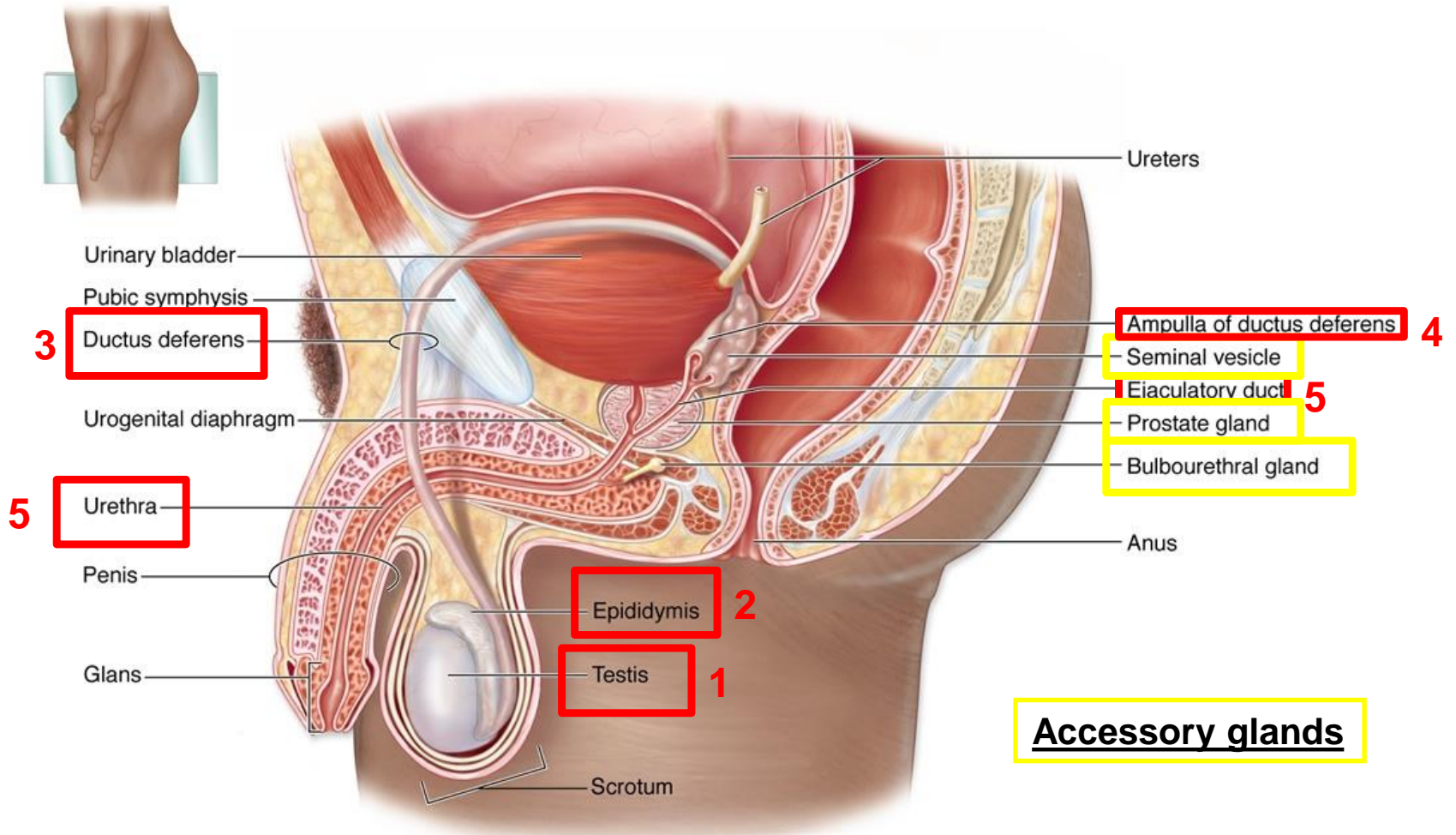


**Morphology of the epididymis,  
spermatic cord, seminal vesicle and  
prostate**

**János Hanics M.D., Ph.D.**

# Male reproductive system



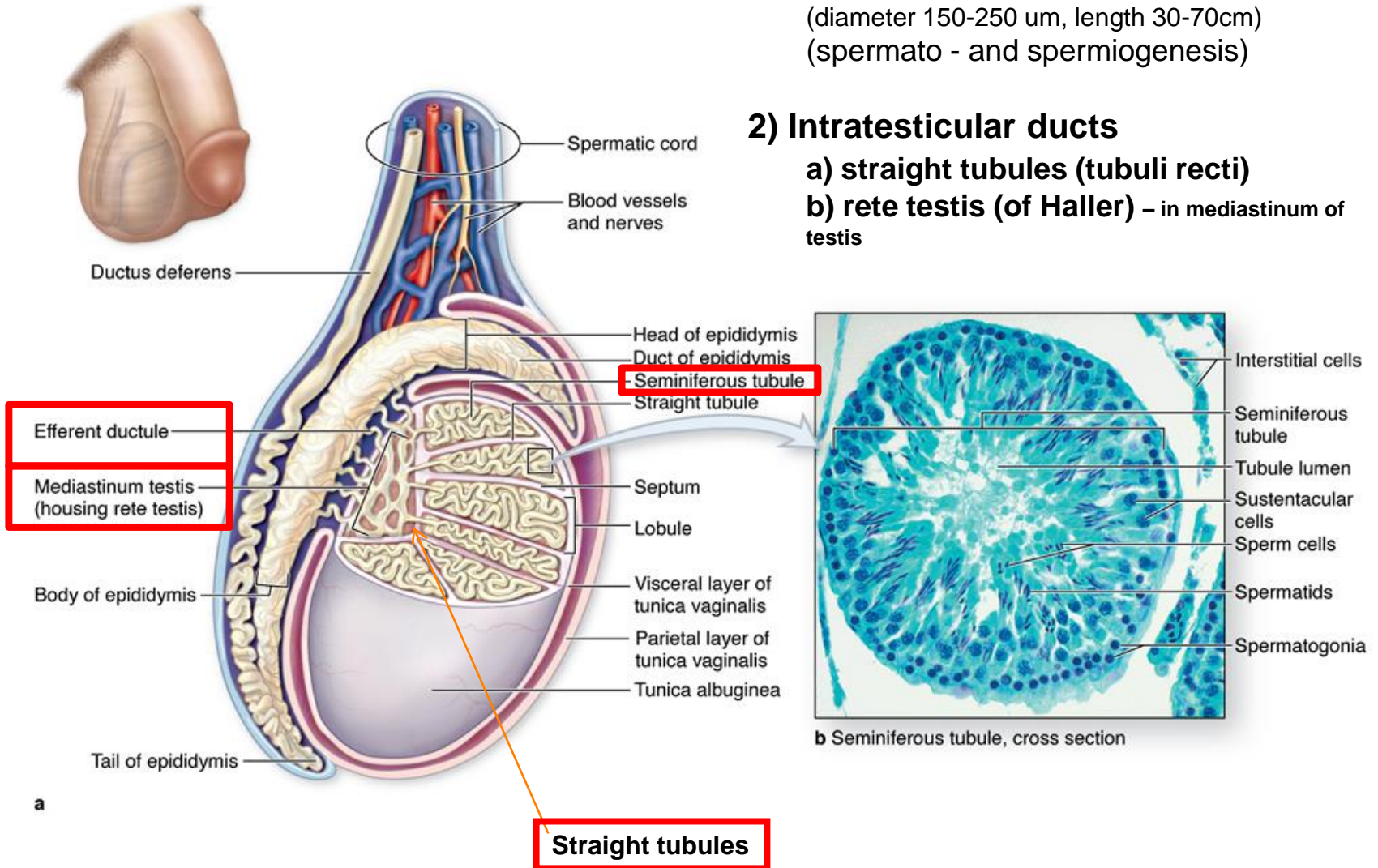
# Testis – tubular system

- 1) **Seminiferous tubule** (number 250-1000)  
(diameter 150-250  $\mu\text{m}$ , length 30-70cm)  
(spermato - and spermiogenesis)

## 2) Intratesticular ducts

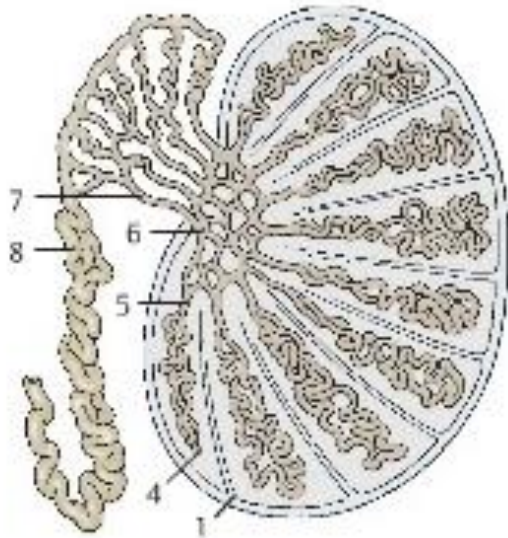
a) straight tubules (tubuli recti)

b) rete testis (of Haller) – in mediastinum of testis





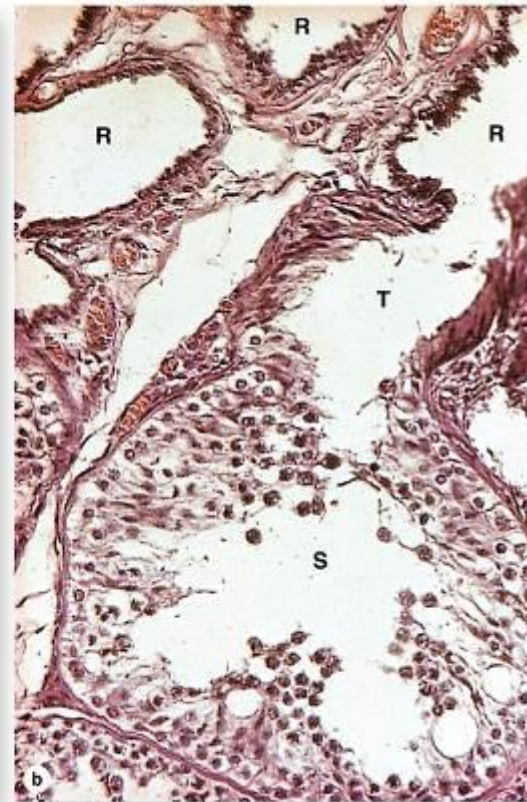
# Testis – tubular system



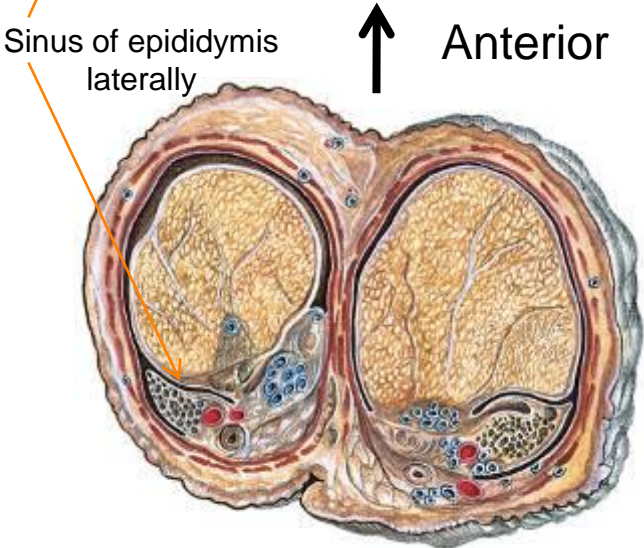
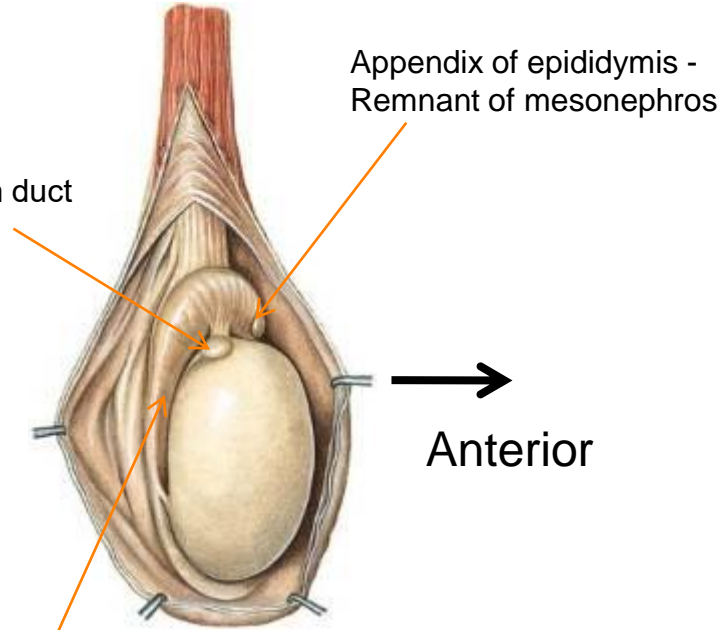
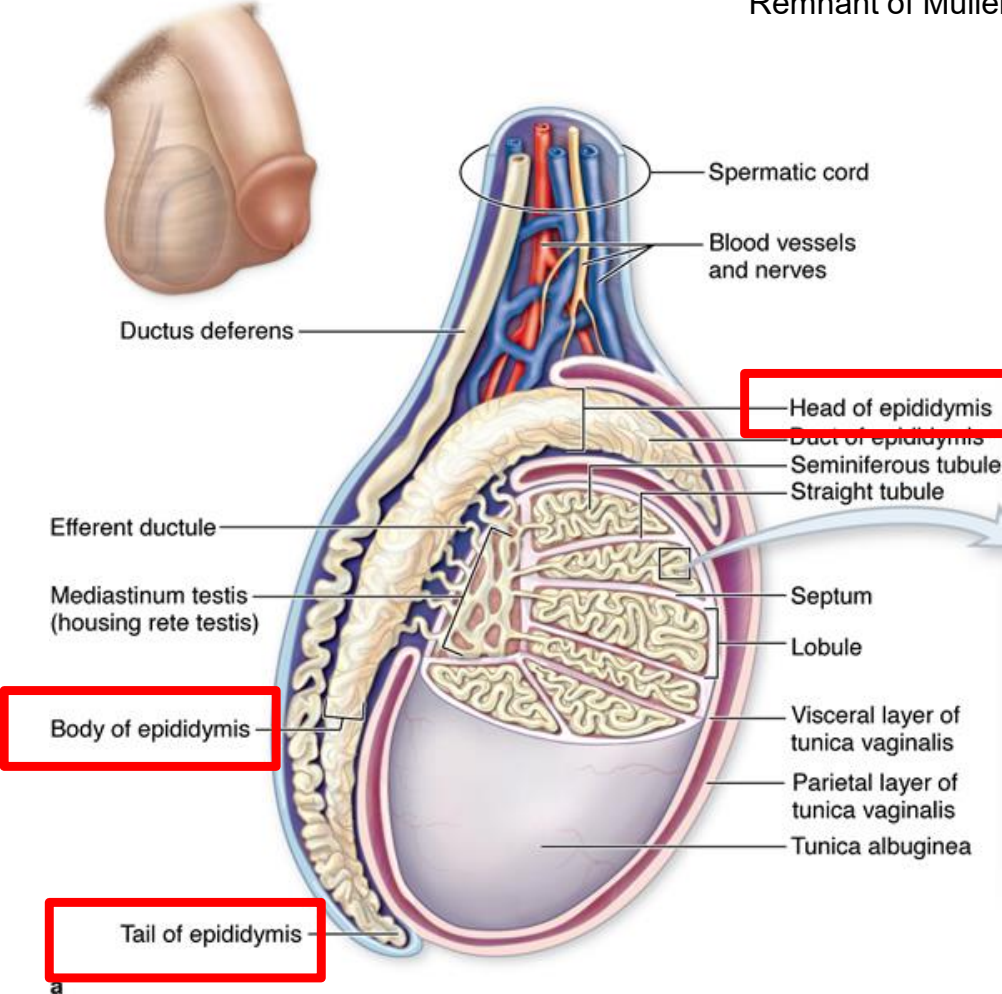
- 1) (S) - Seminiferous tubule  
(spermato - and spermiogenesis)  
- Germinal epithelium

## 2) Intratesticular ducts

- a) (T)- straight tubules (tubuli recti)  
- simple Sertoli cell layer
- b) (R) - rete testis (of Haller) – in (M)  
mediastinum of testis  
- simple cuboidal epithelium



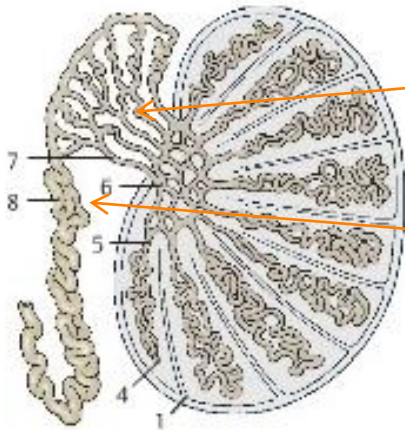
# Epididymis - anatomy



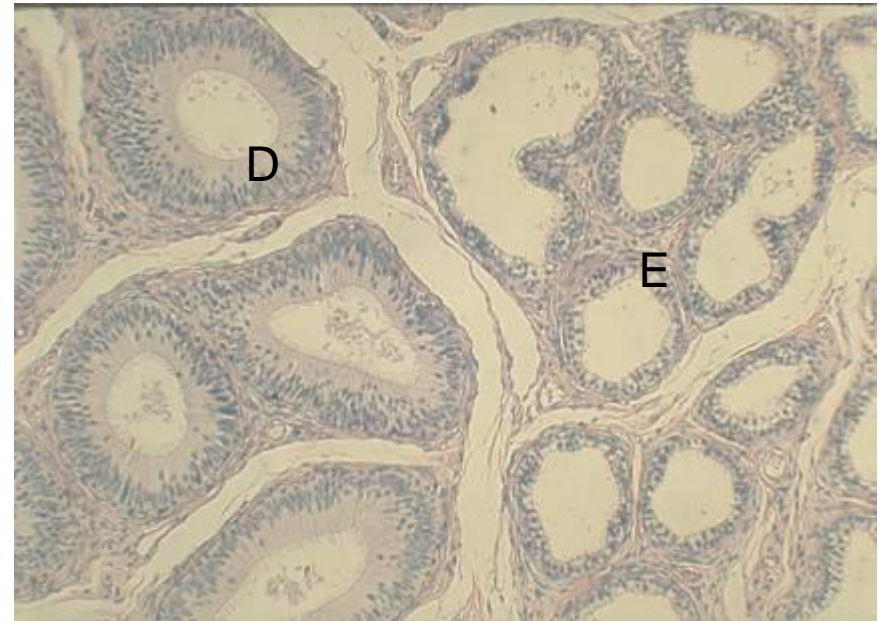
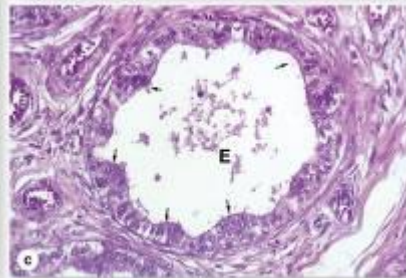
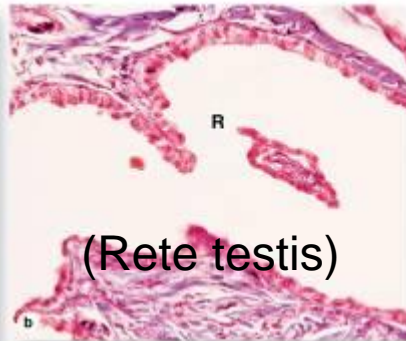
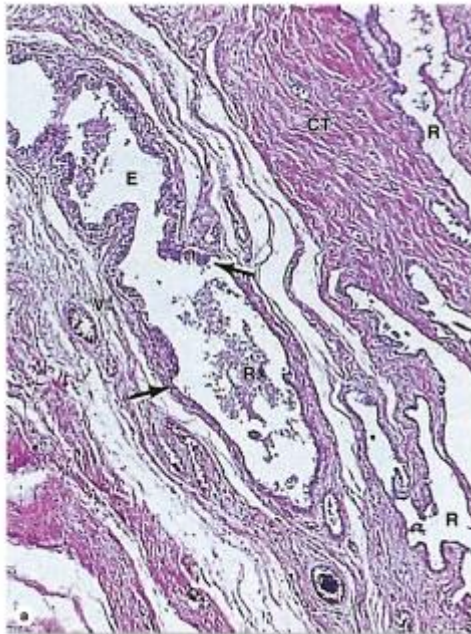
Coats of testicles!!!



# Epididymis - histology



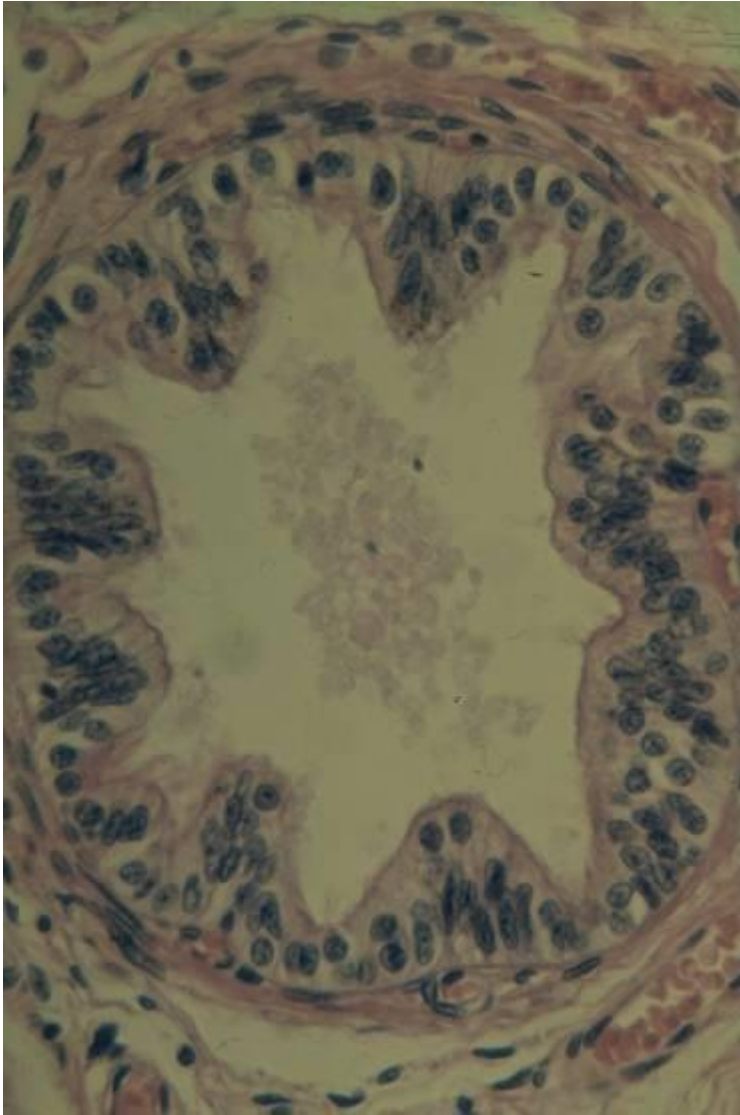
- 1) **(E) Efferent ductules** (number: 12-20)  
 (length 20 cm is coiled to 2cm)  
 - pseudostratified epithelium with cells of variable height = irregular lumen
- 2) **(D) Duct of epididymis (number: 1)**  
 (4-5 m in length )  
 - pseudostratified tall columnar epithelial cells which have stereocilia (irregular microvilli)



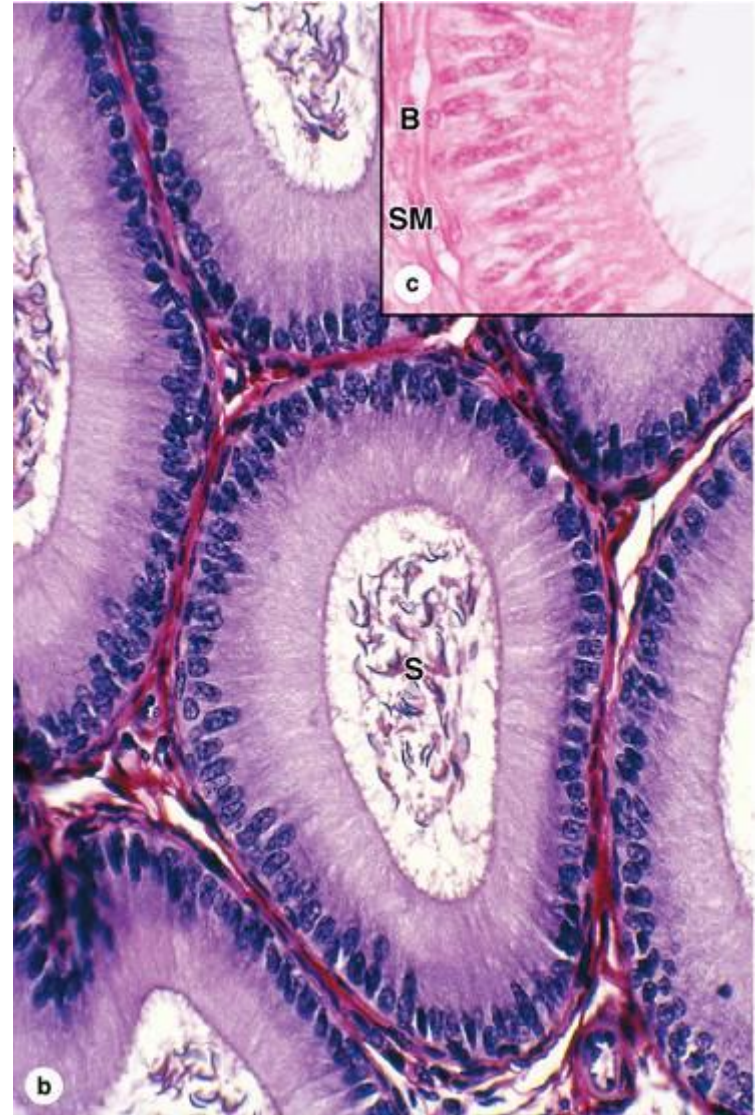


# Epididymis - histology

Efferent ductules

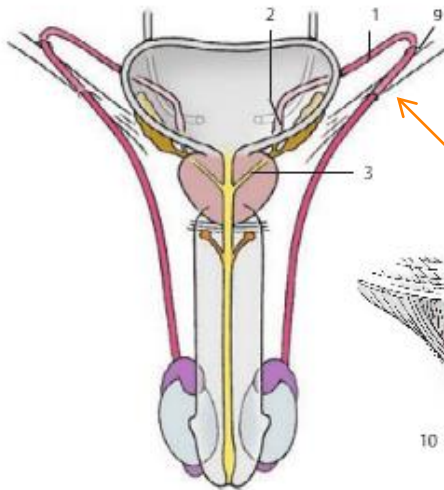


Duct of epididymis



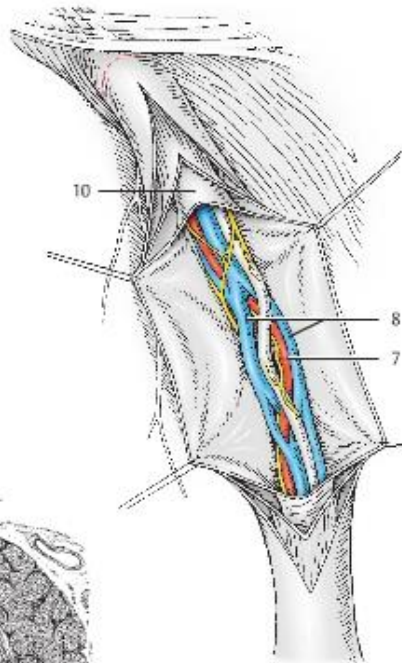
# Ductus deferens (vas deferens)

- 30-45 cm long
- 3-3,5 mm thick

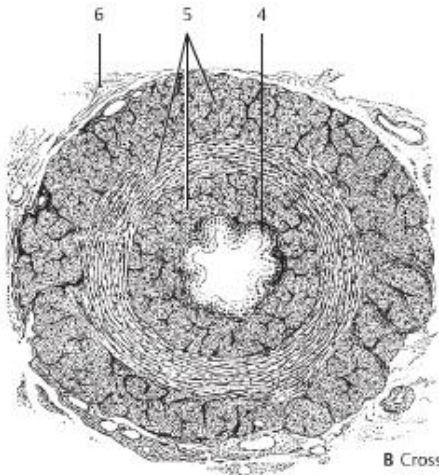


A Seminal ducts, anterior aspect

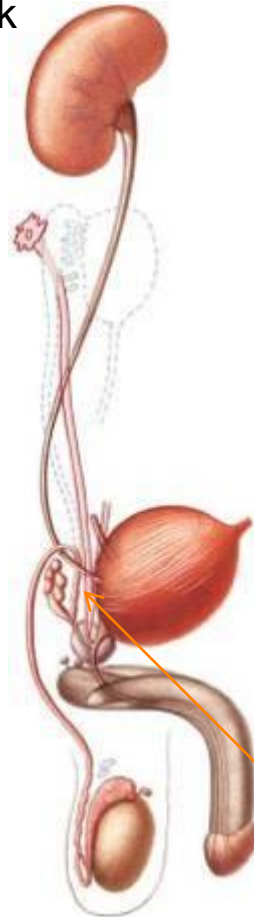
Inguinal canal.



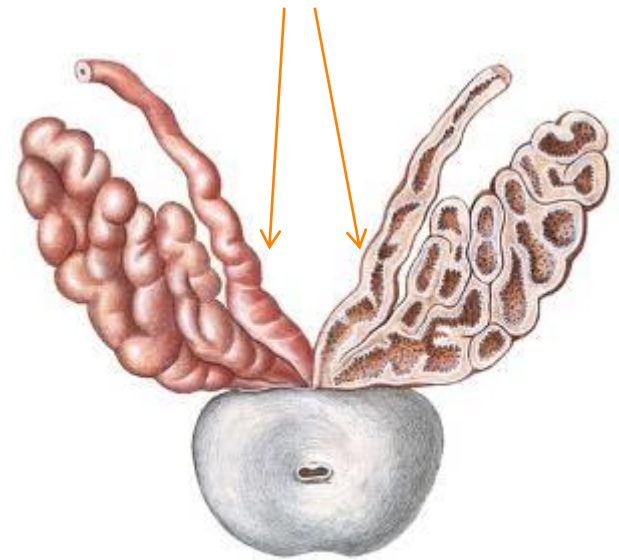
C Spermatic cord



B Cross-section through ductus deferens



Ampulla of ductus def.

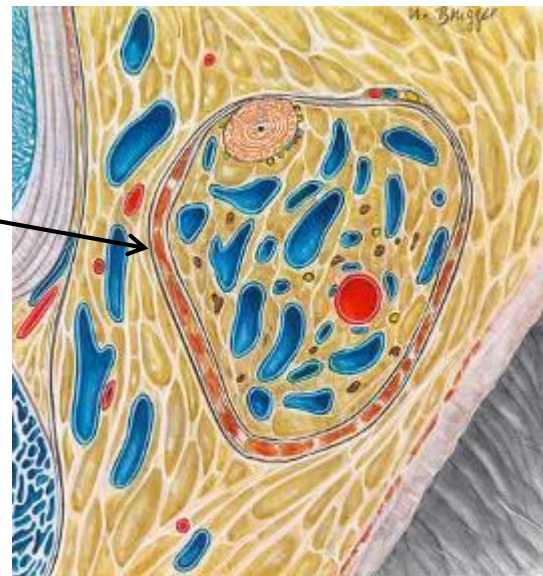
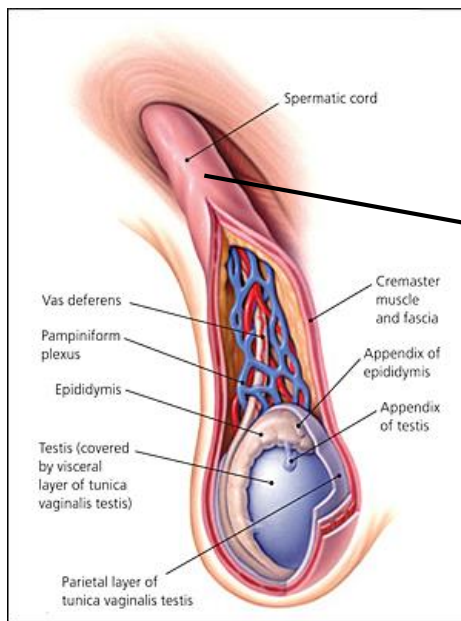


Cross with ureter!!!

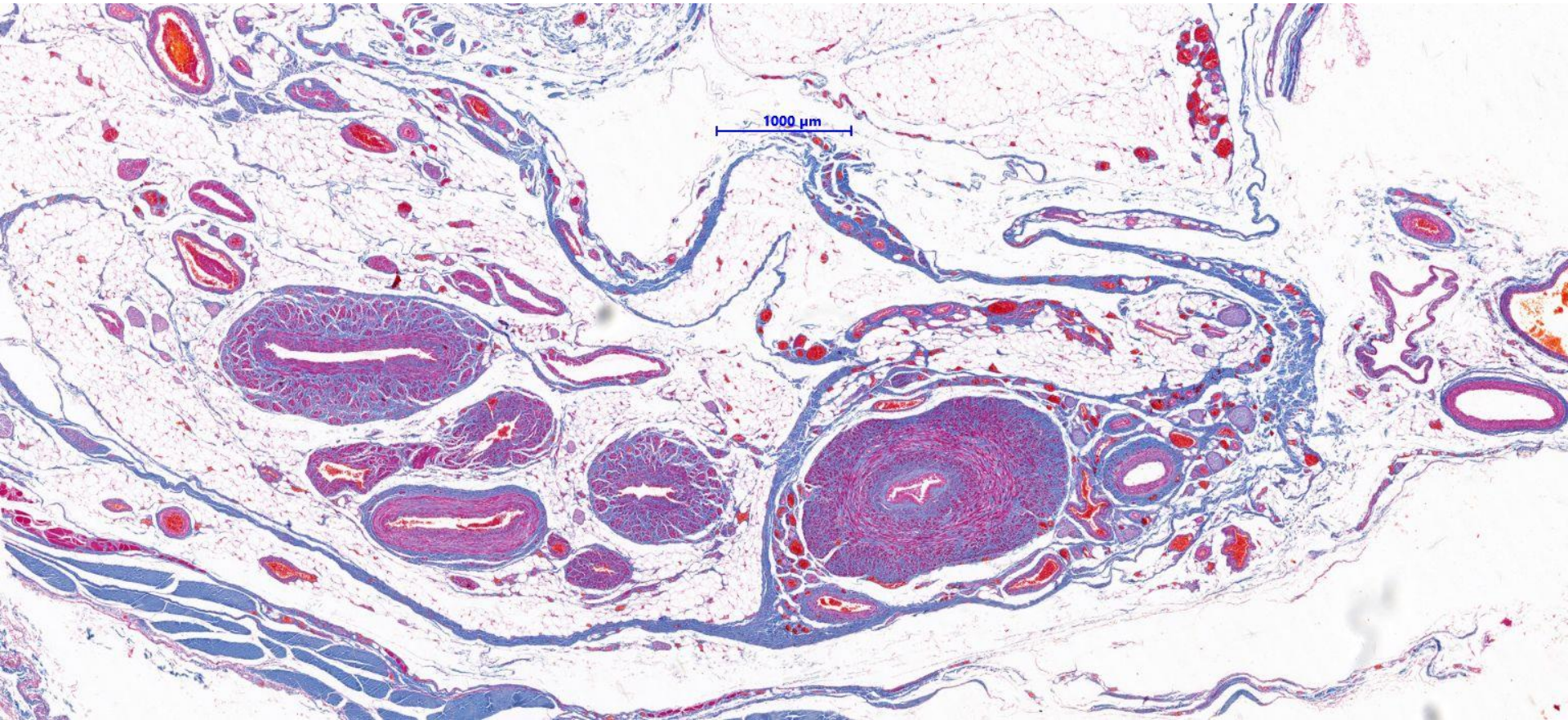


# Spermatic cord

- Ductus deferens
- Testicular artery
- Pampiniform venous plexus (testicular vein)
- Artery of ductus deferens
- Autonomic nerves
- Genital branch of the genitofemoral nerve

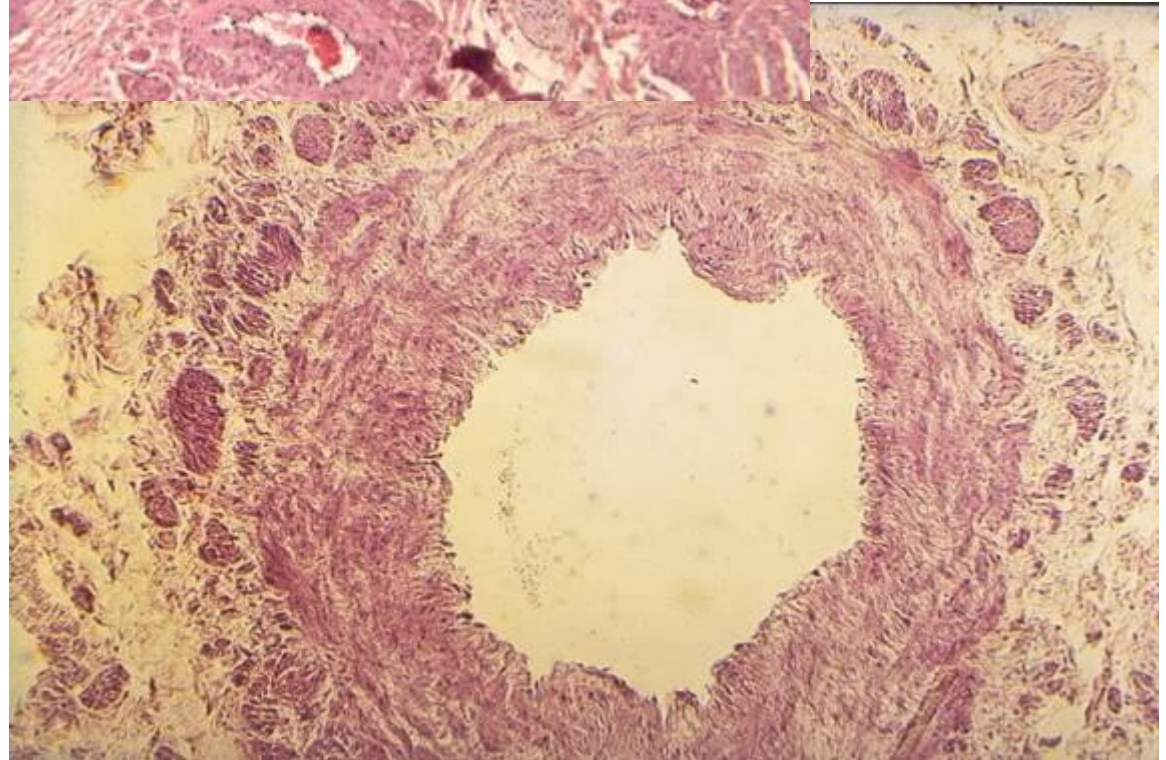
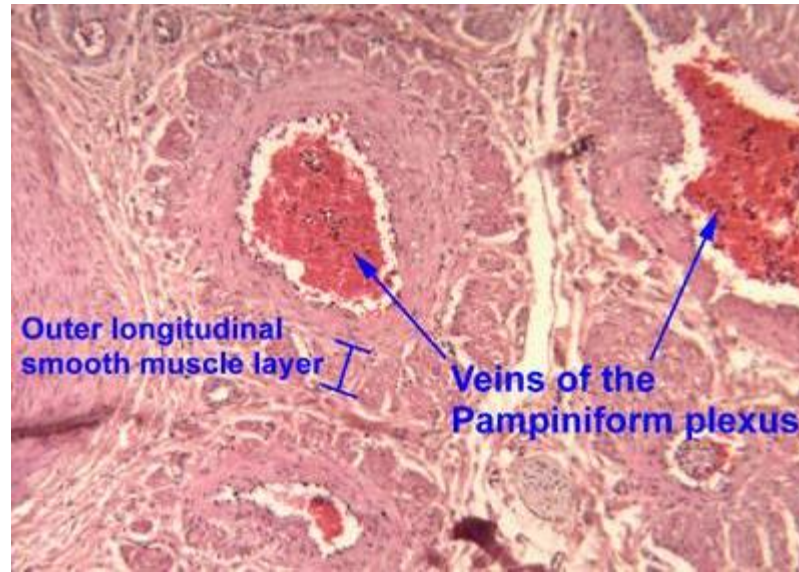
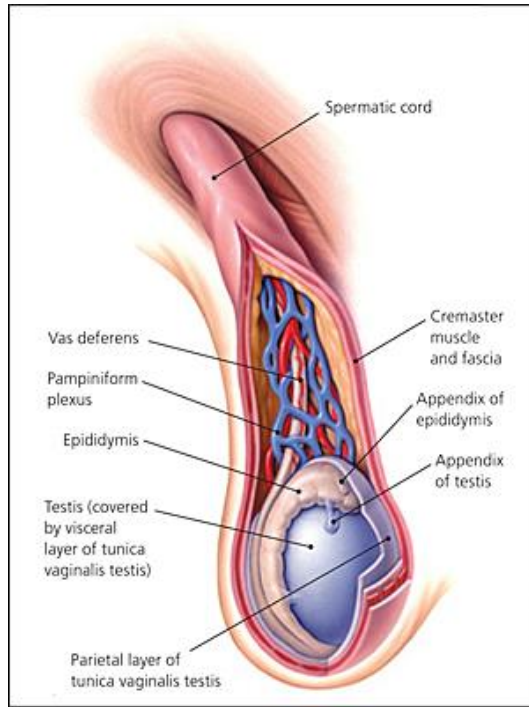


# Spermatic cord

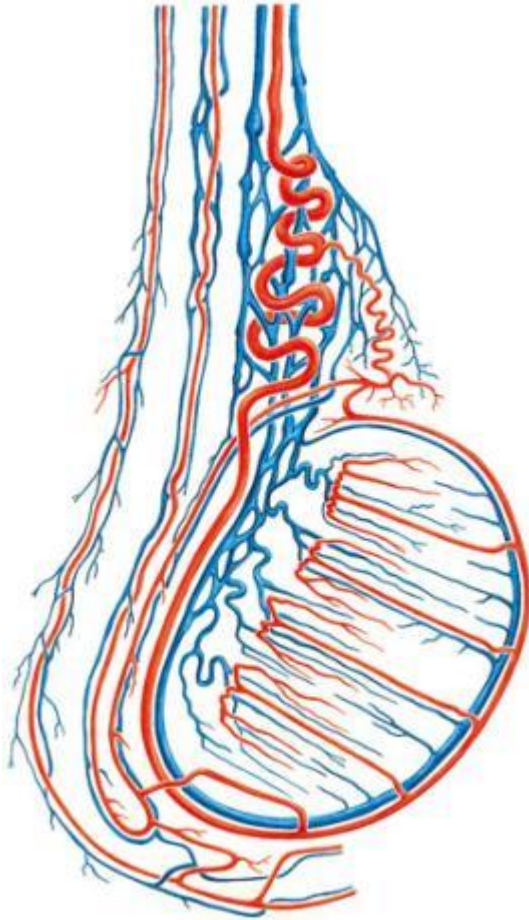




# Pampiniform venous plexus – muscular veins



# Blood supply of testis, epididymis and ductus deferens

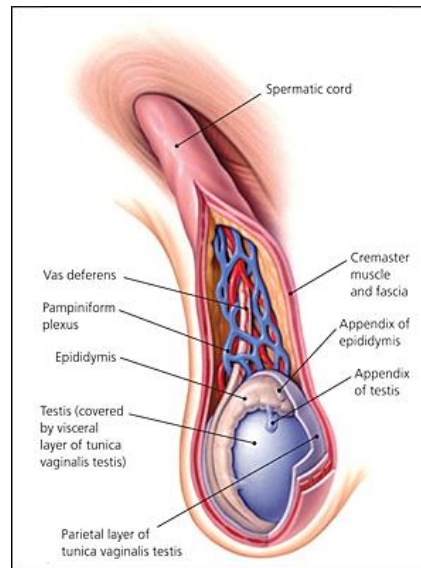


**Testicular artery ← abdominal aorta**  
**Artery to ductus deferens ← internal iliac**

**Pampiniform venous plexus**

→ **left: left renal vein**

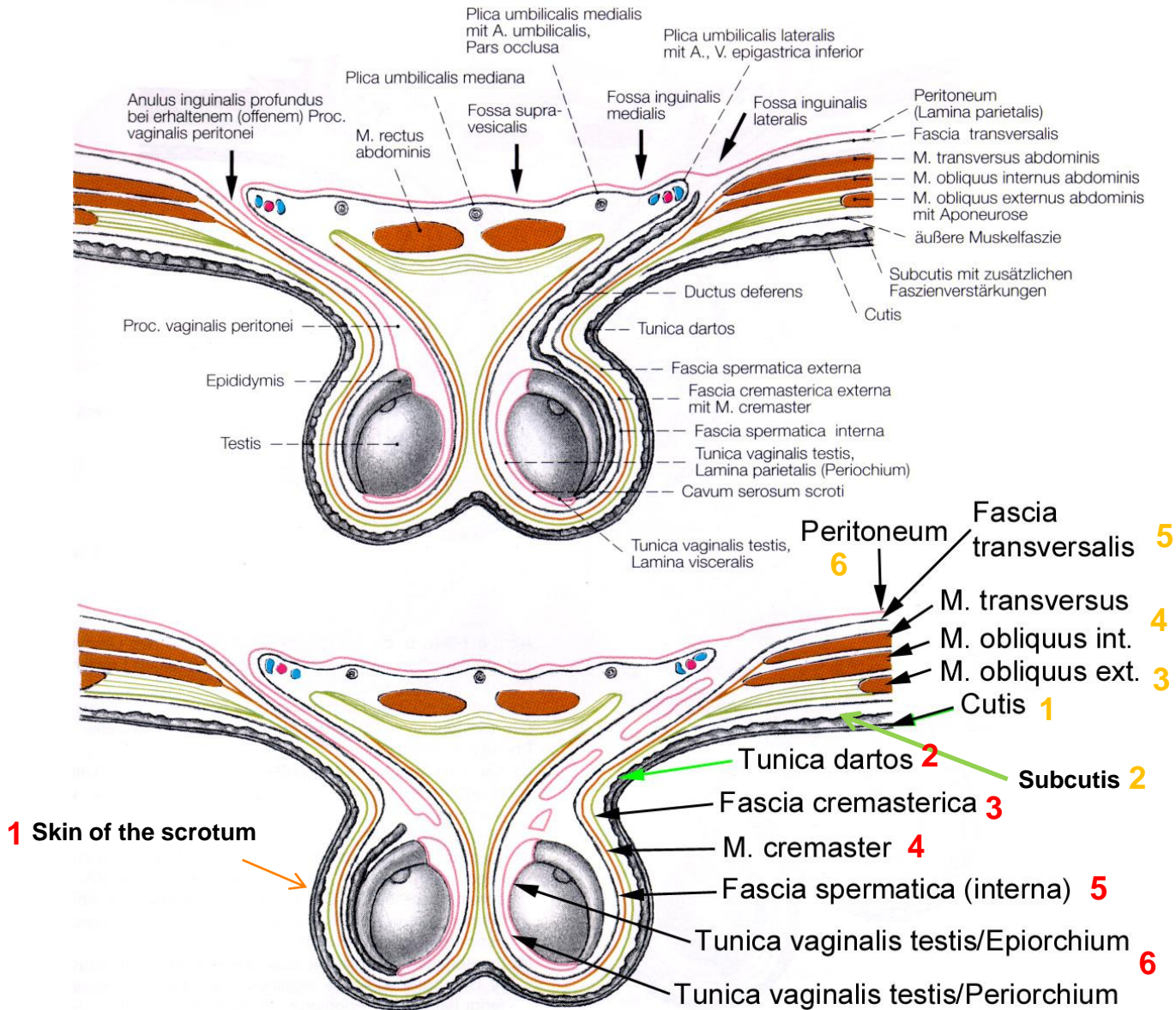
→ **right: inferior vena cava**

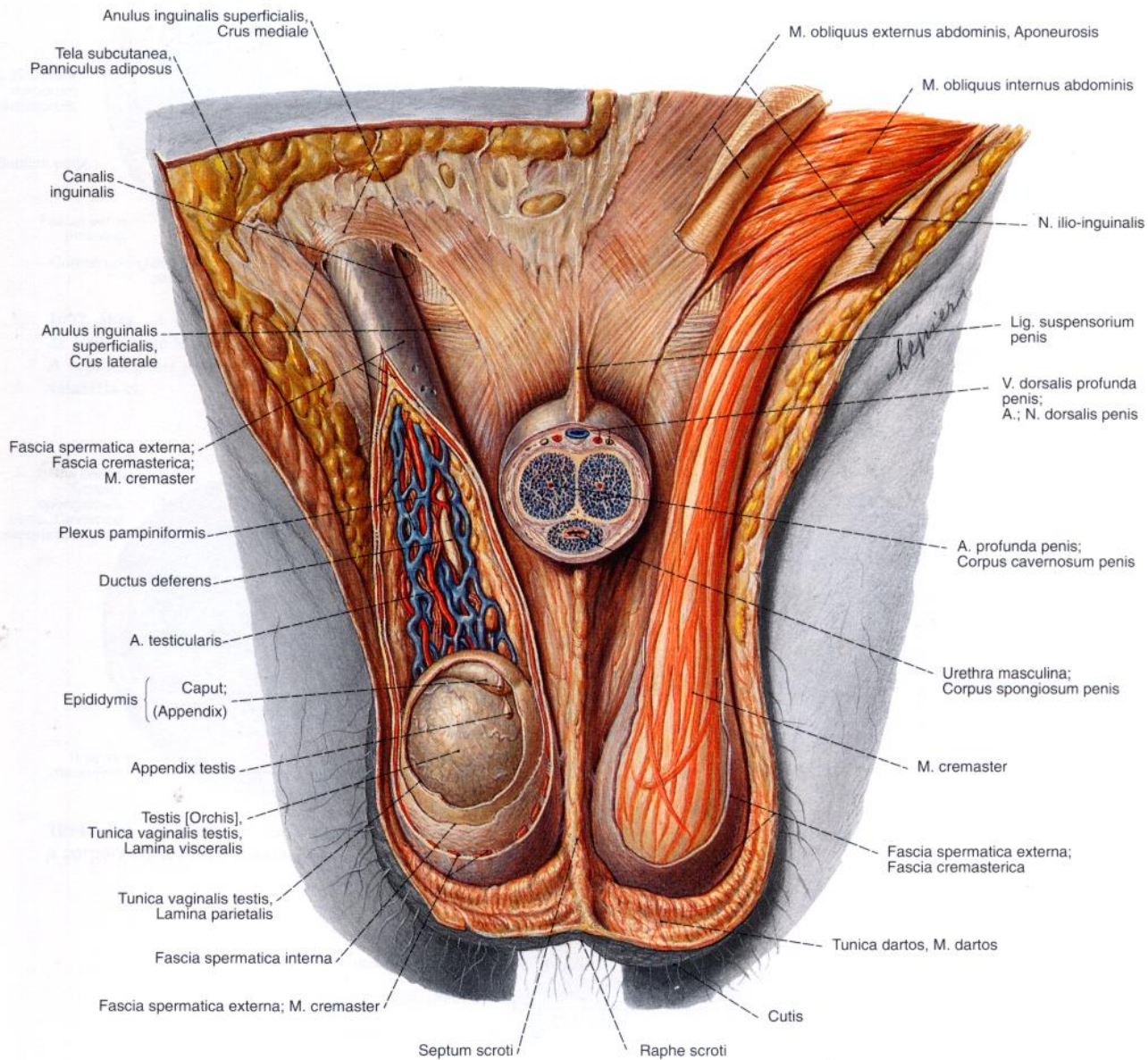


**37 °C → 34 °C**



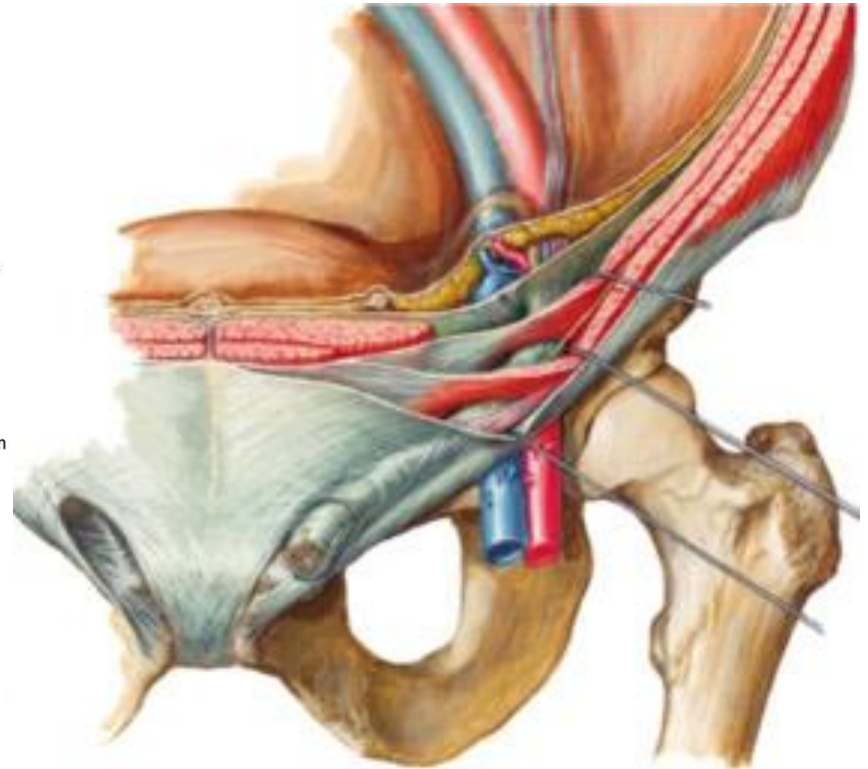
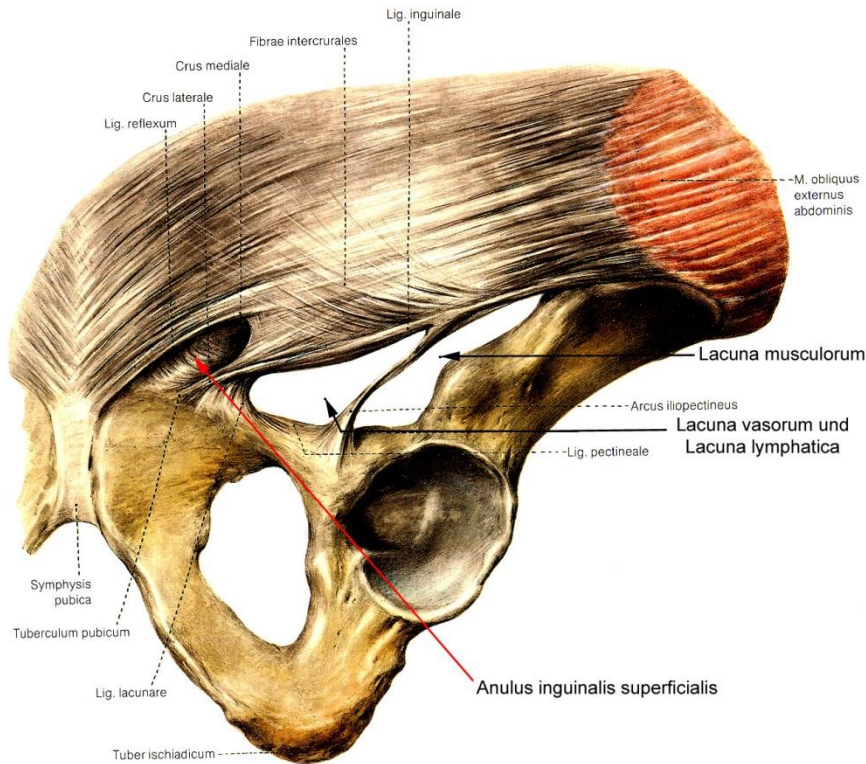
# Abdominal wall and coats of testis (6 layer)



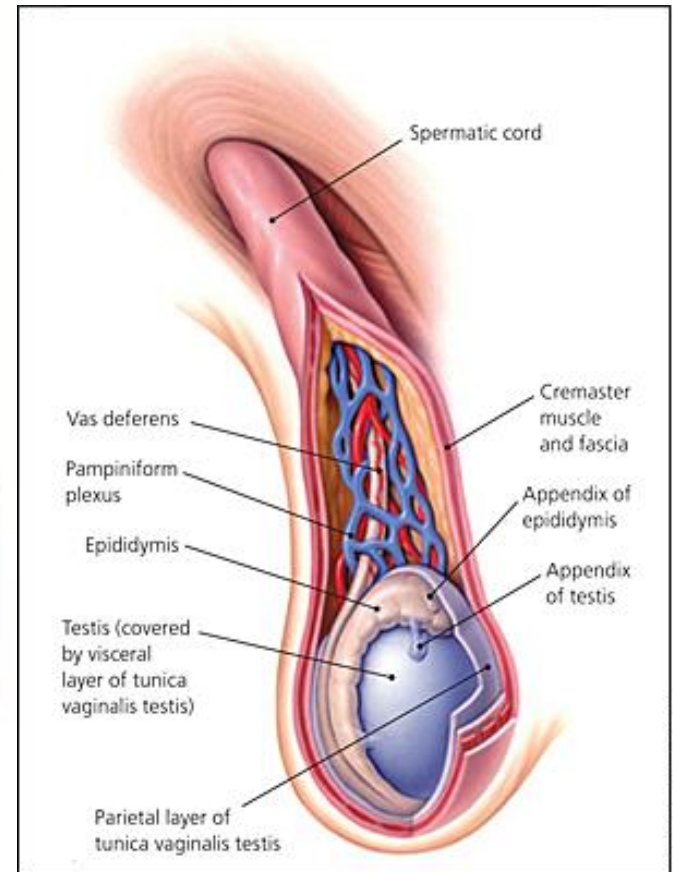
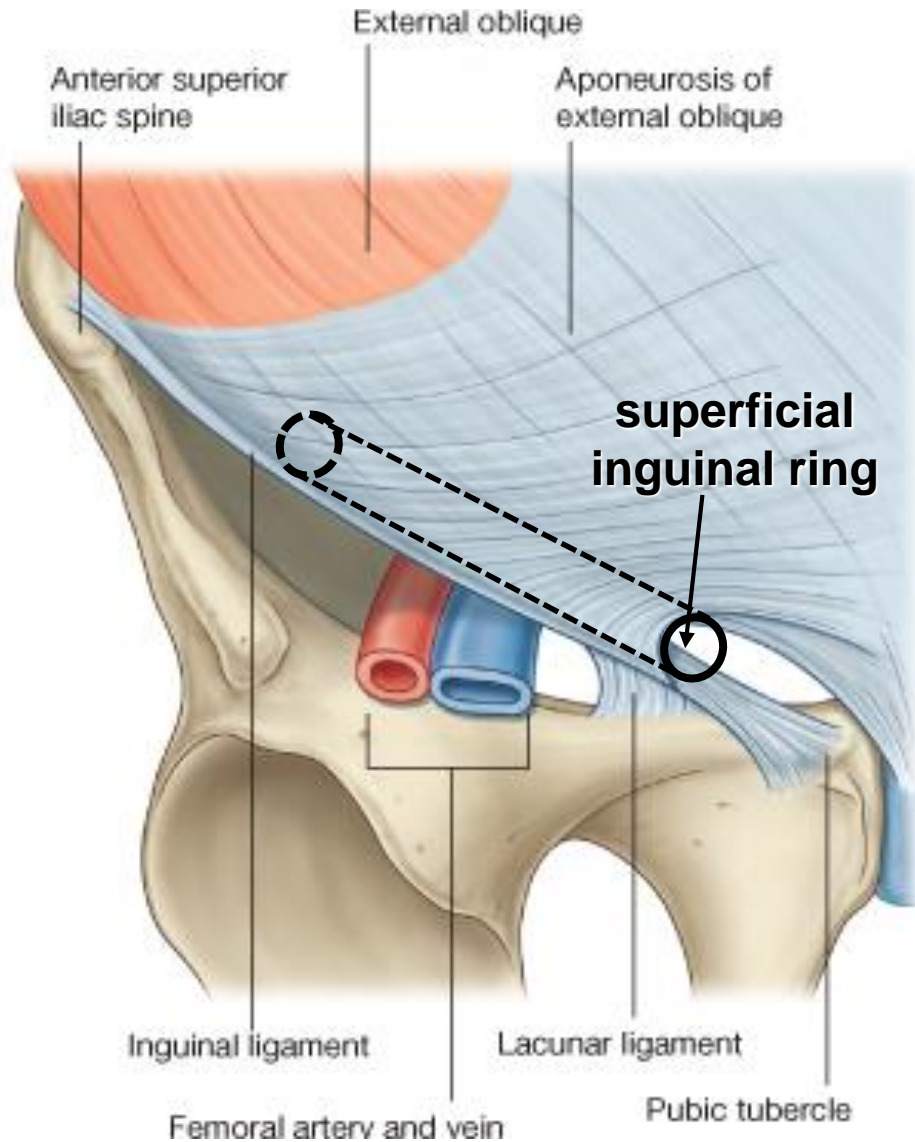




# Inguinal canal $\neq$ subinguinal hiatus

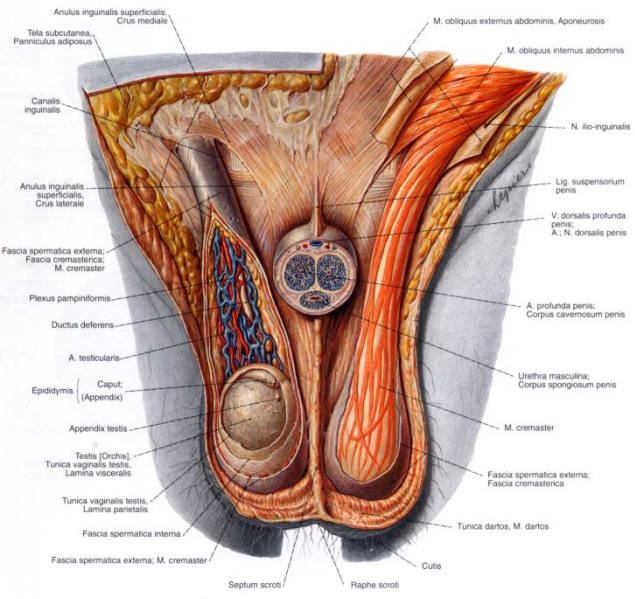
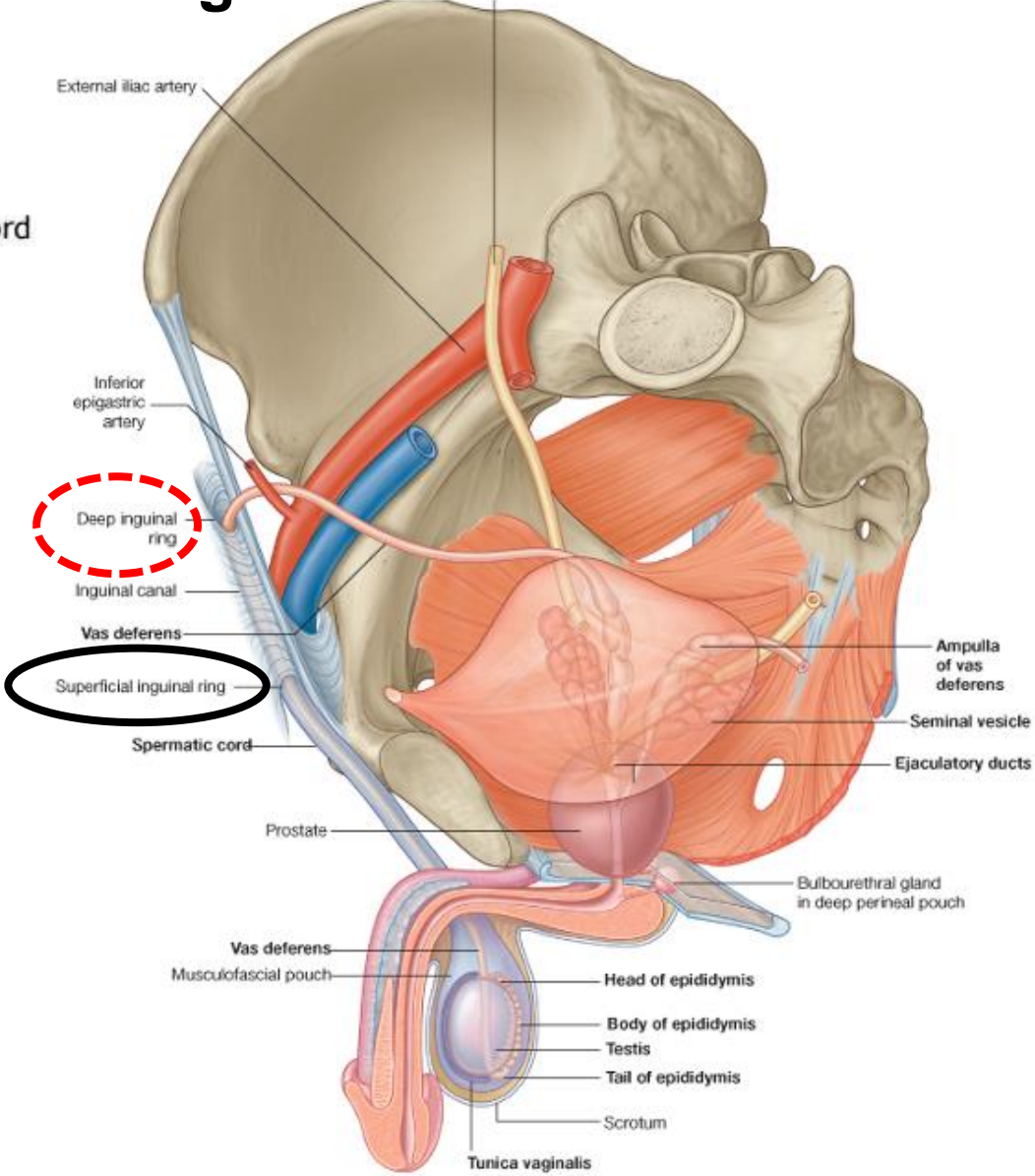
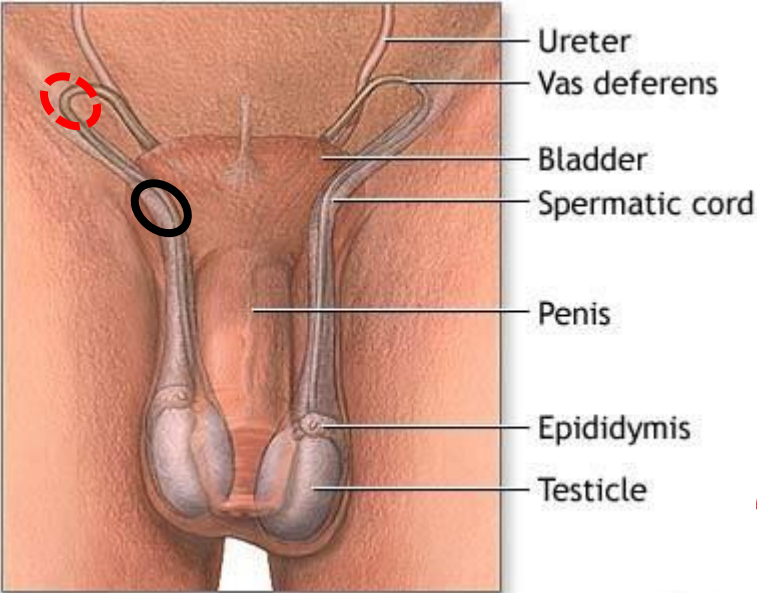


# Inguinal canal – superficial anular ring (anulus inguinalis superficialis)

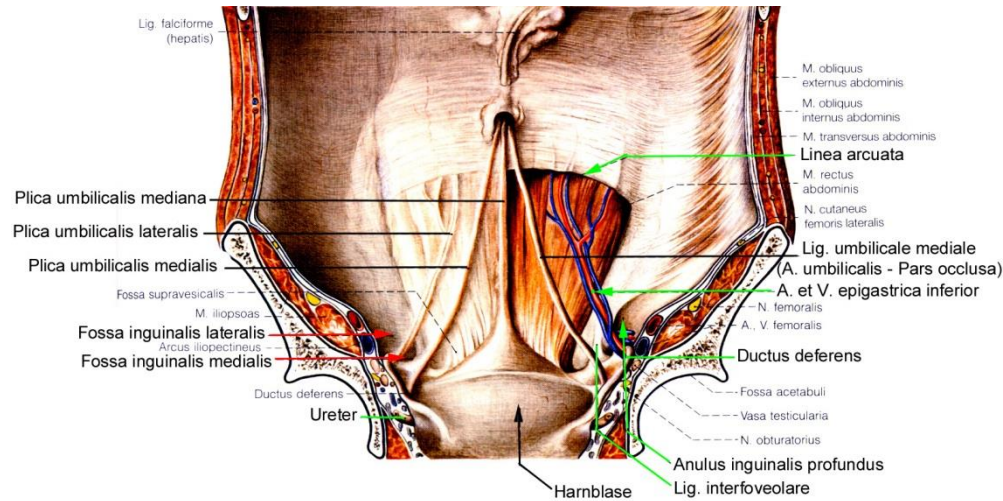
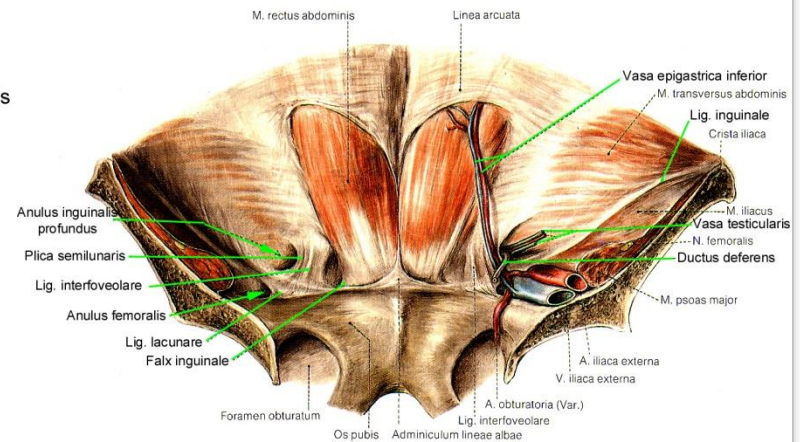
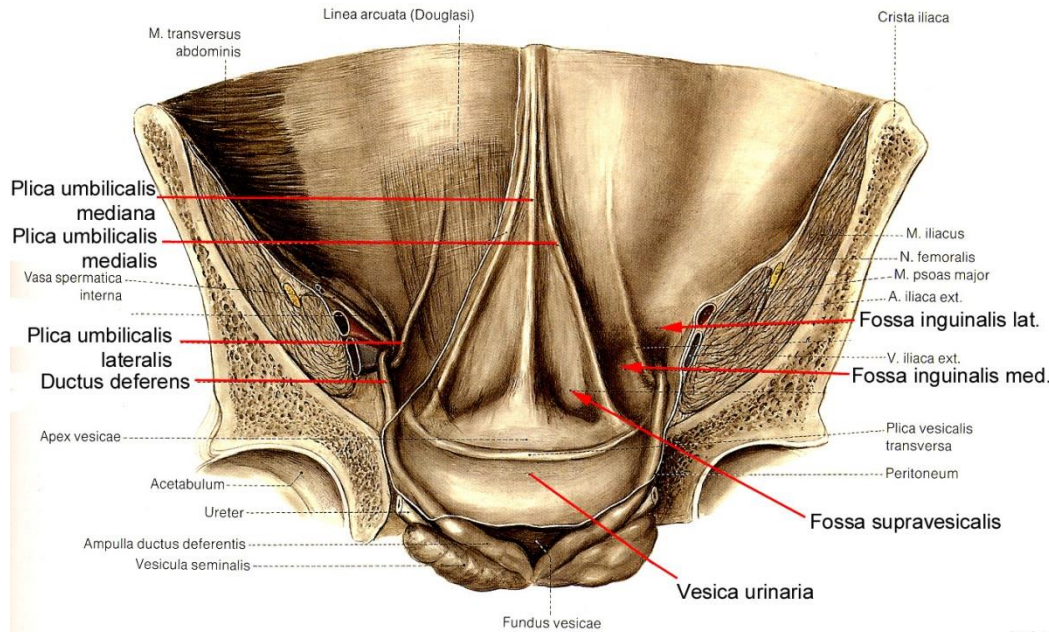




# Ends of the inguinal canal

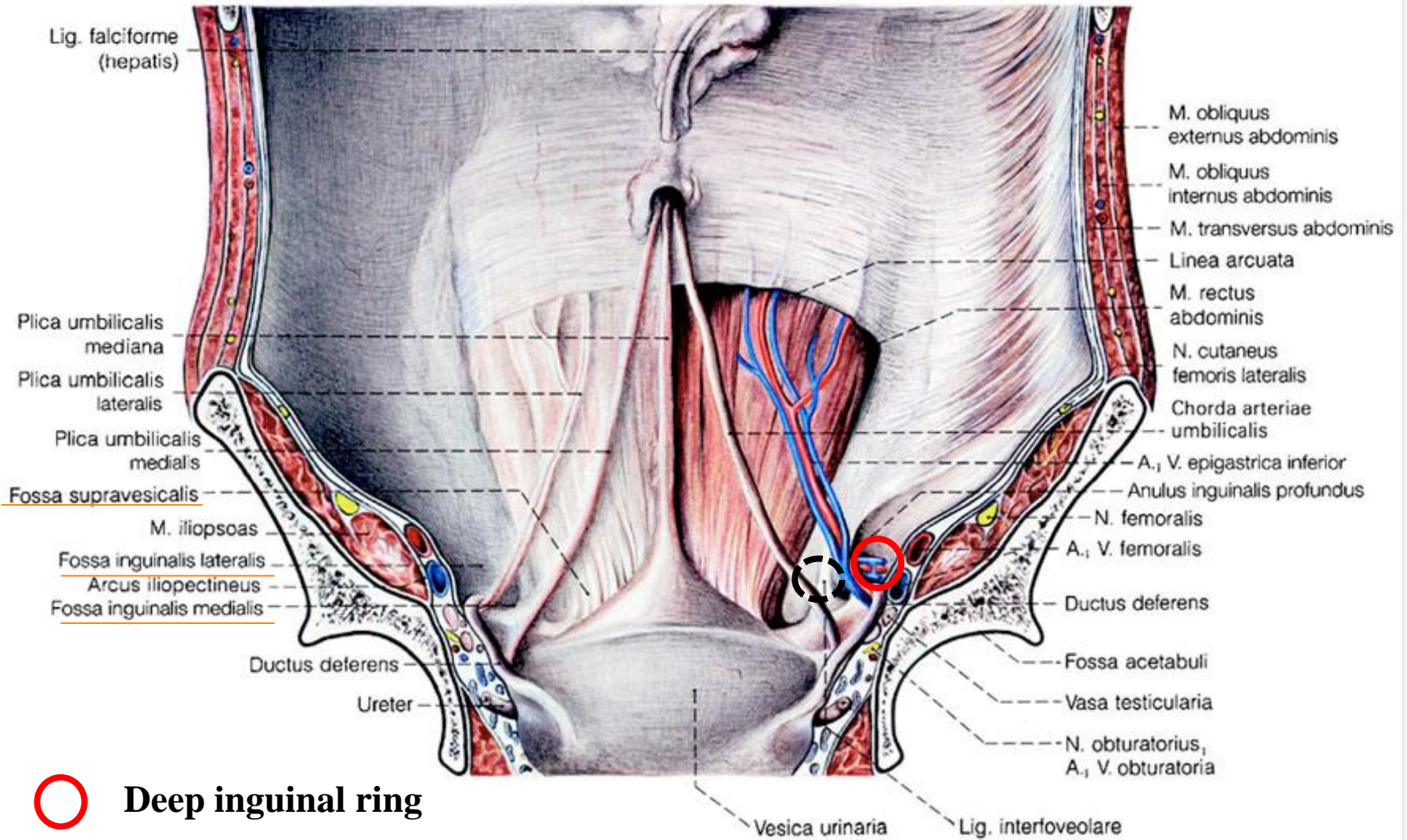


# Inner view of the abdominal wall - deep inguinal ring (anulus inguinalis profundus)



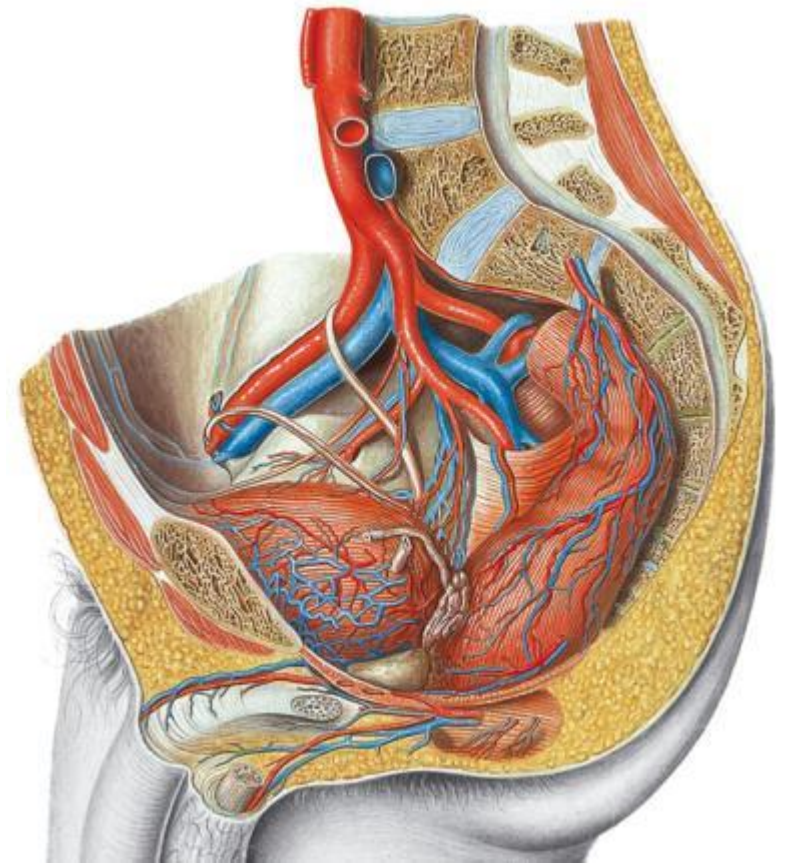
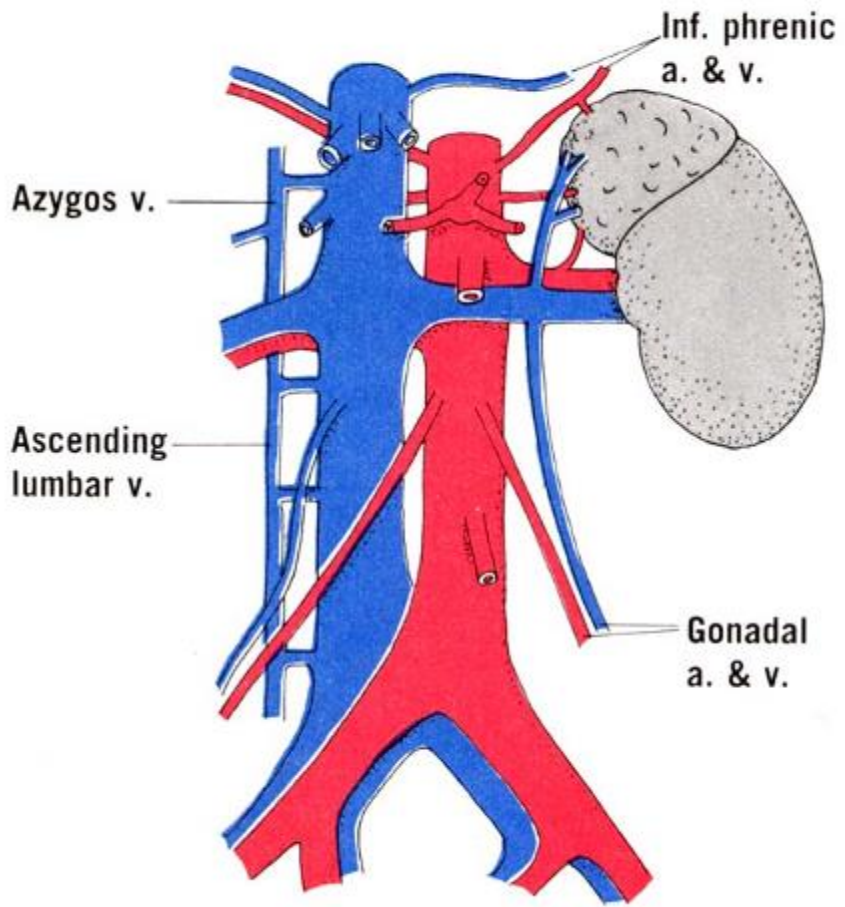


# Inner view of the abdominal wall - inguinal rings



 **Deep inguinal ring**

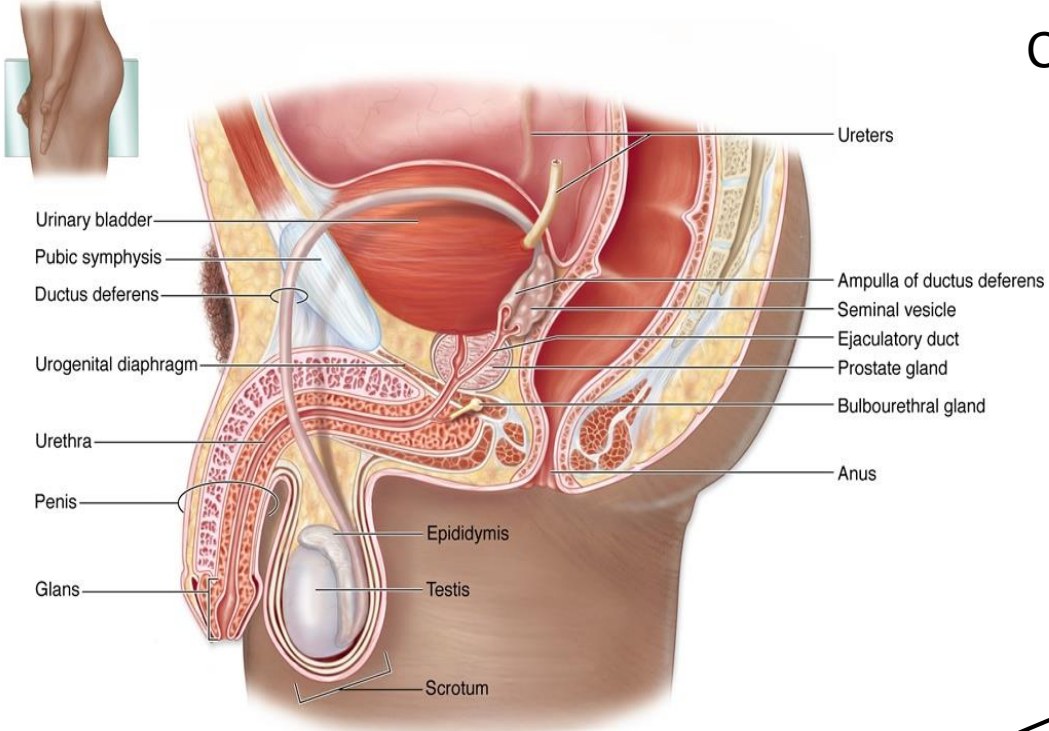
 **Superficial inguinal ring**



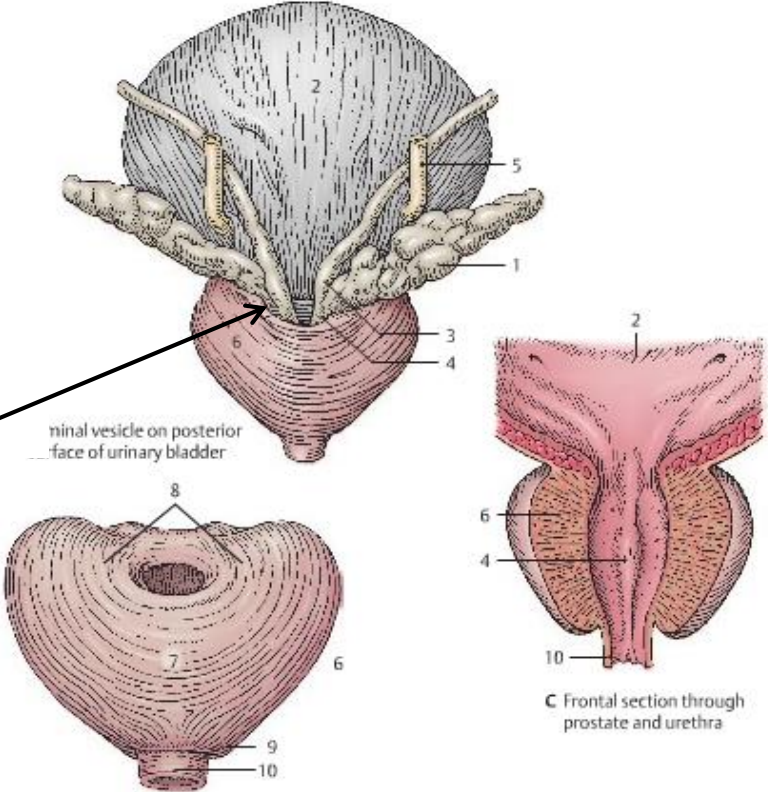


# Seminal vesicle - anatomy

Coiled duct from 15 cm to 5 cm



Paired organ



Excretory duct!!!

+

= ejaculatory duct

Ampulla of ductus deferens

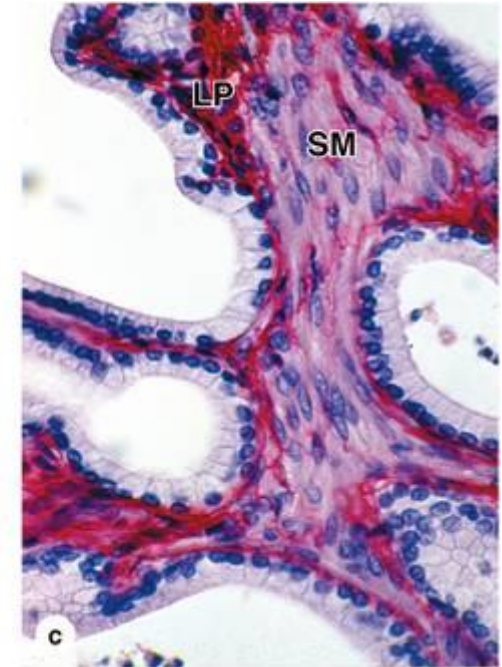
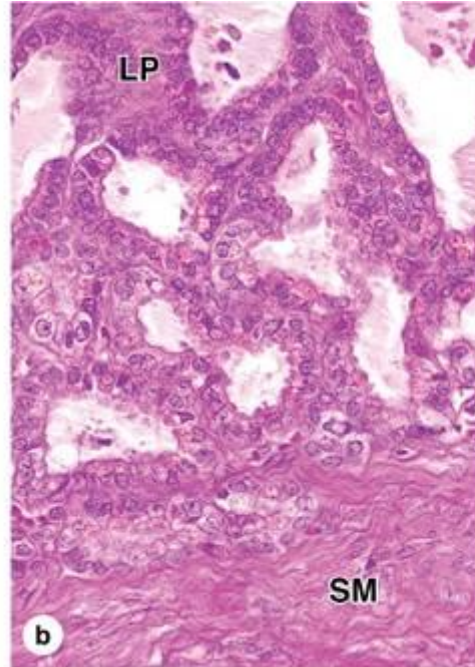
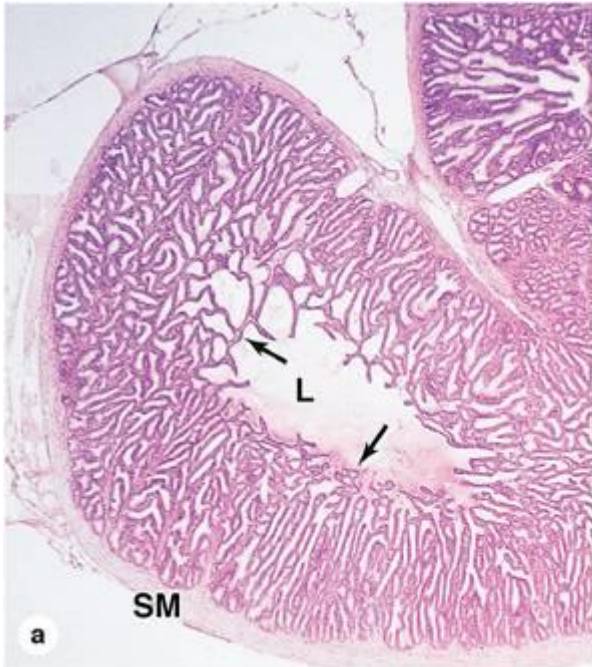
C Frontal section through prostate and urethra





# Seminal vesicle - histology

Exocrine gland

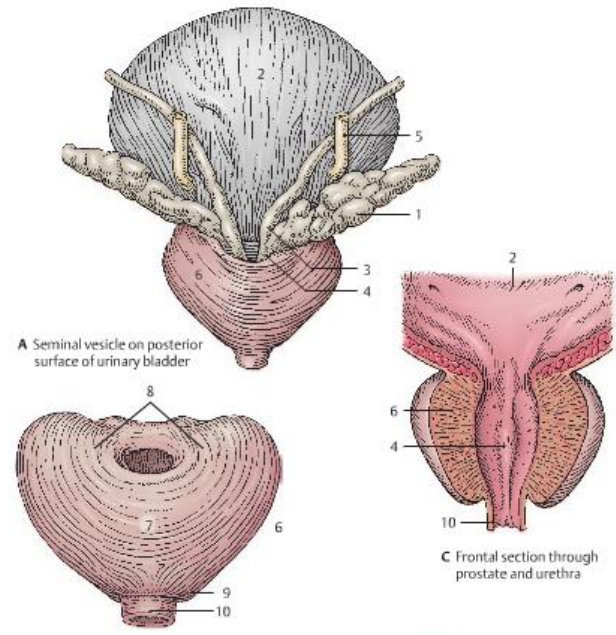
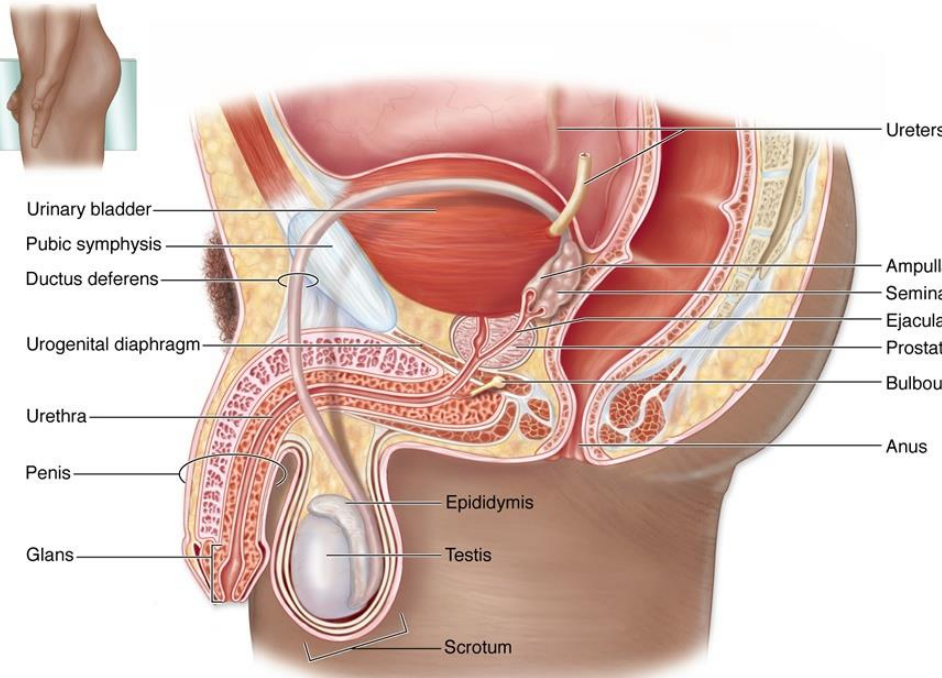


Simple or pseudostratified columnar epithelium, smooth muscle

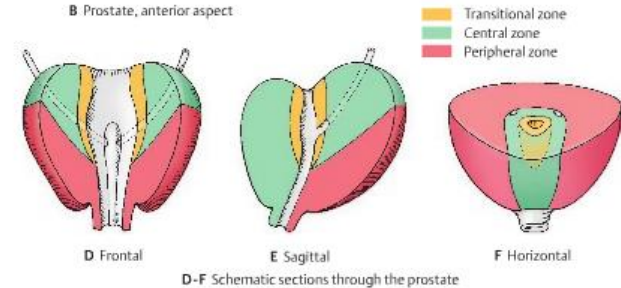
# Prostate- anatomy



Chestnut-sized  
 -20 g  
 -2cm x 3cm x 4 cm



- Anterior surface (pubis)
- Posterior surface (rectum!!!)
- Inferolateral surface
- Base (fundus of UB)
- Apex





# Prostate- anatomy

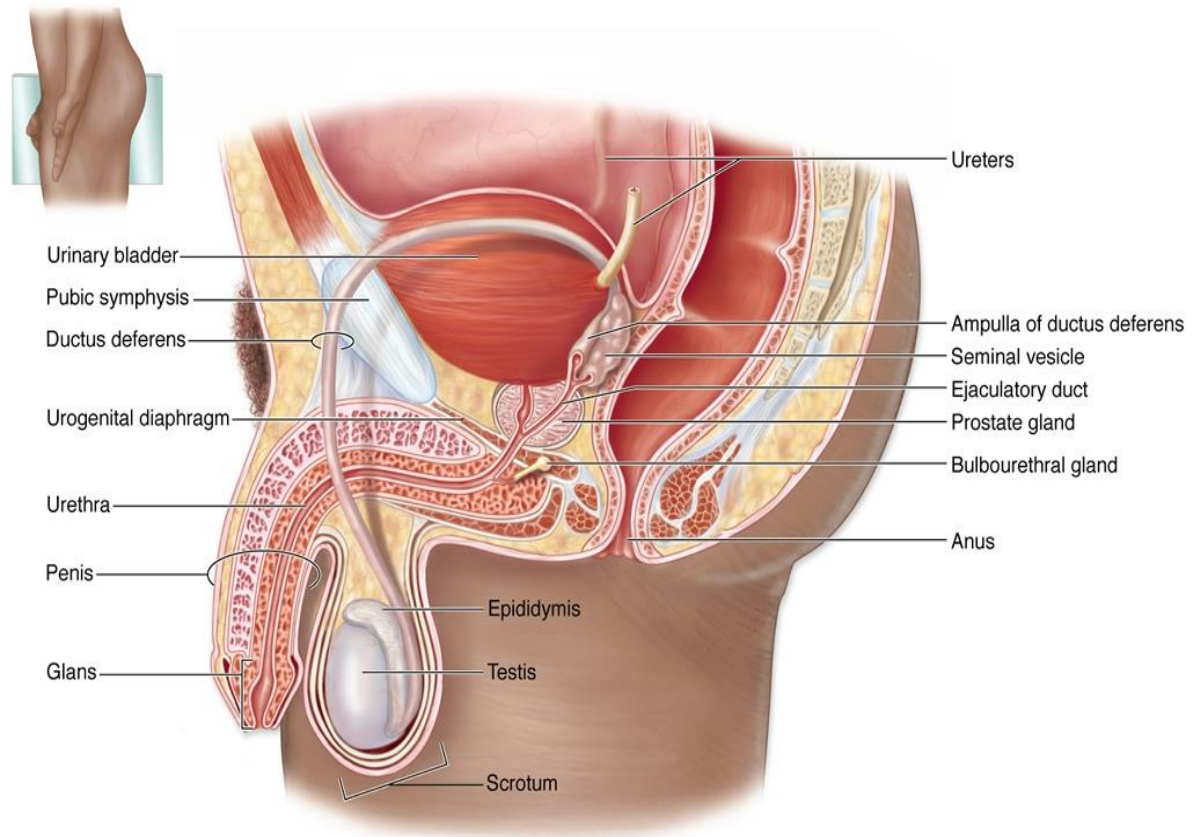
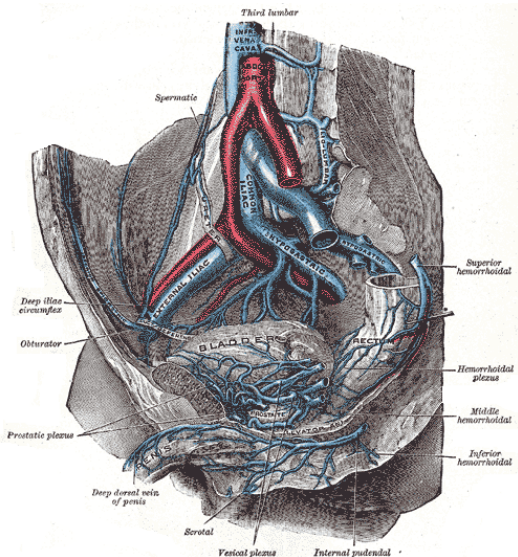
## Blood supply:

- Inferior vesical artery
- Internal pudendal artery
- Middle rectal artery

- Prostatic venous plexus (internal iliac vein; vesical plexus; Internal and external vertebral plexus!!!)

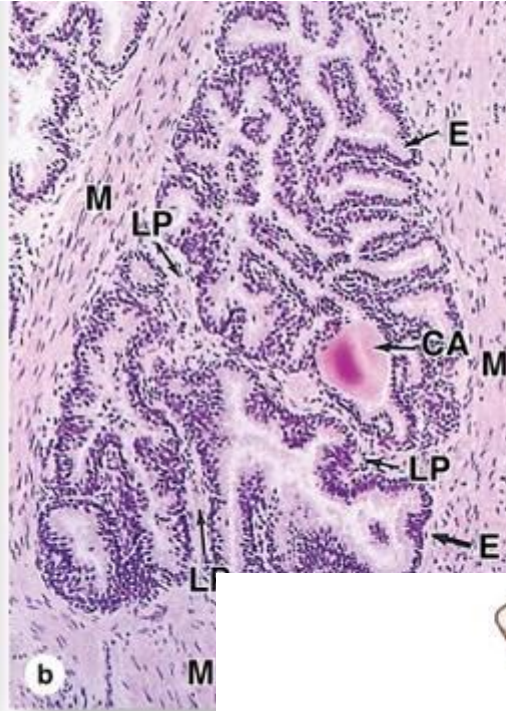
## Peritoneal position:

infraperitoneal organ



# Prostate- histology

Glandular columnar epithelium + smooth muscle + corpora amylacea

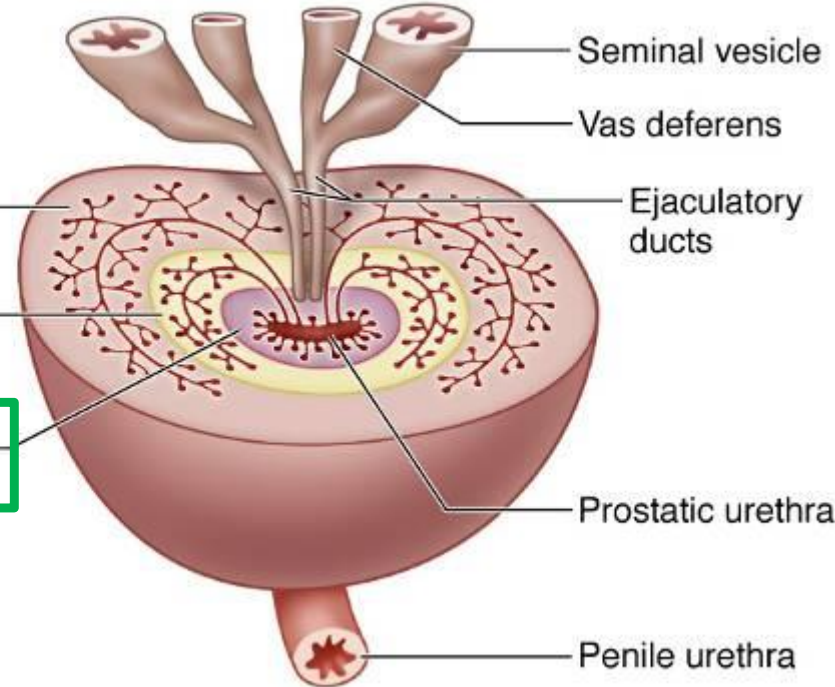


- Mucosal glands
- Submucosal glands
- Main glands

Peripheral zone

Central zone

Transitional zone





# Functions

## Testis:

Production of spermatozoa  
74 days

## Epididymis:

-Maturation process  
-Storage site (8-17 days)

## Ductus deferens:

-Transports sperm (peristaltic waves)

## Seminal vesicle:

-Alkaline secretion rich in fructose  
-Citrate  
-Inositol  
-Prostaglandins  
-Fibrinogen  
-Enzymes

## Prostate:

-Acidic secretion  
- Enzymes

**Semen = spermatozoa+secretion of genital ducts**

**Thank you for your attention!!!**

