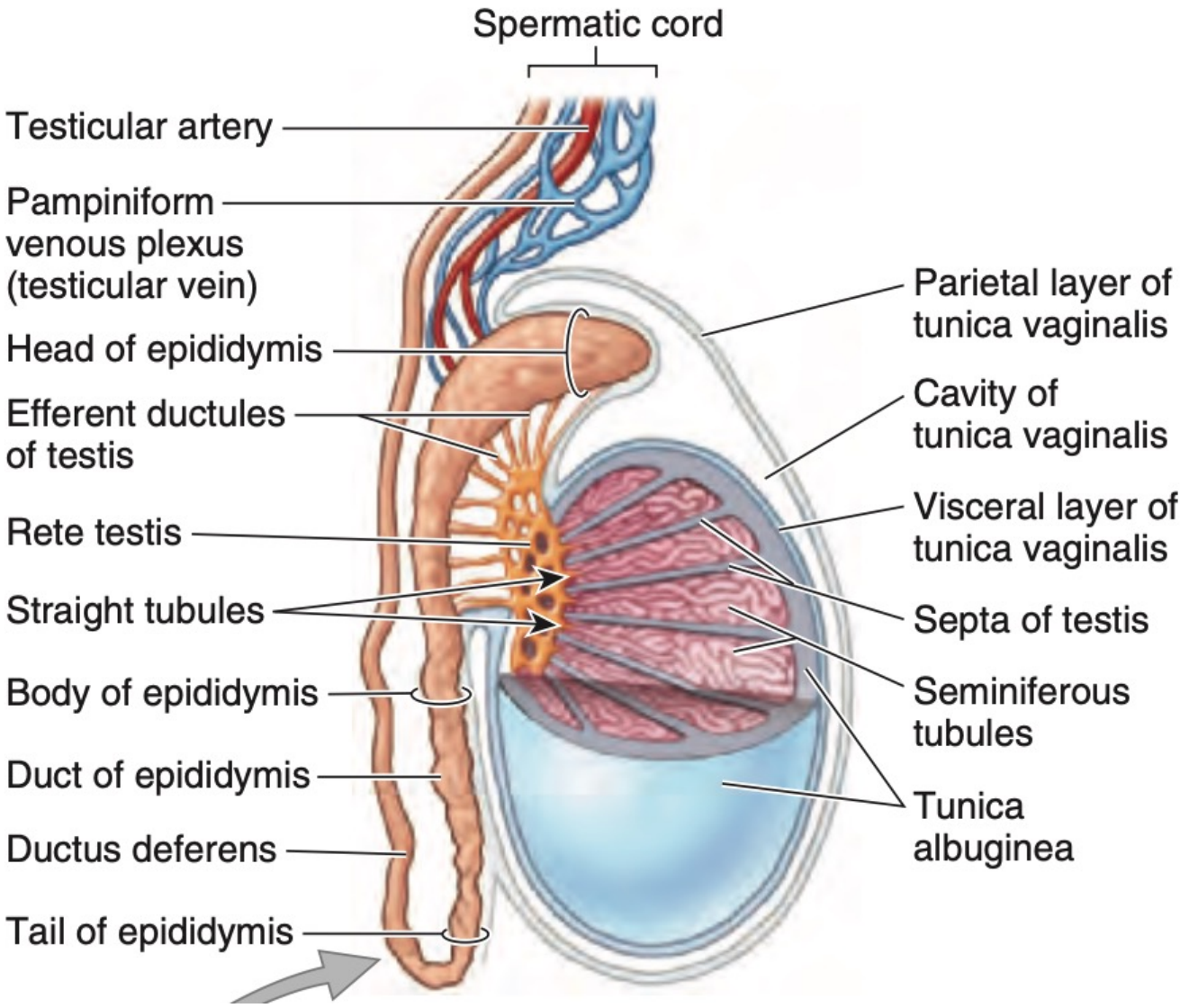
Spermatic Cord and Testes



SPERMATIC CORD

The **spermatic cord** contains structures to and from the testis and suspends the testis in the scrotum .

- ***Ductus deferens*** (vas deferens): a muscular tube approximately 45 cm long that conveys sperms from the epididymis to the ejaculatory duct.
- *Arteries:*
  - ***Testicular artery****:* arising from the aorta and supplying the testis and epididymis.
  - ***Artery of ductus deferens****:* arising from the inferior vesical artery.
  - ***Cremasteric artery****:* arising from the inferior epigastric artery.
- *Pampiniform venous plexus:* a network formed by up to 12 veins that converge superiorly as right or left testicular veins.
- Nerves:
  - **Sympathetic *nerve fibers*** on arteries and sympathetic and parasympathetic nerve fibers on the ductus deferens.
  - *Genital branch of the* ***genitofemoral nerve****:* supplying the cremaster muscle.
- *Lymphatic vessels:* draining the testis and closely associated structures and passing to the lumbar lymph nodes.

Begins ***deep inguinal ring,*** through inguinal canal, exits ***superficial inguinal ring*** ends in scrotum at post border of the testis.

The fascial *coverings of the spermatic cord are*:

- **Internal spermatic fascia:** from the transversalis fascia.
- **Cremasteric fascia:** from the fascia of superficial and deep surfaces of the ***internal oblique muscle***.
  - Contains the **cremaster muscle,** formed by the ***internal oblique muscle*** arising from inguinal lig.
  - Pulls testis superiorly in the scrotum for temperature regulation in **spermatogenesis**, and protection during sexual activity.
    - The cremaster muscle(striated muscle) is innervated by the ***genital branch of the genitofemoral nerve*** (L1, L2), derived from *lumbar plexus*.
  - Acts with the **dartos muscle,** smooth muscle of the scrotum which inserts into the skin, elevates the testicle as it produces contraction of the skin of the scrotum in response to the same stimuli.
    - The dartos is smooth muscle receives autonomic innervation.
- **External spermatic fascia:** from the external oblique aponeurosis and its investing fascia.

SCROTUM

Cutaneous sac of two layers:

1. heavily *pigmented skin* and the
2. **dartos fascia.** Dartos muscle attaches to the skin, contraction causes the scrotum to wrinkle when cold.

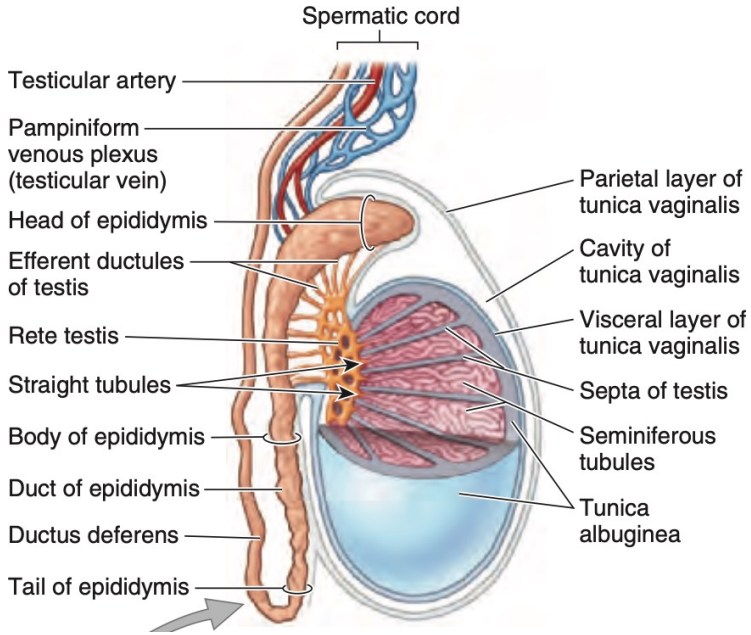
The scrotum is divided internally by the dartos fascia, the *septum of the scrotum,* into right and left compartments, demarcated externally by the *scrotal raphe.*

- The development of the scrotum is closely related to the formation of the inguinal canals. Late in the fetal period, the testes and spermatic cords enter the scrotum.
- The **arterial supply** of the scrotum:
  - **Posterior scrotal branches of the perineal artery:** a branch of the internal pudendal artery.
  - **Anterior scrotal branches of the deep external pudendal artery:** a branch of the femoral artery.
  - **Cremasteric artery:** a branch of the inferior epigastric artery.
- ***Scrotal veins*** accompany the arteries.
- The ***lymphatic vessels*** of the scrotum drain into the superficial inguinal lymph nodes.
- **Nerves of the scrotum** include branches of the lumbar plexus to the anterolateral surface, and branches of the sacral plexus to the posterior and inferior surfaces:
  - ***Genital branch of the genitofemoral nerve*** (L1, L2): supplying the anterolateral surface.
  - **Anterior scrotal nerves:** branches of the ilio-inguinal nerve (L1) supplying the anterior surface.
  - **Posterior scrotal nerves:** branches of the perineal branch of the *pudendal nerve* (S2–S4) supplying the posterior surface.
  - **Perineal branches of the posterior cutaneous nerve of thigh** (S2, S3): supplying the posteroinferior surface.

TESTES

Paired the male gonads— reproductive glands that produce **sperms** (**spermatozoa**) and primarily testosterone
Suspended in the scrotum by spermatic cords, with the left testis lower than the right testis.

- The surface of each testis is covered by the **visceral layer of the tunica vaginalis,** except where attaches to the epididymis and spermatic cord.
- The **parietal layer of the tunica vaginalis**, is more extensive than the visceral layer and extends superiorly for a short distance onto the distal part of the spermatic cord. Small amount of fluid separates the visceral and parietal layers, allowing the testis to move freely in the scrotum.
- The **tunica albuginea,** is the tough outer fibrous layer that thickens into a ridge on its internal, posterior aspect as the **mediastinum of the testis**. From the **internal ridge**, **fibrous septa** extend inward between lobules of minute but long and highly coiled **seminiferous tubules(**sperms produced). The seminiferous tubules are joined by **straight tubules** to the **rete testis**, a network of canals in the mediastinum of the testis.



Testicular arteries arise from the anterolateral aspect of the ***abdominal aorta*** just inferior to the *renal arteries*.

- Pass retroperitoneally, ***cross the ureters*** and the inferior parts of the external iliac arteries to reach the deep inguinal rings. They pass through the inguinal canals and enter the spermatic cords to supply the testes.
- The testicular artery or one of its branches, ***anastomoses with the artery of the ductus deferens***.

Veins from the testis and epididymis form **pampiniform venous plexus,** anterior to the ductus deferens surrounds testicular artery in the spermatic cord.
It is part of the ***thermoregulatory system*** of the testis.
Each pampiniform plexus converges superiorly, forms **right testicular vein,** enters the **inferior vena cava**, and a **left testicular vein,** enters **left renal vein**.

Lymphatic drainage of the testis follows the testicular artery and vein to the *right* and *left lumbar (caval/aortic)* and *pre-aortic lymph*.
Autonomic nerves of the testis arise as the **testicular plexus of nerves** on the testicular artery, which contains vagal parasympathetic and visceral afferent fibers and sympathetic fibers from the T10(–T11) segment of the spinal cord