

PELVIS AND PERINEUM

Contents

- Sigmoid colon and portion of small intestine do extend into pelvis but aren't considered 'pelvic organs'
- Bladder and rectum along with reproductive organs are considered pelvic organs

Organs

- Urinary
 - Pelvic portion of ureters
 - Urinary bladder
 - Urethra

Reproductive organs

- Male

- Testes
- Epididymides
- Ductus deferentes
- Seminal glands
- Ejaculatory ducts
- Prostate
- Bulbo-urethral glands

- Female

- Ovaries
- Uterine tubes
- Uterus
- Vagina

28-1 Structures of the Reproductive System

- Reproductive Structures
 - **Gonads** are organs that produce gametes and hormones
 - Ducts receive and transport gametes
 - Accessory glands secrete fluids into ducts
 - Perineal structures collectively known as **external genitalia**
 - **Neurovasculature of the reproductive system**

28-1 Structures of the Reproductive System

- The Male Reproductive System
 - **Testes** or male gonads
 - Secrete male sex hormones (*androgens*)
 - Produce male gametes (**spermatozoa** or *sperm*)

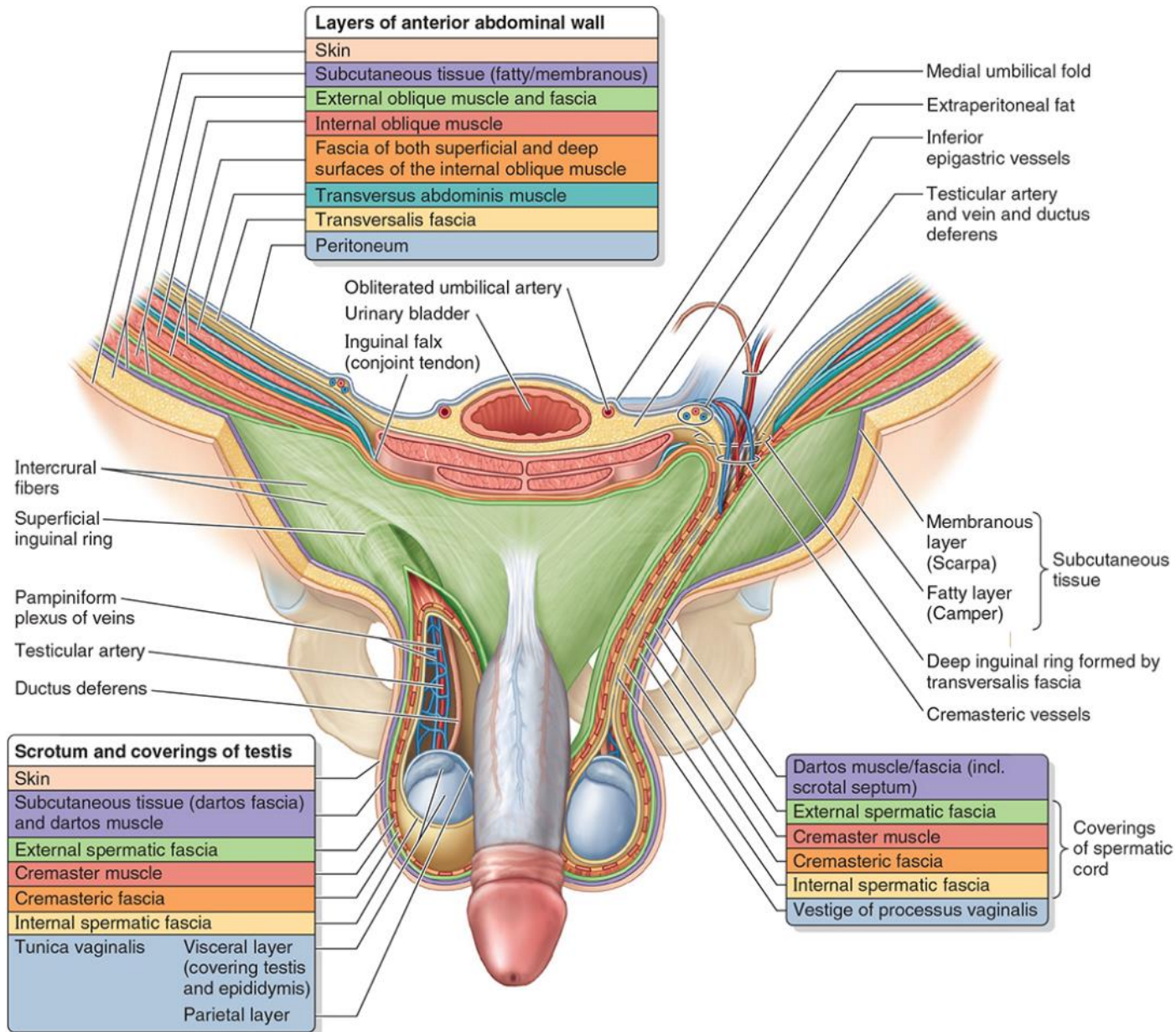
28-1 Structures of the Reproductive System

- The Female Reproductive System
 - **Ovaries** or female gonads
 - Release one immature gamete (**oocyte**) per month
 - Produce hormones
 - Uterine tubes
 - Carry oocytes to uterus - if sperm reaches oocyte, fertilization is initiated and oocyte matures into **ovum**
 - Uterus
 - Encloses and supports developing embryo
 - Vagina
 - Connects uterus with exterior

MALE REPRODUCTIVE SYSTEM

28-2 Male Reproductive Functions

- External Genitalia
 - **Scrotum**
 - Encloses testes
 - Penis
 - Erectile organ
 - Contains distal portion of urethra



28-2 Male Reproductive Functions

- Accessory Organs
 - Secrete fluids into ejaculatory ducts and urethra
 - *Seminal glands* (vesicles)
 - Alkalitic coagulating agent with fructose (energy for sperm)
 - *Prostate gland*
 - *Largest reproductive gland*
 - *20% of volume of semen from prostate*
 - *Believe to act as a chemical activation for sperm*
 - *Bulbo-urethral glands*
 - *Mucus consistency secretion*
 - *Lubricates, cleans, neutralize acidity*

Figure 28-1 The Male Reproductive System

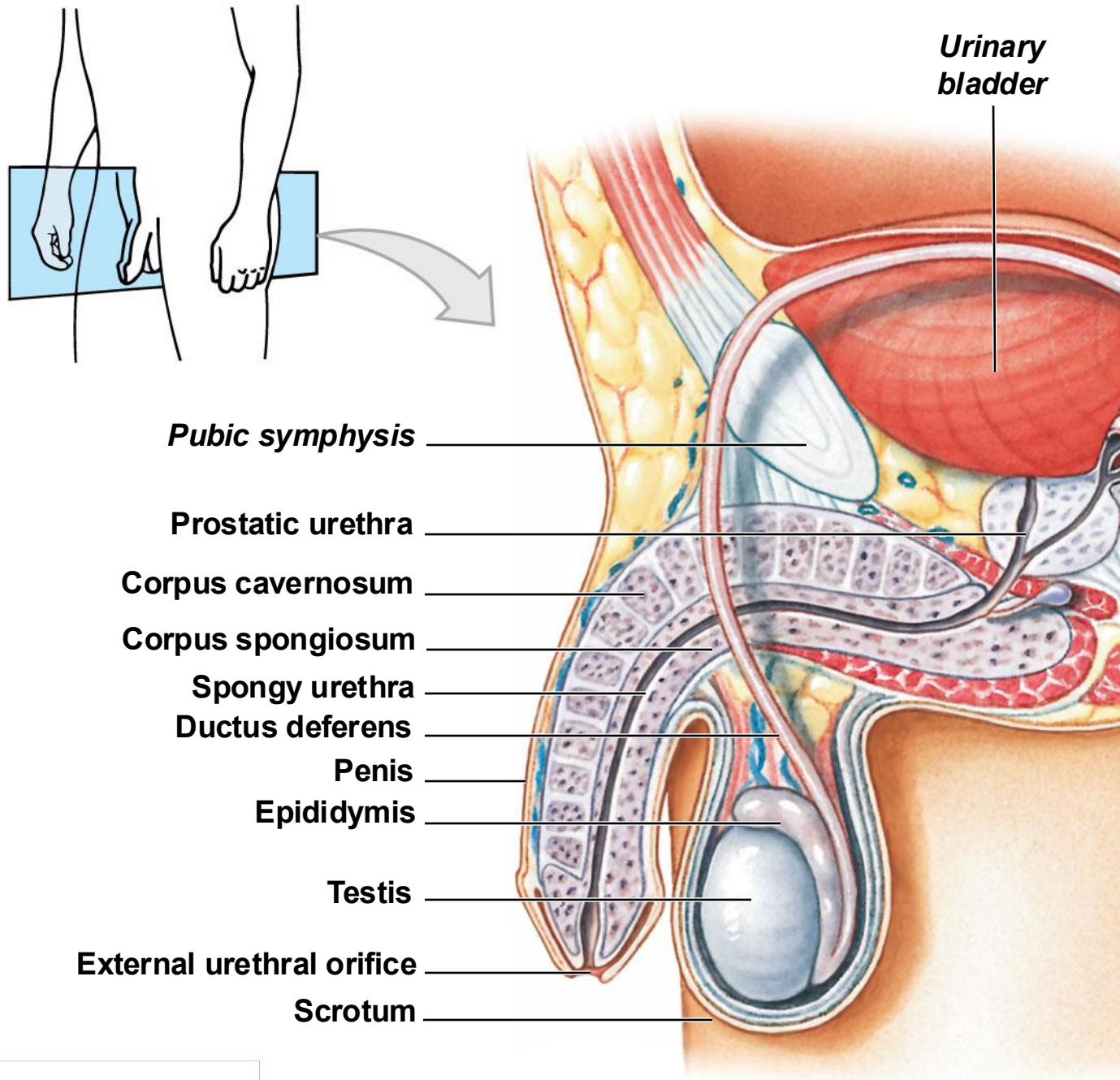
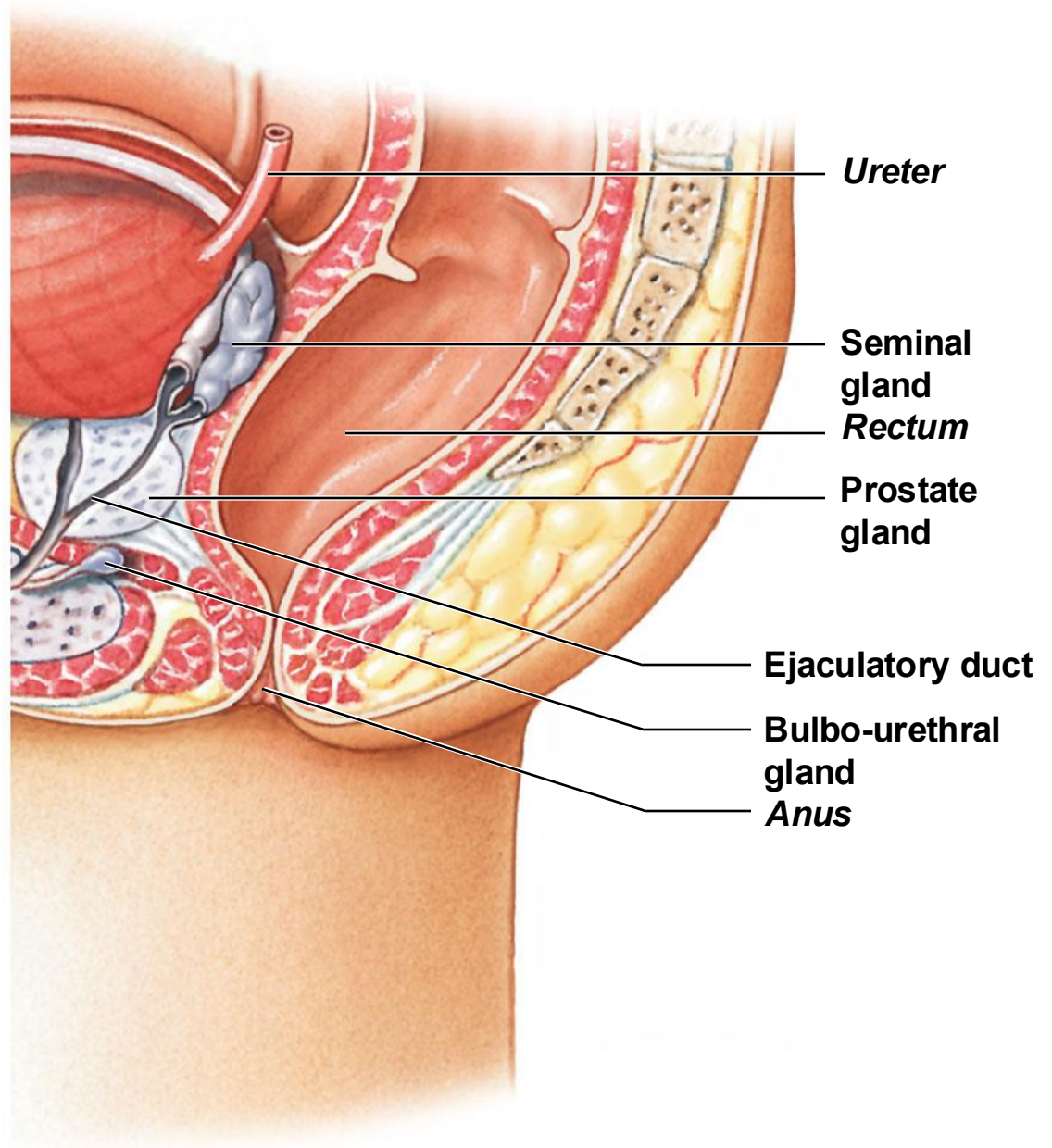
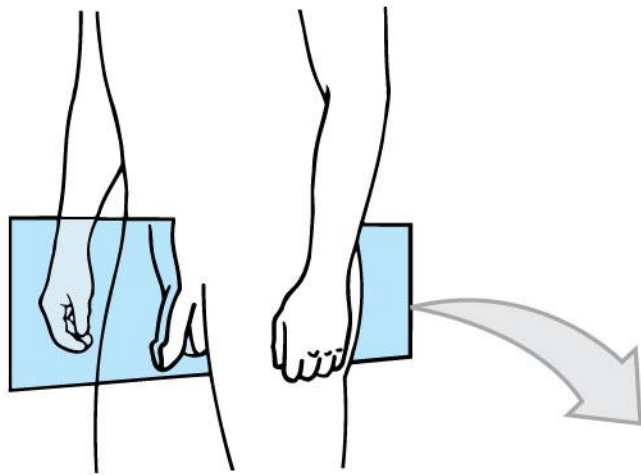


Figure 28-1 The Male Reproductive System

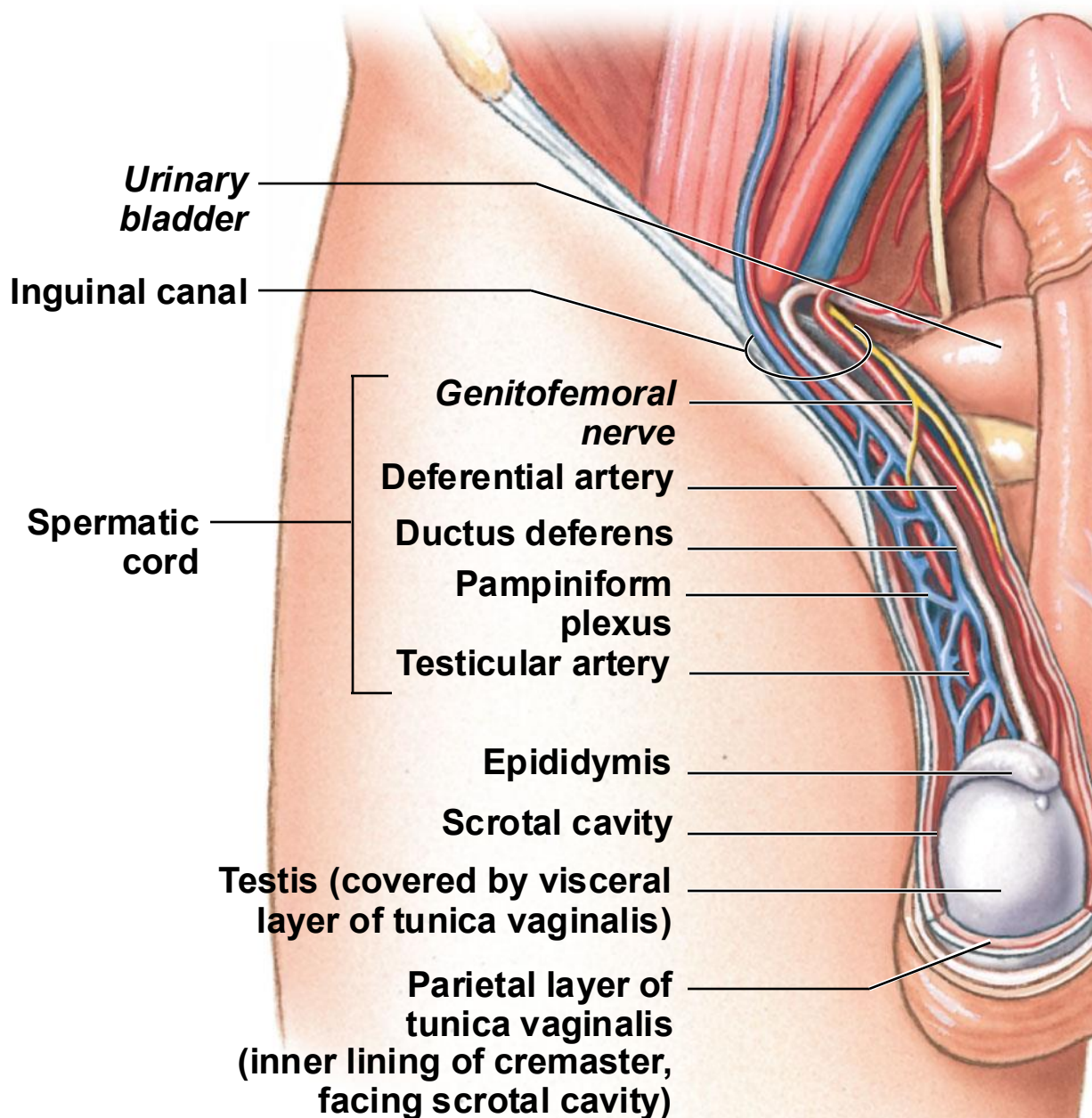


28-2 Male Reproductive Functions

- **The Spermatic Cords**

- Extend between abdominopelvic cavity and testes
- Consist of layers of fascia and muscle
- Enclose ductus deferens, blood vessels, nerves, and lymphatic vessels of testes
- Pass through **inguinal canal**
 - Are passageways through abdominal musculature
 - Form during development as testes descend into scrotum
- Descend into scrotum

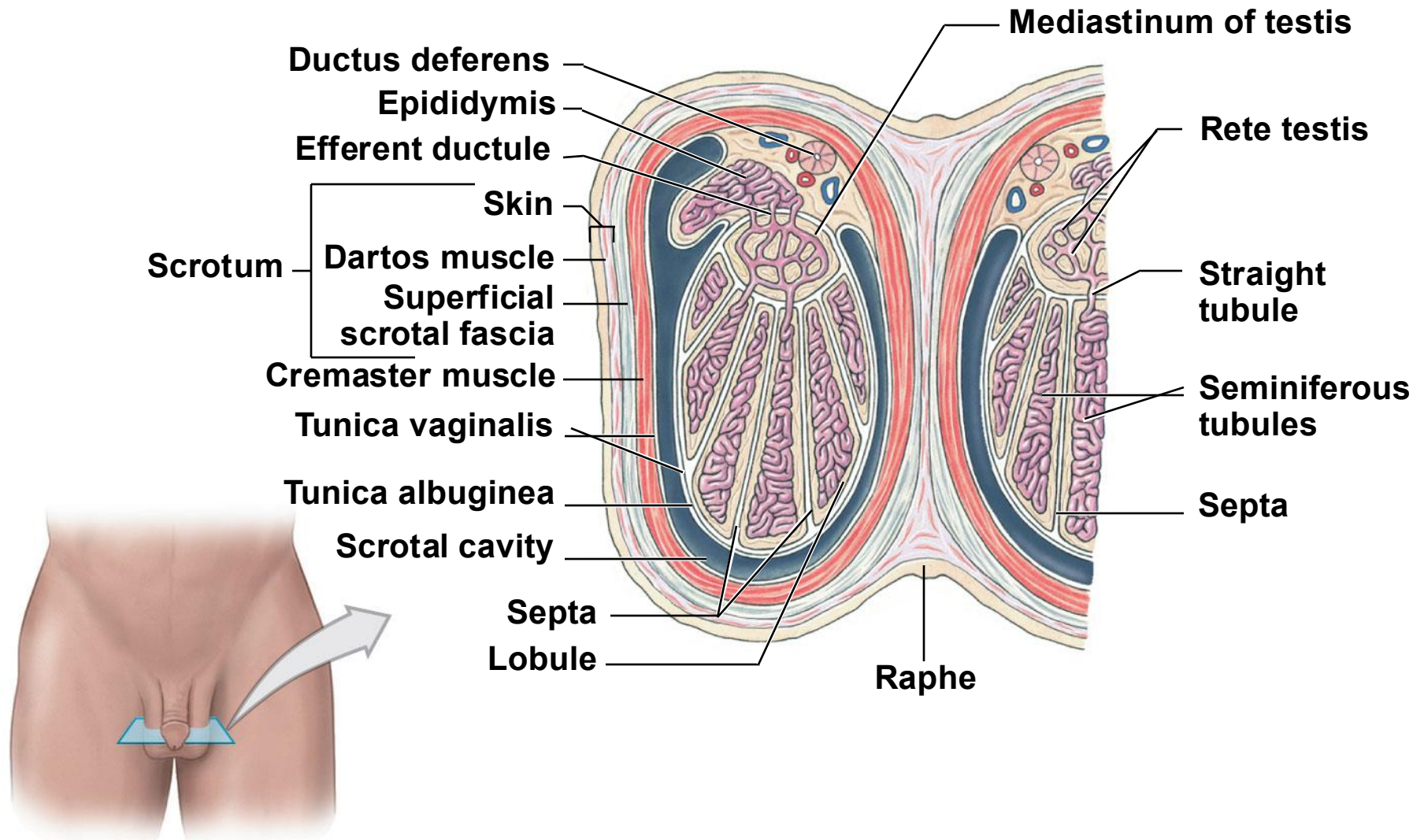
Figure 28-3 The Male Reproductive System in Anterior View



28-2 Male Reproductive Functions

- **The Dartos Muscle**
 - Is a layer of smooth muscle in dermis of scrotum
 - Causes characteristic wrinkling of scrotal surface
- **The Cremaster Muscle**
 - Is a layer of skeletal muscle deep to dermis
 - Continuation of internal oblique muscle
 - Tenses scrotum and pulls testes closer to body (temperature regulation)

Figure 28-4a The Structure of the Testes

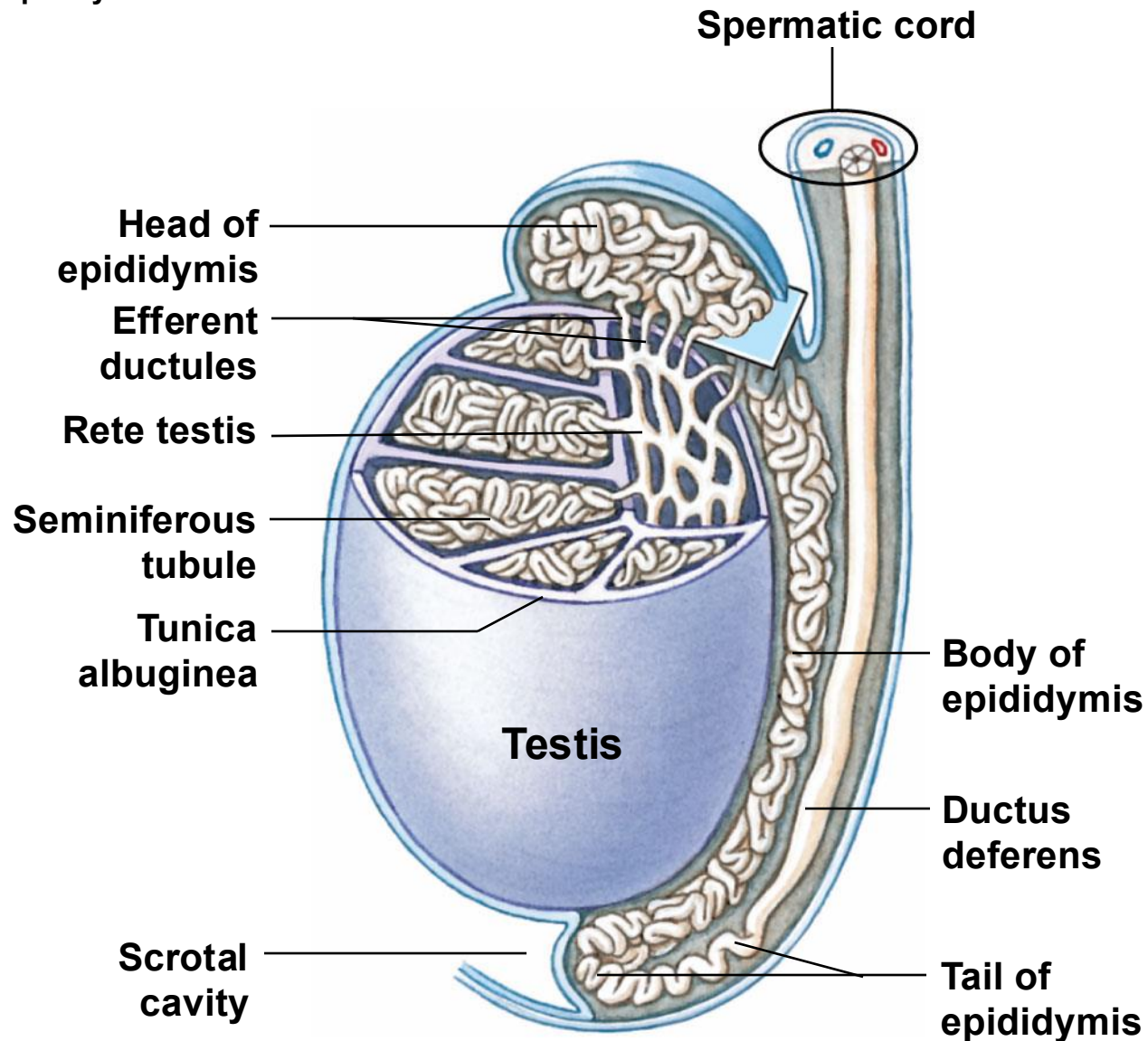


a A transverse section of the scrotum and testes

28-2 Male Reproductive Functions

- The **Epididymis**
 - Is the start of male reproductive tract
 - Is a coiled tube almost 7 m (23 ft) long
 - Bound to posterior border of testis
 - Has a **head**, a **body**, and a **tail**

Figure 28-9a The Epididymis



a A diagrammatic view of the head, body, and tail of an epididymis

Ductus deferens

- Is lined by ciliated epithelium
 - Peristaltic contractions propel spermatozoa and fluid
- Can store spermatozoa for several months
 - In state of suspended animation (low metabolic rates)

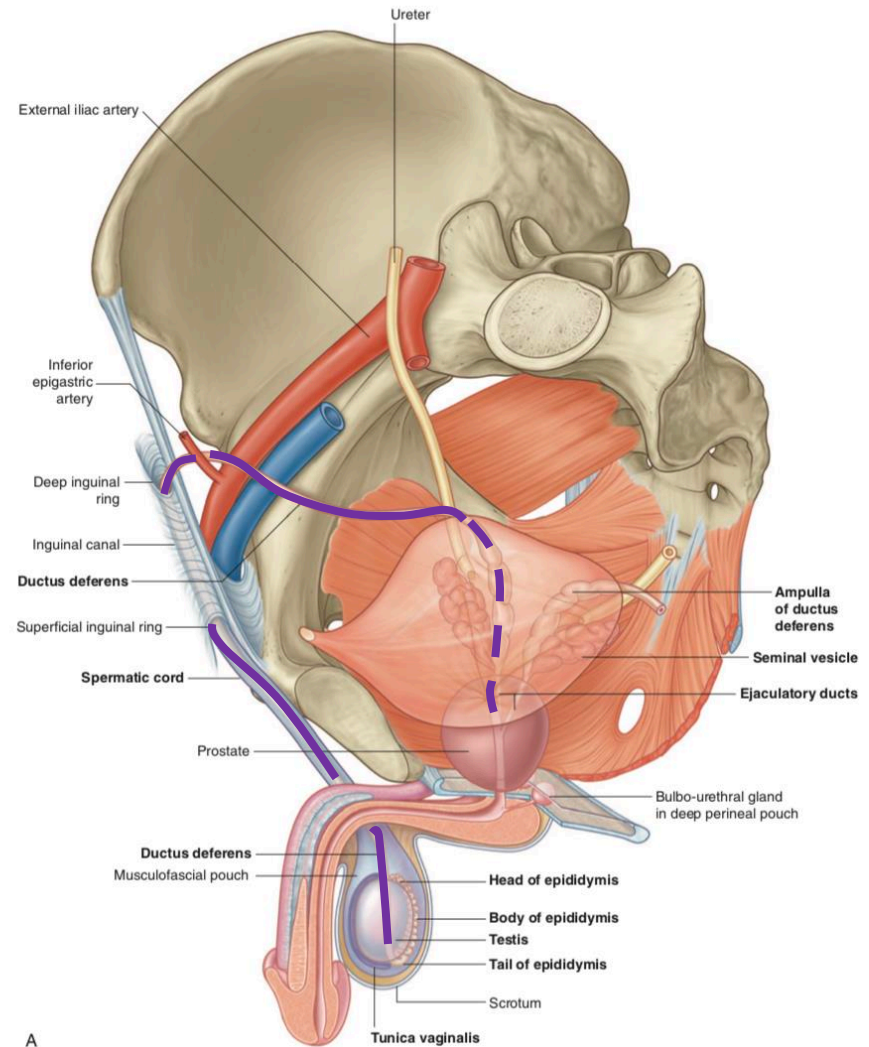
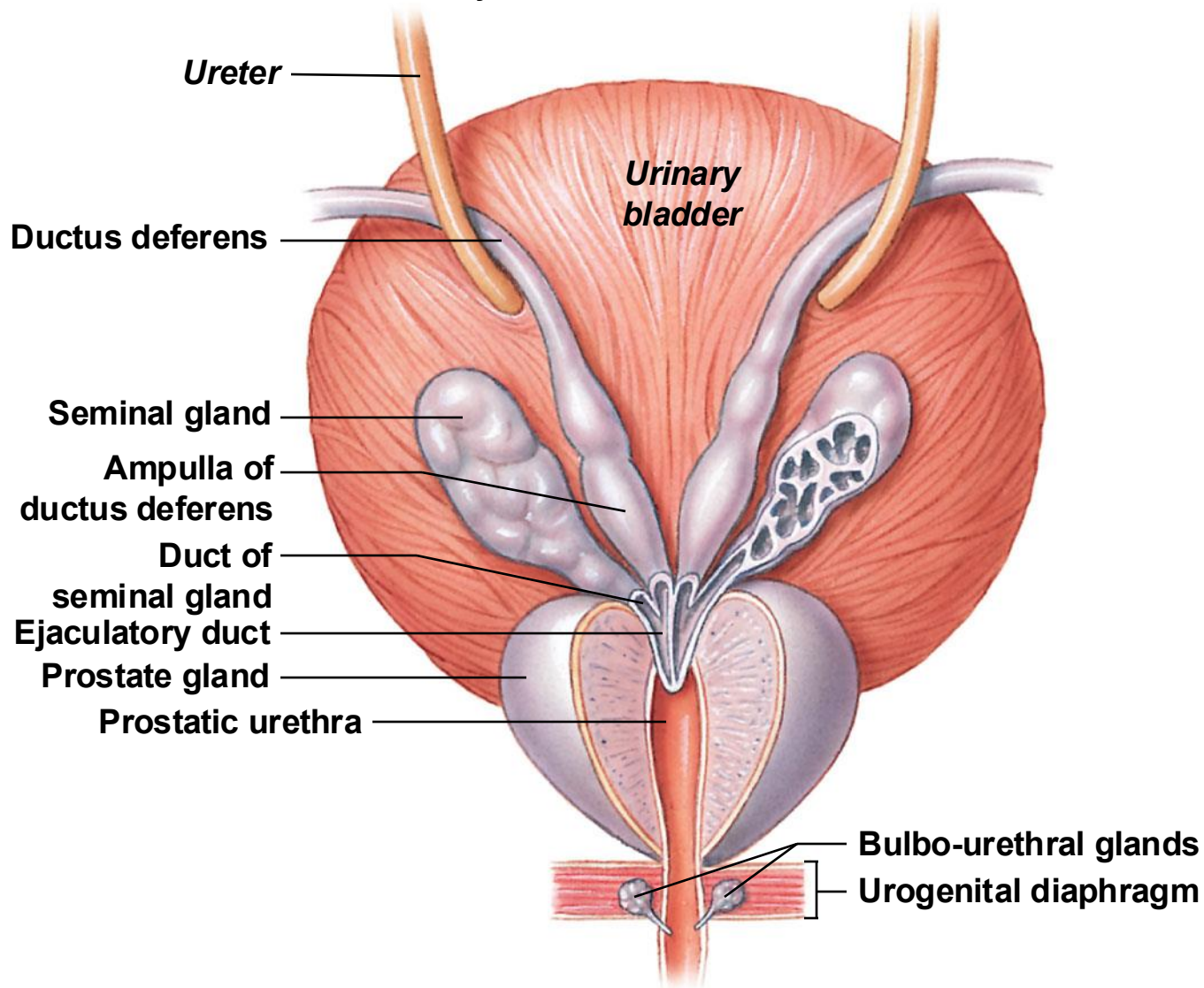


Figure 28-10a The Ductus Deferens and Accessory Glands



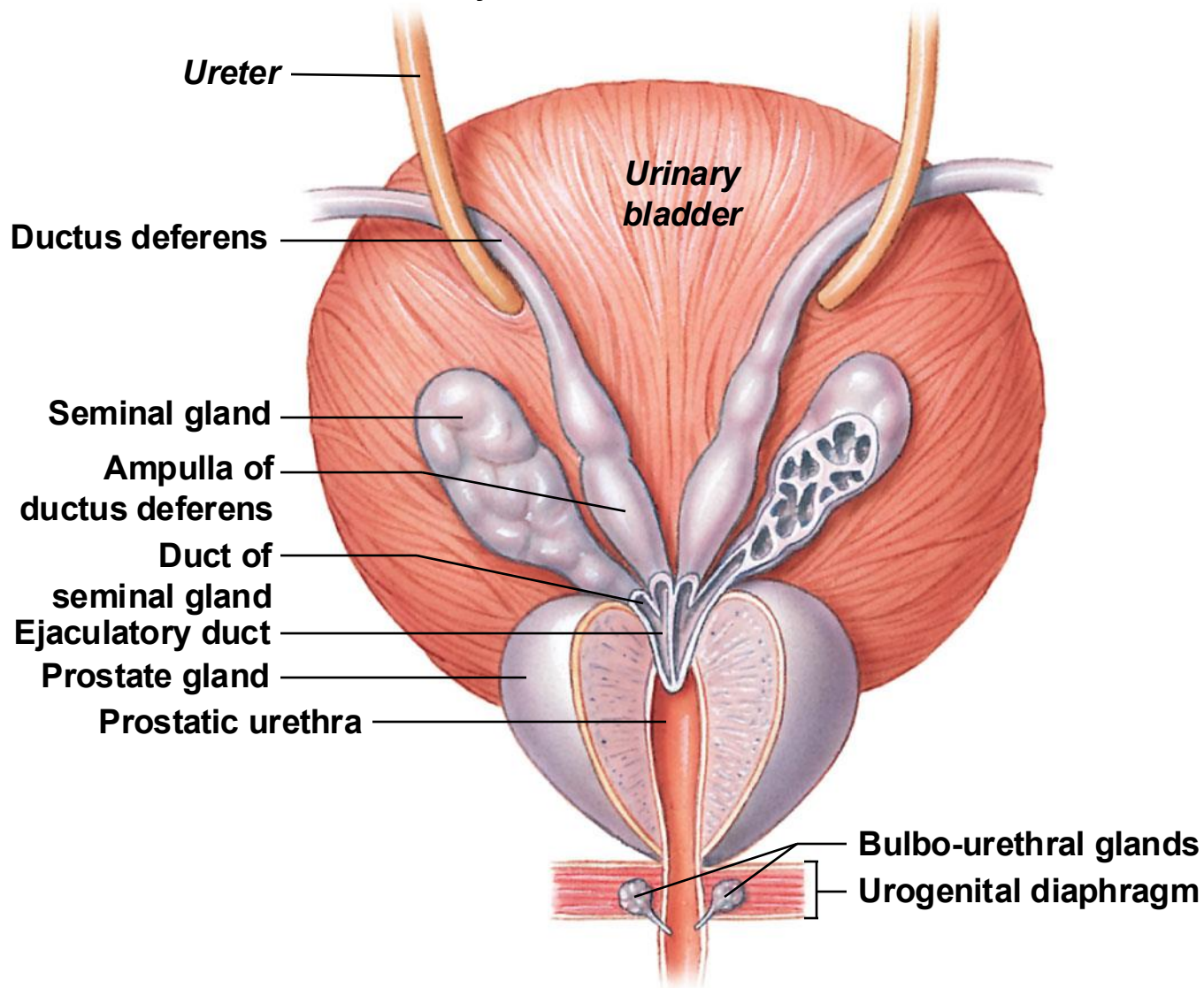
a A posterior view of the urinary bladder and prostate gland, showing subdivisions of the ductus deferens in relation to surrounding structures.

28-2 Male Reproductive Functions

- **The Prostate Gland**

- Is a small, muscular organ, about 4 cm (1.6 in.) in diameter “walnut sized”
- Encircles proximal portion of urethra
 - Below urinary bladder
- Consists of 30–50 compound tubuloalveolar glands

Figure 28-10a The Ductus Deferens and Accessory Glands



a A posterior view of the urinary bladder and prostate gland, showing subdivisions of the ductus deferens in relation to surrounding structures.

28-2 Male Reproductive Functions

- The **Urethra**

- Is used by both urinary and reproductive systems
- Extends 18–20 cm (7–8 in.) from urinary bladder to tip of penis
- Is divided into three regions
 1. *Prostatic*
 2. *Membranous*
 3. *Spongy*

28-2 Male Reproductive Functions

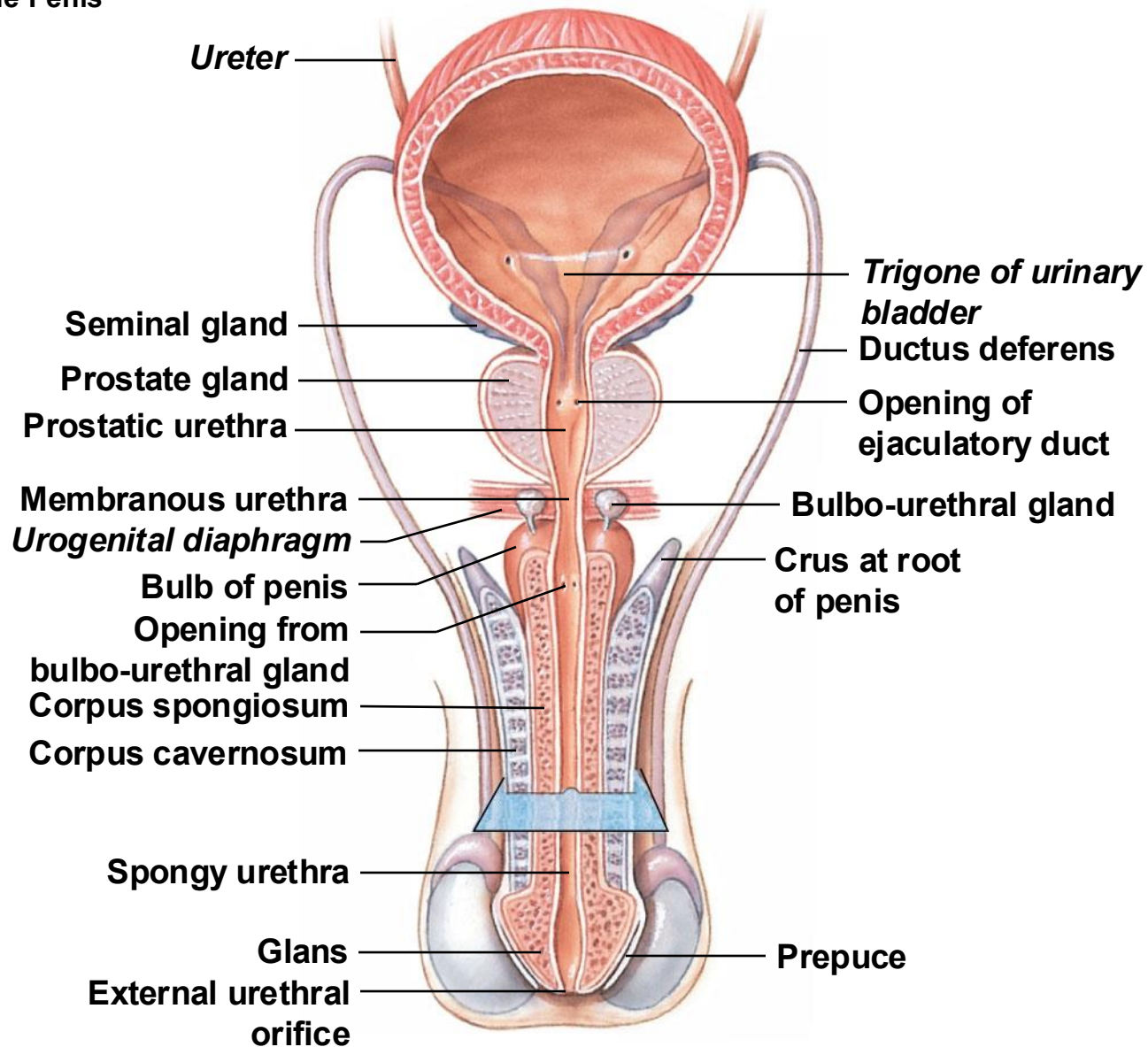
- **Ejaculate**

- Is the volume of fluid produced by ejaculation
- Contains:
 - Spermatozoa
 - Seminal fluid
 - Enzymes
 - Including protease, seminalplasmin, prostatic enzyme, and fibrinolysin

28-2 Male Reproductive Functions

- The Penis
 - The **root**
 - Is the fixed portion that attaches penis to body wall
 - Attachment occurs within urogenital triangle, inferior to pubic symphysis
 - The **body (shaft)**
 - Is the tubular, movable portion of the penis
 - Consists of three cylindrical columns of erectile tissue
 - The **glans**
 - Is the expanded distal end of penis that surrounds external urethral orifice

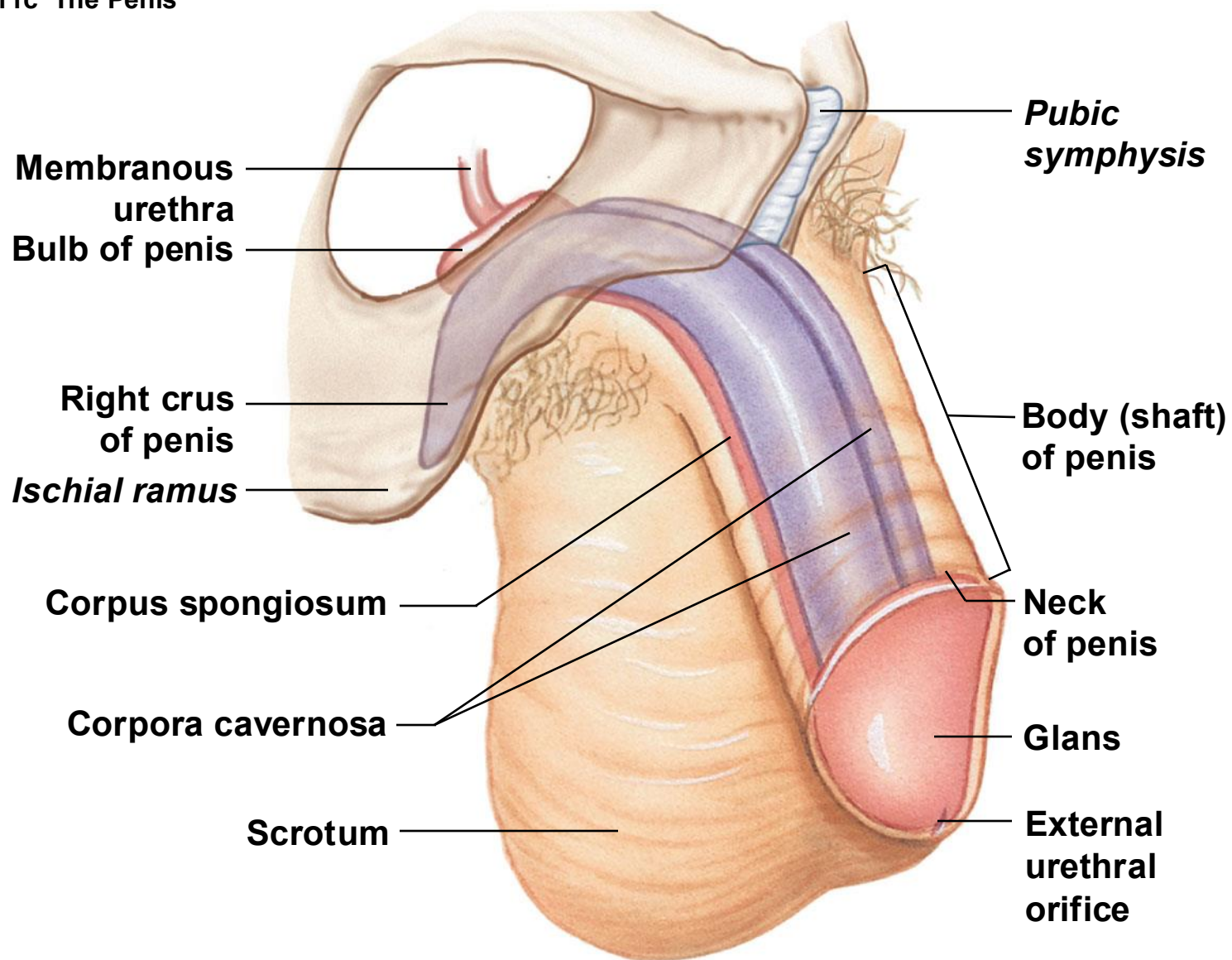
Figure 28-11a The Penis



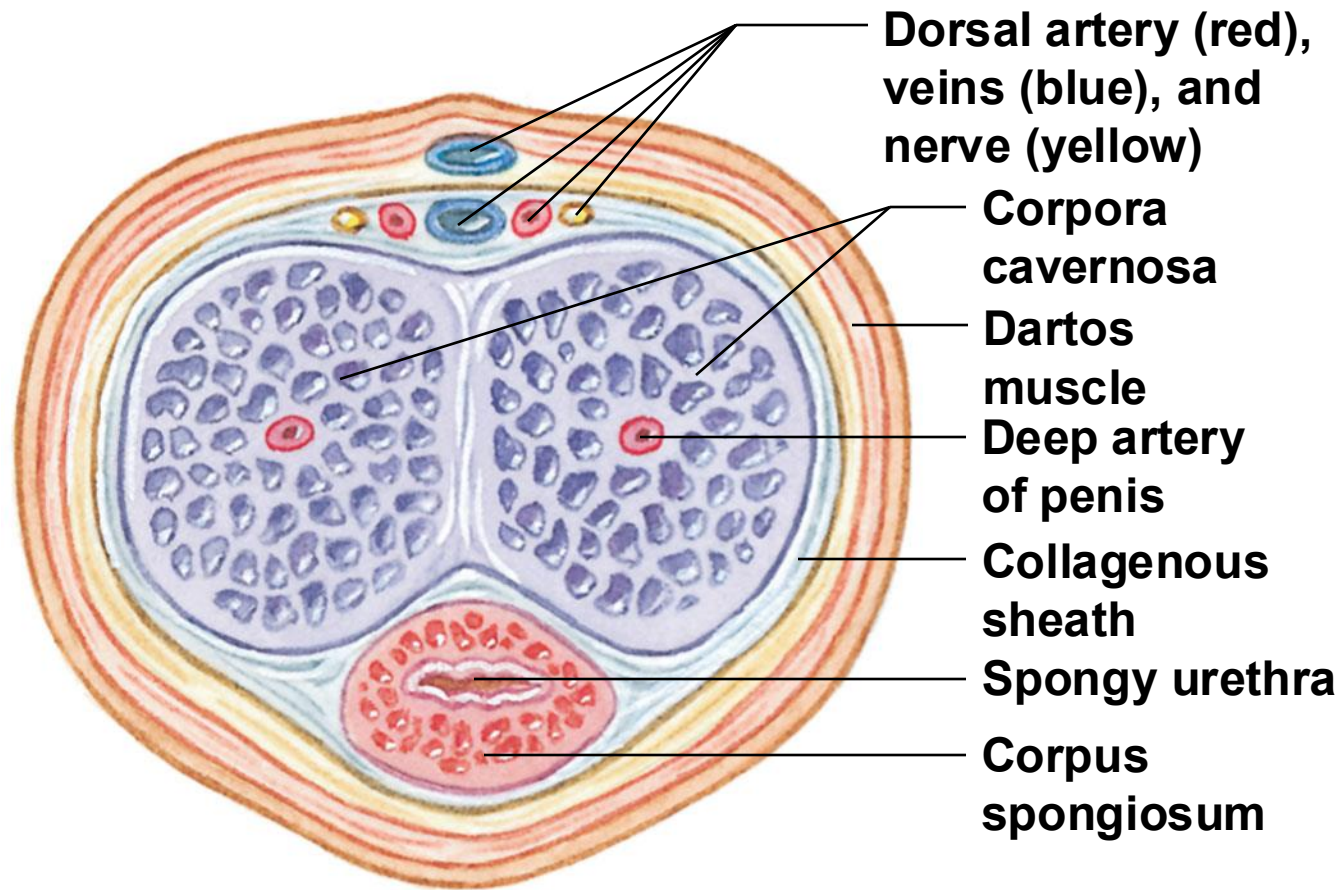
a

A frontal section through the penis and associated organs

Figure 28-11c The Penis



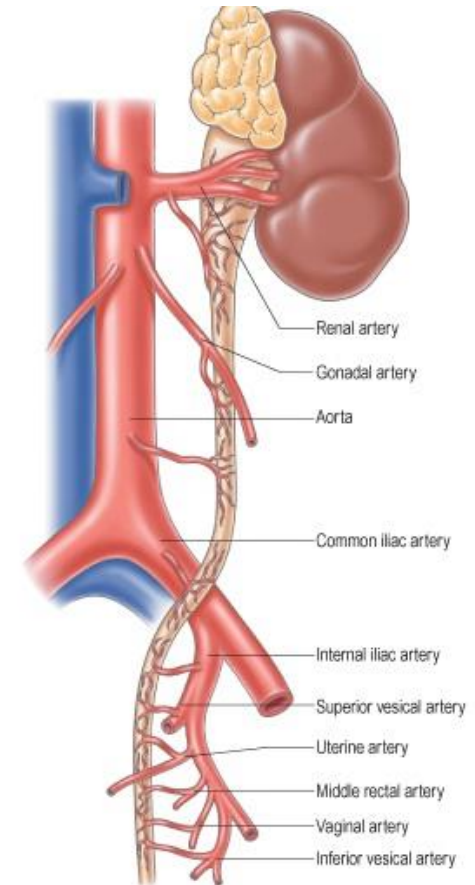
C An anterior and lateral view of the penis, showing positions of the erectile tissues



b A sectional view through the penis

Vascular Supply

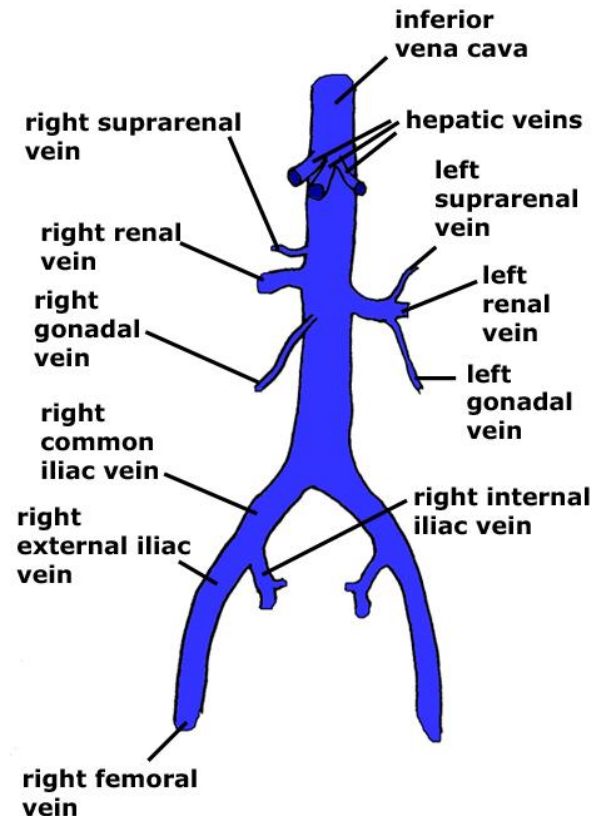
- **Testicular (gonadal) arteries**
 - arise directly from the abdominal aorta
 - pass into the scrotum via the **inguinal canal**
 - within the spermatic cord
- **cremasteric and Vas deference arteries**
 - These branches give anastomoses to the main testicular artery



Gonadal Veins

- Left testicular---left renal
- Right testicular-- IVC

Major veins inferior to the heart



28-2 Male Reproductive Functions

- Pathway of **Spermatozoa**
 - Testis
 - *Epididymis*
 - *Ductus deferens (vas deferens)*
 - *Ejaculatory duct*
 - *Urethra*

FEMALE REPRODUCTIVE ORGANS

28-3 The Female Reproductive System

- The Female Reproductive System
 - Produces sex hormones and functional gametes
 - Protects and supports developing embryo
 - Nourishes newborn infant

28-3 The Female Reproductive System

- Organs of the Female Reproductive System
 - *Ovaries*
 - *Uterine tubes*
 - *Uterus*
 - *Vagina*
 - External genitalia

Figure 28-13 The Female Reproductive System

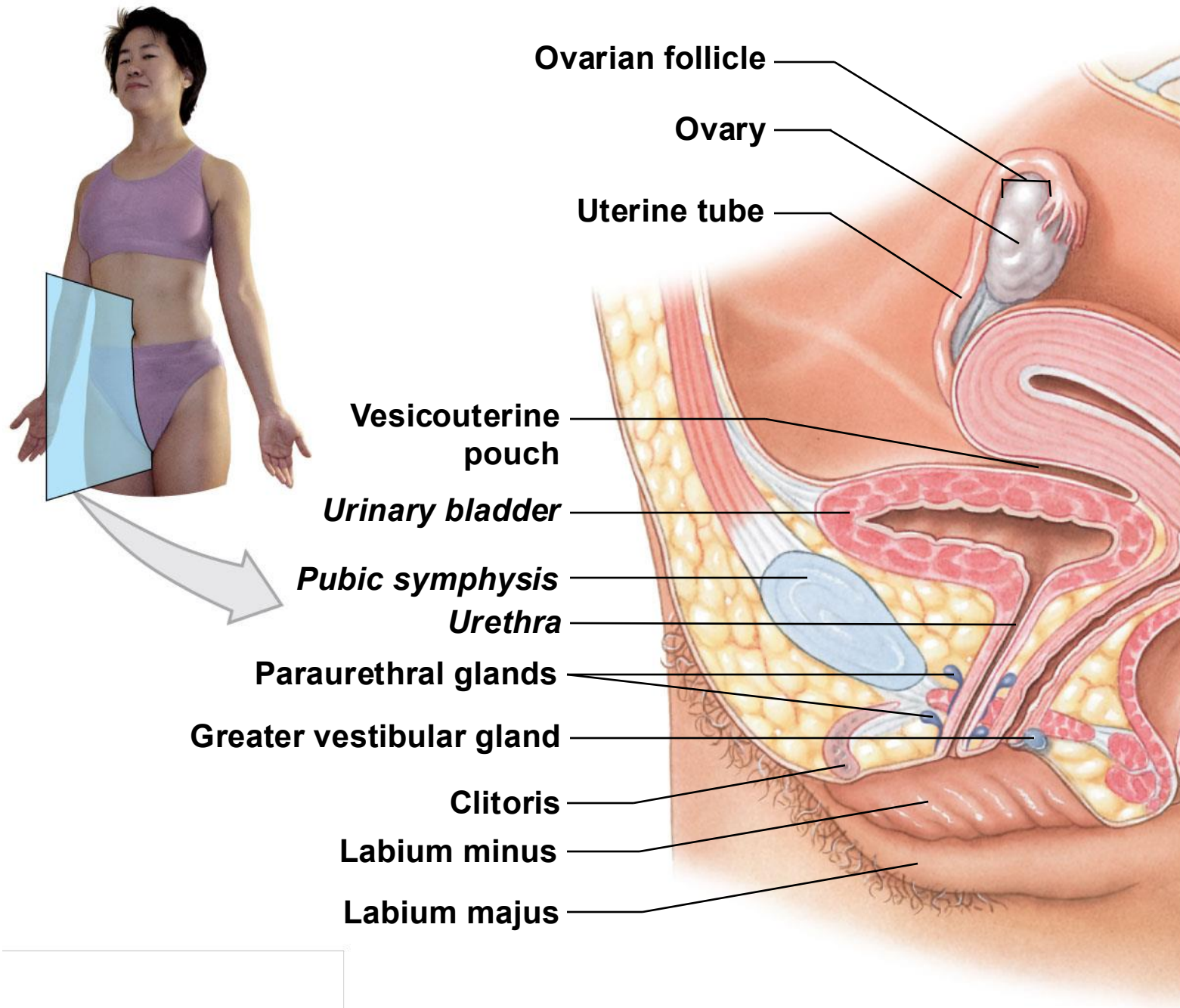
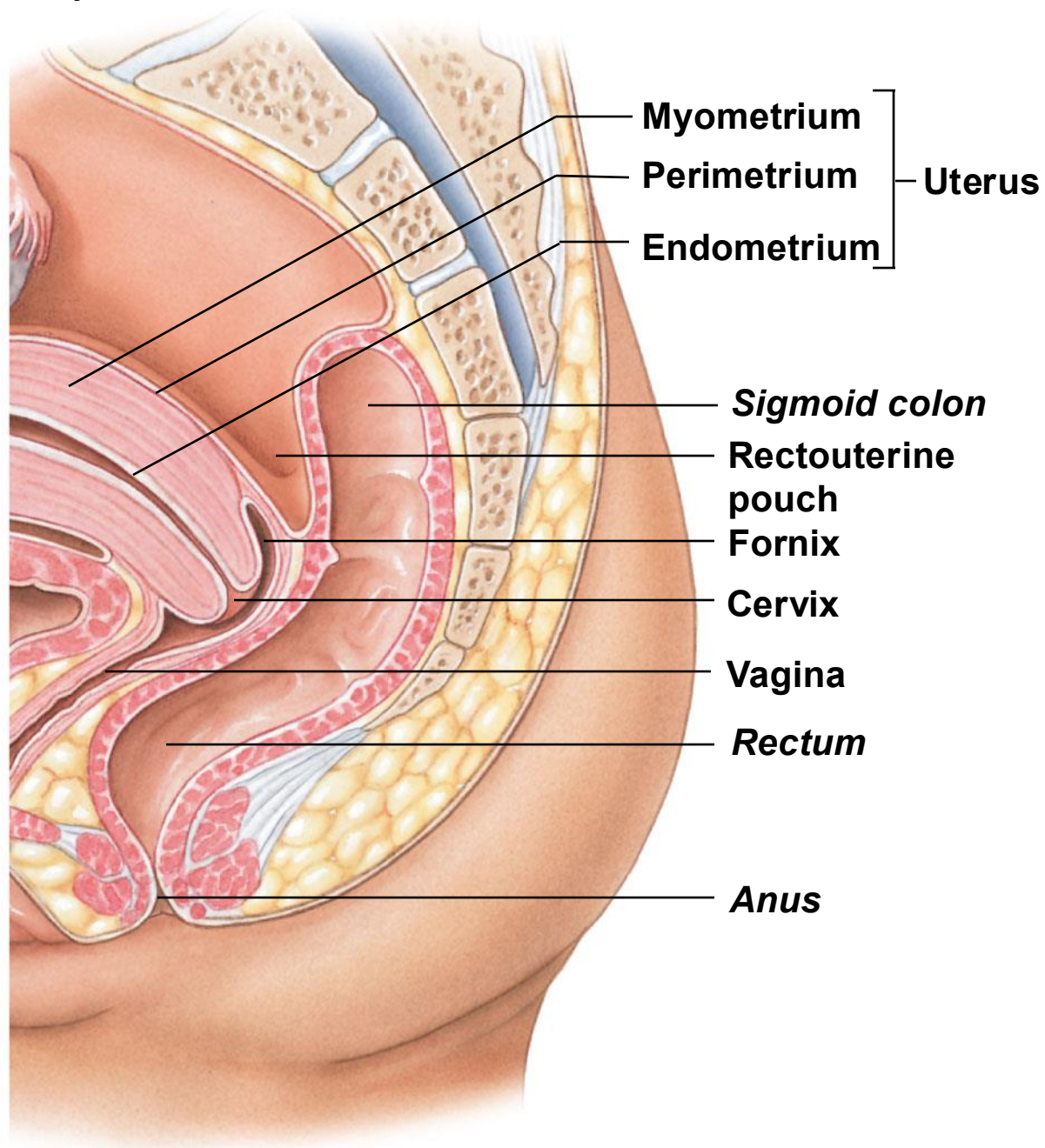


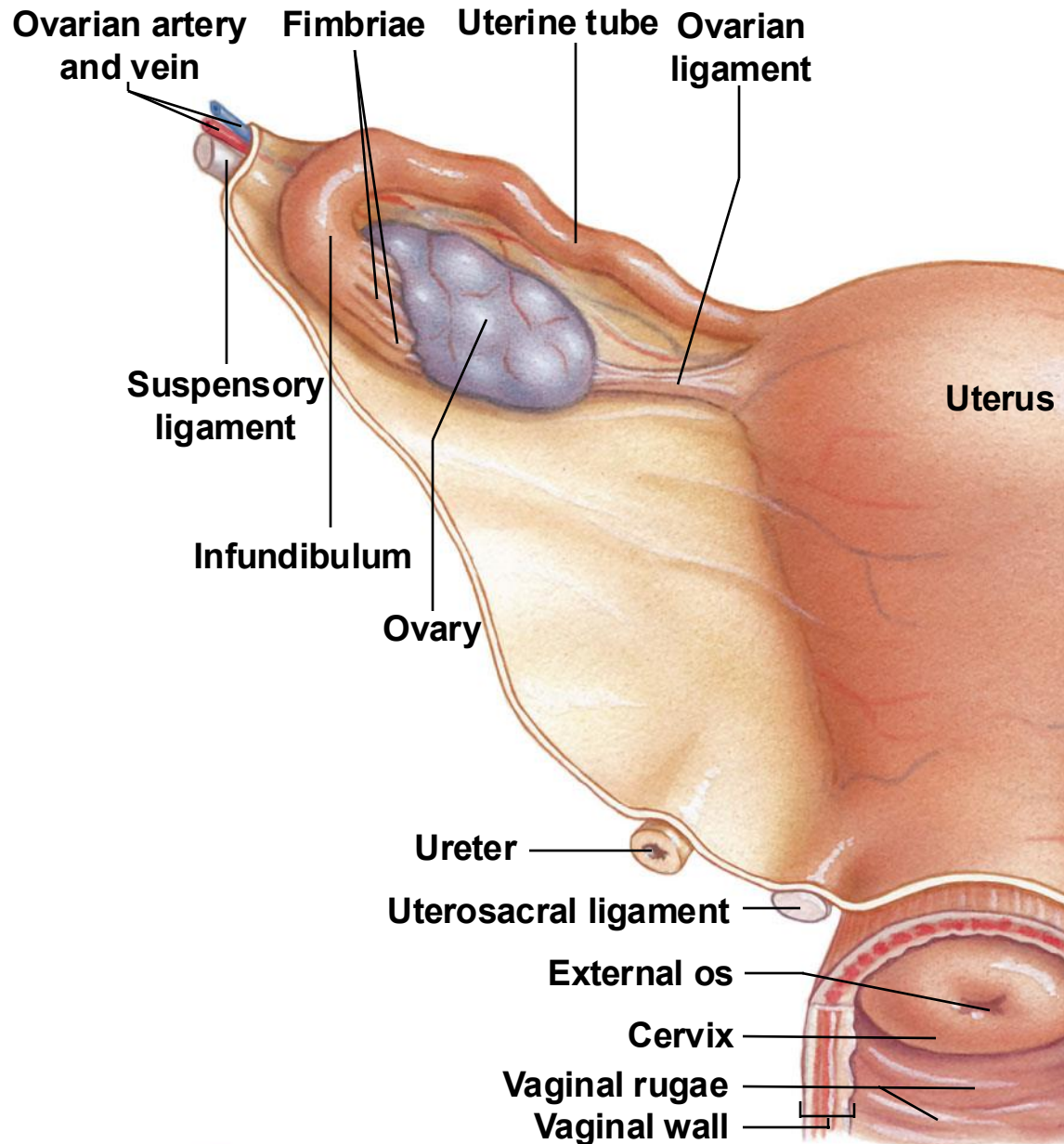
Figure 28-13 The Female Reproductive System



28-3 The Female Reproductive System

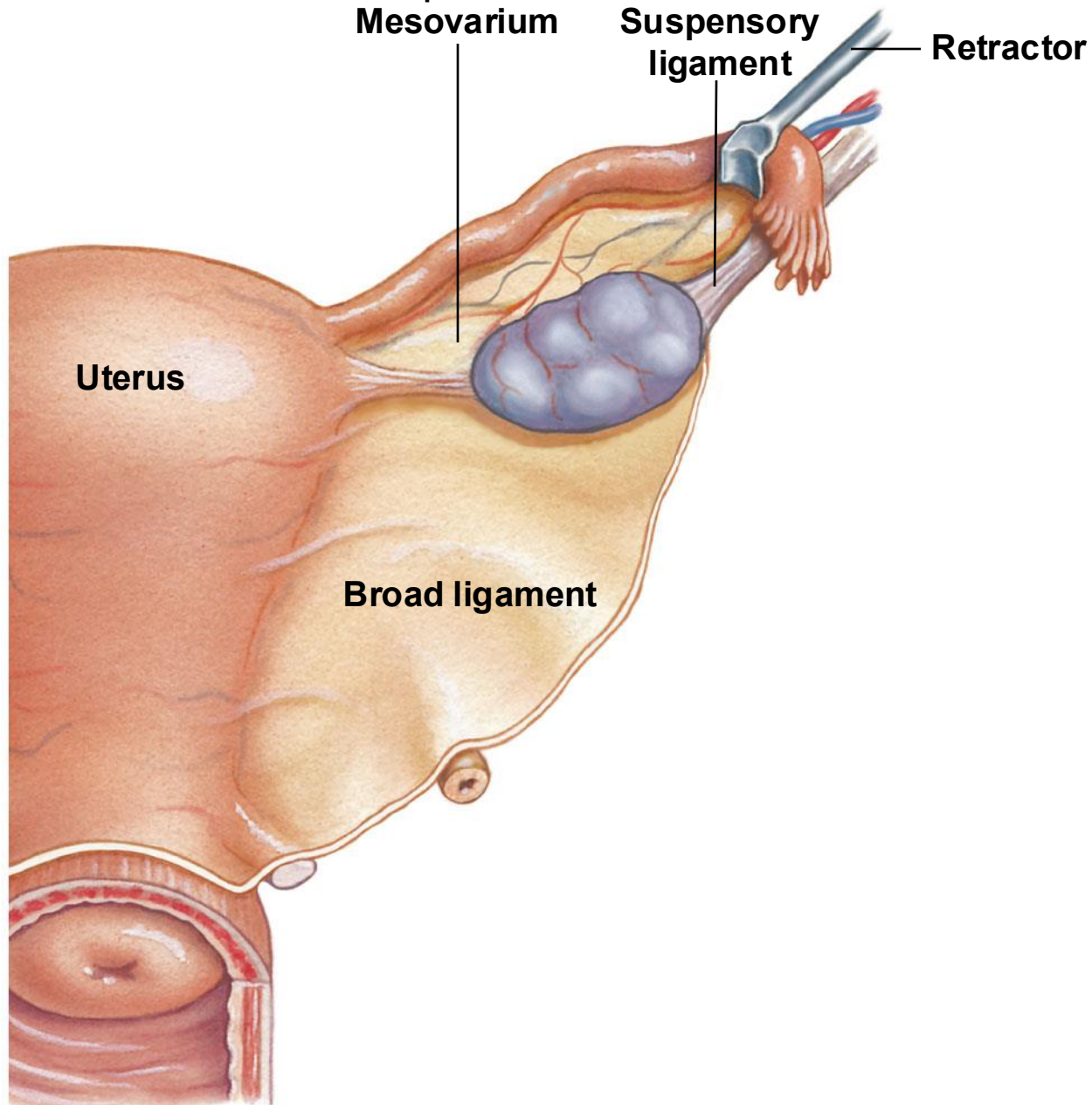
- Structural Support
 - Ovaries, uterine tubes, and uterus are enclosed in **broad ligament (mesentery)**
 - Uterine tubes
 - Run along broad ligament
 - Open into pelvic cavity lateral to ovaries
 - The **mesovarium (subdivision of broad ligament)**
 - Stabilizes position of each ovary

Figure 28-14a The Ovaries and Their Relationships to the Uterine Tube and Uterus



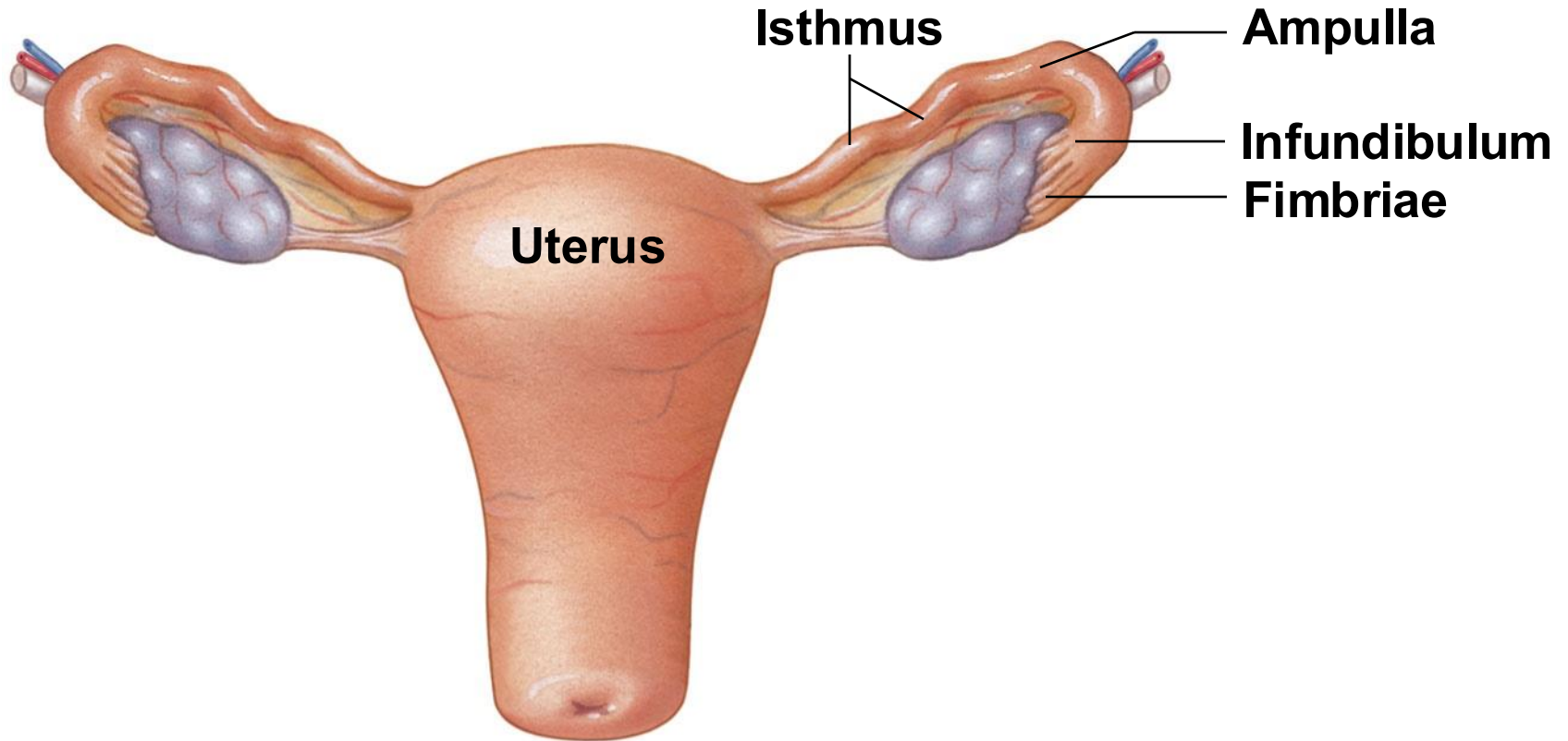
a A posterior view of the uterus, uterine tubes, and ovaries

Figure 28-14a The Ovaries and Their Relationships to the Uterine Tube and Uterus



a A posterior view of the uterus, uterine tubes, and ovaries

Figure 28-17a The Uterine Tubes



a **Regions of the uterine tubes, posterior view**

28-3 The Female Reproductive System

- The **Uterus**
 - Provides for developing *embryo* (weeks 1–8) and *fetus* (week 9 through delivery)
 - Mechanical protection
 - Nutritional support
 - Waste removal

28-3 The Female Reproductive System

- **Cervix**

- Is inferior portion of uterus
- Extends from isthmus to vagina
- Distal end projects about 1.25 cm (0.5 in.) into vagina

- **External os**

- Also called external orifice of uterus
- Is surrounded by distal end of cervix
- Leads into **cervical canal**

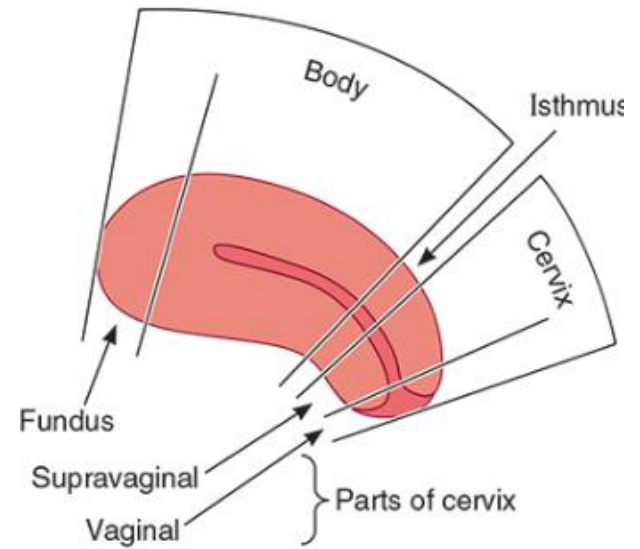
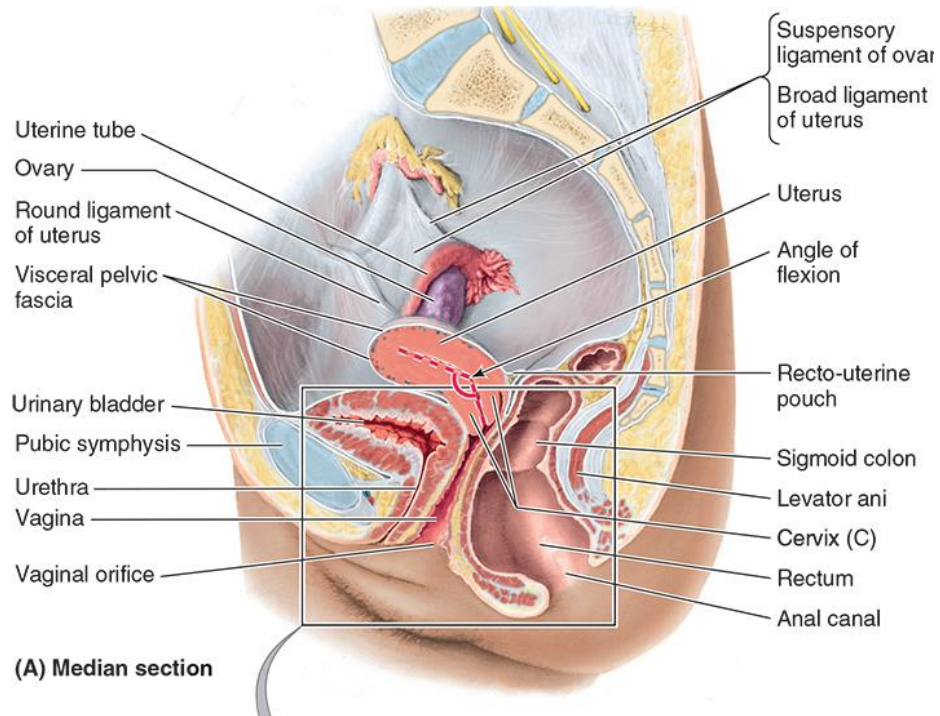
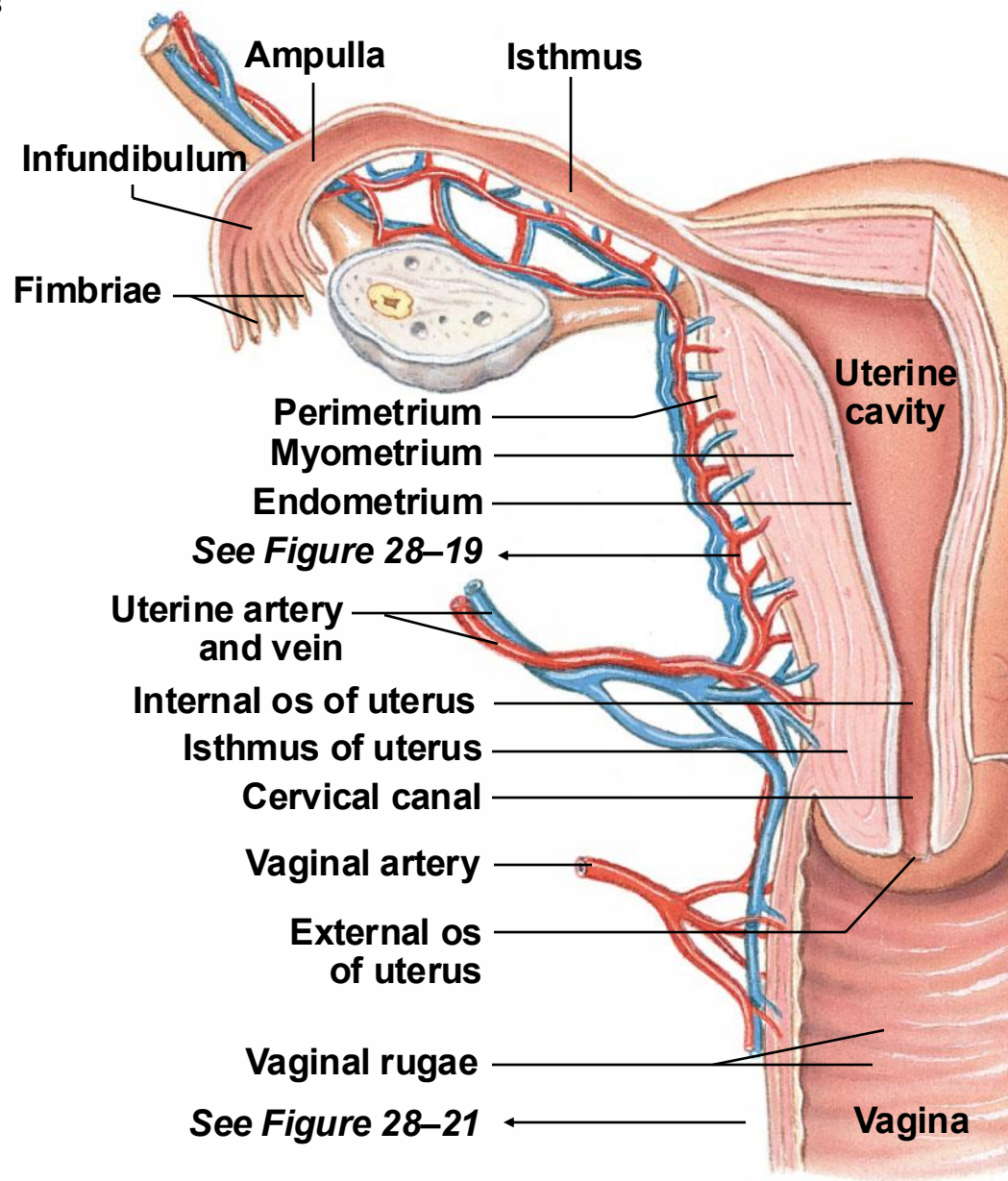
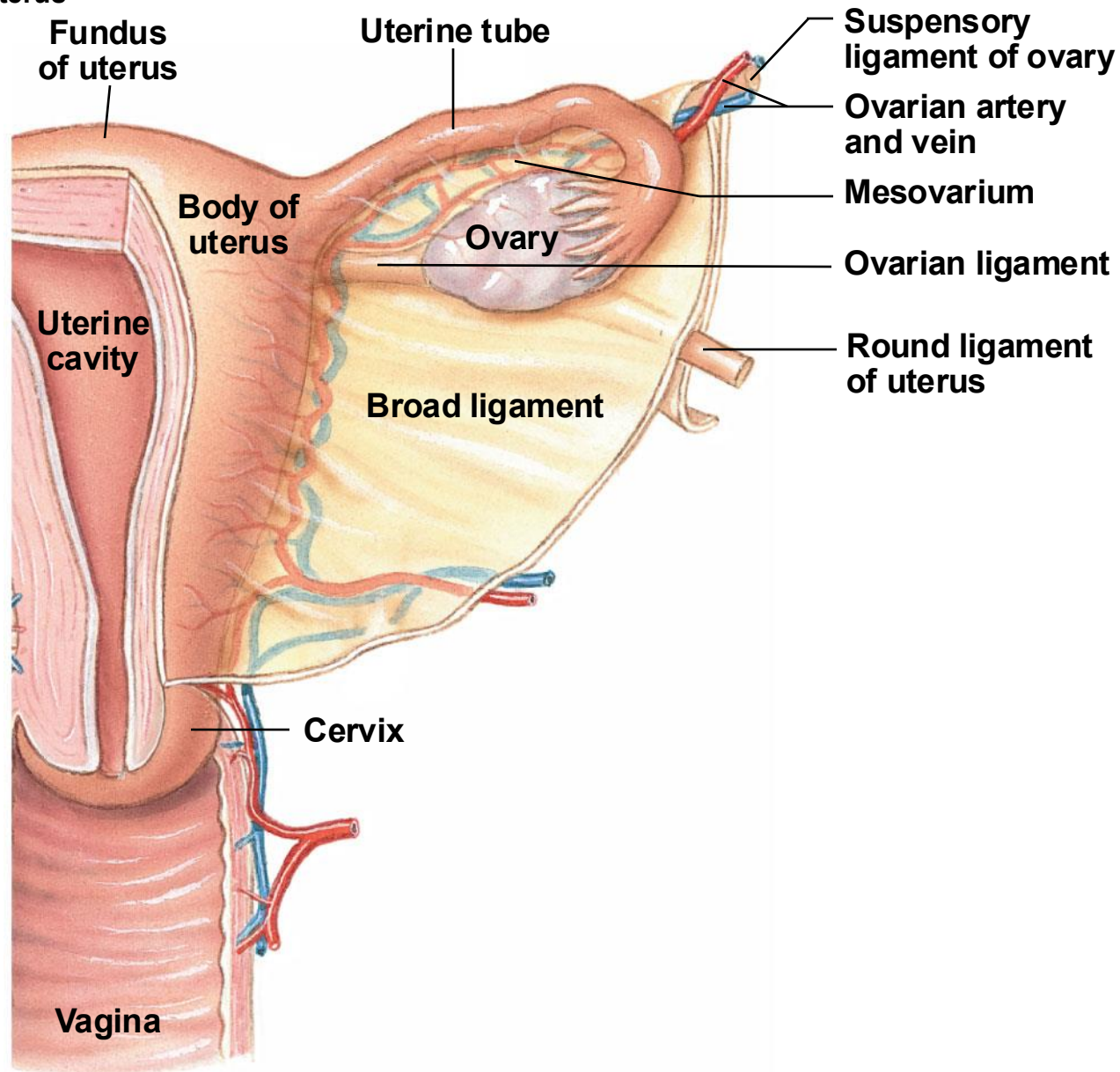


Figure 28-18a The Uterus



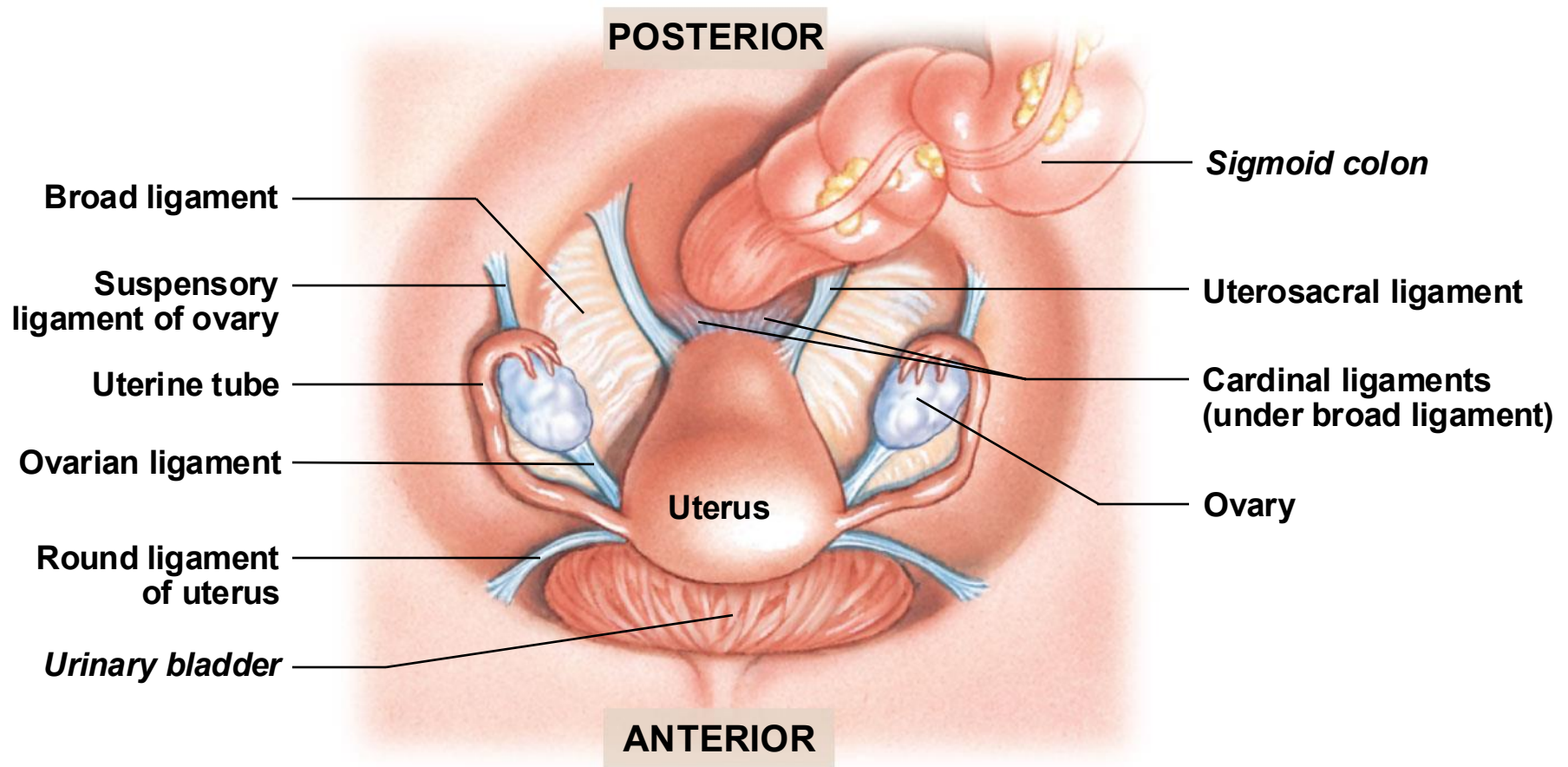
a A posterior view with the left portion of the uterus, left uterine tube, and left ovary shown in section

Figure 28-18a The Uterus



a A posterior view with the left portion of the uterus, left uterine tube, and left ovary shown in section

Figure 28-18b The Uterus

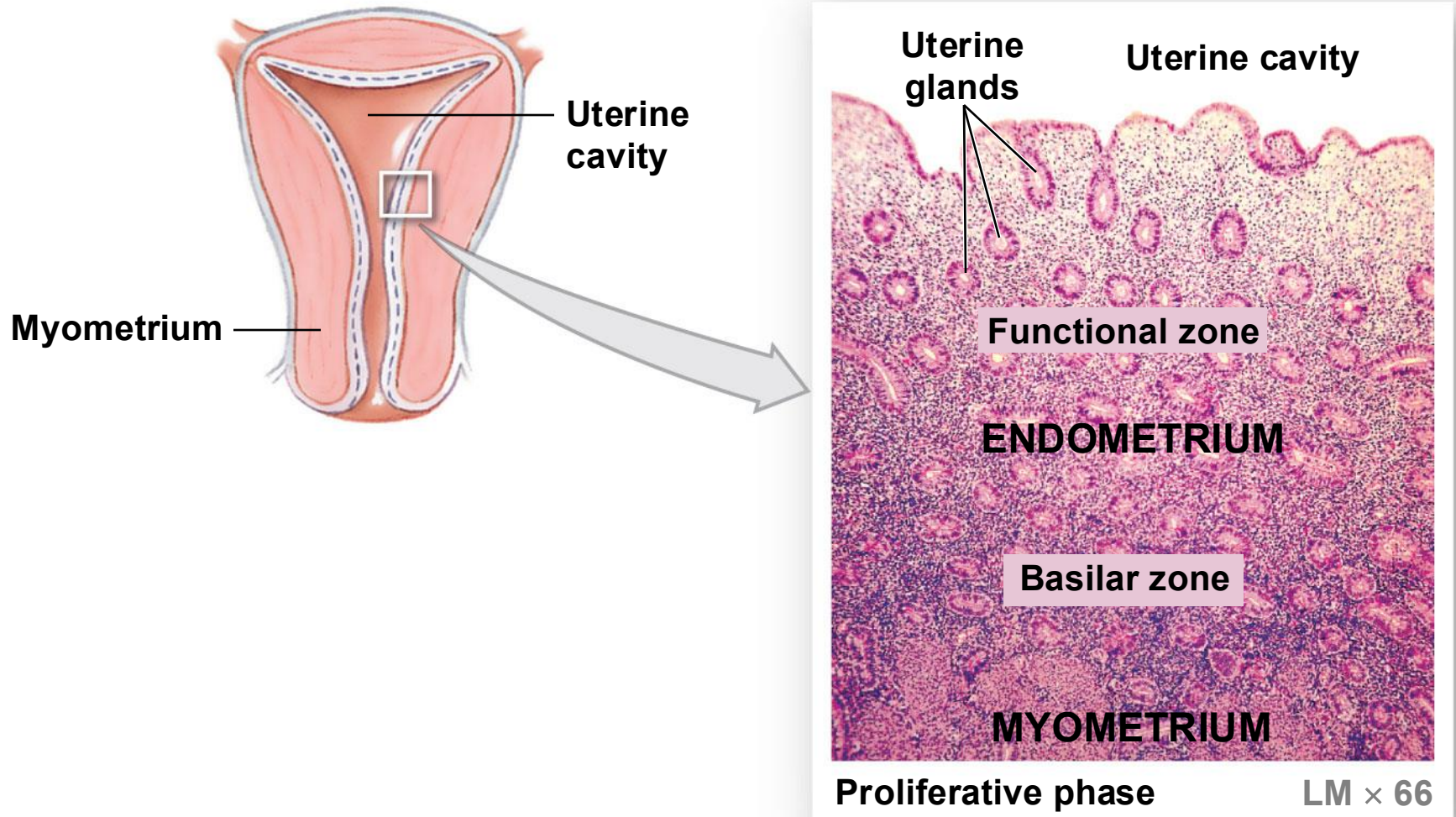


b A superior view of the ligaments that stabilize the position of the uterus in the pelvic cavity

28-3 The Female Reproductive System

- The Uterine Wall
 - Has a thick, outer, muscular **myometrium**
 - Has a thin, inner, glandular **endometrium** (mucosa)
- The **perimetrium**
 - Is a serous membrane
 - Continuous with peritoneal lining
 - Covers fundus and posterior surface of uterine body and isthmus

Figure 28-20b The Appearance of the Endometrium during the Uterine Cycle



b The appearance of the endometrium during the proliferative phase

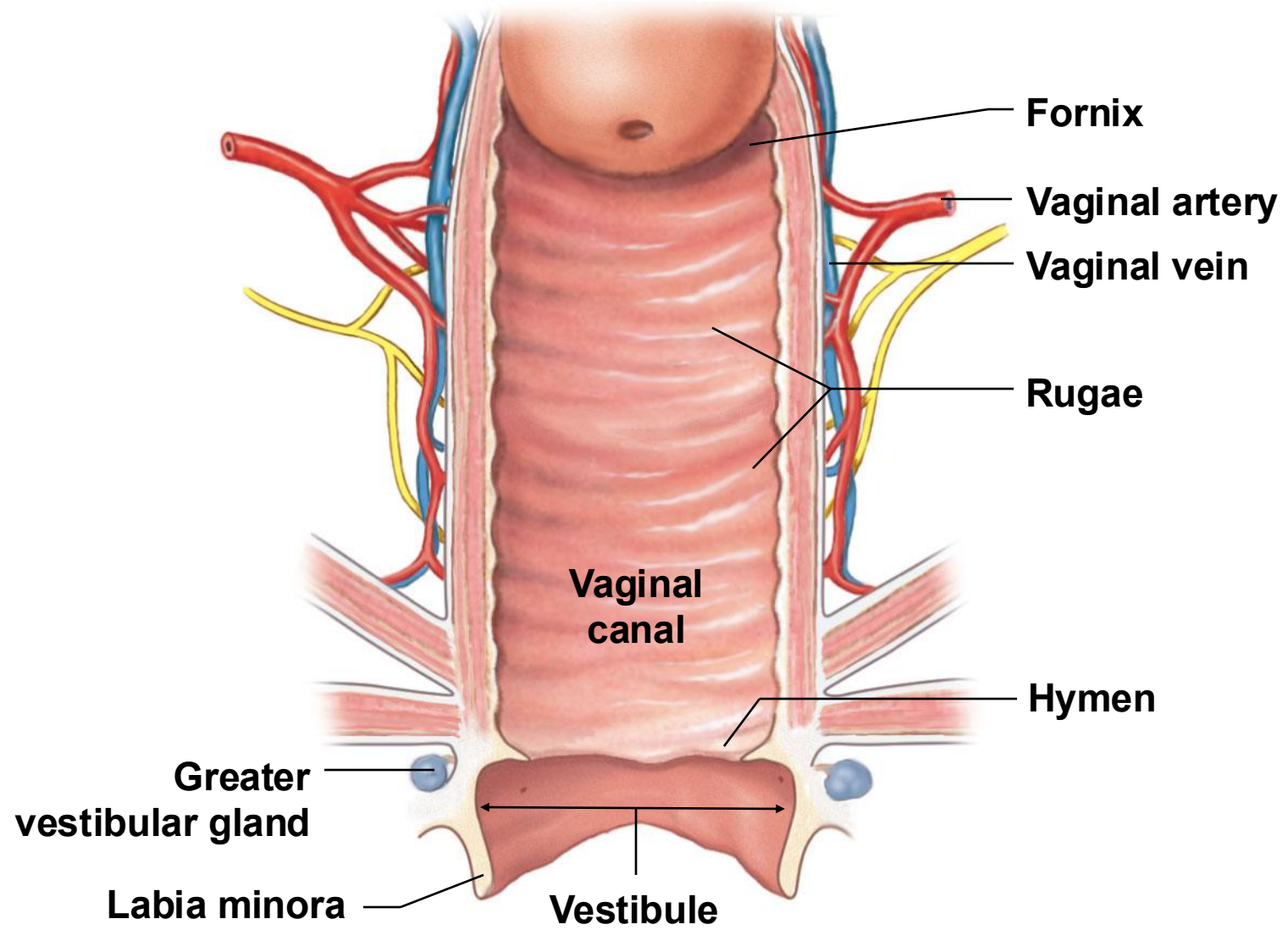
28-3 The Female Reproductive System

- The **Vagina**
 - Is an elastic, muscular tube
 - Extends between cervix and *vestibule*
 - 7.5–9 cm (3–3.6 in.) long
 - Highly distensible

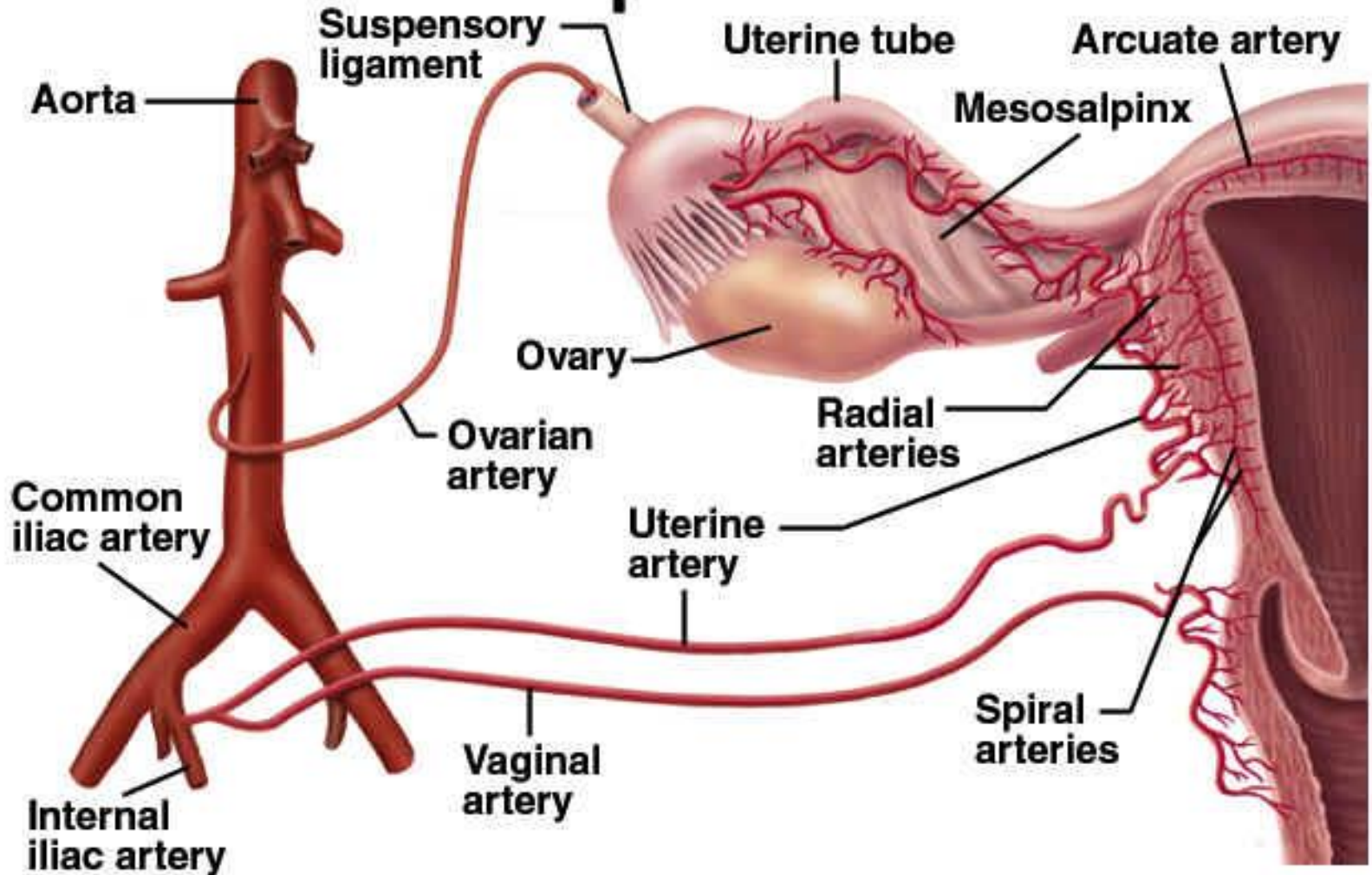
28-3 The Female Reproductive System

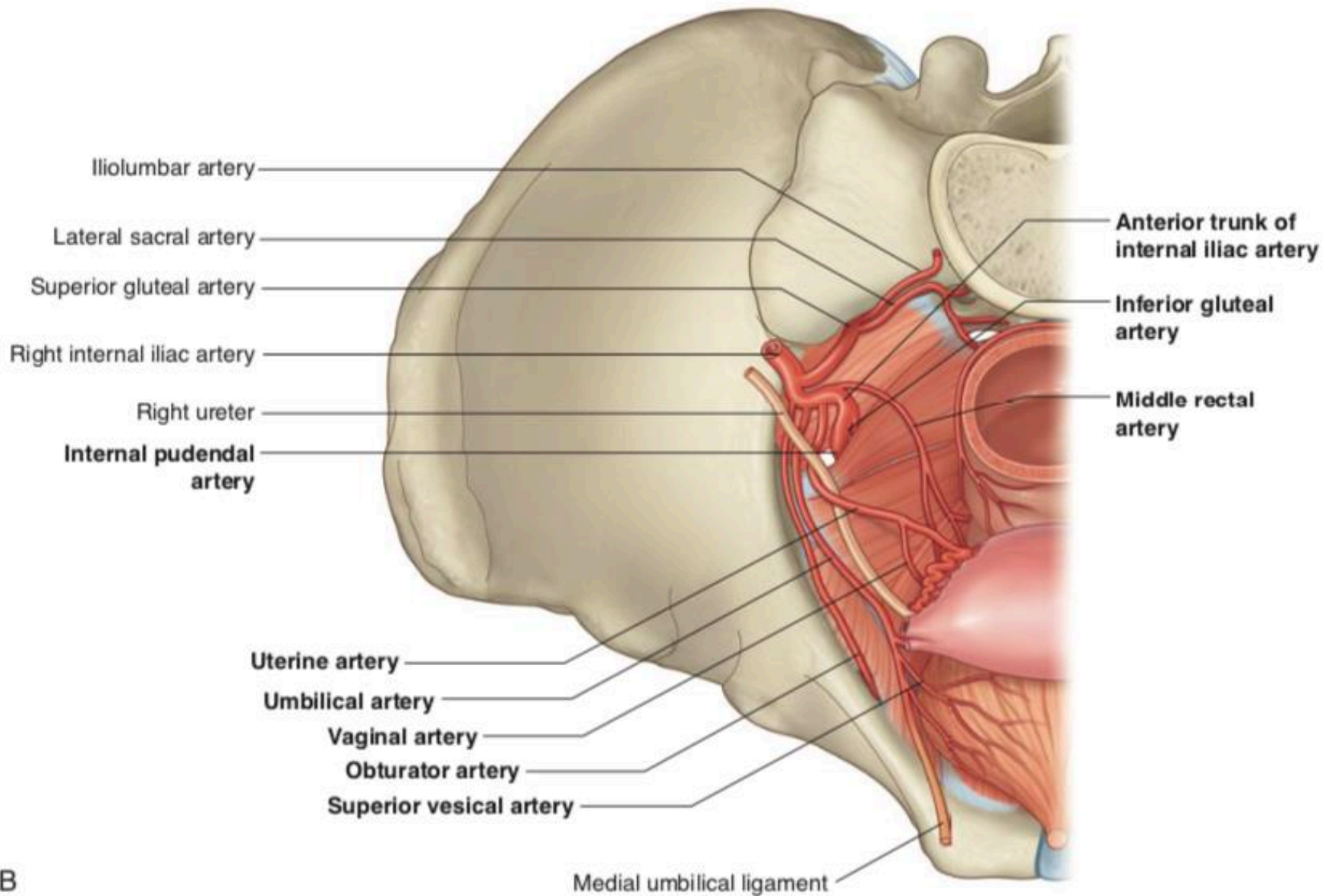
- Vaginal Muscles
 - Two *bulbospongiosus muscles* extend along either side of vaginal entrance
 - **Vestibular bulbs**
 - Masses of erectile tissue that lie beneath the muscles
 - Have same embryological origins as corpus spongiosum of penis

Figure 28-21a The Histology of the Vagina



Blood Supply to Female Reproductive Tract





B

