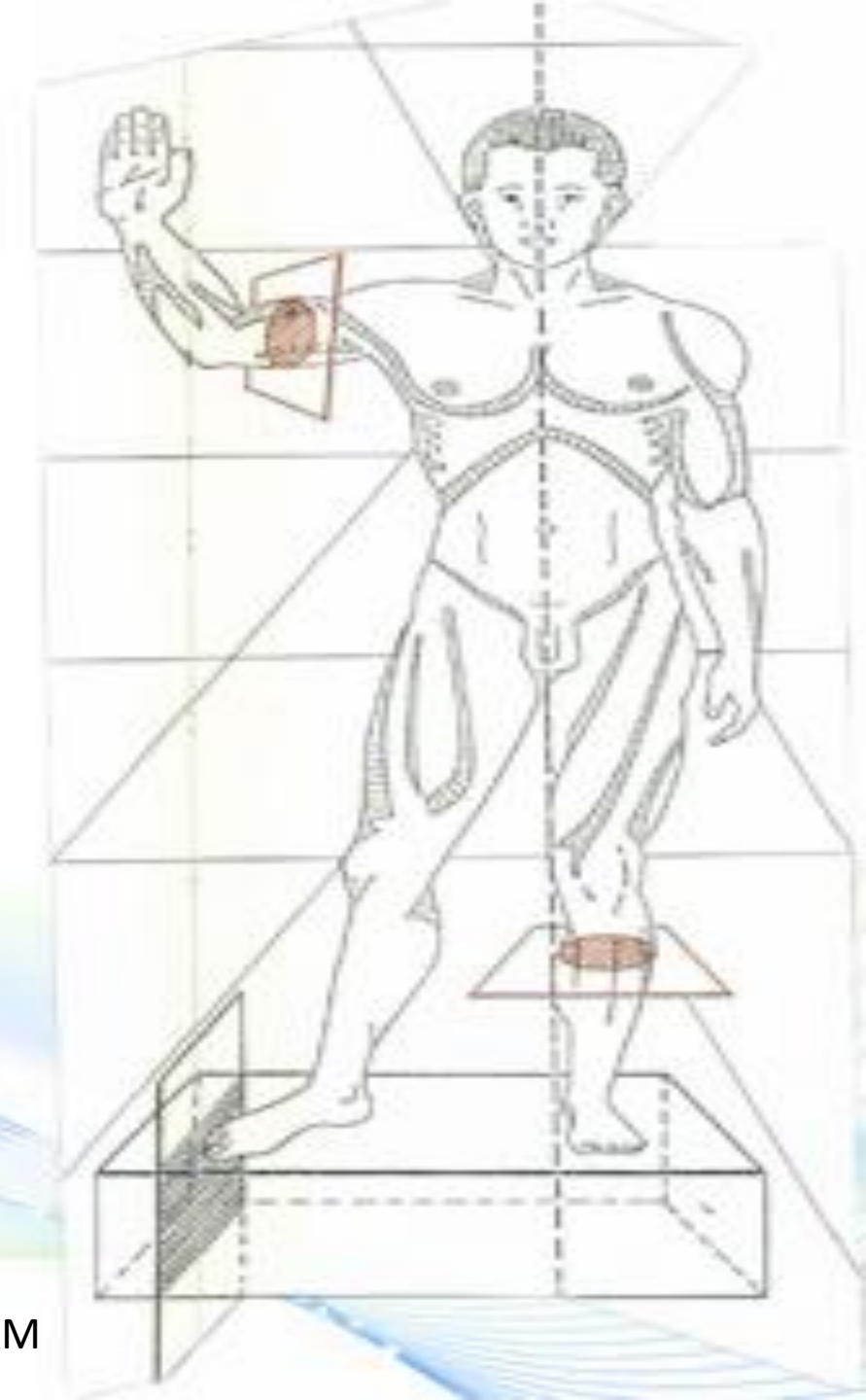
MALE URETHRA



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CONTENTS

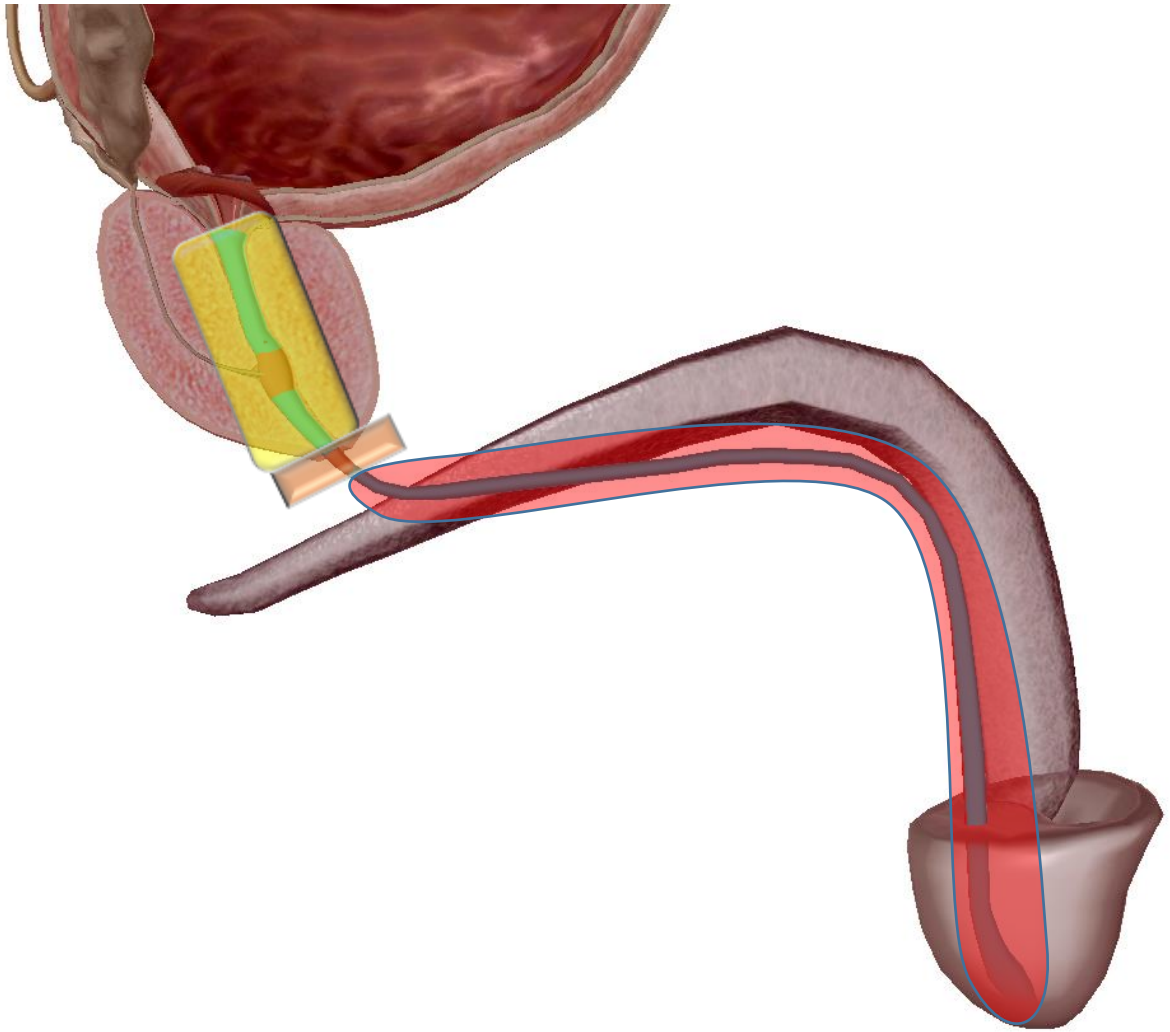
I. INTRODUCTION

- Musculomembranous duct
- Extends from the neck of the bladder to the external urethral meatus at the tip of the glans of penis
- Long course
- **3 portions:**
  - -Prostatic
  - -Membranous
  - -Spongy or penile
- Posterior urethra: prostatic and membranous
- Anterior urethra: spongy
- Spongy urethra: bulbous and pendulous parts
- Major role in micturition
- Also a major role in sperm ejaculation and thus human copulation

II. DESCRIPTIVE ANATOMY

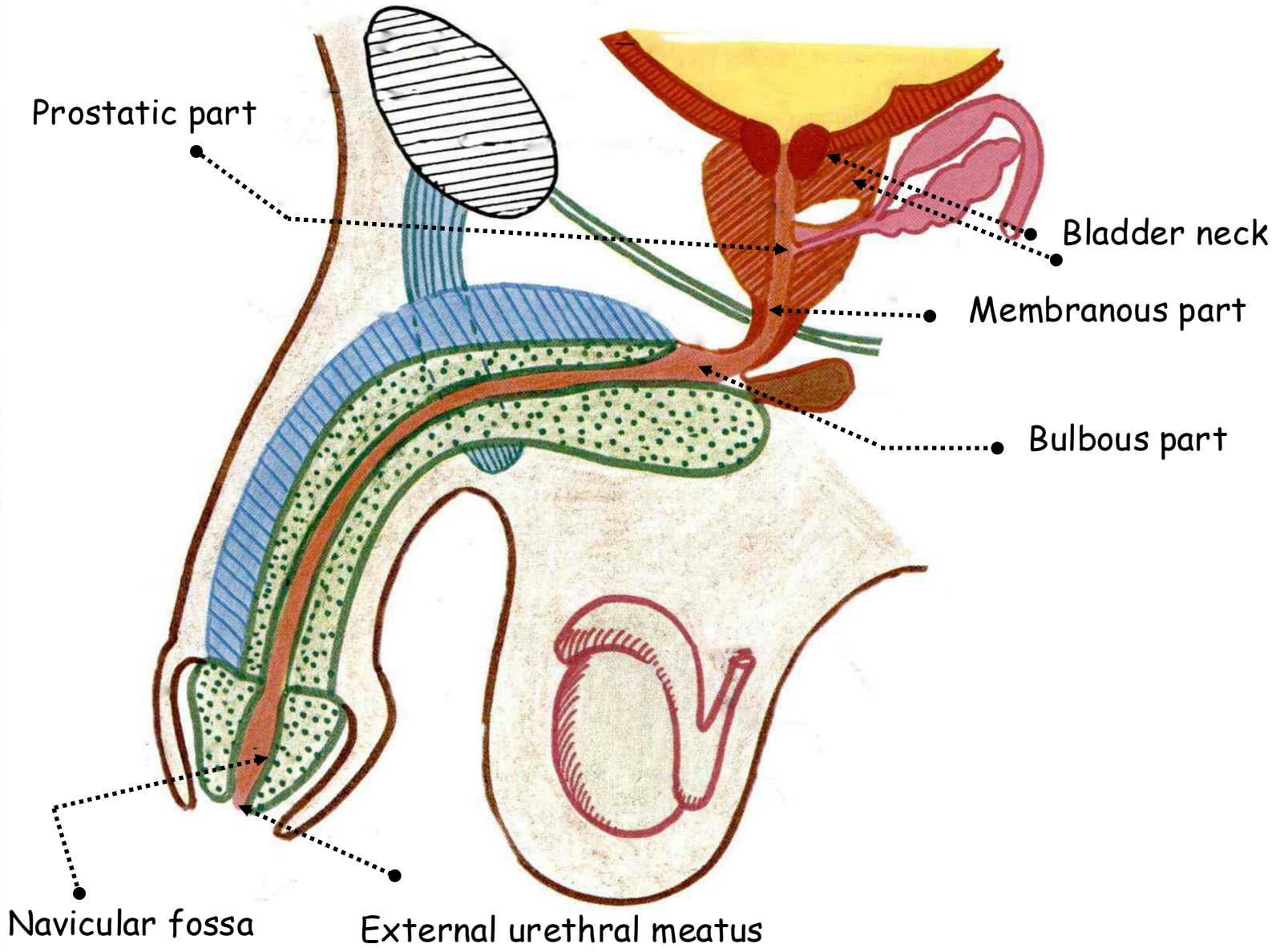
A. DIMENSIONS

- Total length: 20 cm
- **Parts' length:**
  - -Prostatic: 3.5 cm
  - -Membranous: 1.5 cm
  - -Spongy: 15 cm



LATERAL VIEW OF MALE URETHRA

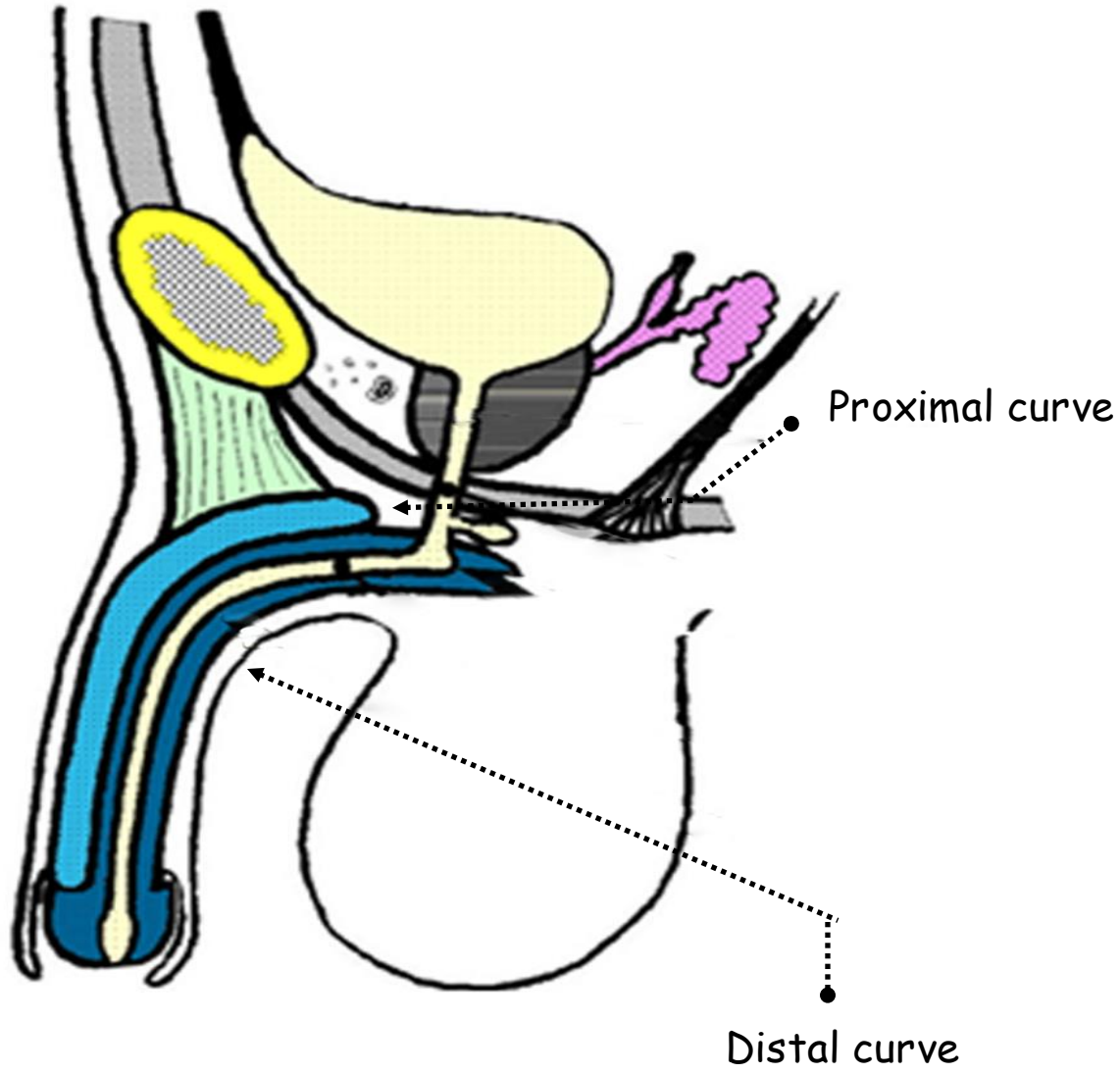
- Lumen: virtual
- Internal diameter during micturition: 1 cm
- **Maximal compliance:**
  - -Prostatic: 2 cm
  - -Membranous: 1 cm
  - -Spongy: 1.5 cm
  - -External urethral meatus: 0.7cm
- **Narrowest points:**
  - -Bladder neck
  - -Membranous part
  - -Proximal end of navicular fossa
  - -External urethral meatus
- **3 dilatations:**
  - -Prostatic part
  - -Bulbous part
  - -Navicular fossa



LATERAL VIEW OF MALE URETHRA

B. ORIENTATION

- Bendy inverted S course
- **2 right-angled curves in the flaccid state:**
  - -Proximal: between bulbous and membranous parts
  - -Distal: between bulbous and pendoulous parts
- **Proximal curve:**
  - -Opened forwards and to the top
  - -Fixed
- **Distal curve:**
  - -Opened backwards and to the bottom
  - -Mobile

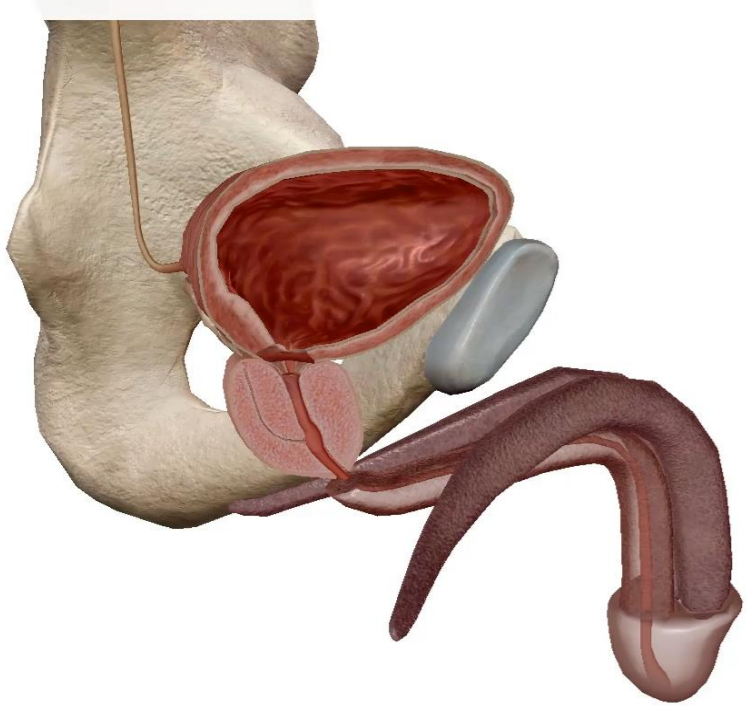


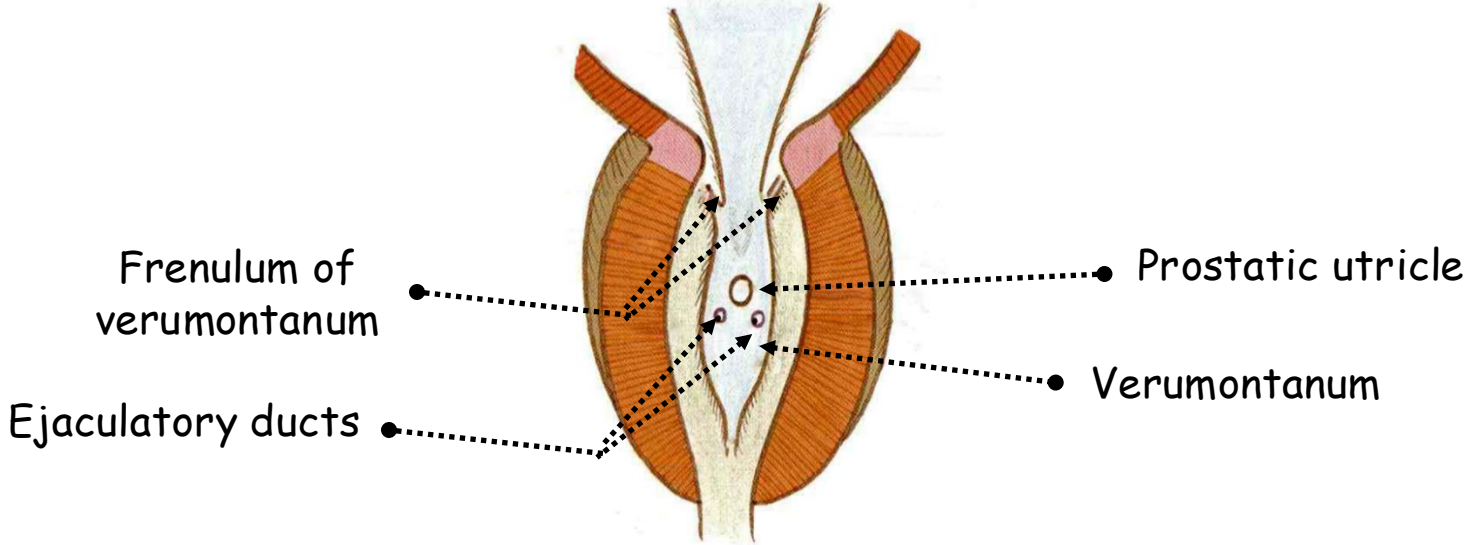
LATERAL VIEW SHOWING THE ORIENTATION OF MALE URETHRA

C. SHAPE

1. Prostatic part:

- Extends from the internal urinary meatus in the bladder neck to the apex of the prostate
- Widest part of the urethra
- Crosses the prostate vertically from its base to its apex
- Posterior midline longitudinal ridge extending from the uvula vesicae: the urethral crest
- In the middle of the crest is a small swelling, the seminal colliculus or verumontanum
- **3 openings on the seminal colliculus:**
  - -Prostatic utricle or utriculus masculinus at the top
  - -2 ejaculatory ducts on each side of the utricule
- The prostatic ducts open on the crest and in the sulcus on each side

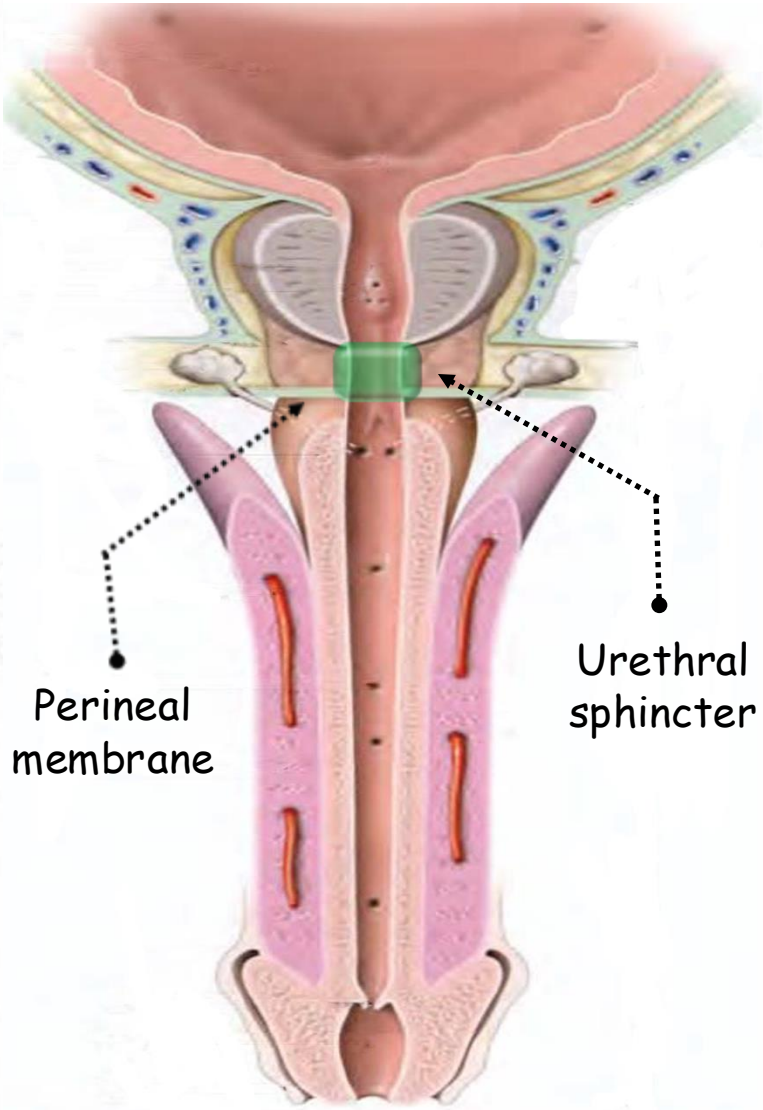


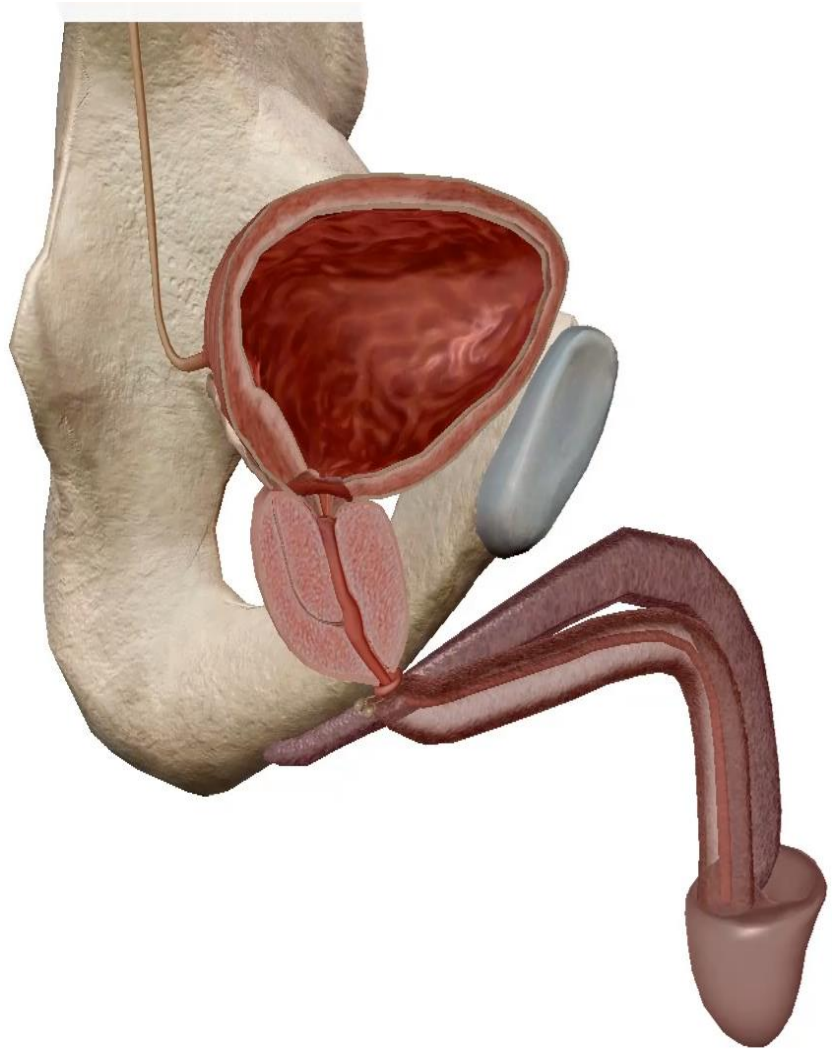


CORONAL SECTION SHOWING THE INNER SHAPE OF THE PROSTATIC PART OF MALE URETHRA

2. Membranous part:

- Leaves the prostate just in front of the apex
- Passes down through the urogenital diaphragm and the perineal membrane in the deep perineal pouch
- Shortest and least dilatable part
- Does not contain any glands
- Pierces the perineal membrane to become the penile urethra
- Urethral sphincter

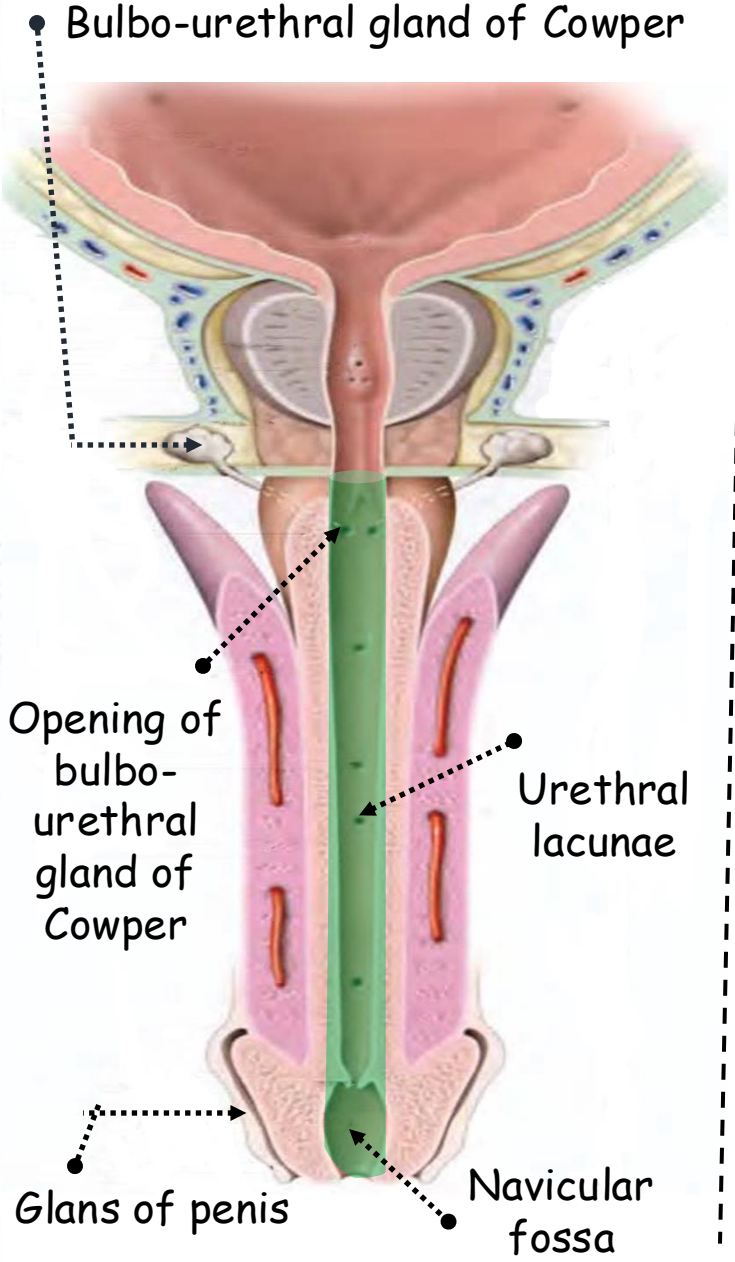


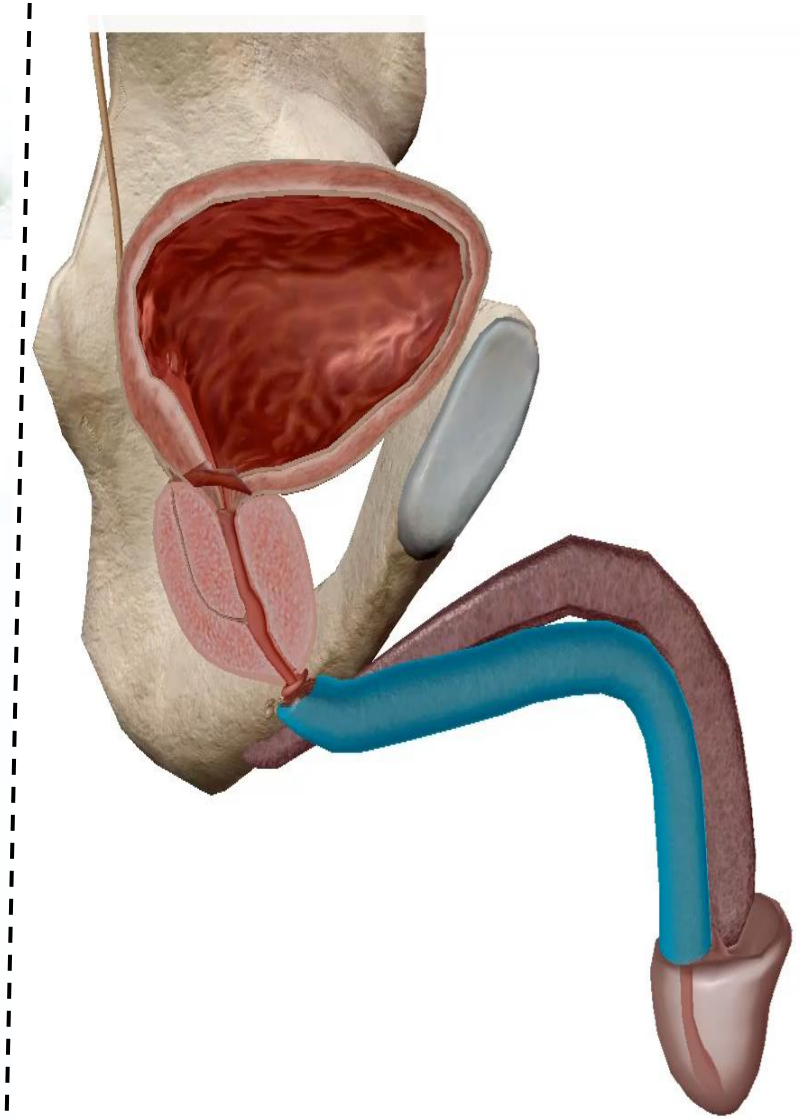


CORONAL SECTION OF MALE URETHRA (FROM KAMINA)

3. Spongy part:

- Within the corpus spongiosum of the penis and can be divided into bulbous and pendulous parts
- Proximal curve
- Openings of bulbo-urethral glands of Cowper in the bulbous part
- Beyond the root of the penis, with the organ in the flaccid state, the urethra continues as the pendulous part after the distal curve
- Very small blind-ending pockets or lacunae in the fossa and elsewhere in the pendulous part correspond to openings of urethral glands of Littré
- Just proximal to the external urethral meatus at the tip of the glans there is a short-dilated region, the navicular fossa
- Small mucosal folds at the glandular openings in the navicular fossa

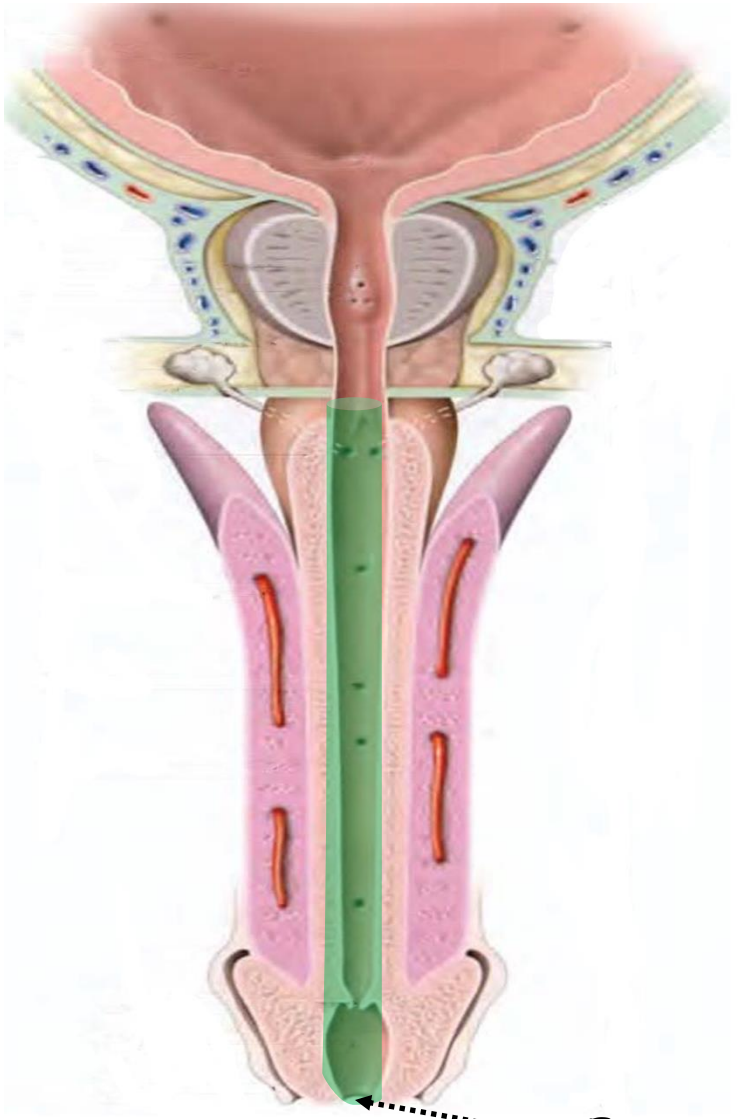




CORONAL SECTION OF MALE URETHRA (FROM KAMINA)

4. External urethral meatus:

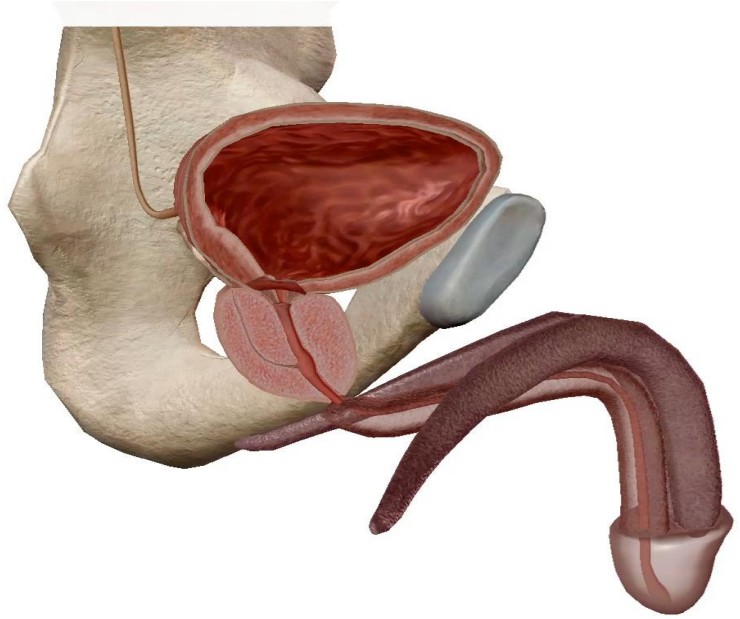
- Vertical slit
- The empty urethra is horizontal in cross section
- Spiral stream of urine

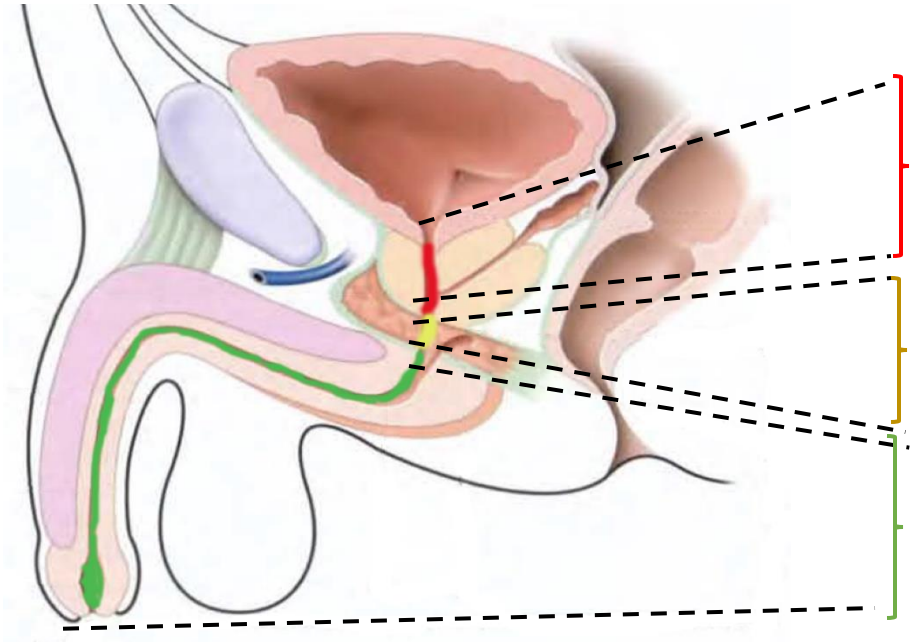


CORONAL SECTION OF MALE URETHRA (FROM KAMINA)

III. STRUCTURE

- Differs from one part to another
- Macroscopic aspect: longitudinal folds
- **Prostatic part:**
  - -Made of mucosa only
  - -Transitional epithelium
  - -Lamina propria continuous with prostatic stroma
- **Membranous urethra:**
  - -Mucous membrane: transitional epithelium with squamous islets and lamina propria made of lax connective tissu
  - -Muscle: inner layer longintudinal and outer layer circular
  - -Urethral sphincter: urethroprostatic muscle
- **Spongy part:**
  - -More squamous epithelium near the navicular fossa
  - -Urethral glands: dorsal wall, mucous



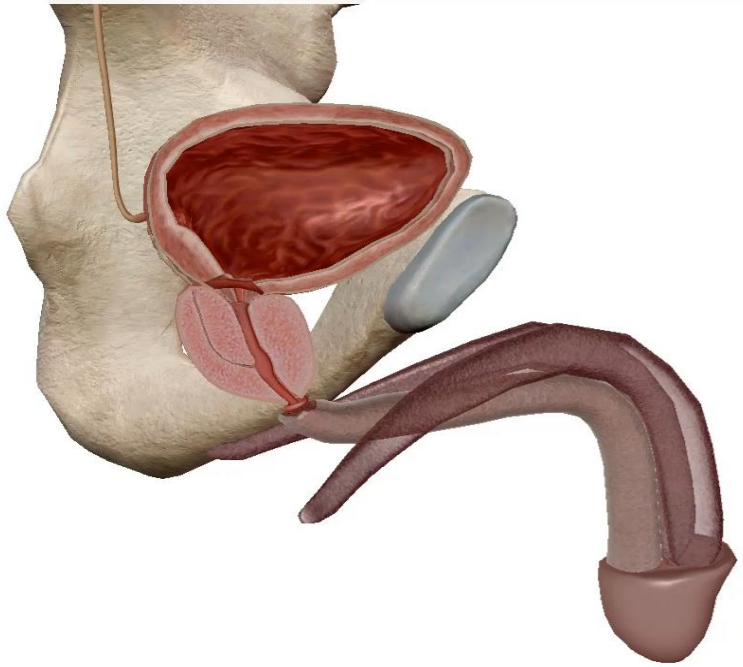


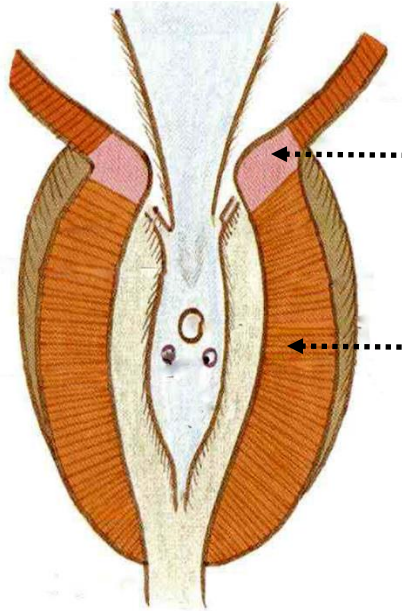
SAGITTAL SECTION SHOWING THE PARTS OF MALE URETHRA

IV. ANATOMICAL RELATIONS

A. PROSTATIC PART

- Internal urethral sphincter
- Prostate

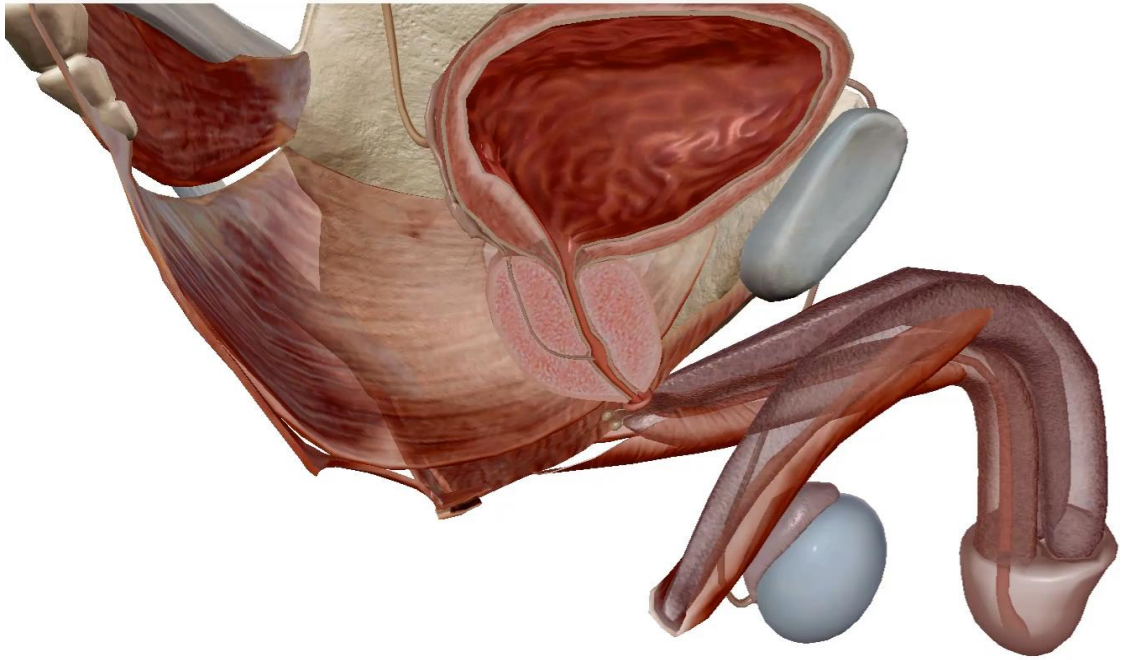


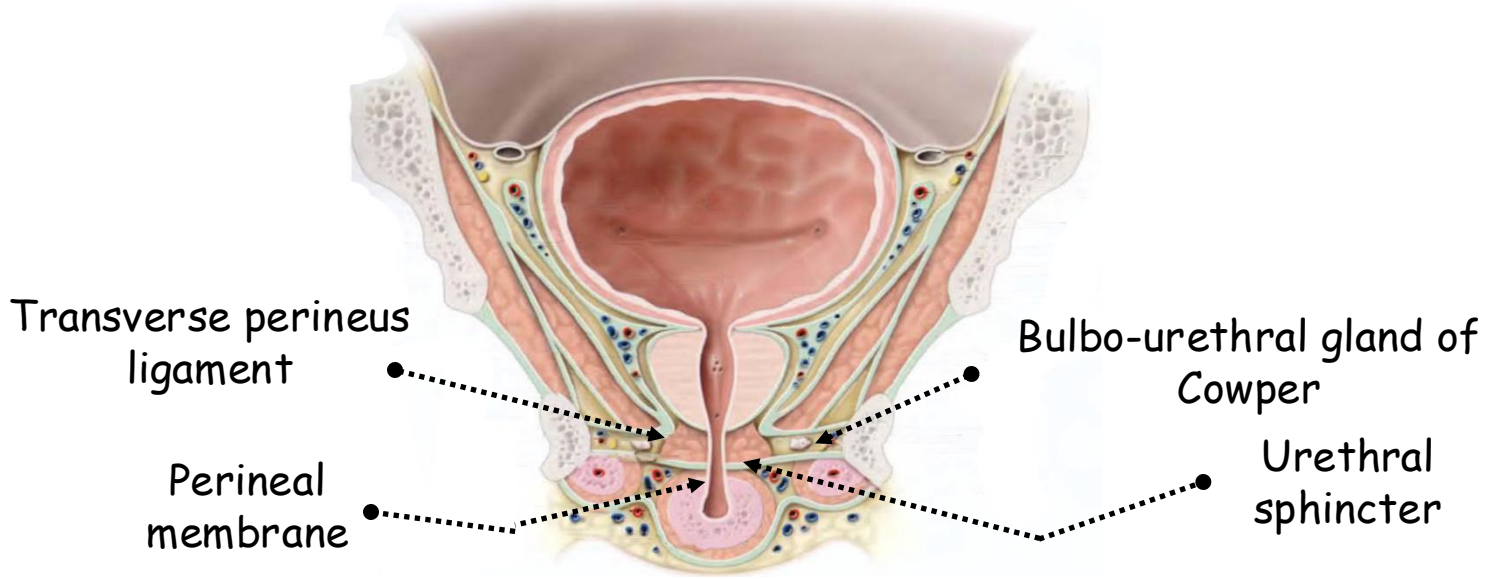


CORONAL SECTION SHOWING THE ANATOMICAL RELATIONS OF THE PROSTATIC PART OF MALE URETHRA

B. MEMBRANOUS PART

- Urethral sphincter
- Bulbo-urethral glands of Cowper in the deep perineal pouch
- Front: transverse perineus ligament
- Back: deep transverse perineus muscle
- Perineal membrane

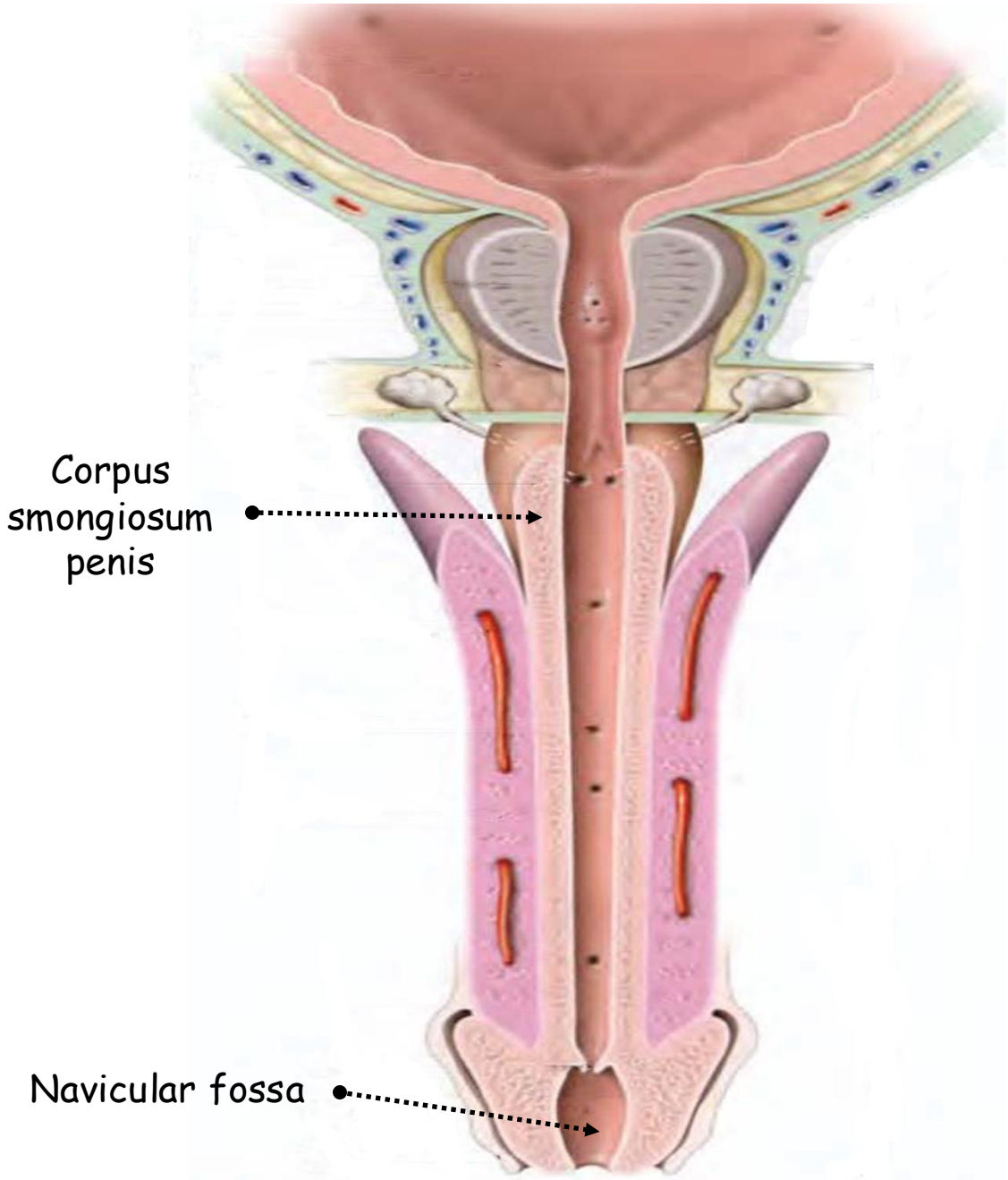




CORONAL SECTION SHOWING THE BLADDER AND THE MALE URETHRA (FROM KAMINA)

C. SPONGY PART

- Corpus spongiosum penis

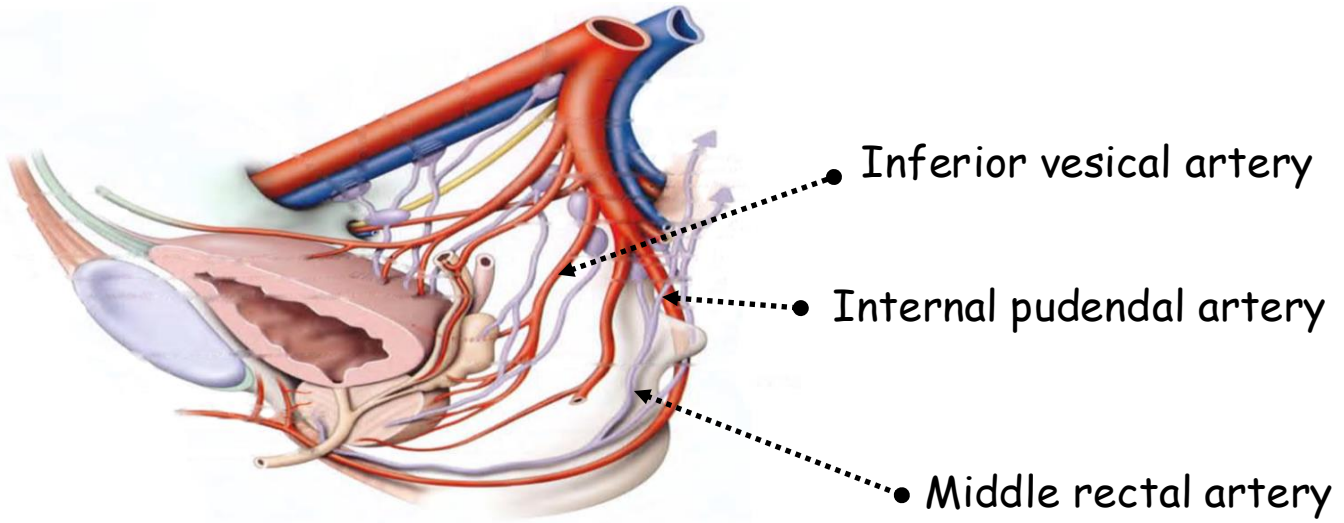


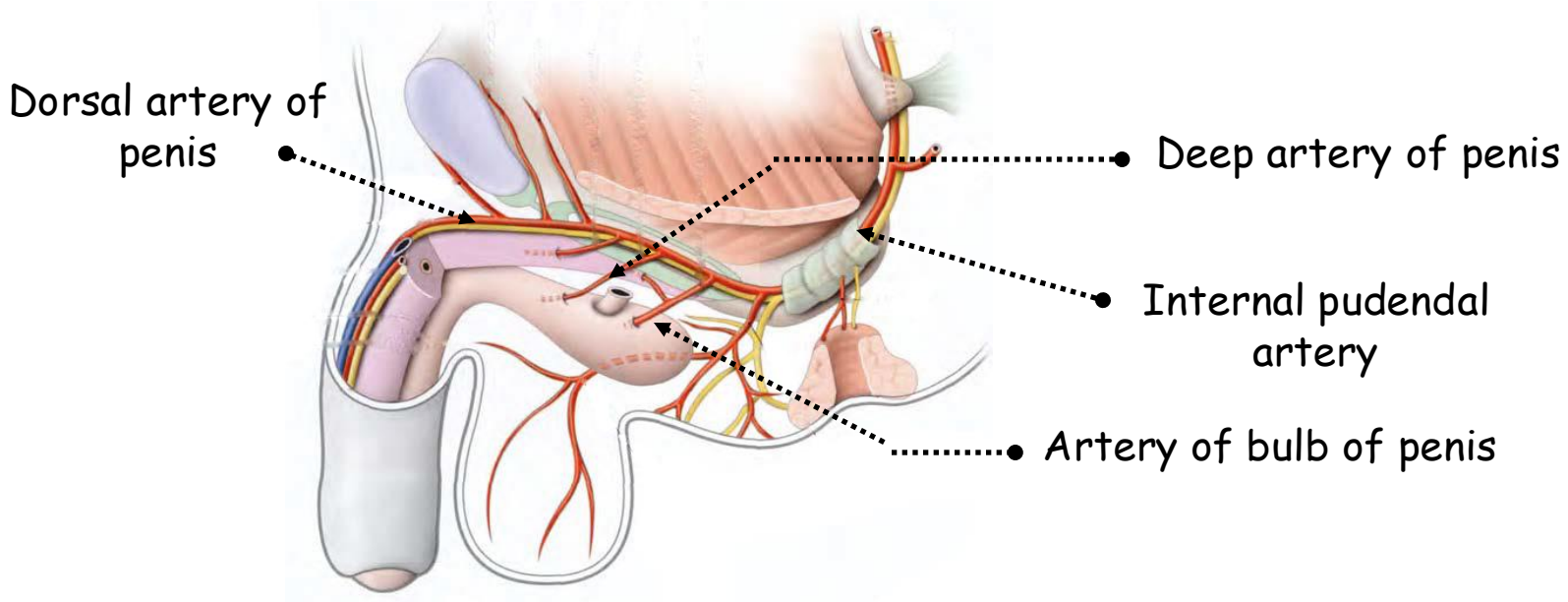
CORONAL SECTION OF MALE URETHRA (FROM KAMINA)

V. BLOOD SUPPLY; LYMPH DRAINAGE AND NERVE SUPPLY

A. ARTERIES

- **Prostatic part:**
  - -Vesicoprostatic branches of the inferior vesical artery
- **Membranous part:**
  - -Branches of middle rectal artery and inferior vesical artery
- **Spongy part:**
  - -Artery of bulb of penis, dorsal artery of penis and deep artery of penis

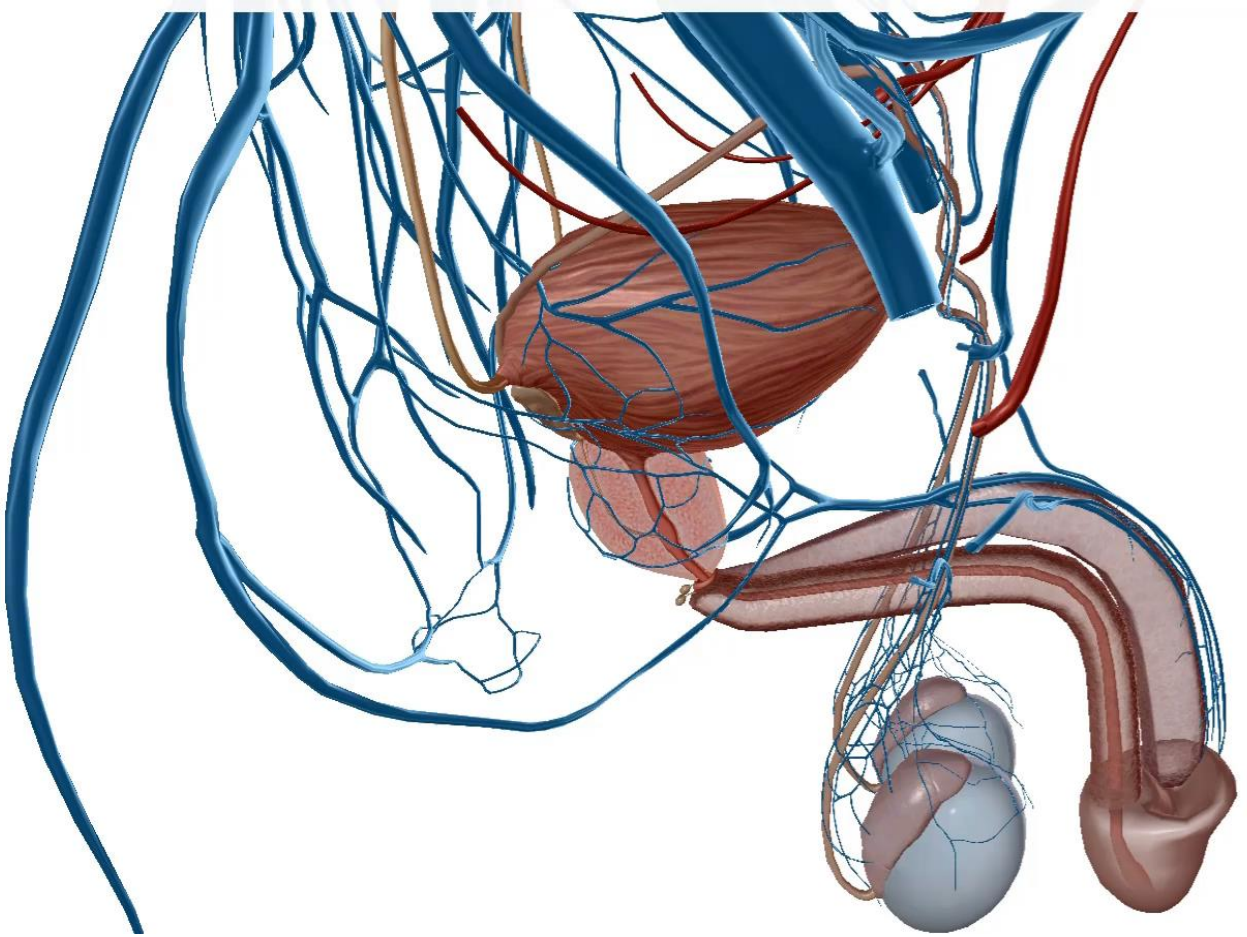




SAGITTAL SECTION SHOWING THE INTERNAL PUDENDAL ARTERY (FROM KAMINA)

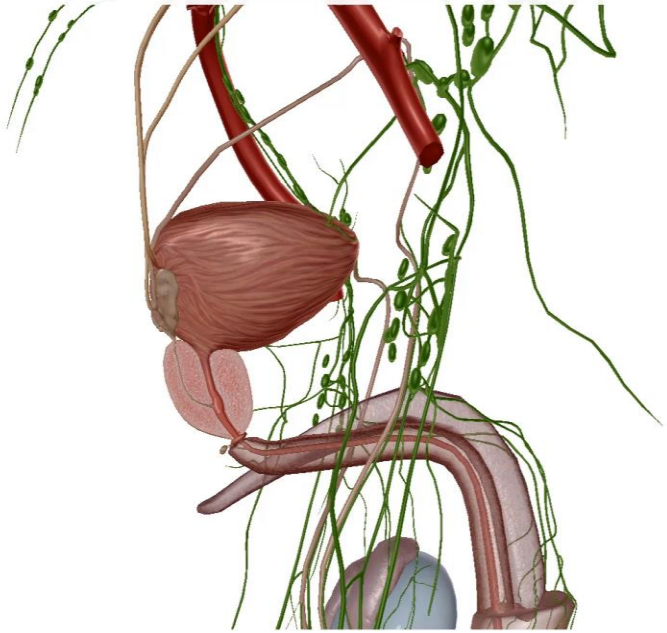
B. VEINS

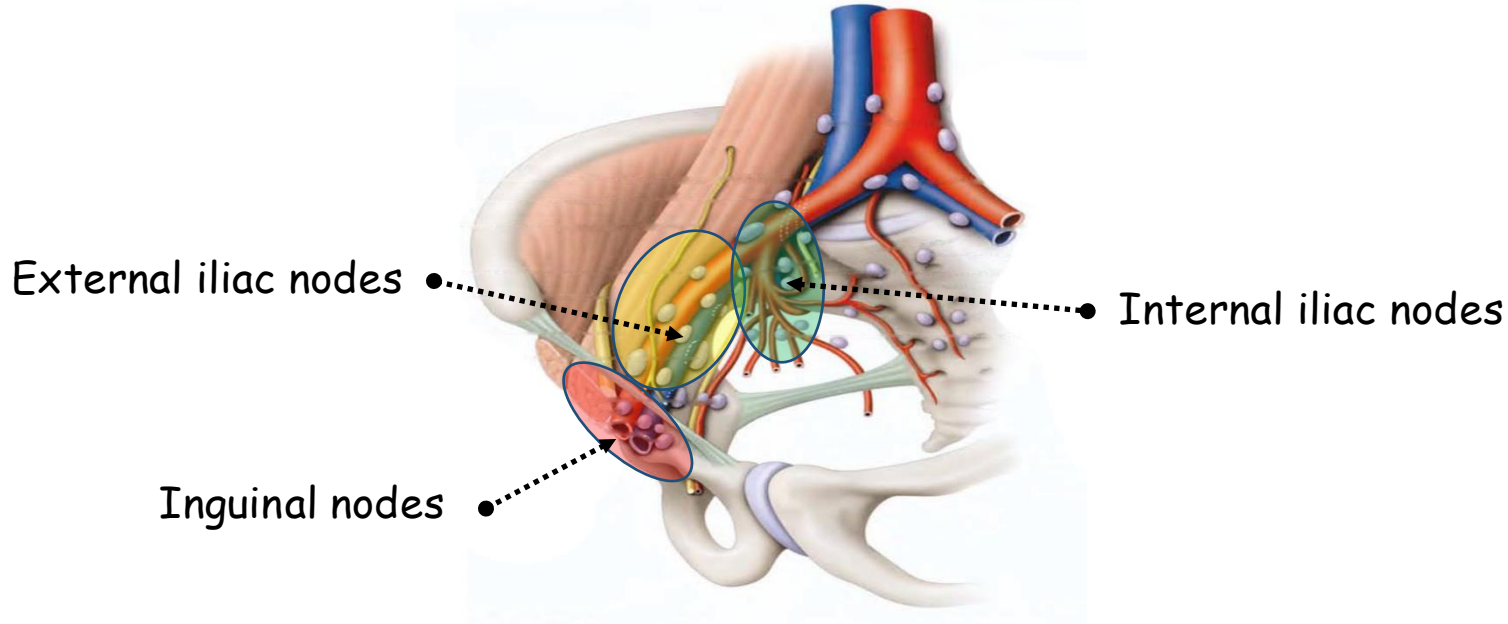
- Penis veins
- Prostatic veinous plexus



C. LYMPH DRAINAGE

- **Prostatic part:** prostate lymph drainage
- **Membranous part:** external iliac nodes
- **Spongy part:** external iliac and inguinal nodes

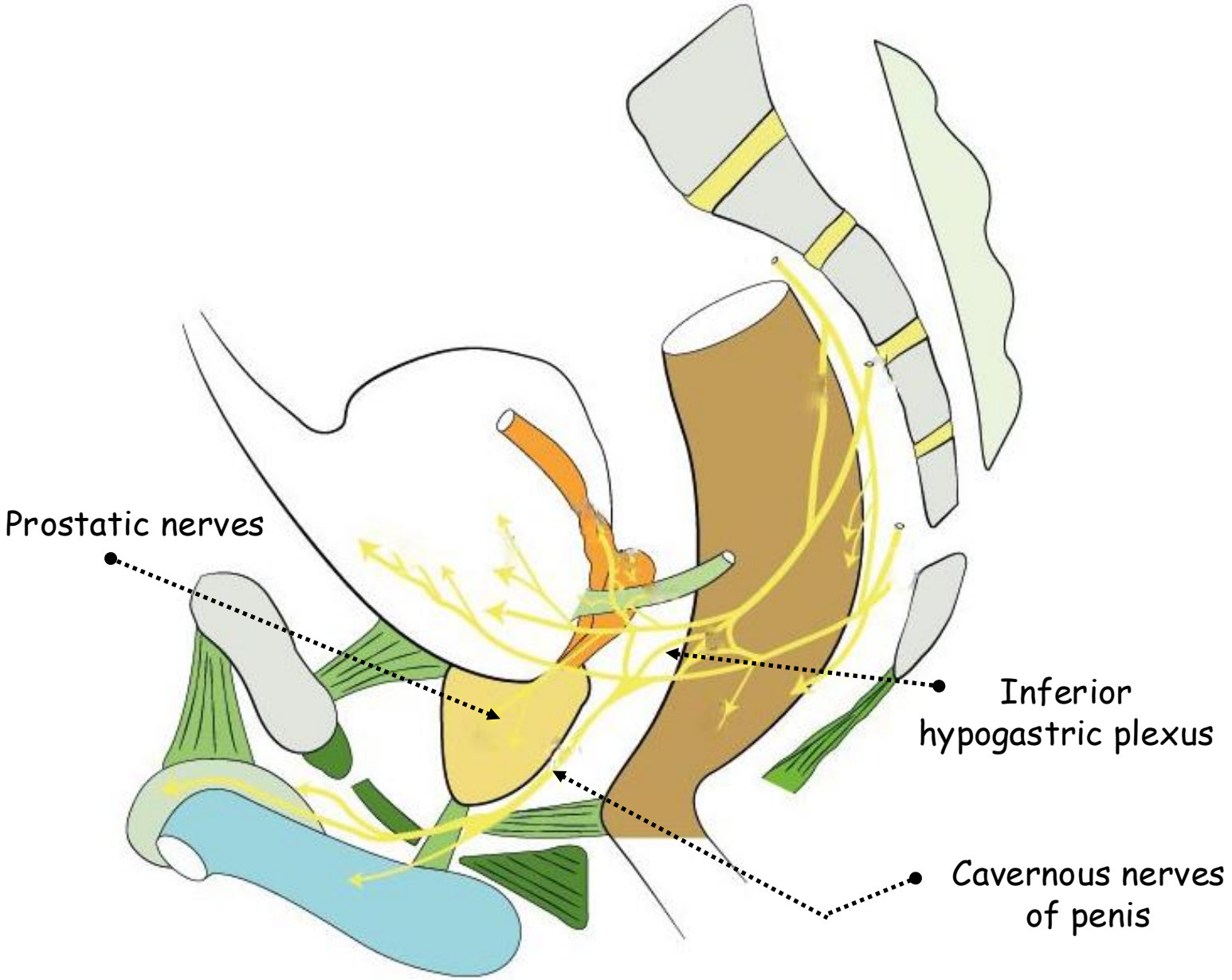




ANTERIOR VIEW SHOWING THE LYMPHATICS OF PELVIS

D. NERVES

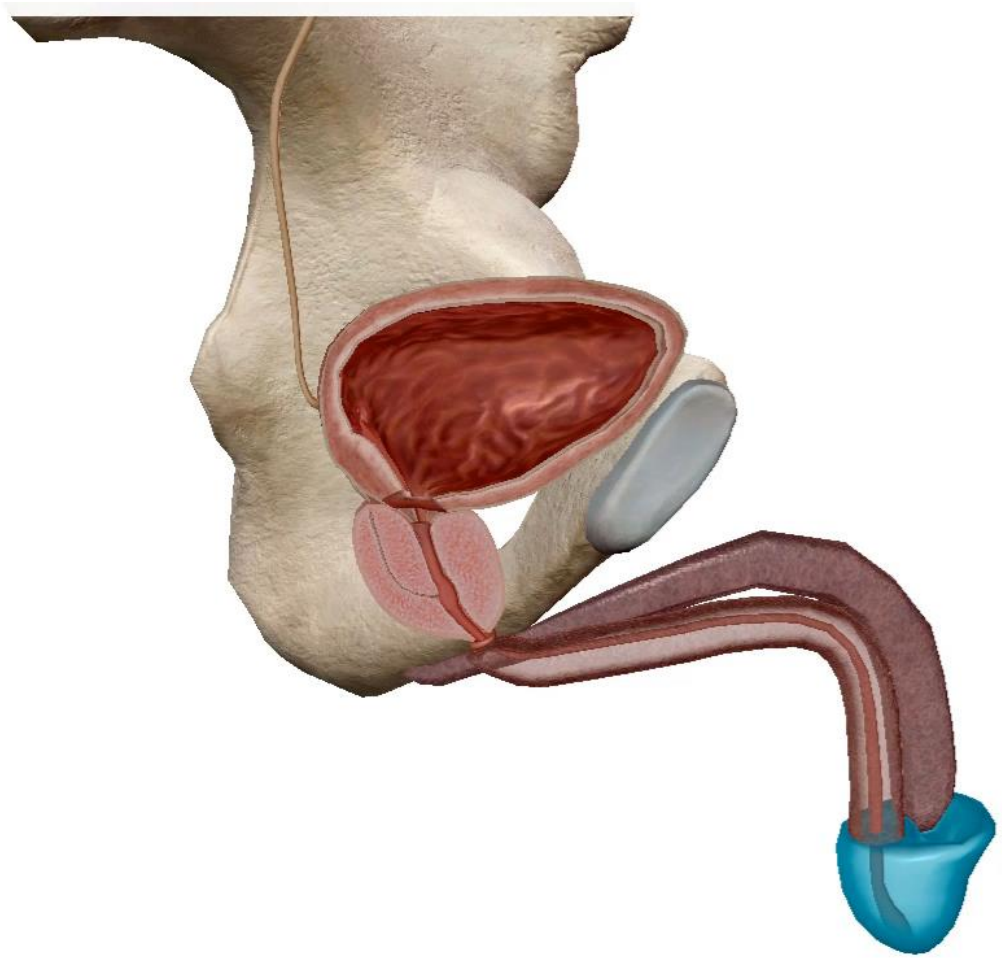
- **Inferior hypogastric plexus:**
  - -Prostatic and membranous parts: prostatic nerves
  - -Spongy part: cavernous nerves of penis
- Perineal nerve



LATERAL VIEW OF PELVIS MINOR SHOWING INFERIOR HYPOGASTRIC PLEXUS

VI. CONCLUSION

- Musculomembranous duct
- Urine excretion and sperm ejaculation
- Long
- Pelvic and perineal organ with 3 structurally and anatomically different parts
- Pelviperineal blood supply
- Urethral sphincter

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