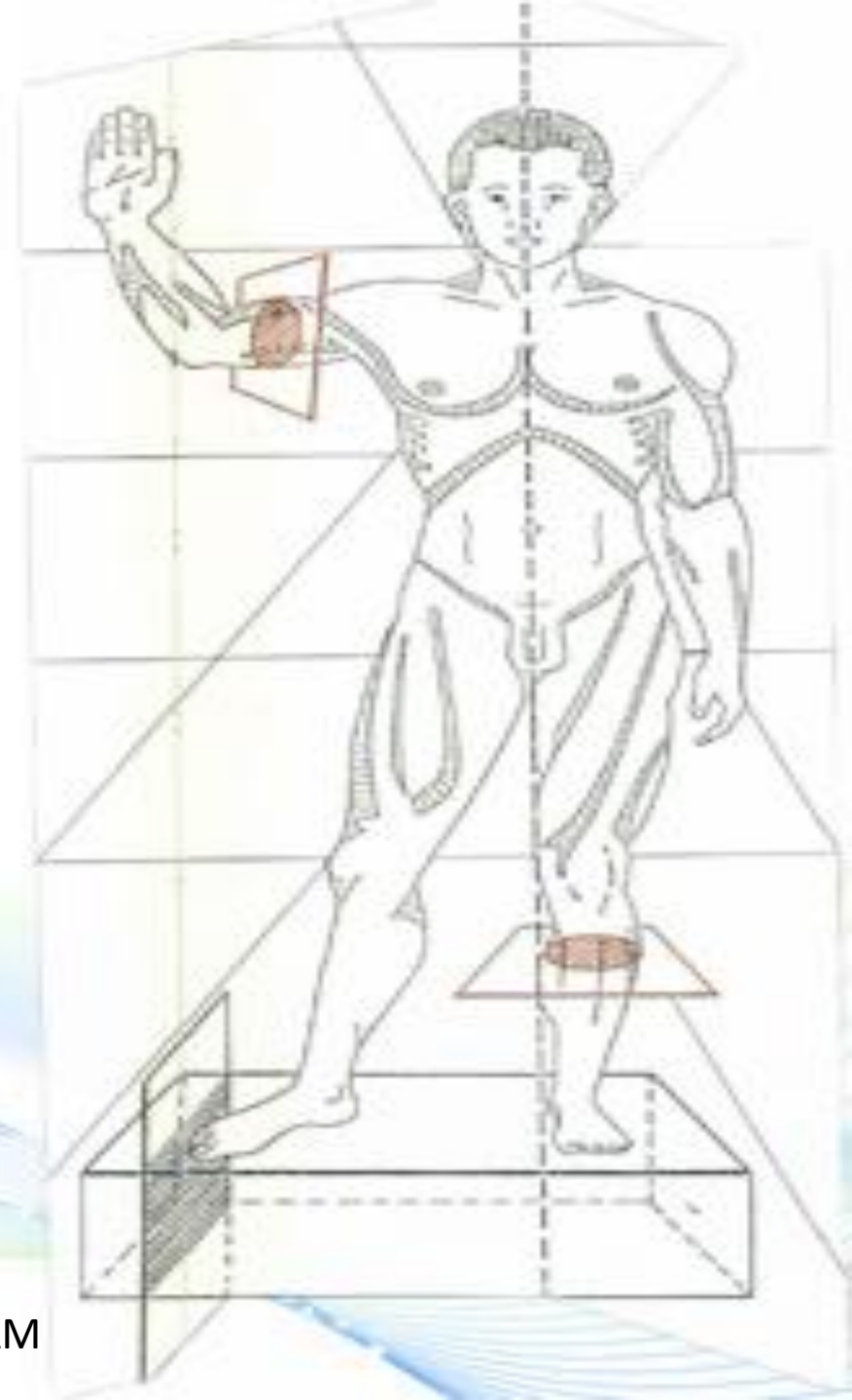
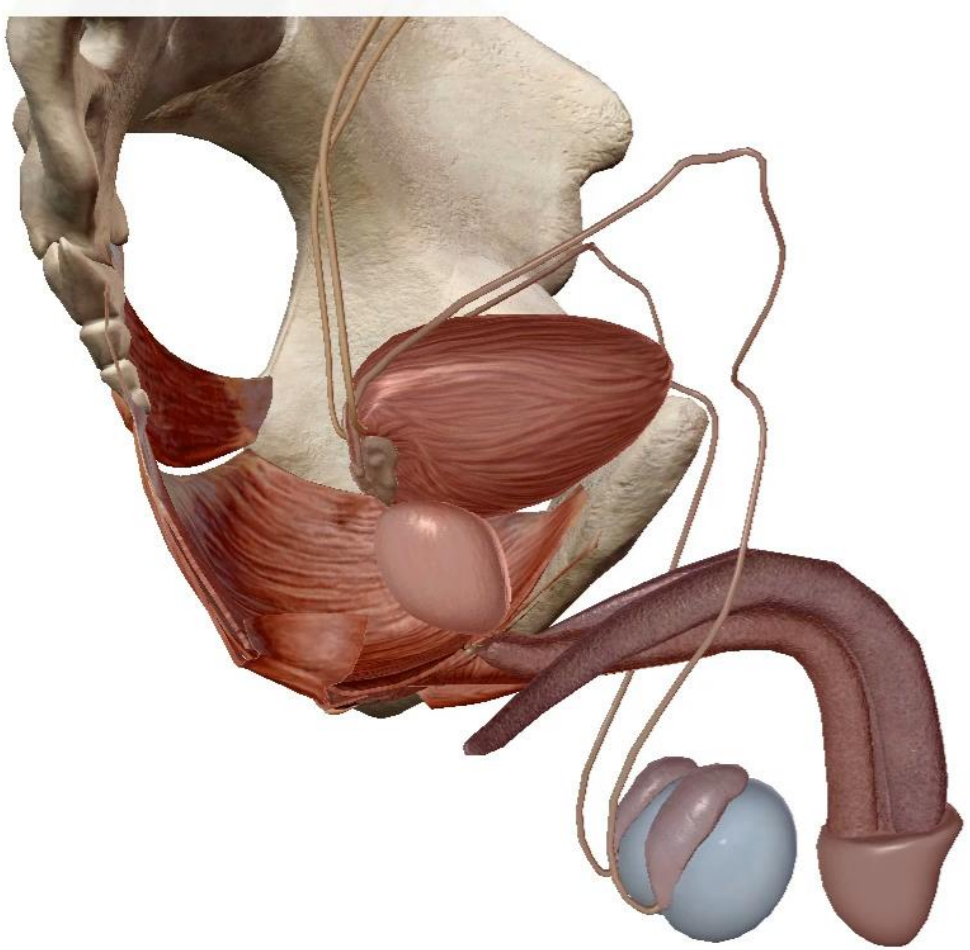
MALE INTERNAL GENITAL ORGANS



Pr. M.D.EL AMRANI Dr. BENTALEB OUSSAMA Dr. BIBORCHI HOUSSAM

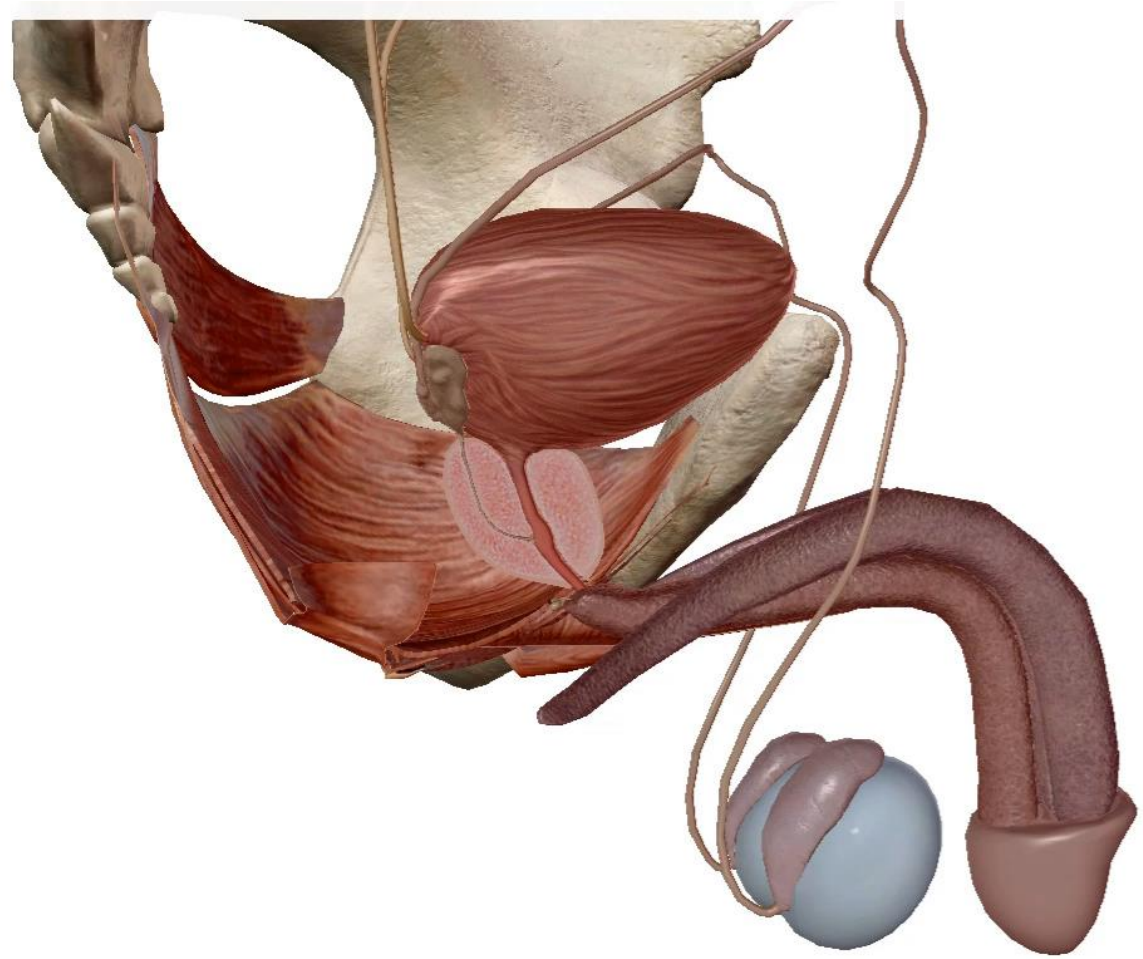
PROSTATE

CONTENTS



I. INTRODUCTION

- Glandular organ
- Unique and central at the midline
- Beneath the bladder and above the urogenital diaphragm
- Penetrated by the proximal part of the urethra
- Major role in fertilization and micturition
- Accessible through rectal examination



II. DESCRIPTIVE ANATOMY

A. SITUATION

- Located at the anterior part of the pelvic cavity
- **Between:**

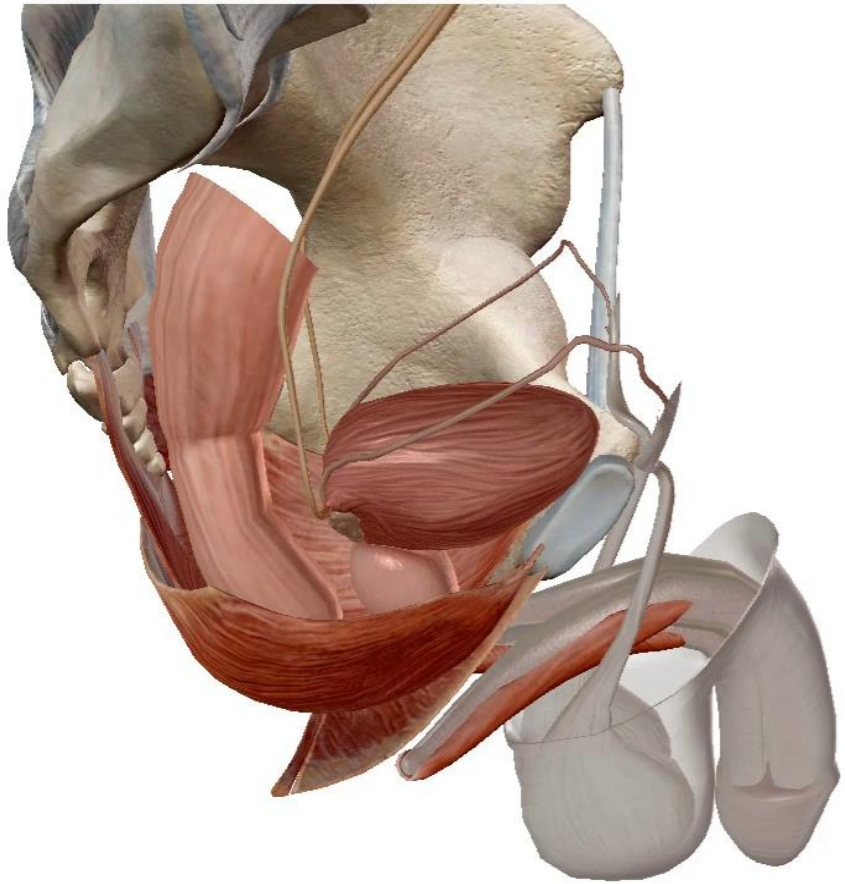
  -Forwards: pubic symphysis

  -Backwards: rectum

  -Upwards: bladder

  -Downwards: superior fascia of urogenital diaphragm

  -Laterally: sides of the funnel of levator ani muscle

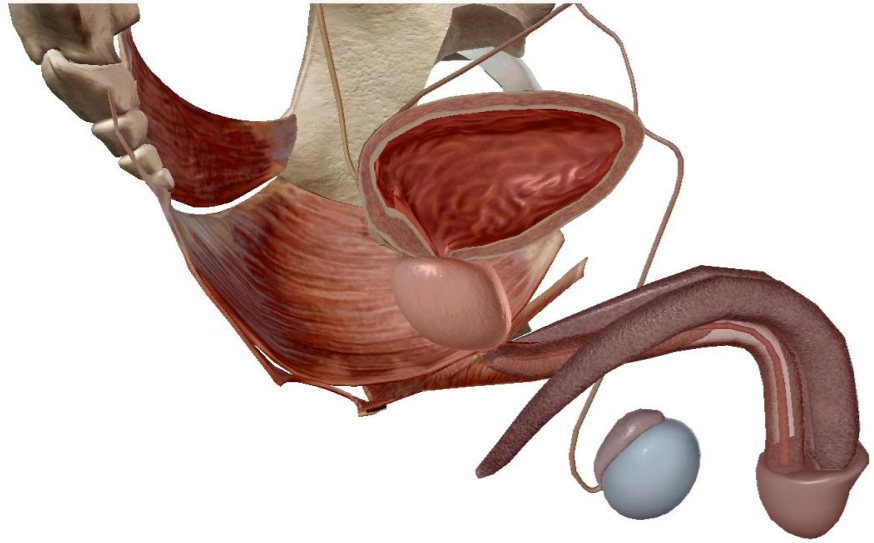


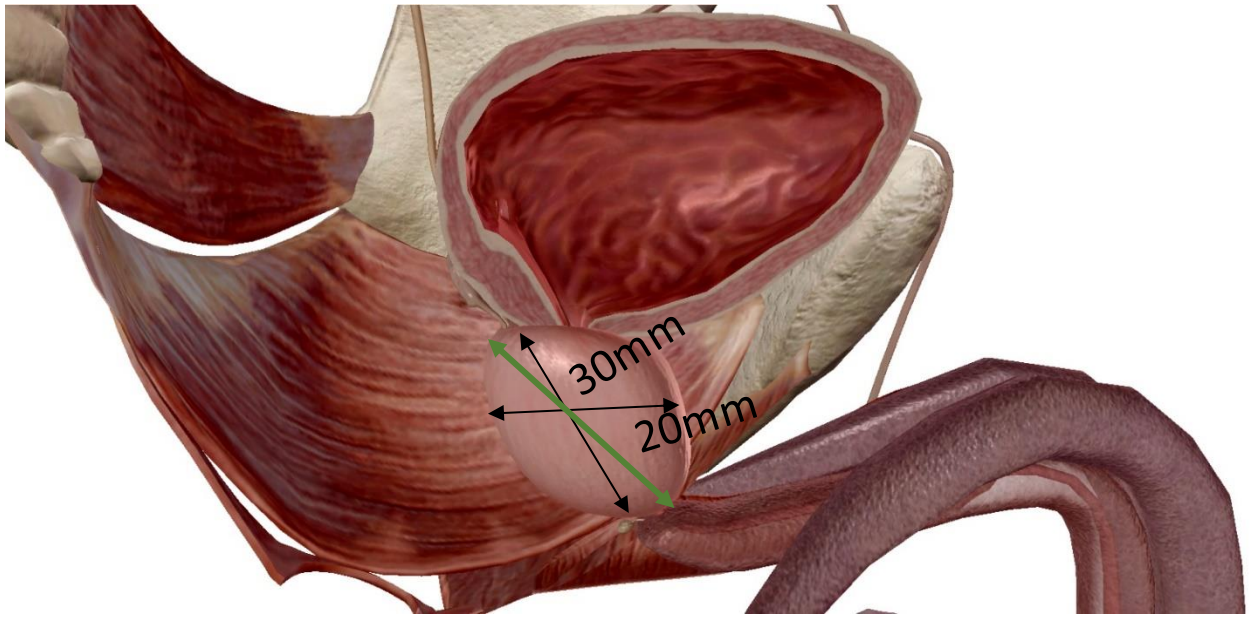
B. SHAPE

- Shape of a chestnut
- Inverted rounded cone
- Upper larger base
- Lower blunt apex
- Long axis: oblique forwards and downwards
- 4 faces: anterior, posterior and 2 inferolateral faces
- Firm consistency
- Regular surface
- Whitish grey coloured

C. DIMENSIONS

- Normally broader than it is long like the caecum
- Width: 4 cm
- Heigth: 3 cm
- Thickness: 2 cm
- Weigth: 20 g





LATERAL VIEW OF THE PROSTATE SHOWING ITS DIMENSIONS

III. SUPPORTS

- Fixed
- **Base:**

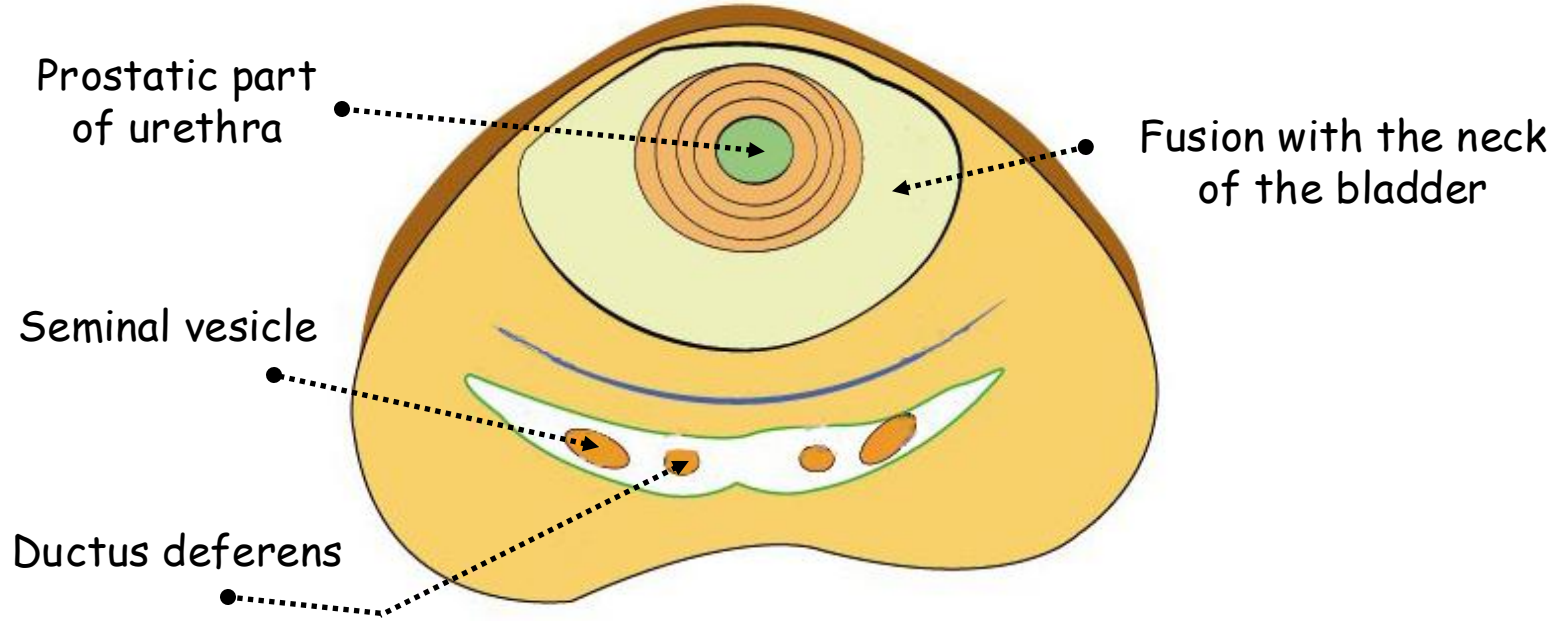
  -Fusion with the neck of the bladder

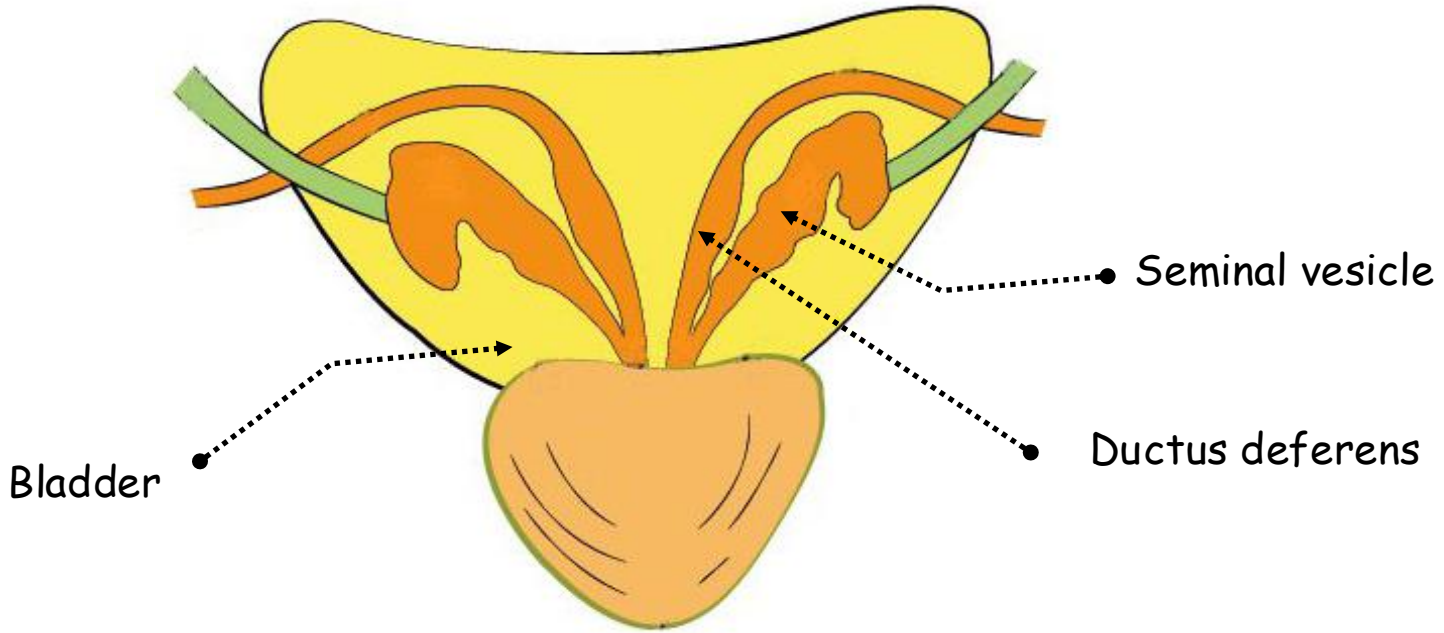
  -Perforation by the urethra which traverses the whole length of the gland
- **Apex:**

  -Cradled between the levator ani muscles
- **Anterior surface:**

  -Connected to the bodies of the pubic bones by the puboprostatic ligaments
- **Inferolateral surfaces:**

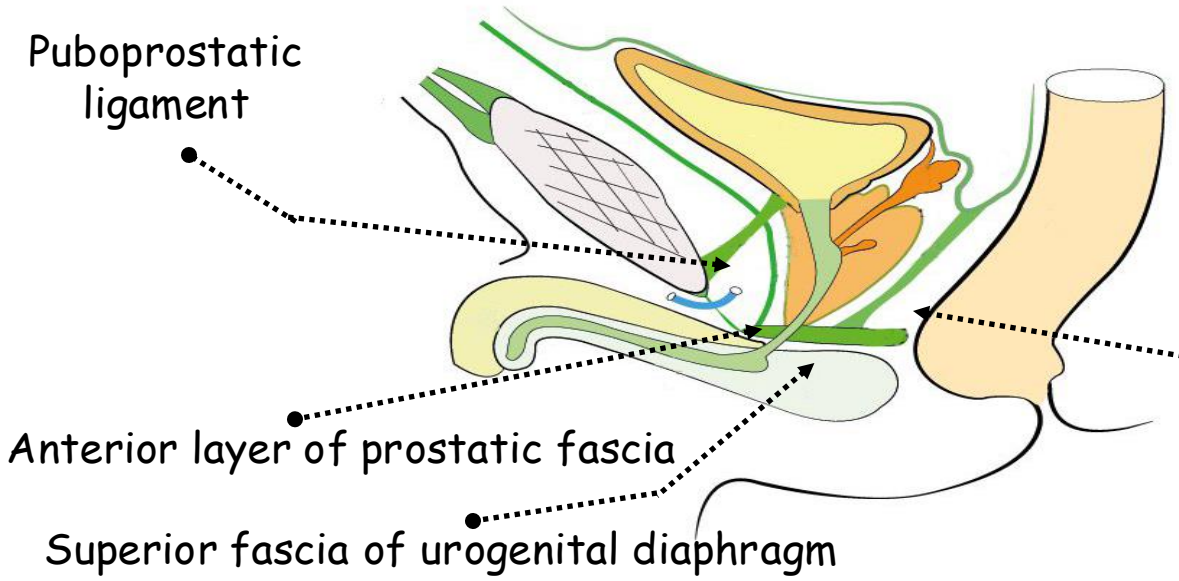
  -Clasped by the levator prostatae parts of levator ani

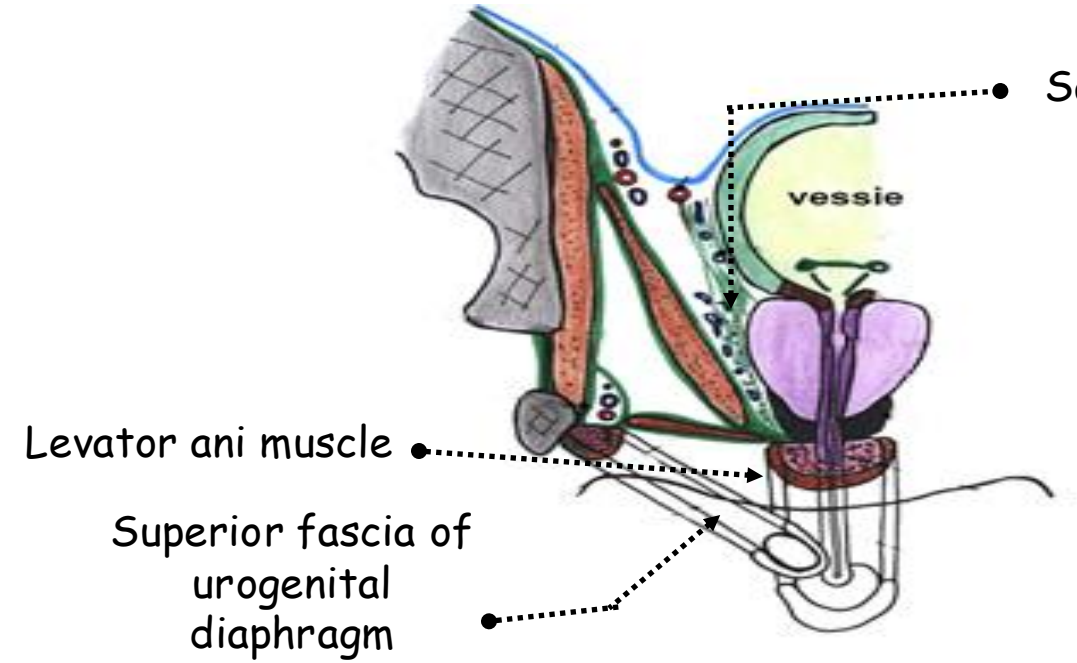




FIGURES SHOWING THE SUPPORTS OF THE PROSTATE

- **Posterior surface:**
  -Ejaculatory ducts and prostate's own ducts
- True capsule of the prostate
- Prostatic plexus of veins
- **False capsule:**
  -Condensation of pelvic fascia
  -Continuous in front with puboprostatic ligaments
  -Rectovesical fascia of Denonvilliers backwards
  -Sacrorectogenitopubic fascia laterally
  -Superior fascia of urogenital diaphragm downwards
  -A thin spetum separating the base of the prostate from the base of the bladder





SAGITTAL AND CORONAL SECTIONS OF PELVIS MINOR SHOWING THE SUPPORTS OF PROSTATE

IV. STRUCTURE

1. True capsule:

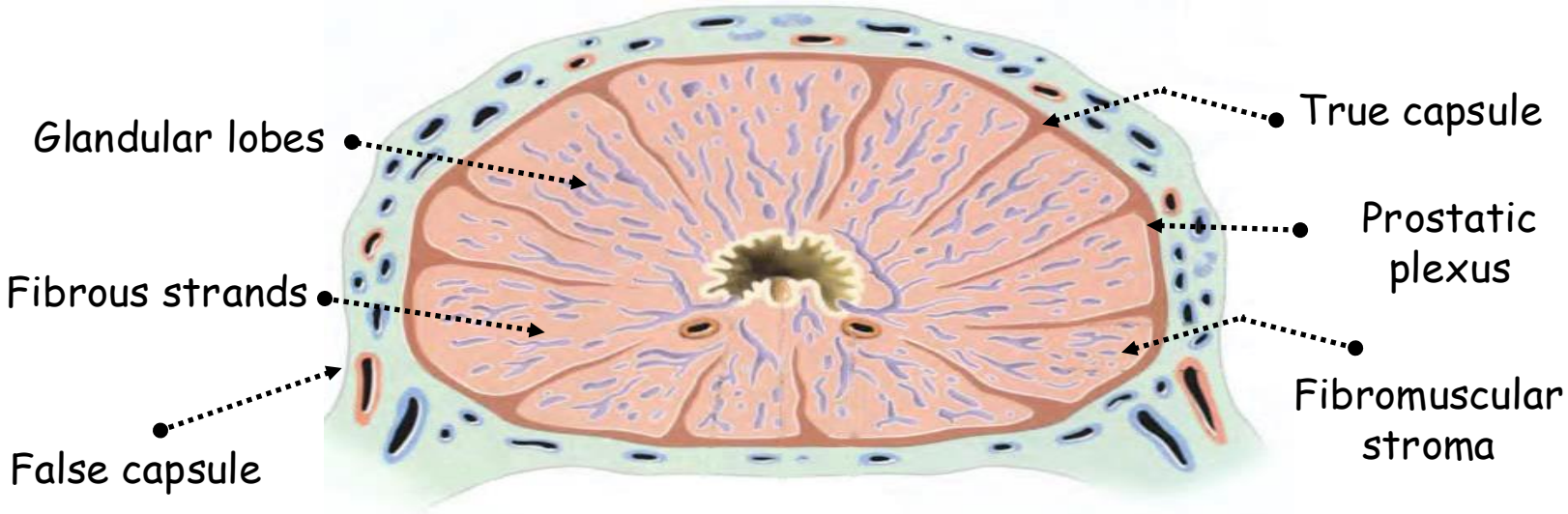
- Thick layer of connective tissue at the periphery of the gland

2. Fibromuscular stroma:

- Mixture of connective tissue and smooth muscle
- Disposed into strands separating the glandular acini

3. Glandular lobes:

- 5 schematic lobes: anterior, middle, posterior and 2 lateral
- Usually no clear distinction between them
- **Anterior:** in front of the urethra, small, stroma tissue
- **Middle:** between the ejaculatory ducts and the proximal urethra, important
- **Posterior and lateral lobes:** right and left lobes



HORIZONTAL SECTION OF THE PROSTATE SHOWING ITS STRUCTURE (FROM KAMINA)

4. Prostatic utricle:

- Embryonic remnant about 0.5 cm long resulting from union of the caudal ends of the paramesonephric Mullerian ducts
- Homologue of the uterus

5. Ejaculatory ducts:

- Alongside the prostatic utricle

6. Prostatic ducts:

- Open on the urethral crest and in the sulcus on each side

7. Prostatic urethra

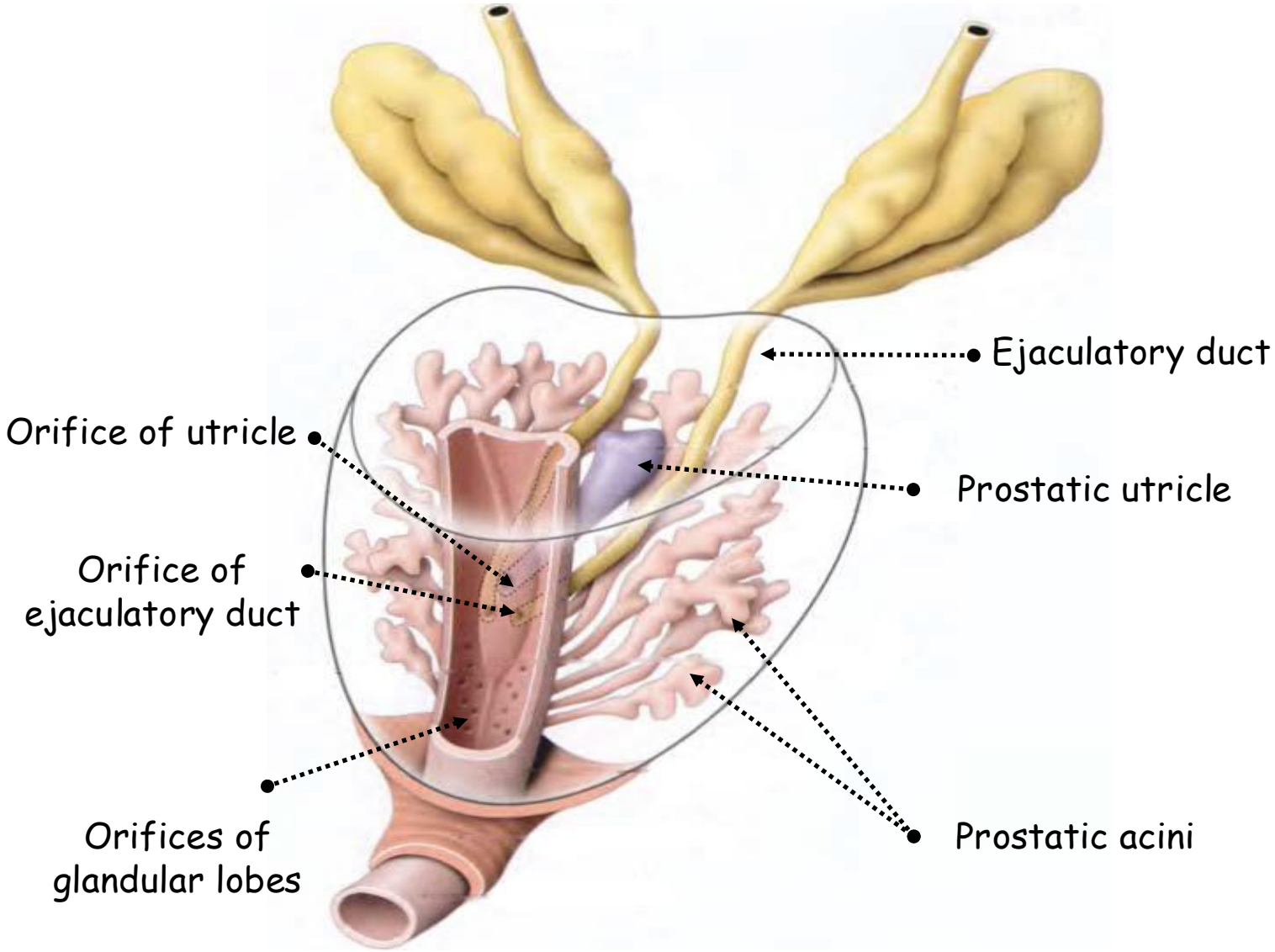


FIGURE SHOWING THE INTERNAL STRUCTURE OF THE PROSTATE (FROM KAMINA)

V. ZONAL ANATOMY OF MAC NEAL

- Histological
- Verumontanum-based description

1. Anterior zone:

- Fibromuscular stroma

2. Peripheral zone:

- 70% of the weight
- Circles the prostatic urethra under the level of the verumontanum
- Extends backwards and upwards

3. Central zone:

- 25% of the weight
- Behind the prostatic urethra at the level of the verumontanum
- Circles the ejaculatory ducts
- Seminal vesicle like histology

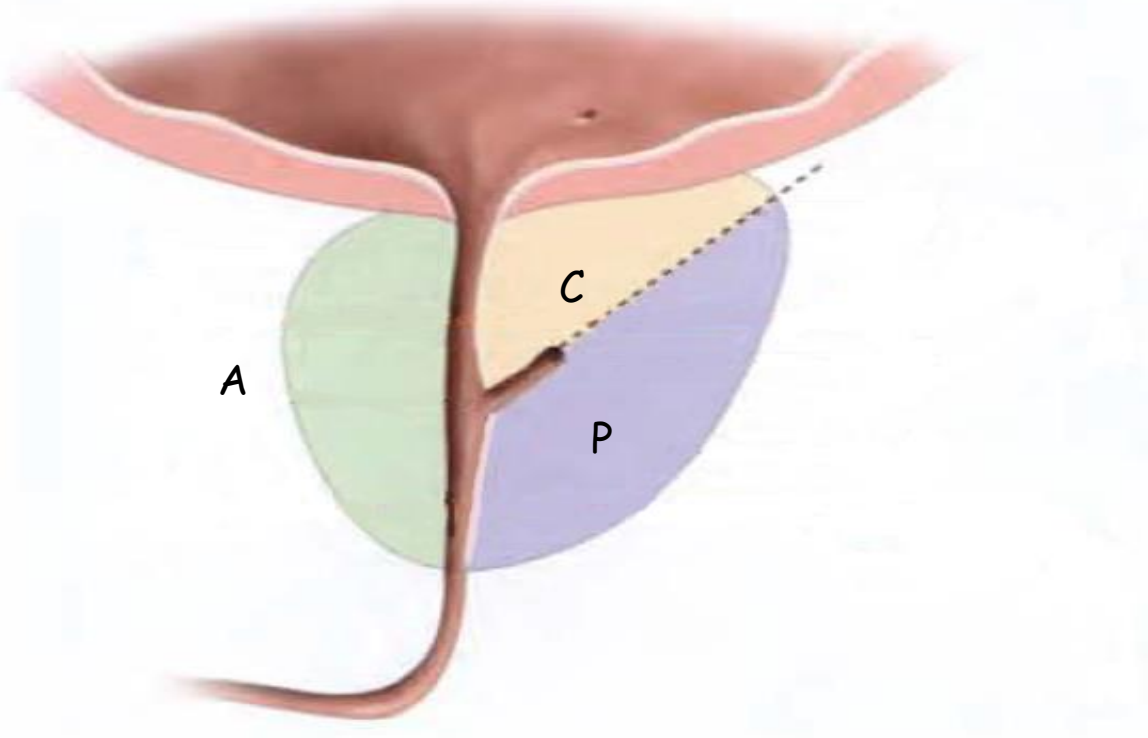


FIGURE SHOWING THE ZONAL ANATOMY OF MAC NEAL OF THE PROSTATE

4. Transition zone:

- 2 lobes circling the prostatic urethra at the level of verumontanum
- Extends laterally and upwards under the neck of bladder

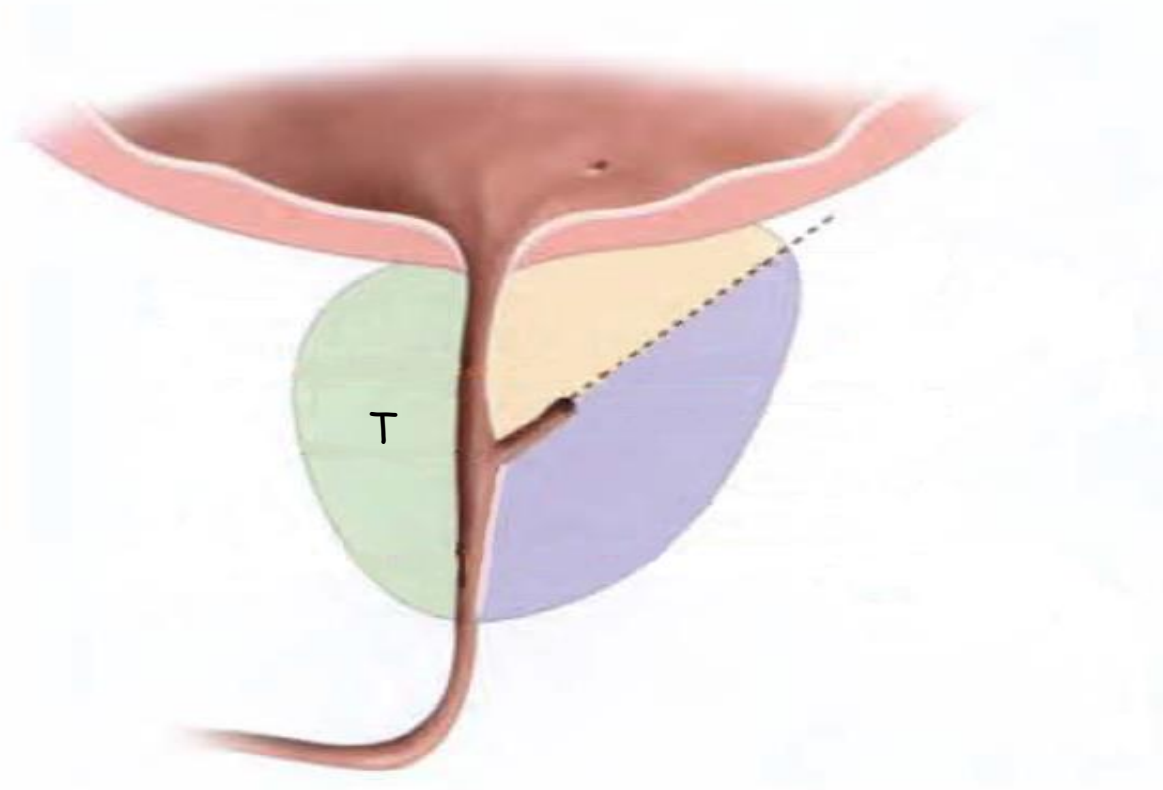


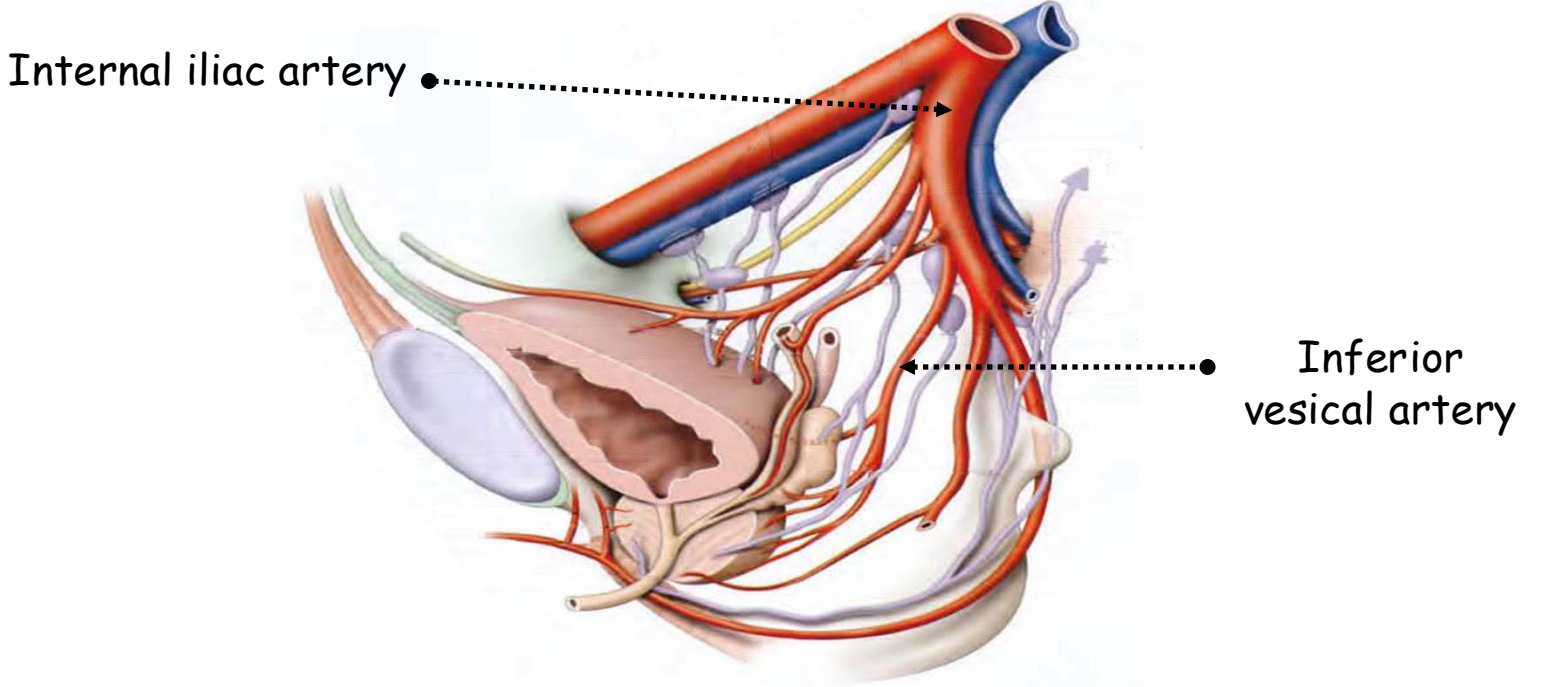
FIGURE SHOWING THE ZONAL ANATOMY OF MAC NEAL OF THE PROSTATE (FROM KAMINA)

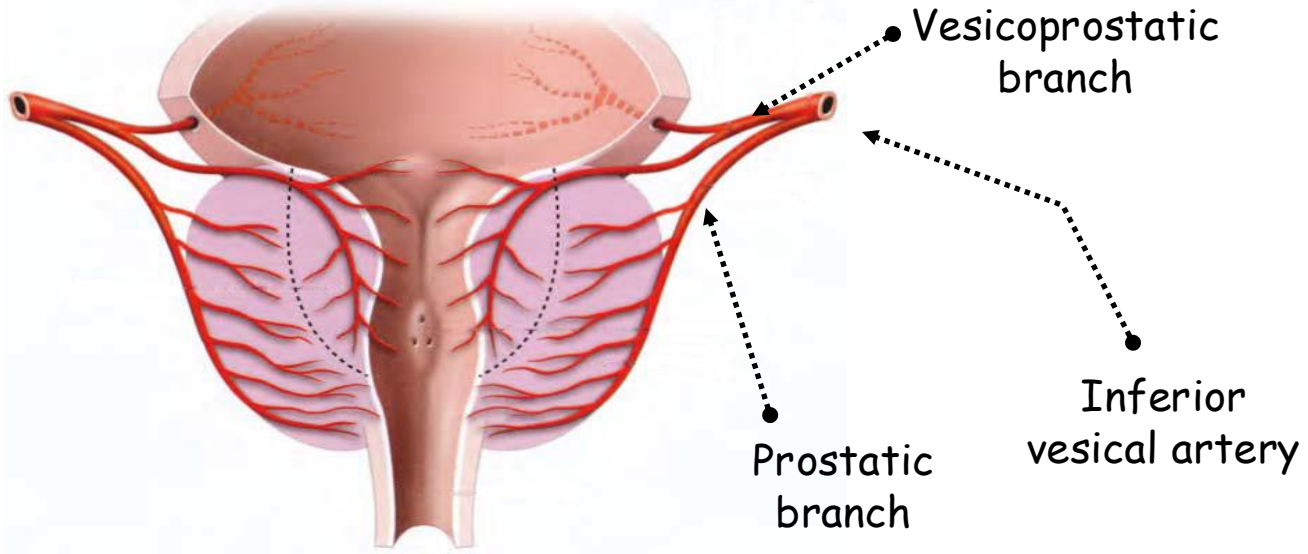
VI. BLOOD SUPPLY; LYMPH DRAIANGE AND NERVE SUPPLY

A. ARTERIES

1. Inferior vesical artery:

- Main supply
- Branch of the internal iliac artery
- Prostatic branch

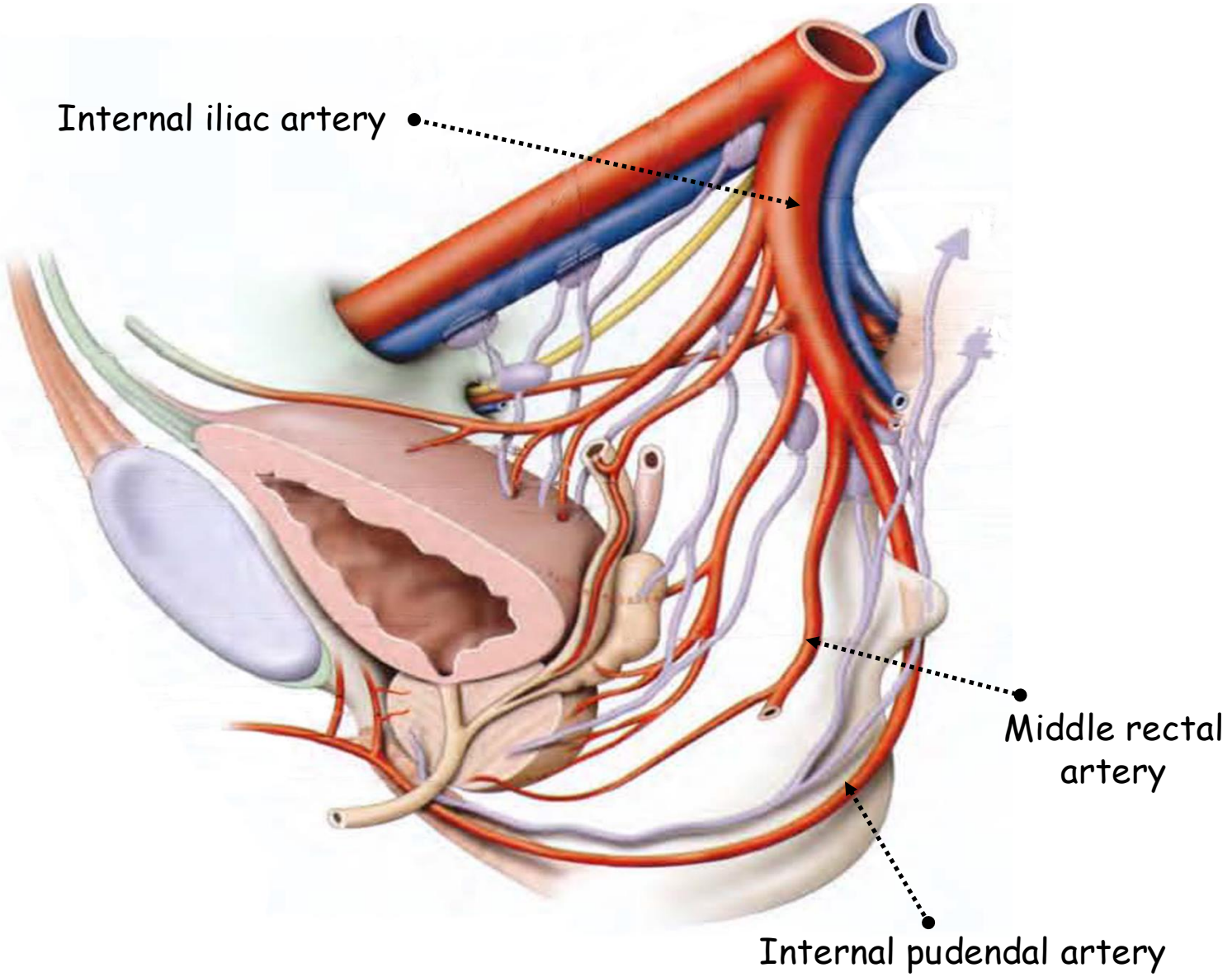




FIGURES SHOWING THE ARTERIES OF THE PROSTATE (FROM KAMINA)

2. Internal pudendal and middle rectal arteries:

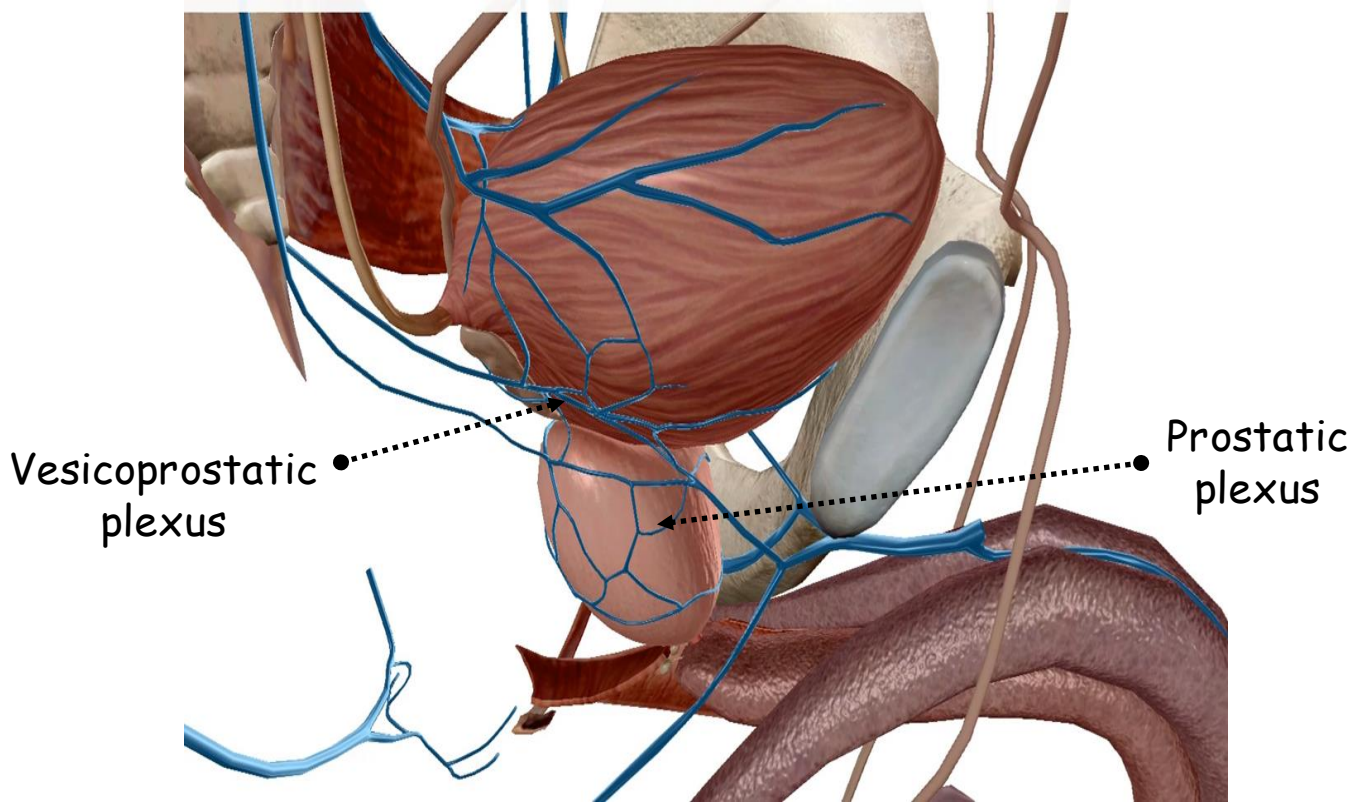
- Small branches
- Lower part
- Sometimes the middle rectal provides the major supply



SAGITTAL SECTION OF PELVIS MINOR SHOWING THE ARTERIES OF PROSTATE (FROM KAMINA)

B. VEINS

- Plexus between the true and false capsules
- Joins the vesicoprostatic plexus situated at the front and sides of the groove between bladder and prostate
- Drains backwards into the internal iliac veins



LATERAL VIEW OF PELVIS MINOR SHOWING THE ARTERIES OF PROSTATE (FROM KAMINA)

C. LYMPH DRAINAGE

- Internal iliac nodes
- Sacral nodes
- External iliac nodes

D. NERVES

- Parasympathetic:

  -Pelvic splanchnic nerves

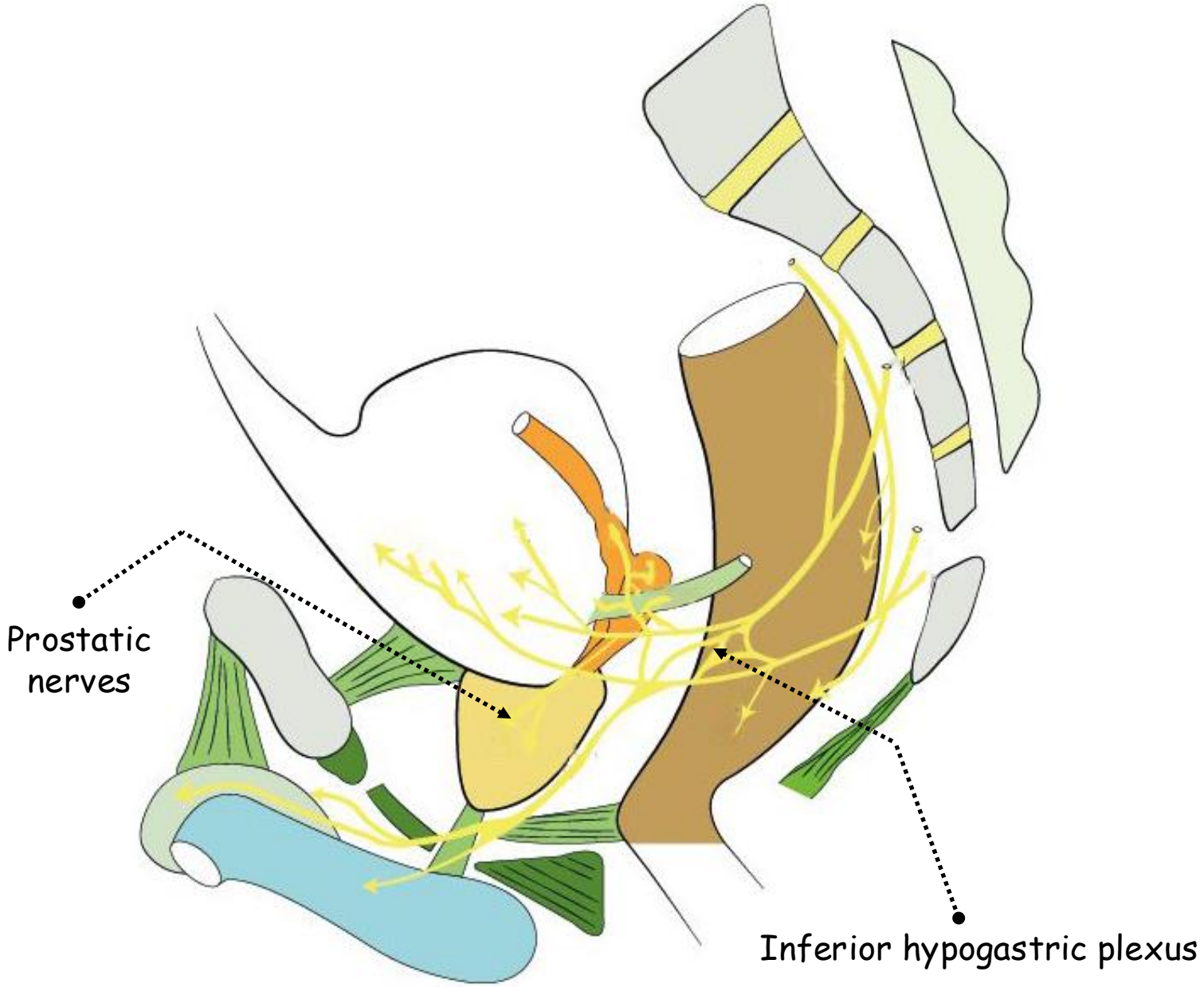
  -Acini

- Sympathetic:

  -Inferior hypogastric plexus

  -Muscle fibres of the stroma

  -Ejaculation



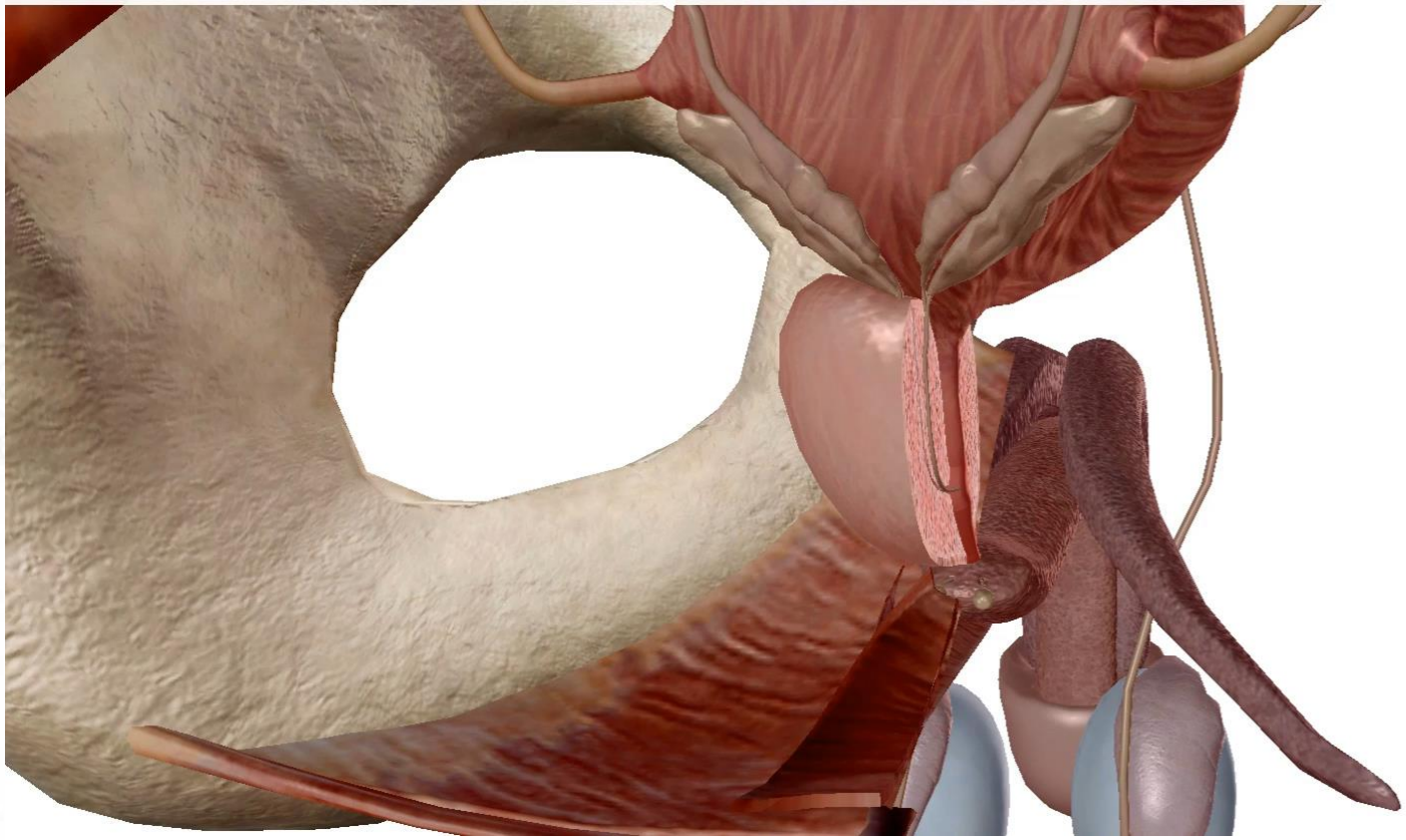
LATERAL VIEW OF PELVIS MINOR SHOWING THE NERVES OF PROSTATE

VII. SURGICAL APPROACH

- Transurethral route
- Abdominal suprapubic incision

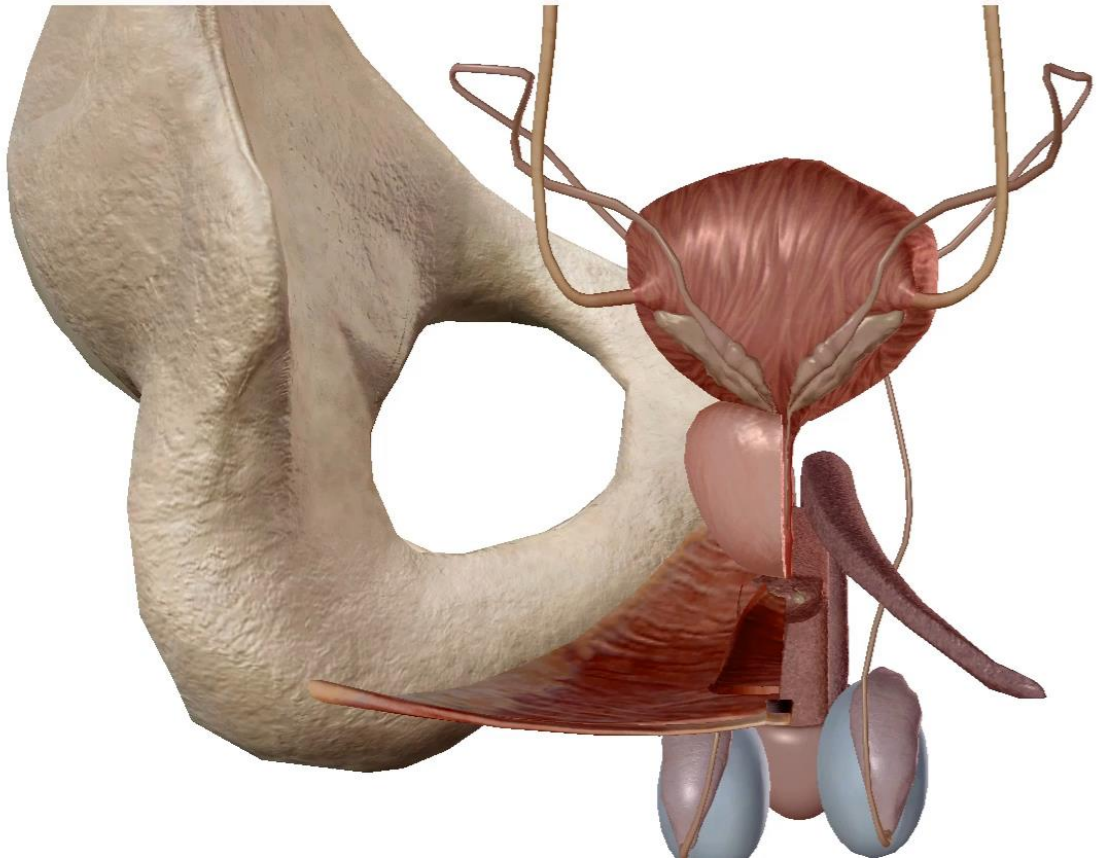
SEMINAL VESICLE

CONTENTS



I. INTRODUCTION

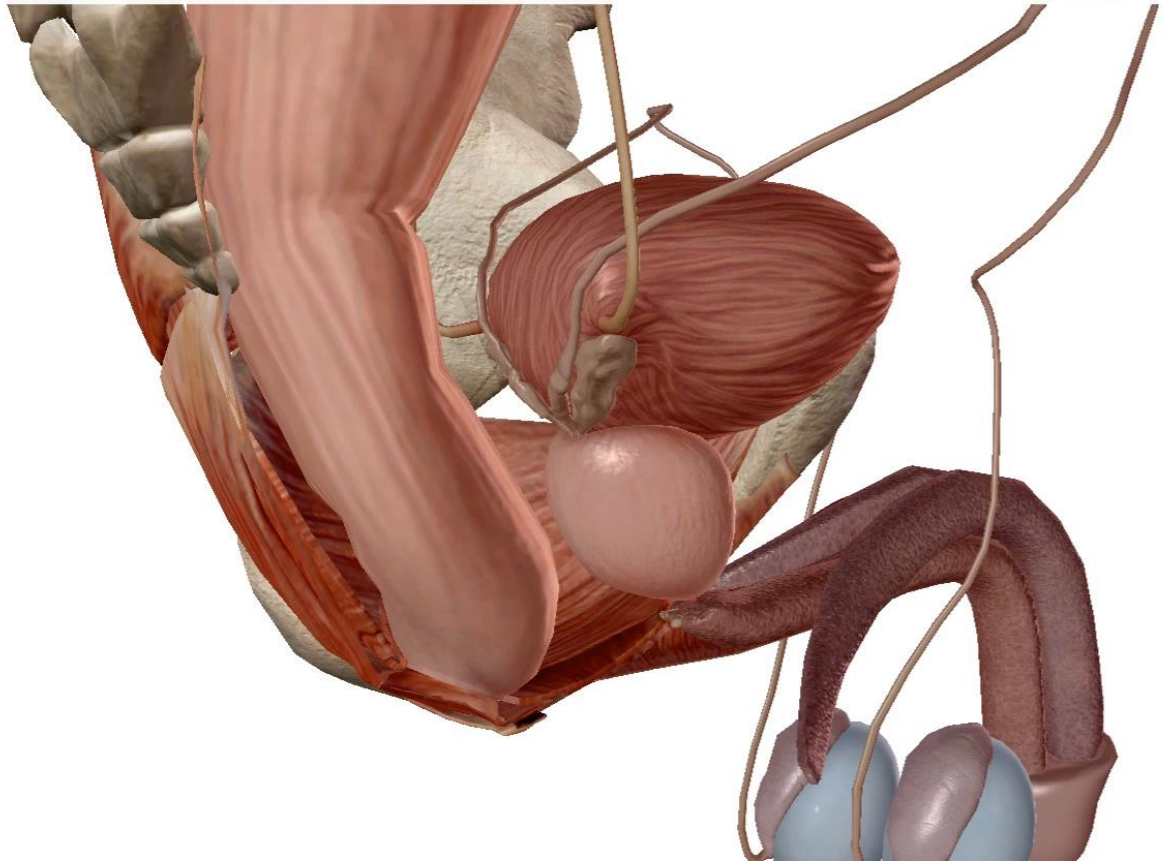
- Paired exocrine gland
- Connected to the spermatic tract
- Thin-walled elongated sac
- Applied to the base of the bladder above the prostate
- Produce about 60% of the seminal fluid
- Spermatozoa container



II. DESCRIPTIVE ANATOMY

A. SITUATION

- Applied to the base of the bladder above the prostate
- Each lies lateral to the ampulla of the ductus deferens of its own side
- Behind the retrovesical portion of the pelvic ureter
- In front of the rectum

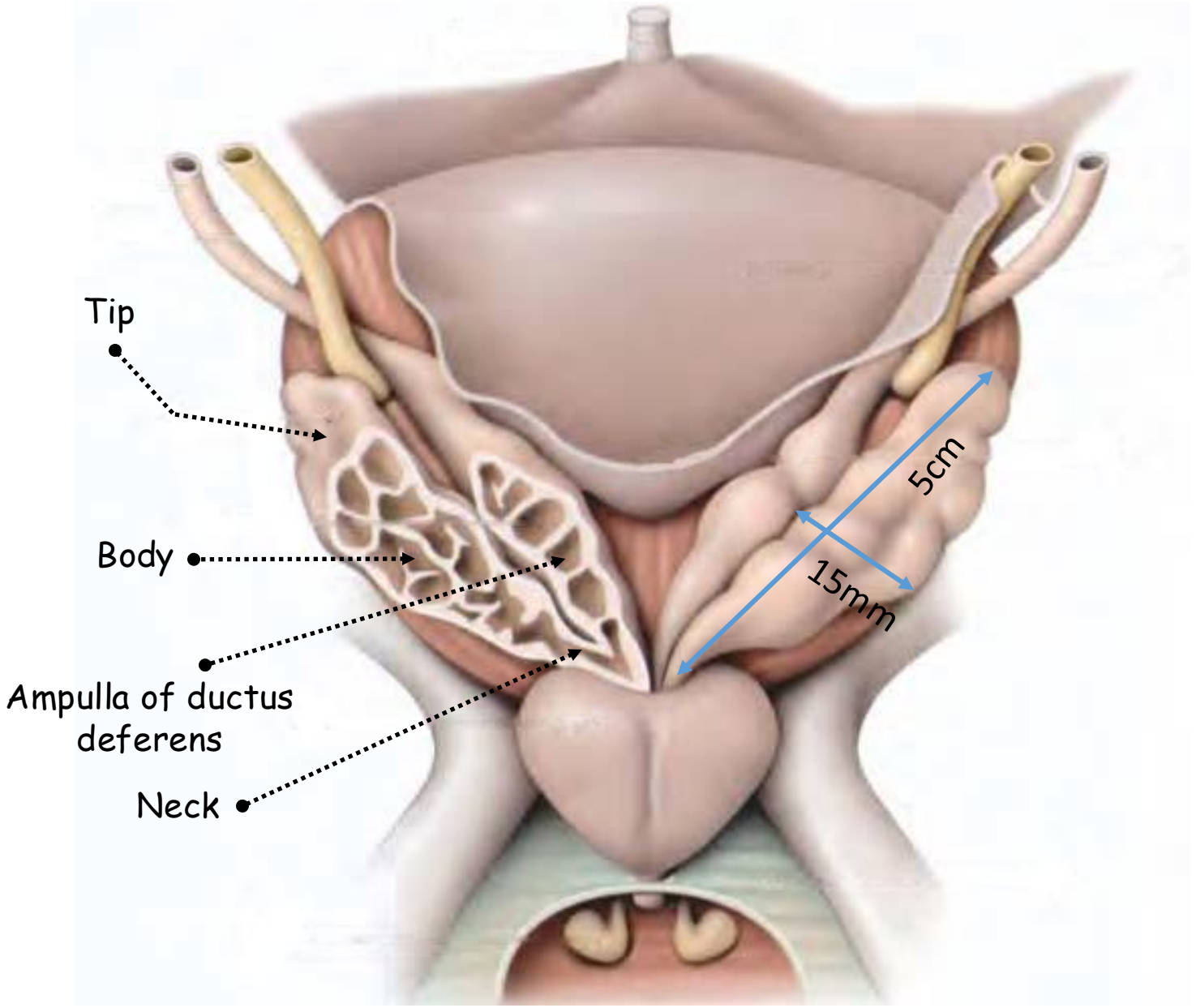


B. SHAPE

- Lobulated, blind-ending tube much folded on itself
- 3 parts:
  - -Tip
  - -Body
  - -Neck: the duct of the seminal vesicle joins the lower end of the ampulla of the ductus behind the prostate to form the ejaculatory duct

C. DIMENSIONS

- Length: 5 cm
- Width: 1.5 cm
- Thickness: 0.5 cm



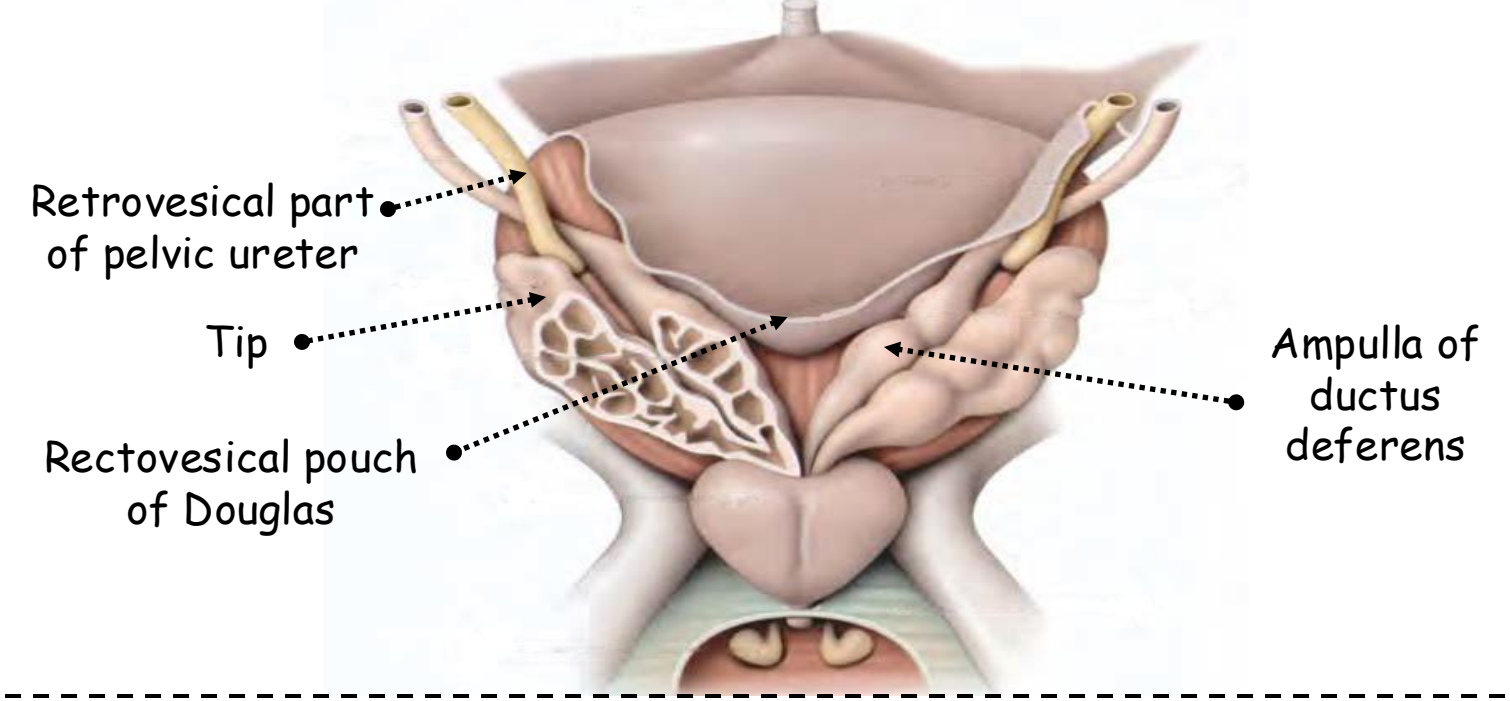
POSTERIOR VIEW OF THE BLADDER AND PROSTATE SHOWING THE SEMINAL VESICLES (FROM KAMINA)

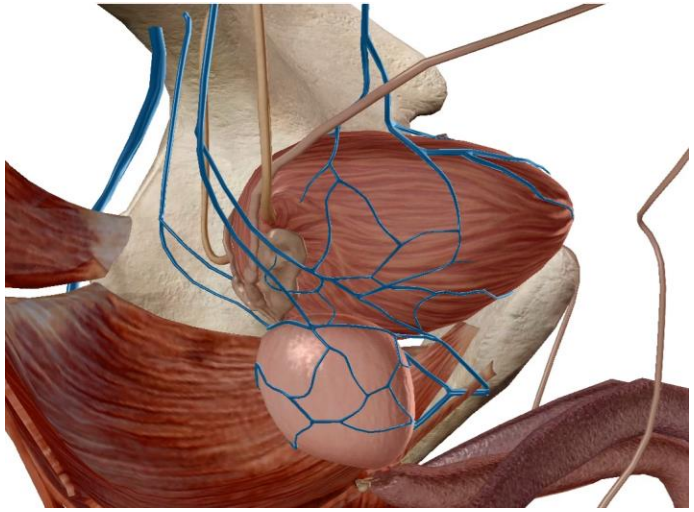
III. STRUCTURE

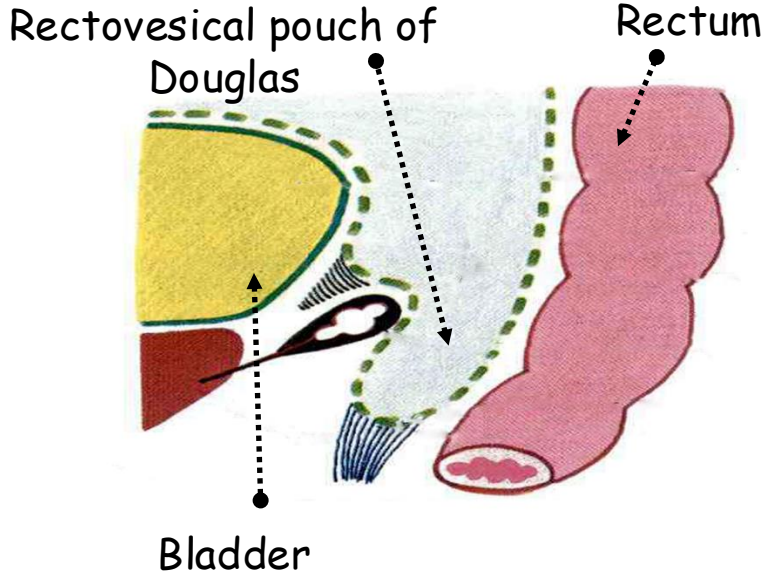
- **Muscle:** thin, inner circular layer and outer longitudinal
- **Mucosa:** very folded, glandular appearance, columnar pseudostratified epithelium

IV. ANATOMICAL RELATIONS

- Front: retrotrigonal fossa of bladder
- Back: rectovesical fascia downwards and peritoneum of rectovesical pouch upwards towards the tip
- Medially: ampulla of ductus deferens
- Laterally: vesicoprostatic plexus and pelvic fascia
- Top: retrovesical portion of pelvic ureter
- Bottom: prostate







POSTERIOR AND LATERAL VIEW OF THE PELVIS MINOR SHOWING THE ANATOMICAL RELATIONS OF THE SEMINAL VESICLE

V. BLOOD SUPPLY; LYMPH DRAINAGE AND NERVE SUPPLY

A. ARTERIES

- Branches from the inferior vesical and middle rectal arteries

B. VEINS

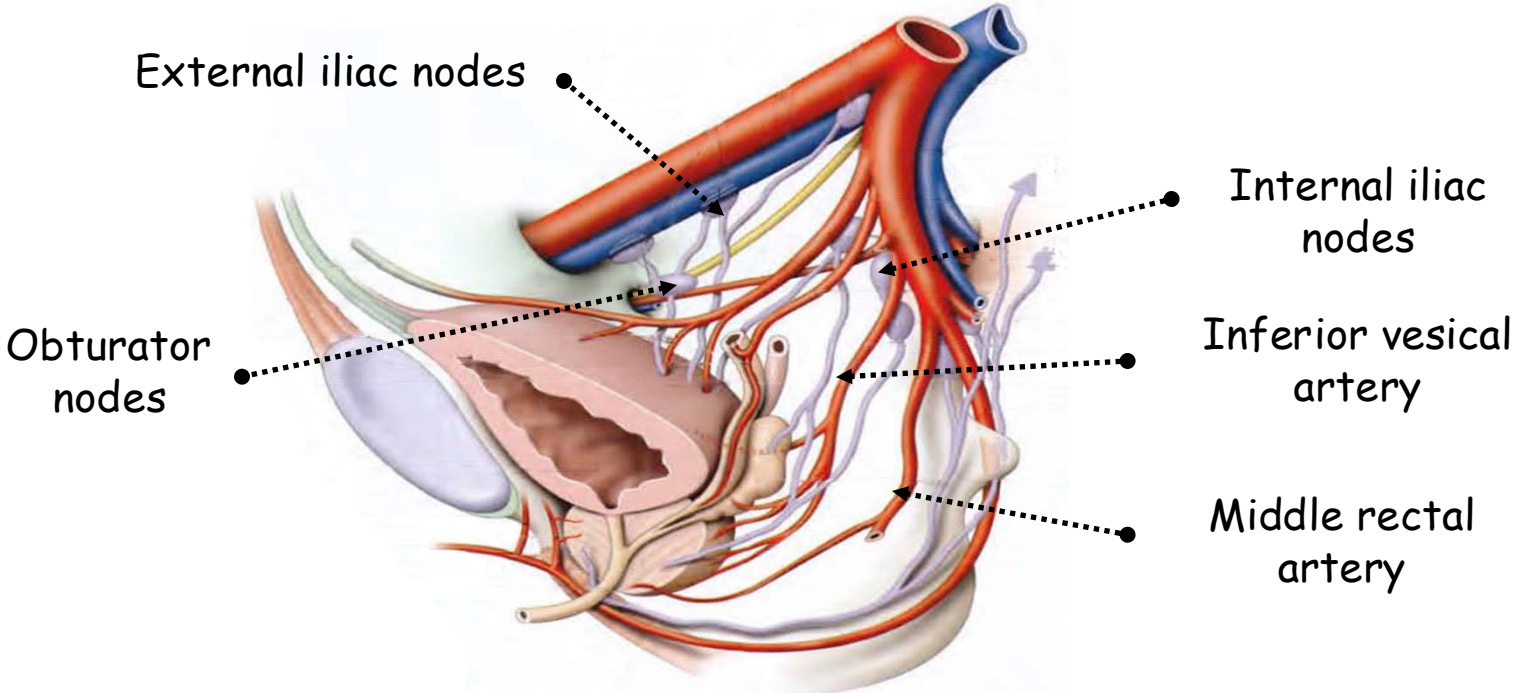
- Vesicoprostatic plexus to internal iliac vein

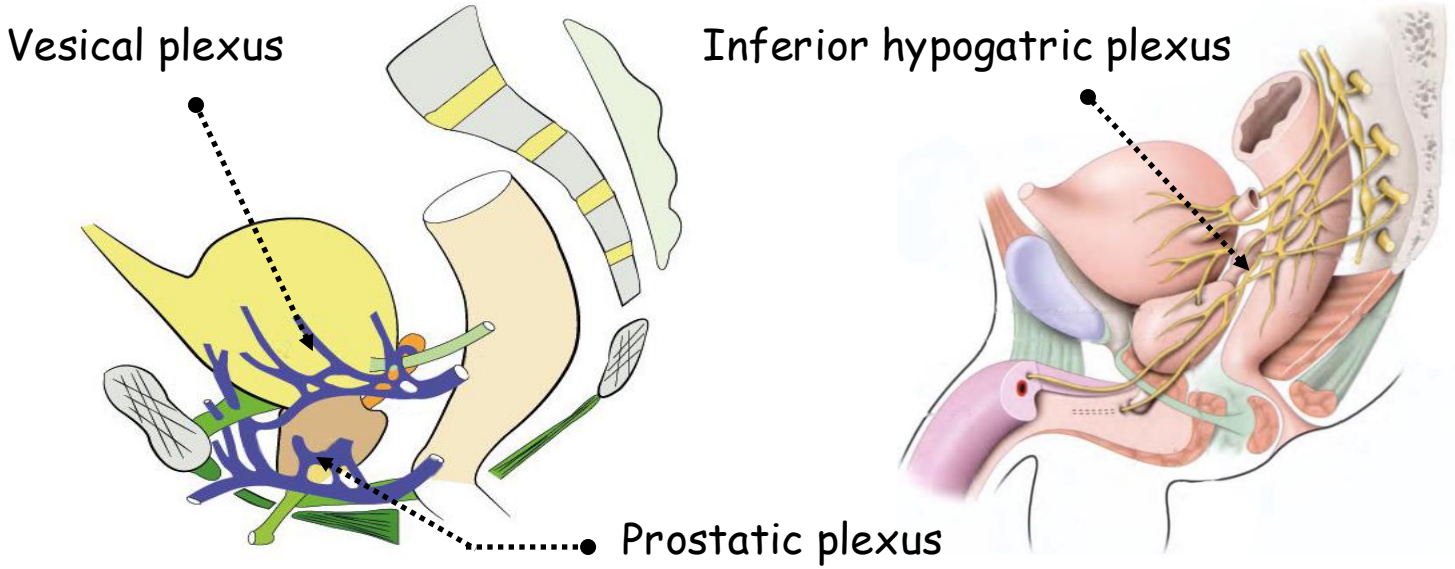
C. LYMPH DRAINAGE

- Nearest iliac nodes

D. NERVES

- Inferior hypogastric plexus



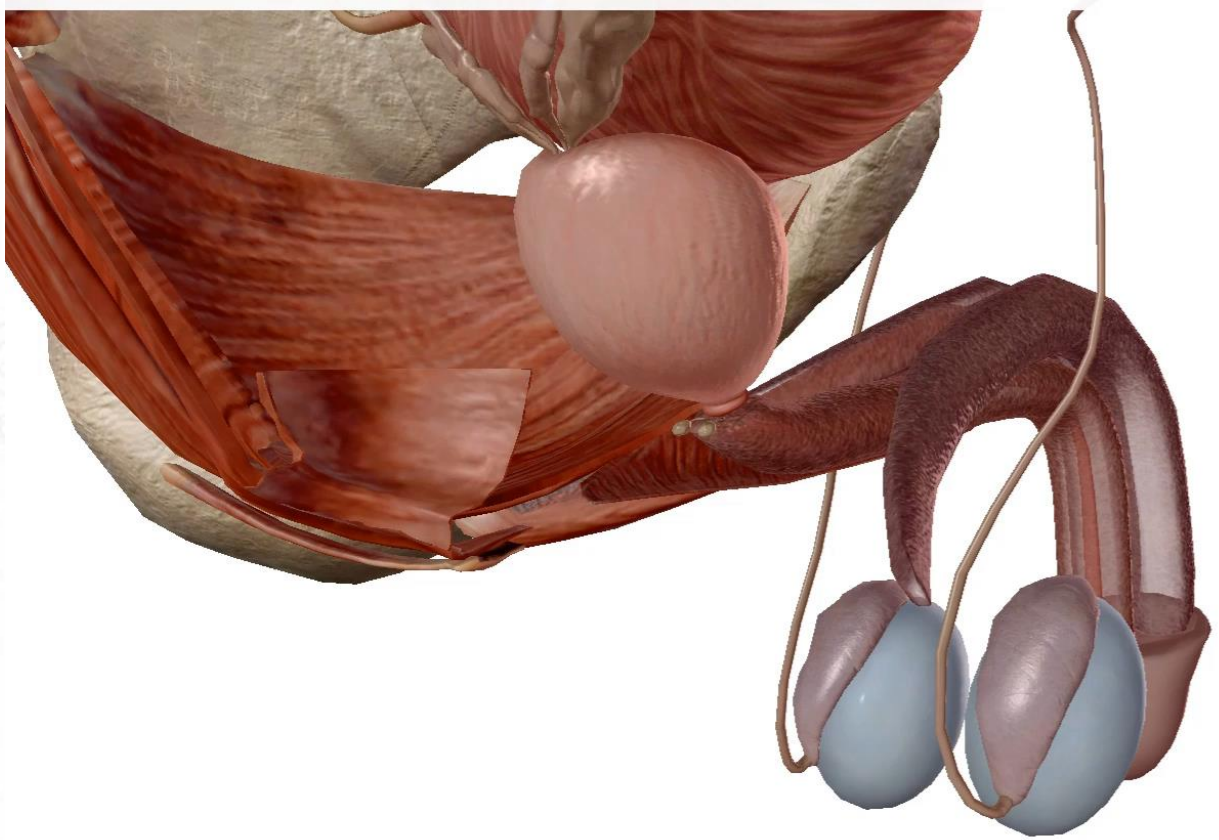


FIGURES SHOWING BLOOD SUPPLY; LYMPH DRAINAGE AND NERVES OF THE SEMINAL VESICLE

BULBOURETHRAL GLANDS OF COWPER

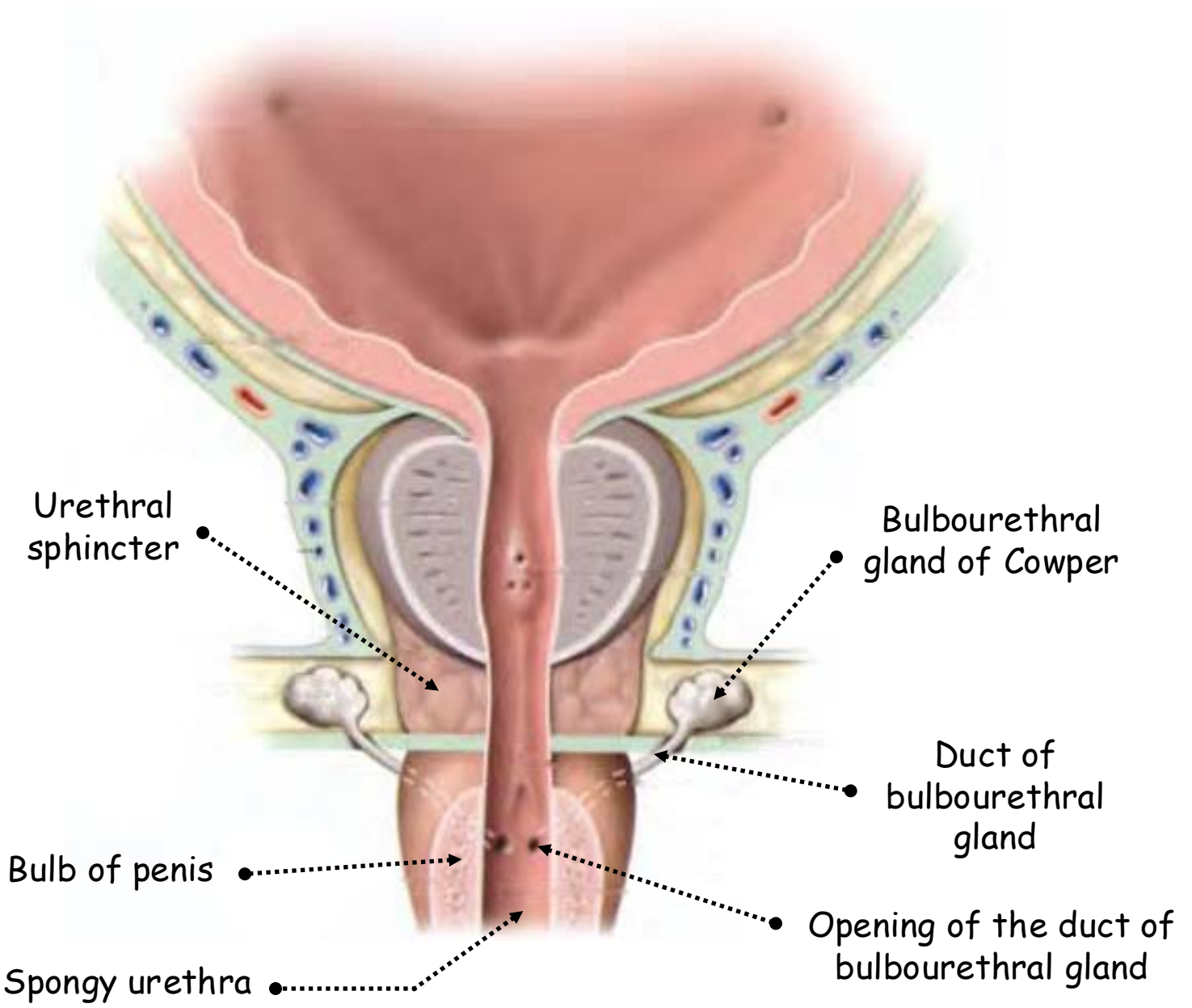
I. INTRODUCTION

- Paired rounded exocrine glands
- Lie one on each side of the membranous urethra in the deep perineal pouch above or deep to the perineal membrane, on a level between the prostate and the bulb of the penis covered by the urethral sphincter
- Contribute a small amount to seminal fluid



II. DESCRIPTIVE ANATOMY

- Diameter: 1 cm
- **Single duct:**
  - -2.5 cm long
  - -Runs parallel to the urethra and pierces the perineal membrane posterolateral to the urethra
  - -Open into the bulb of the penile urethra



CORONAL SECTION OF THE PROSTATE AND PENIS SHOWING THE BULBOURETHRAL GLANDS OF COWPER (FROM KAMINA)

III. CONCLUSION

- Major role in ejaculation copulation and thus fertilization
- Sperm production
- Spermatozoa storage
- Pelvic fixed organs
- Variable dimensions and relations

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