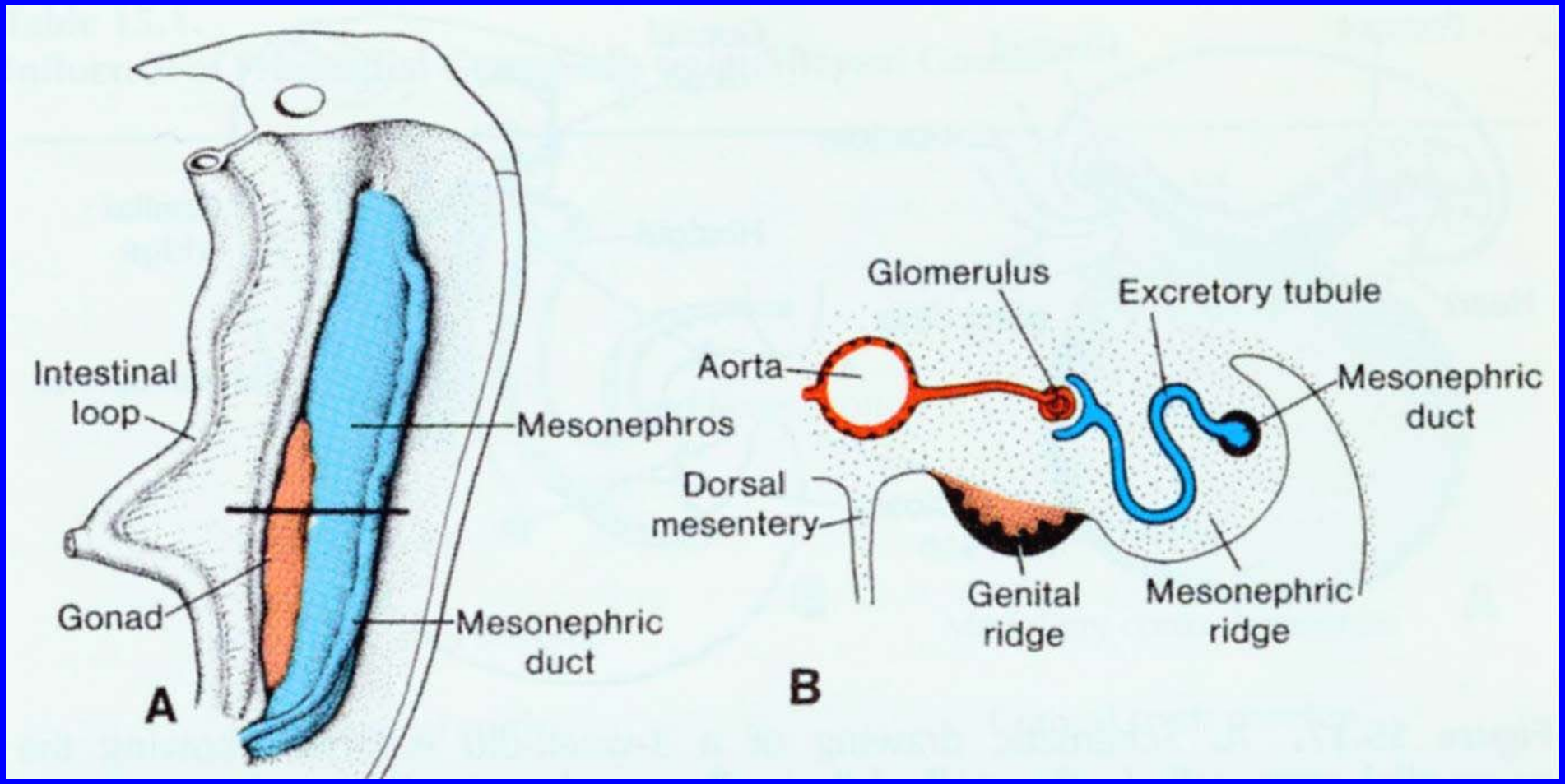
Embryology of the Reproductive System

Presented by Dr. David Nichols

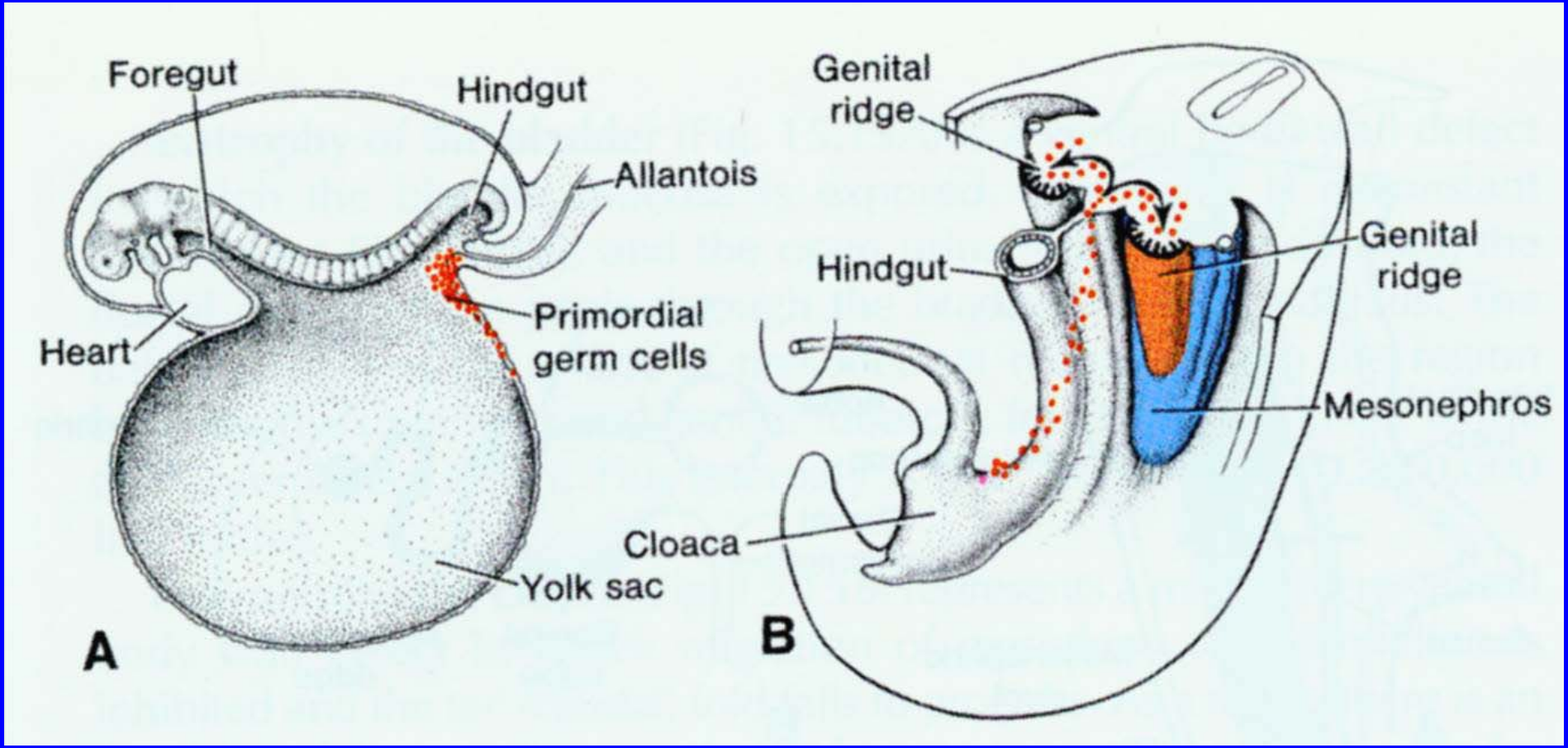
Reading: Larsen's Human Embryology, 4th Edition

Chapter 15, pgs.500-536, including **In the Clinic** sections, but not **In the Research Lab** sections

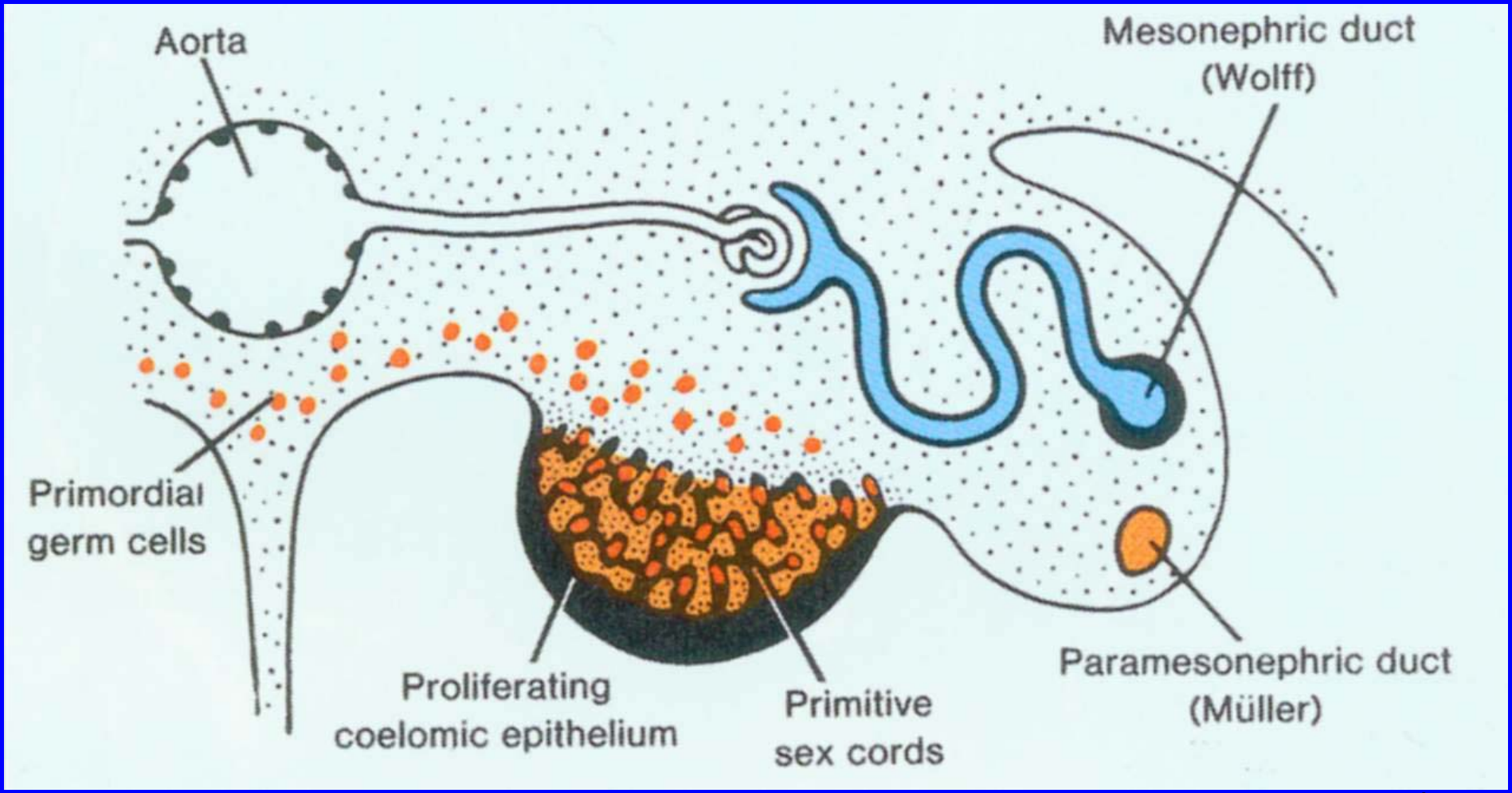
The gonad (testis or ovary) begins as a genital ridge.



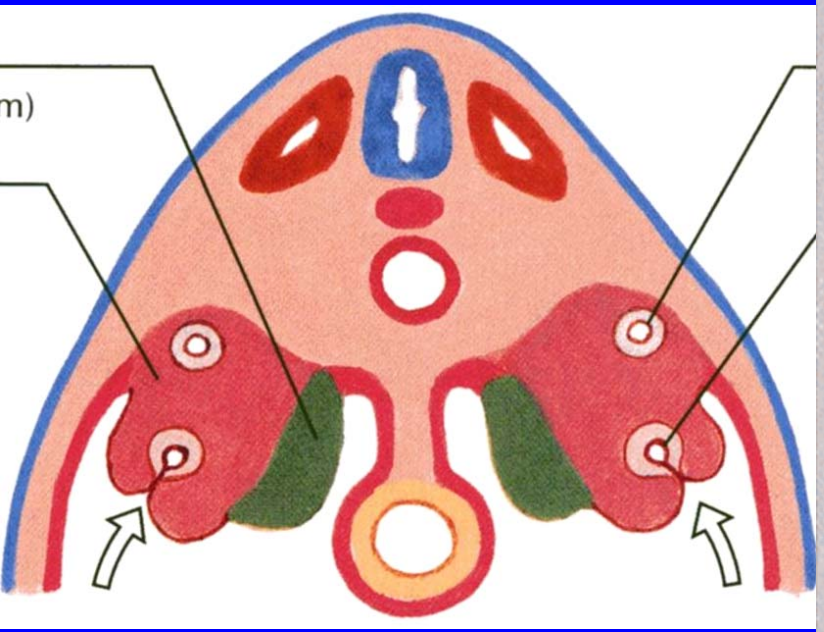
Germ cells migrate into the genital ridge.

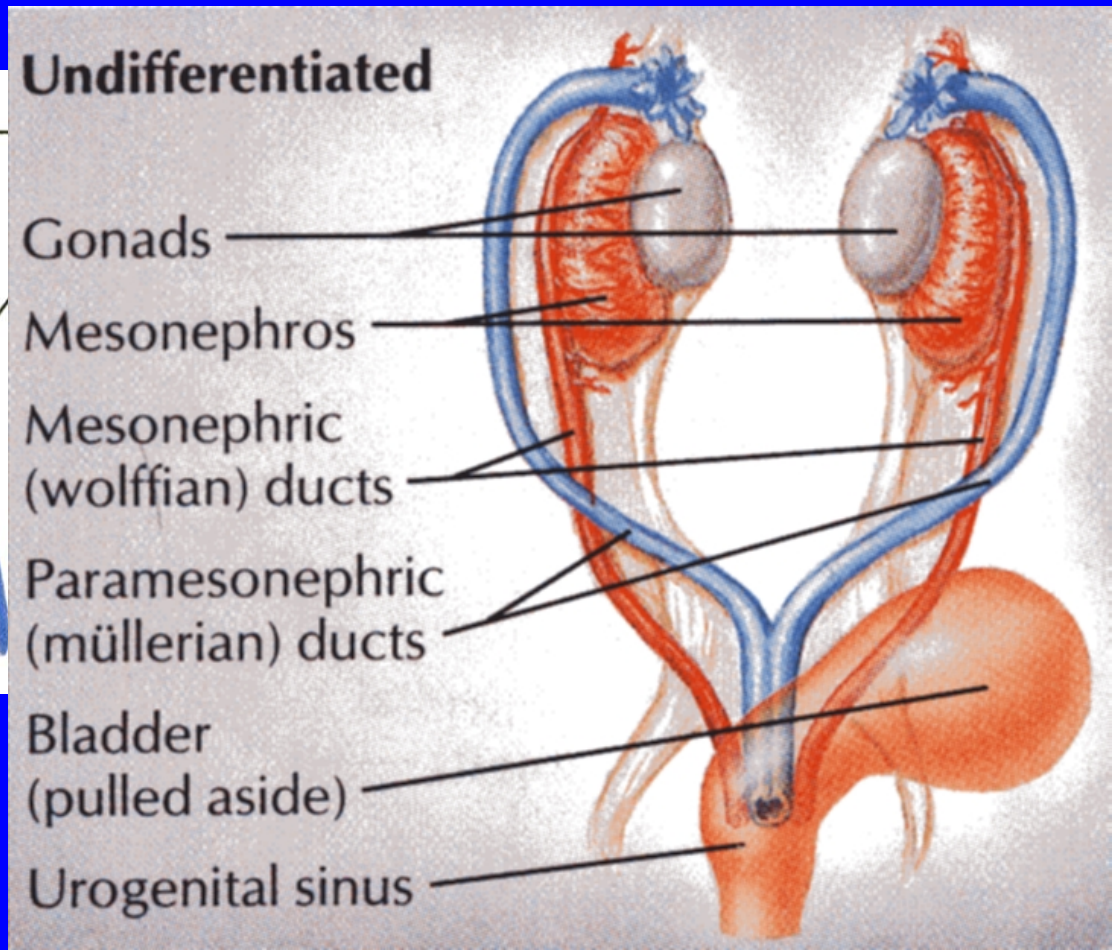


Germ cells trigger formation of, then populate the primitive sex cords.

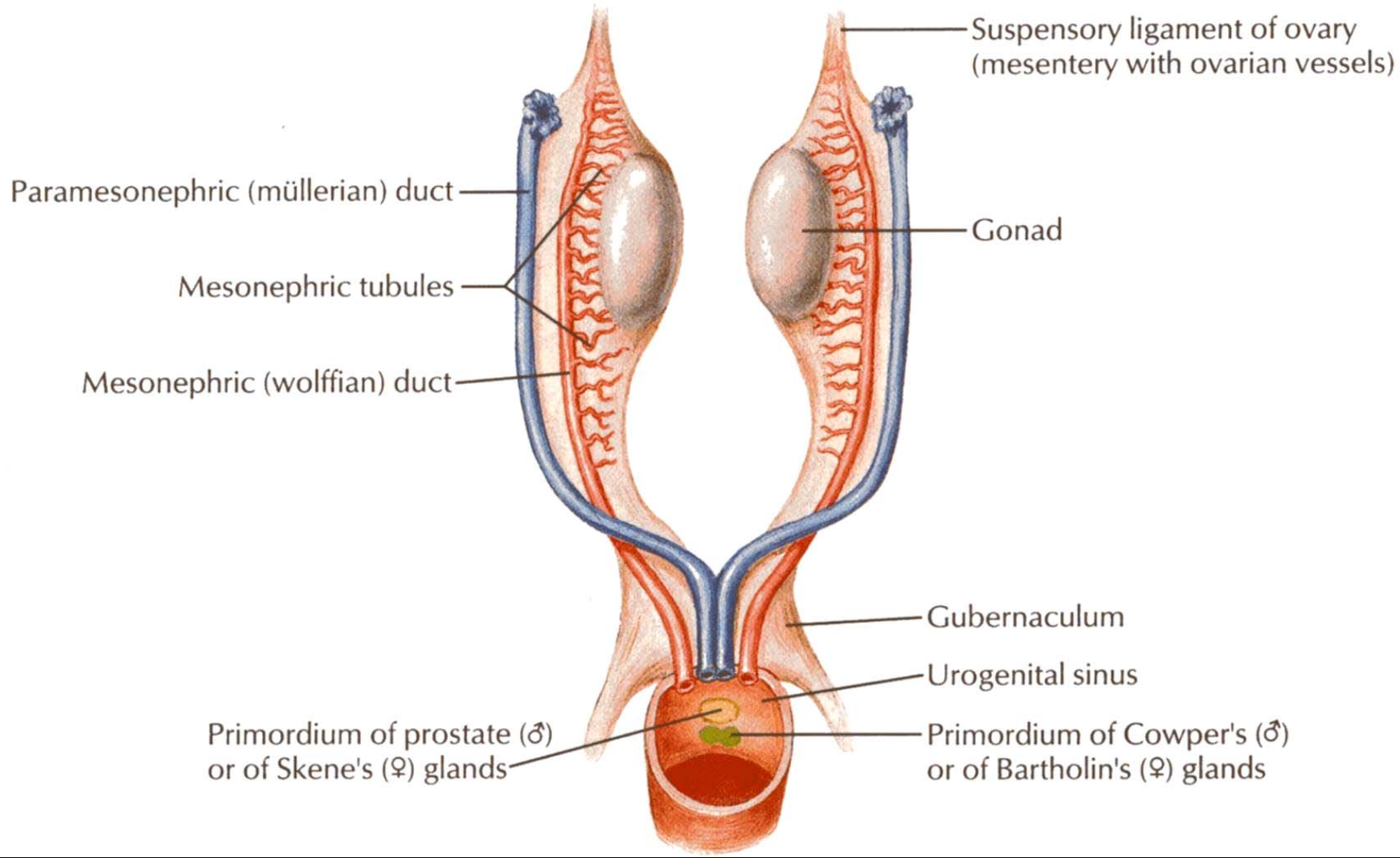


The paramesonephric duct is added by invaginating the peritoneal mesothelium. The superior end remains open to the peritoneal cavity

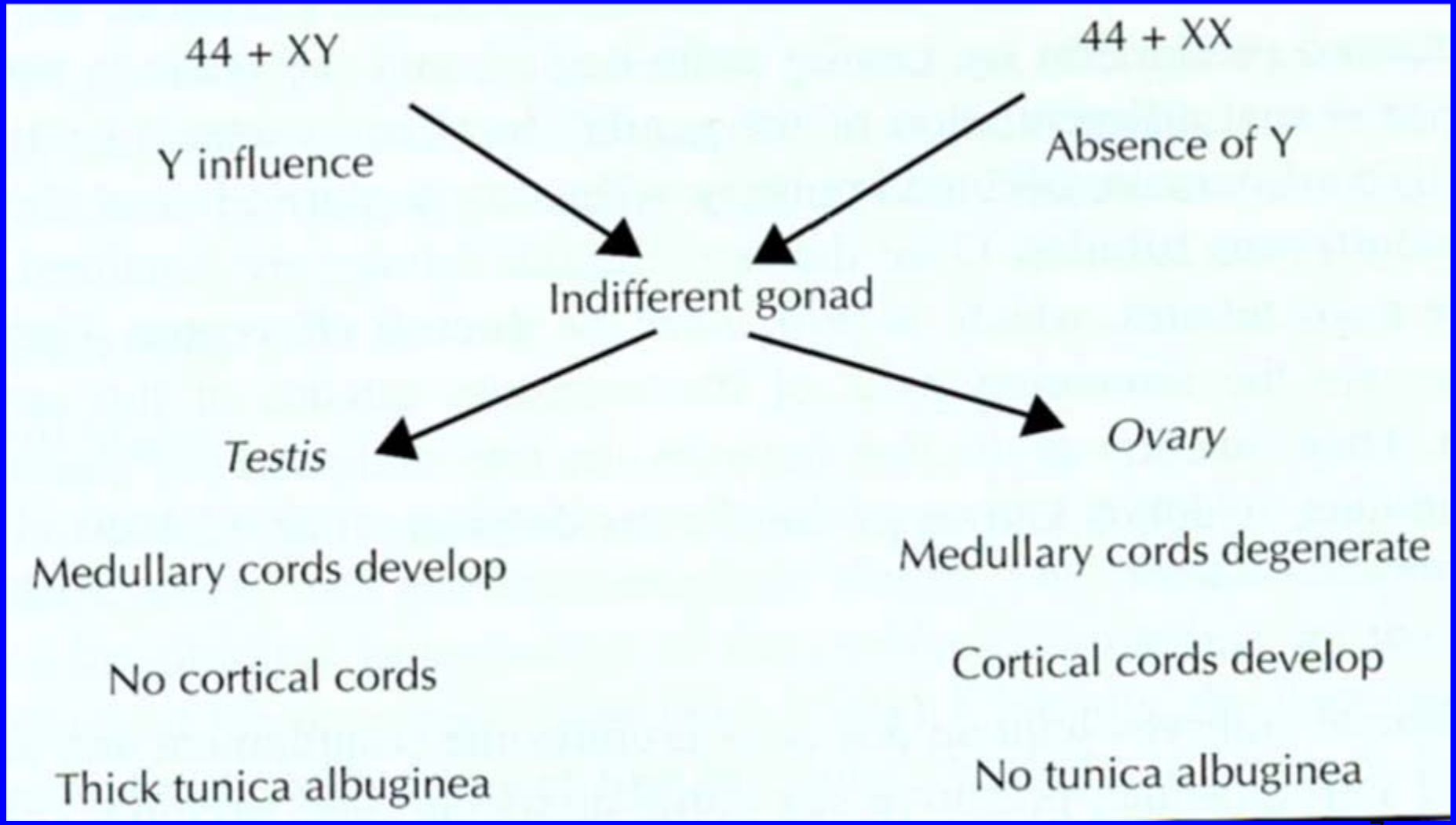




An apparently indifferent genital system is temporarily present at 6 weeks of gestation. Male and female phenotypes diverge thereafter.



Male vs. Female Gonad Formation



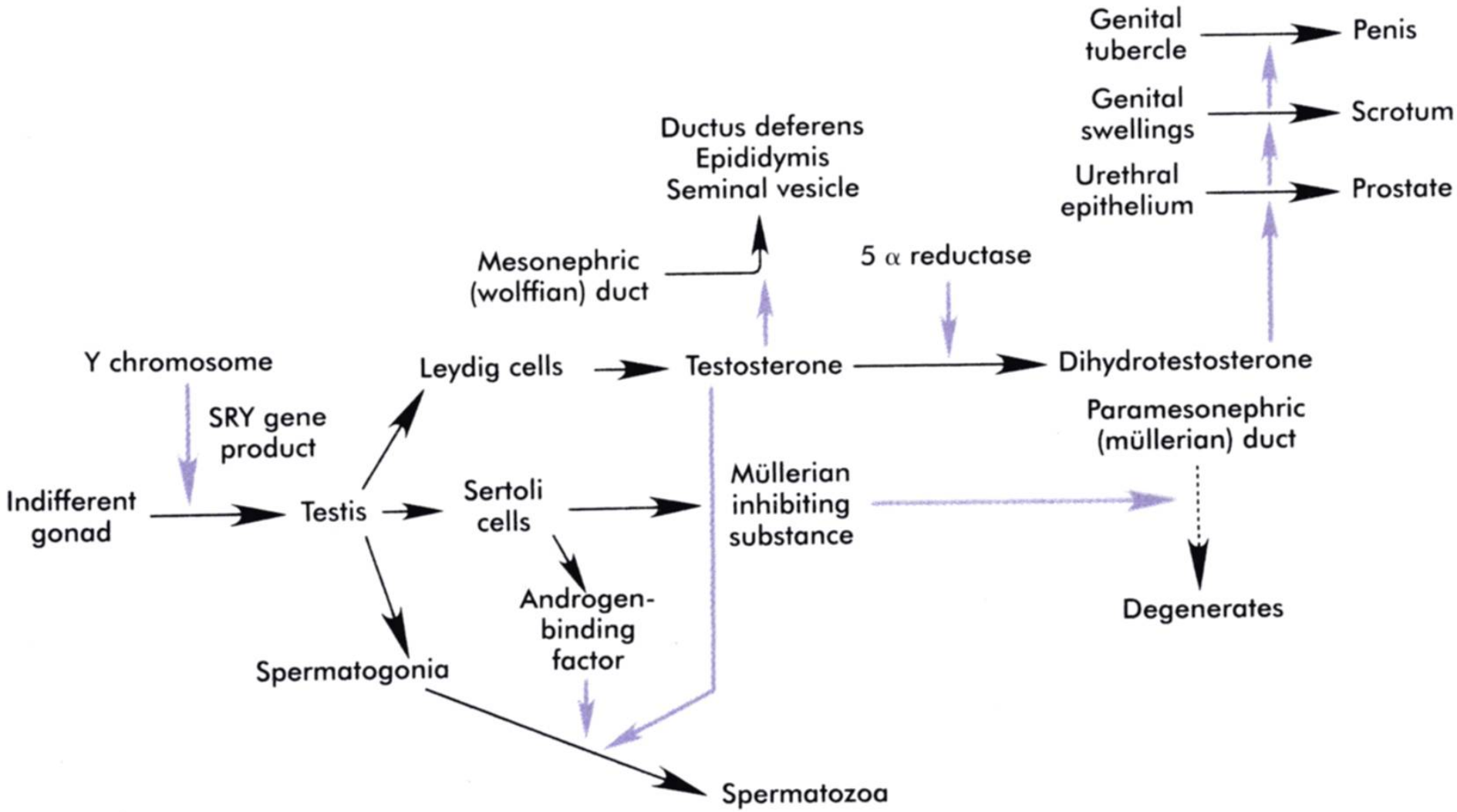
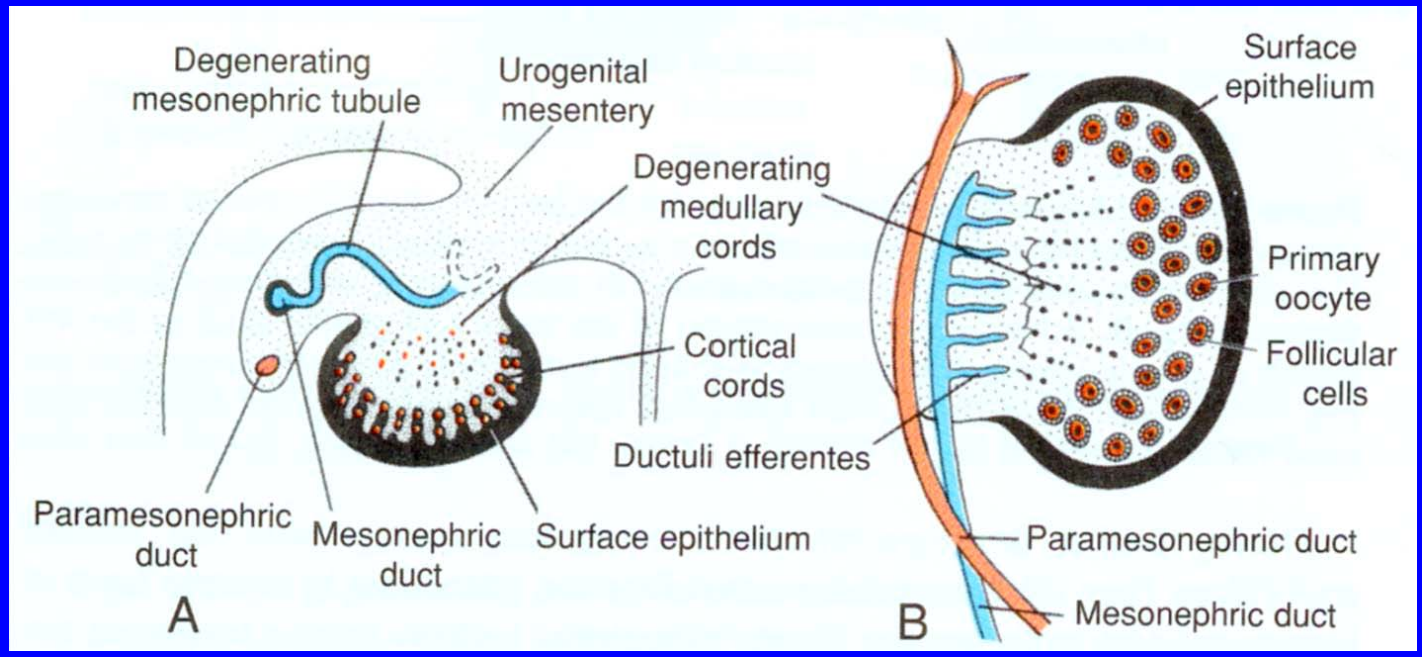
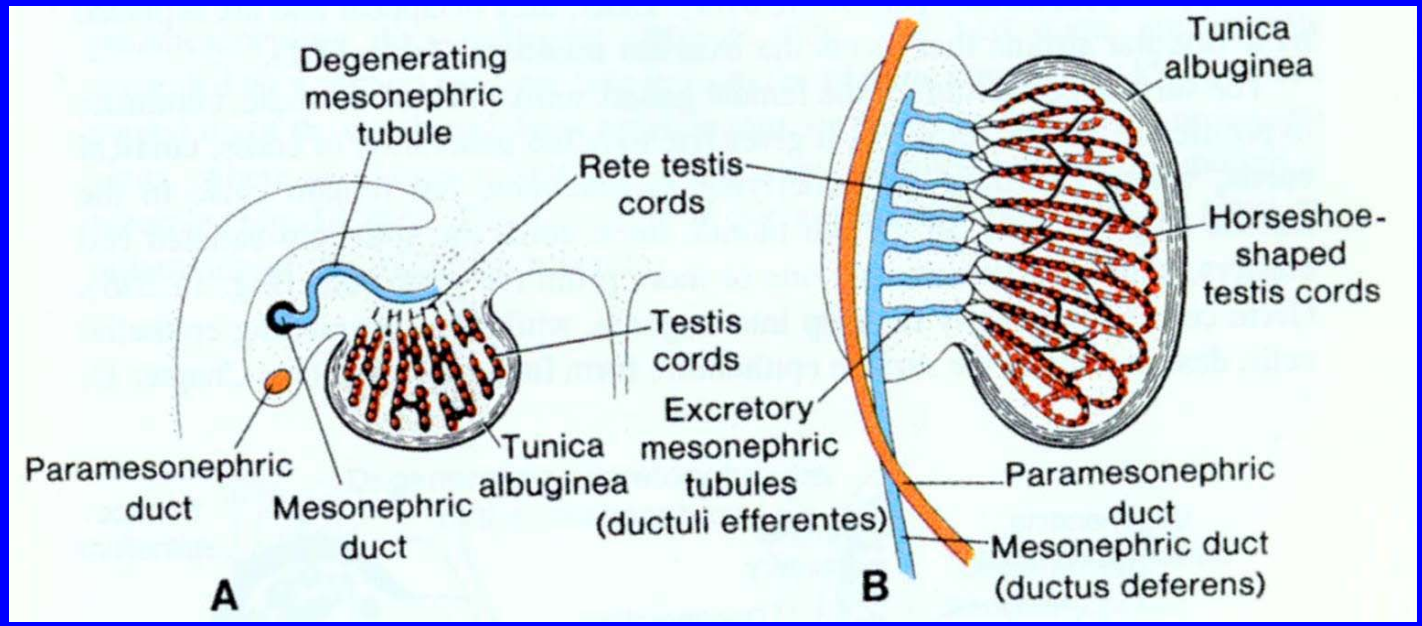


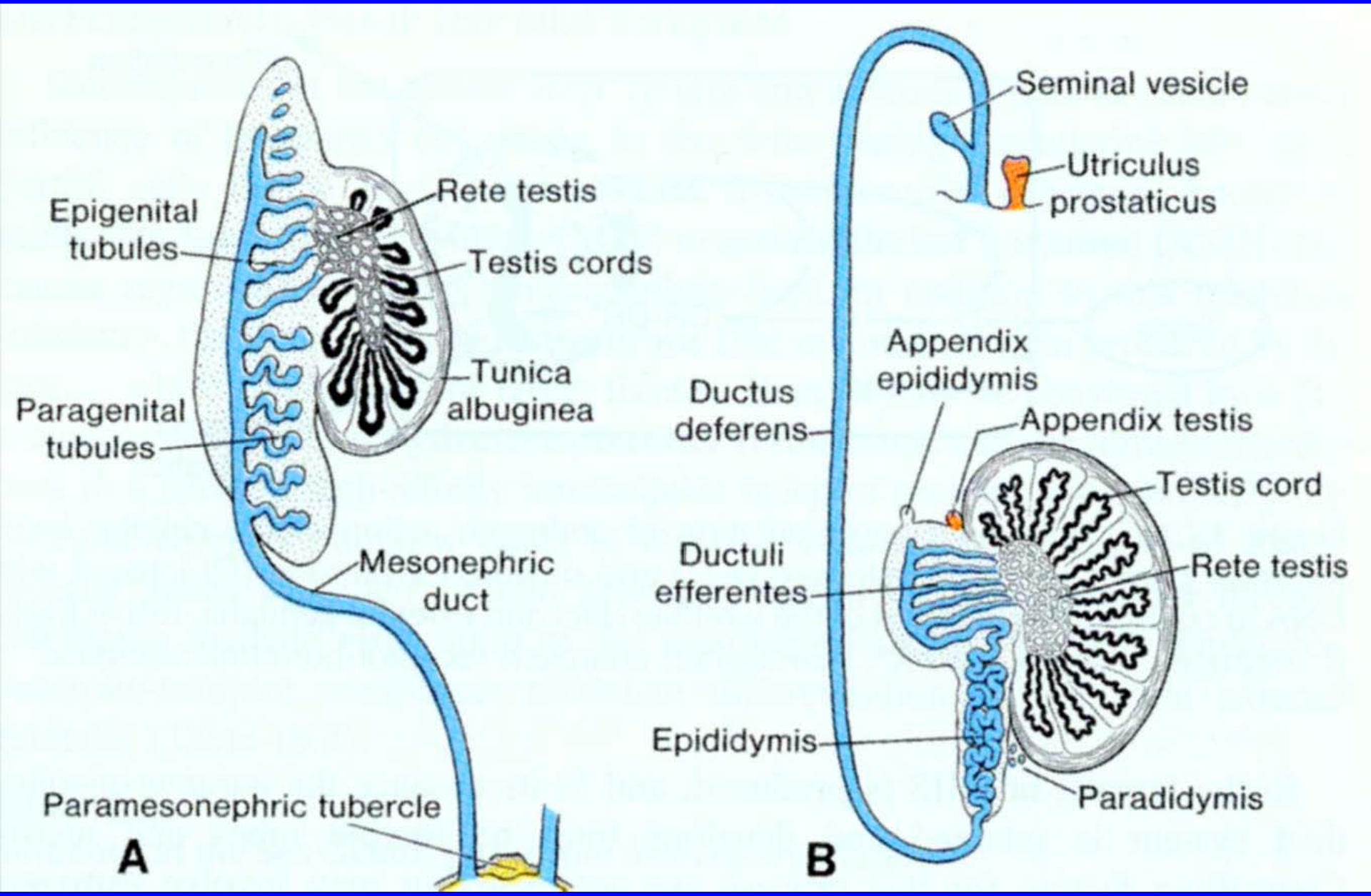
FIG. 17-22 The differentiation of the male phenotype.

Female (top) and Male (bottom) Gonad Formation





Further formation of the male ducts.



The male ducts enter the prostatic urethra.

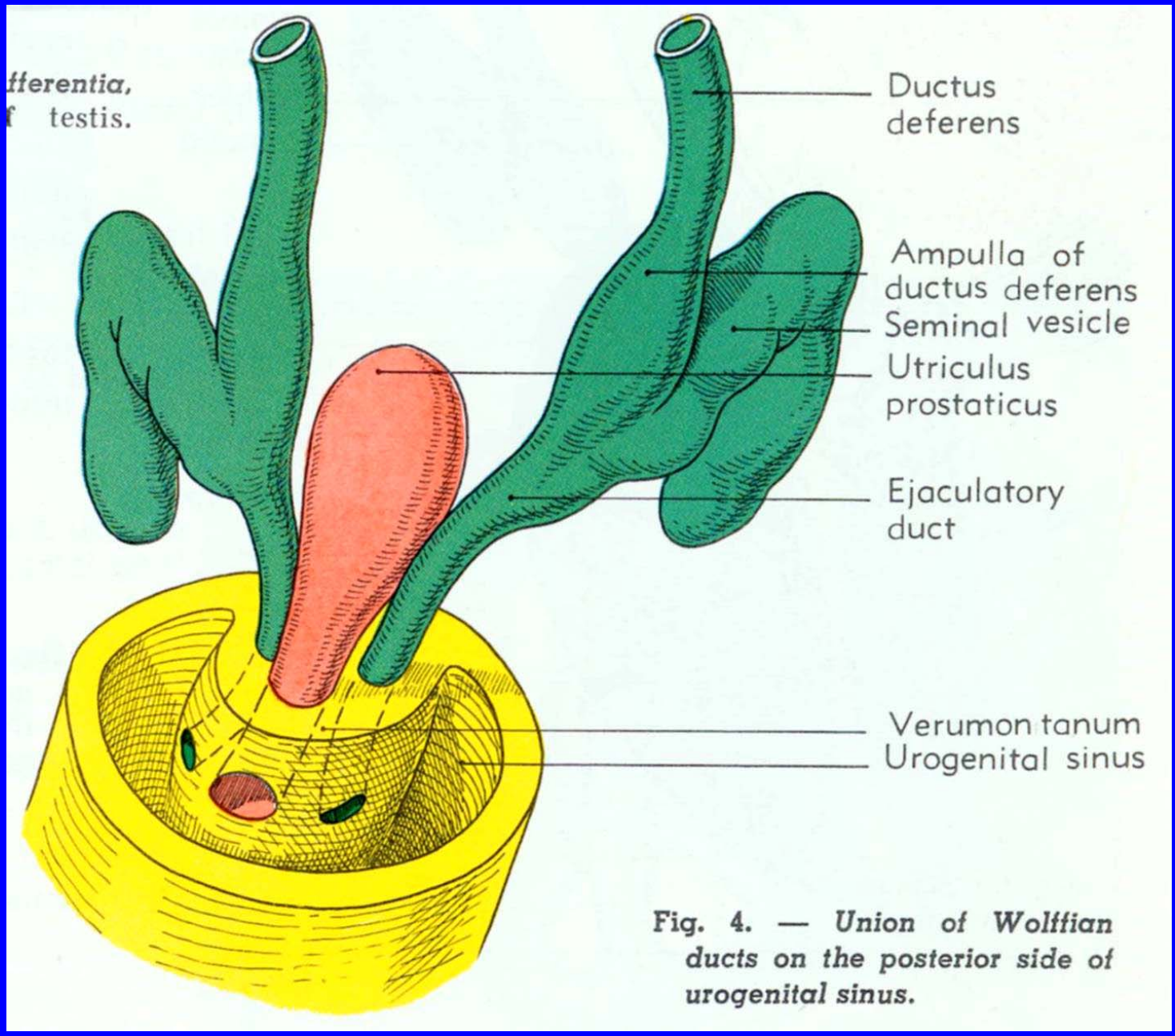
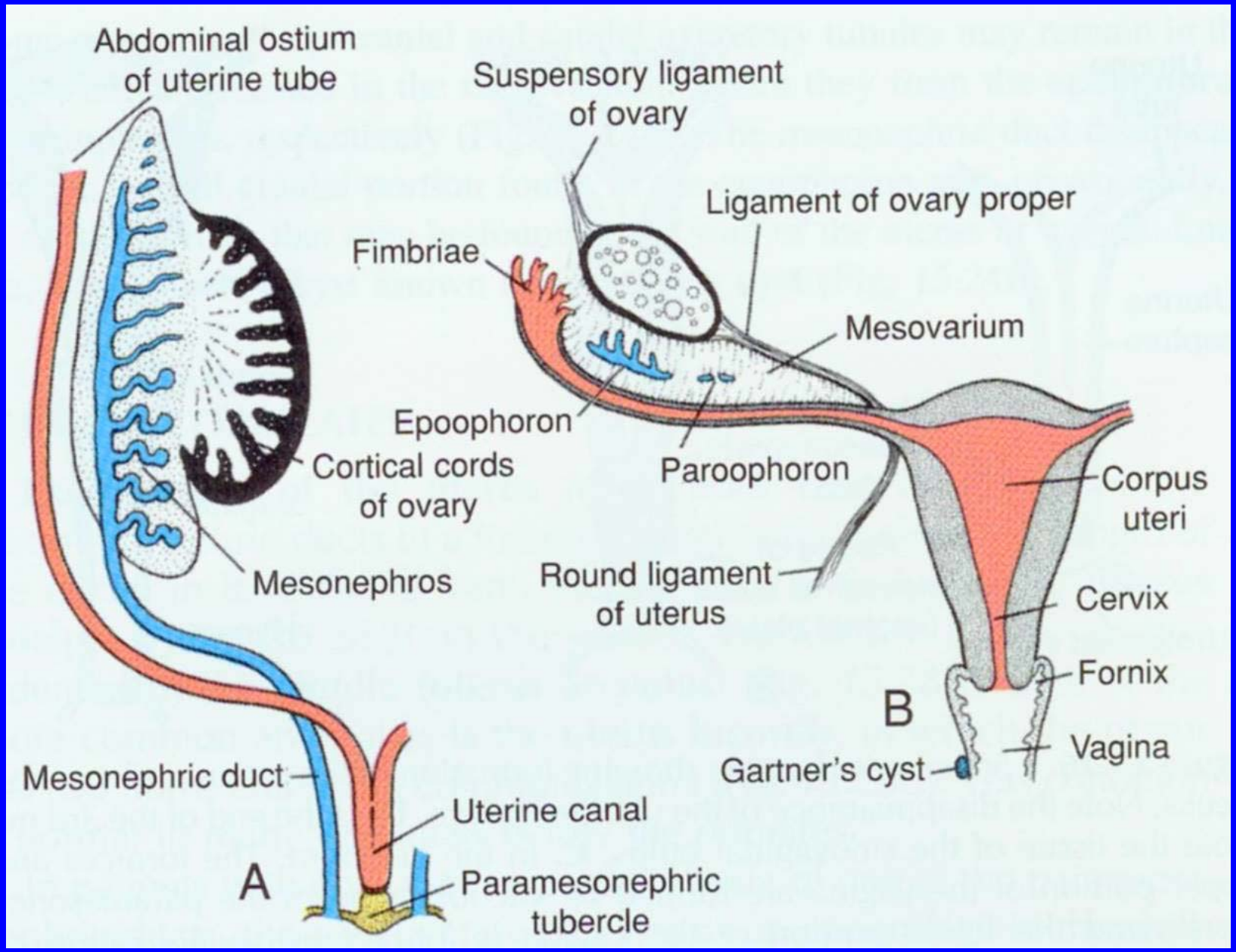
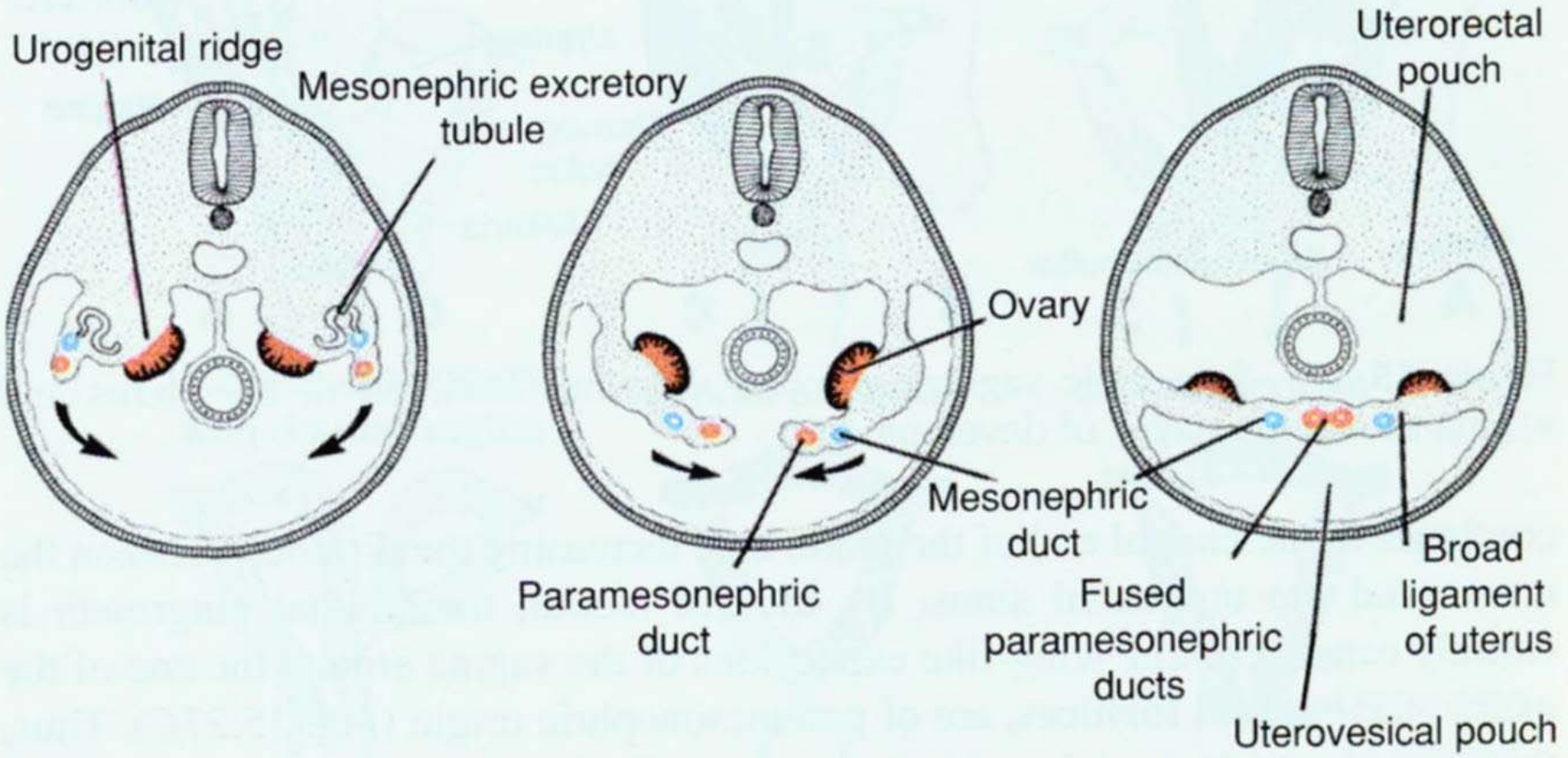


Fig. 4. — *Union of Wolffian ducts on the posterior side of urogenital sinus.*

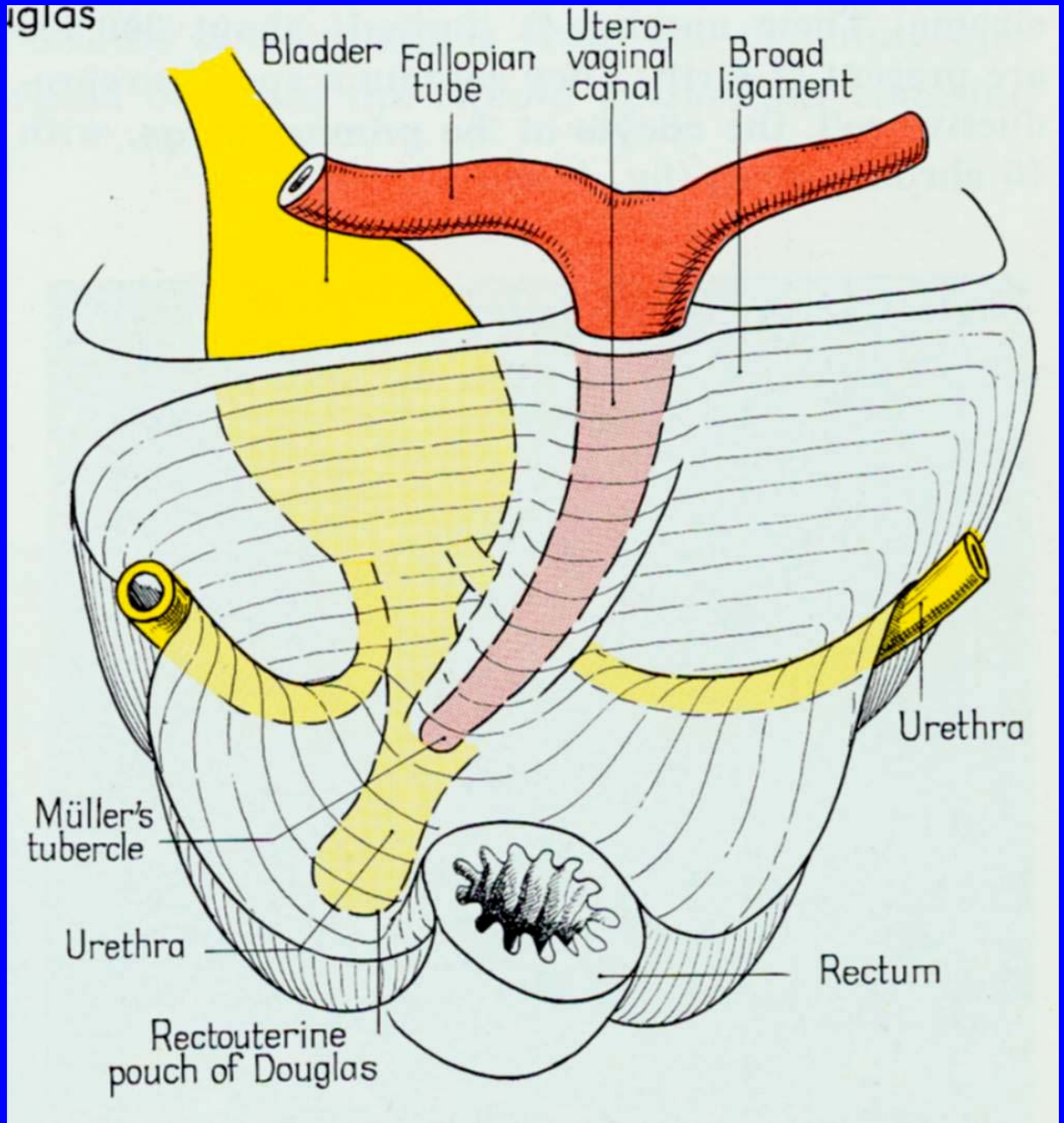
Further formation of the female ducts.



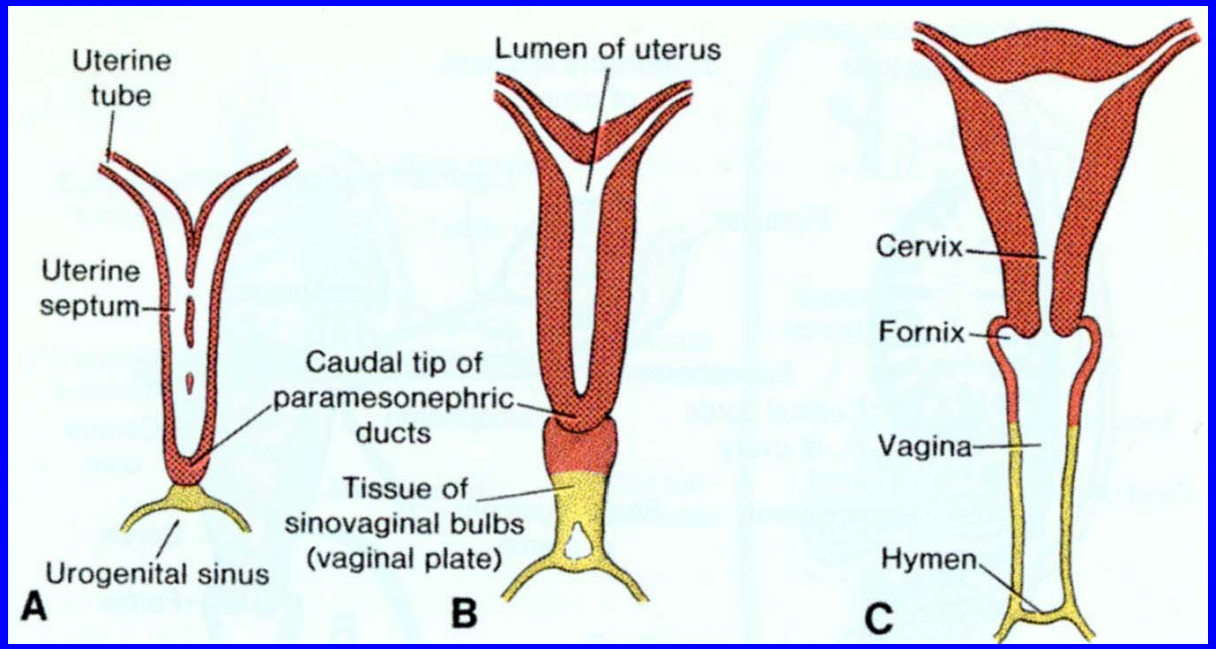
Formation of the broad ligament in the female.

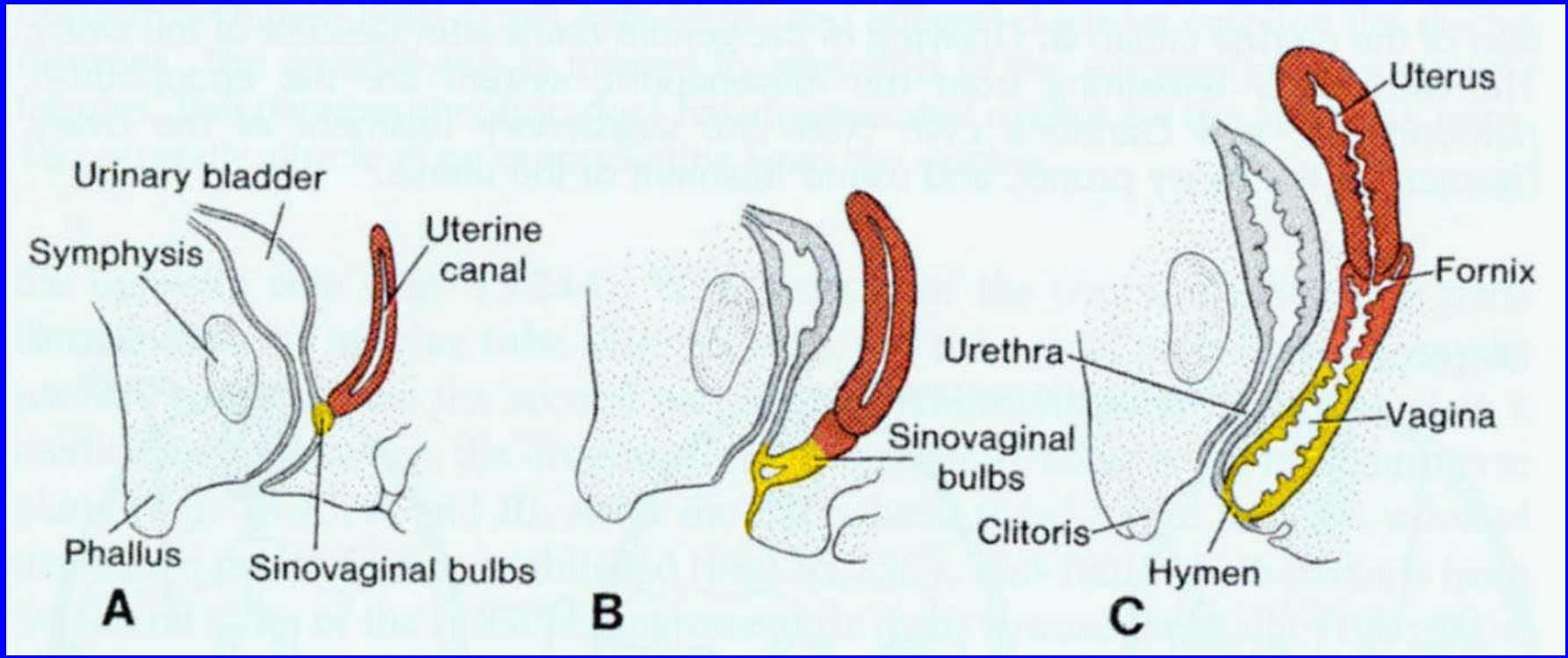


The fused paramesonephric ducts join the urethra.

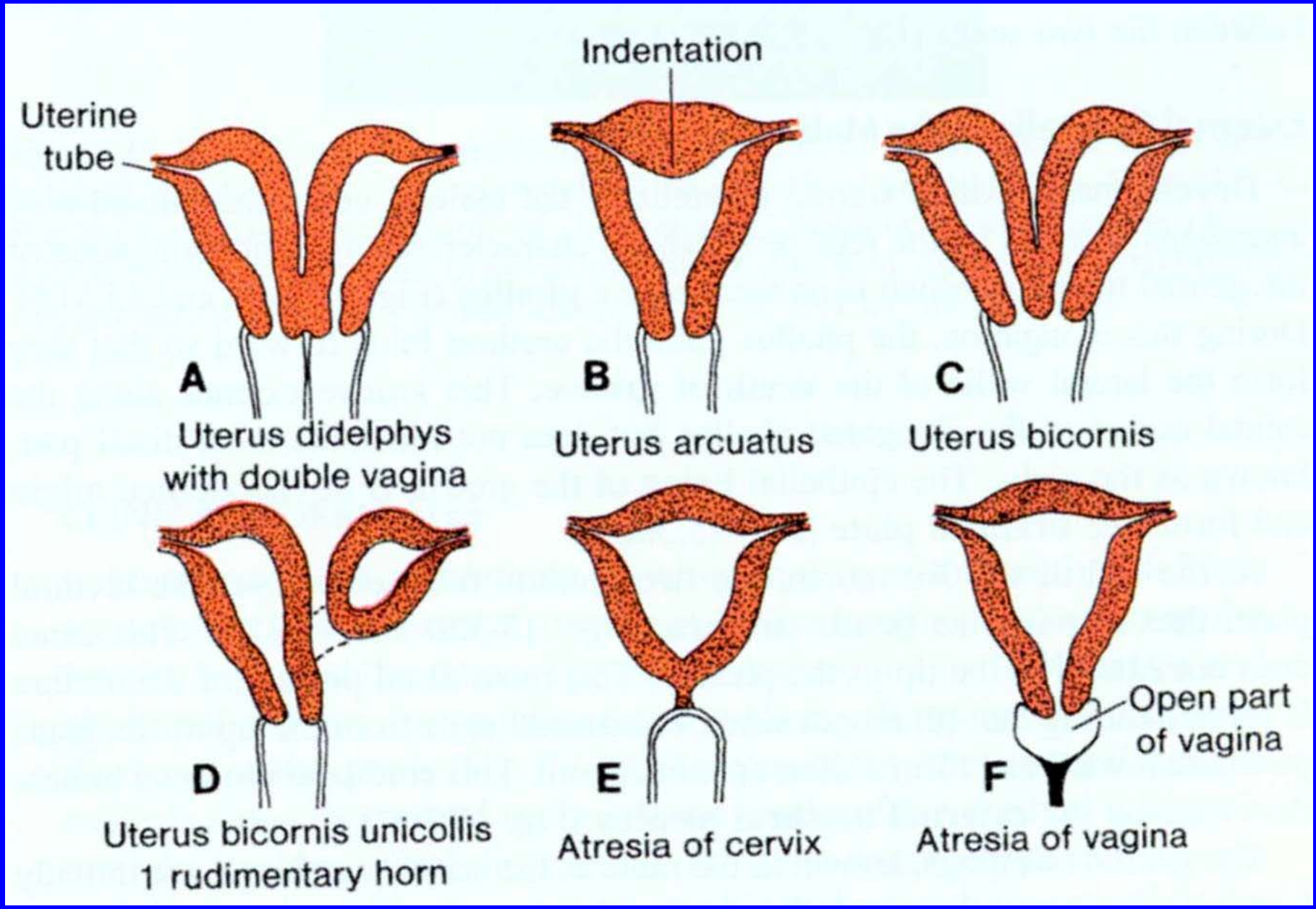


The vagina is formed from the paramesonephric ducts and sinovaginal bulb.

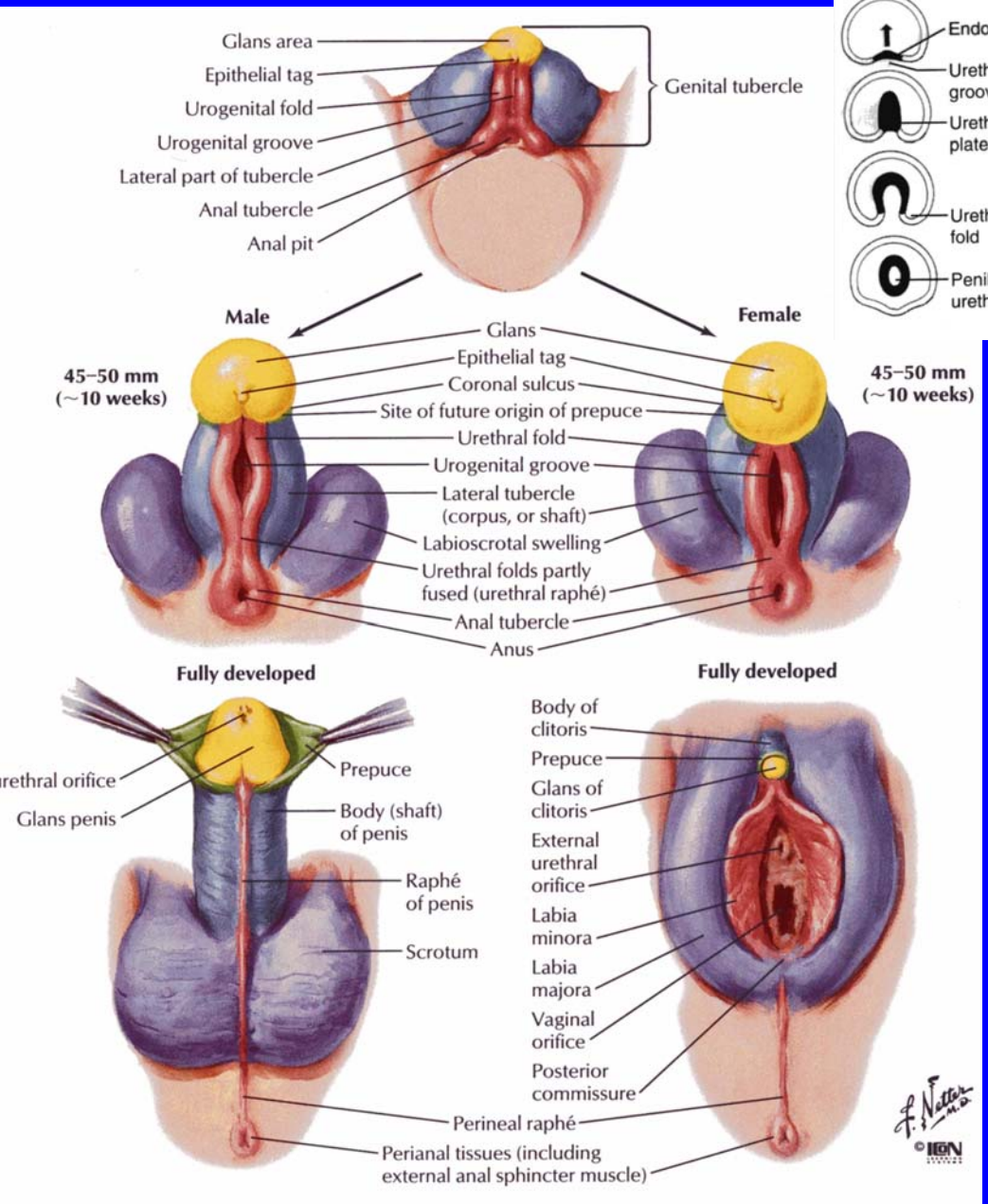


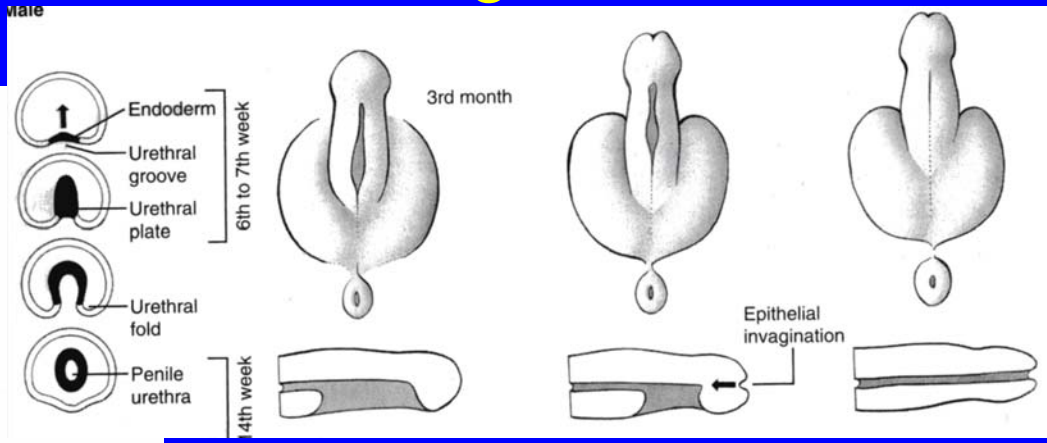


Formation of the uterus from the paramesonephric ducts.



The external genitalia are indifferent through the 12th week.





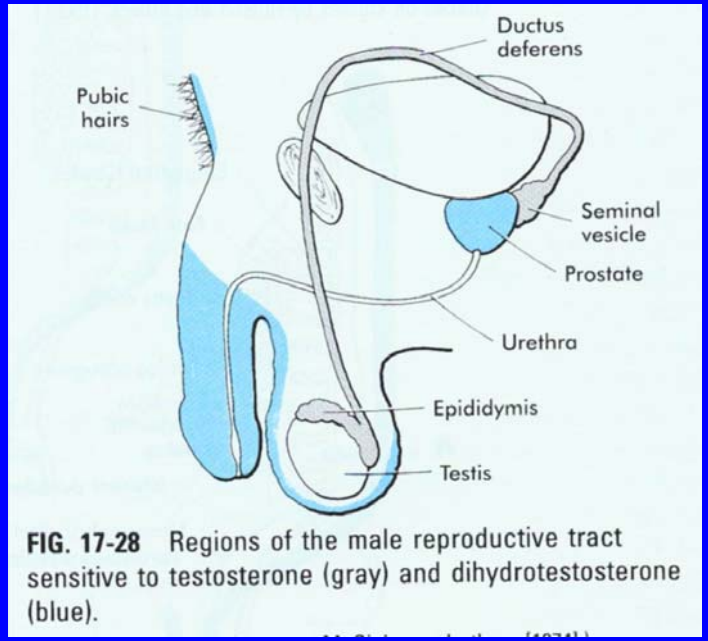
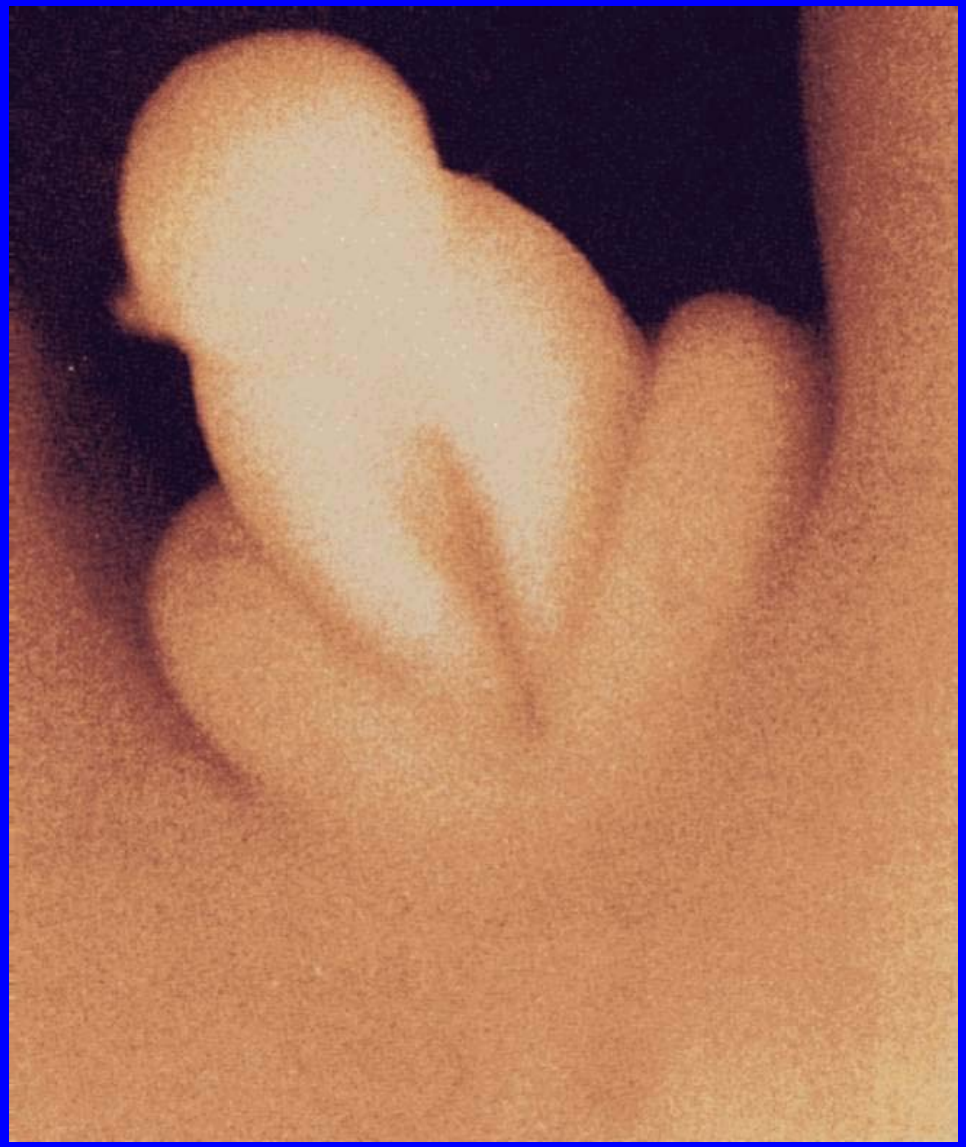
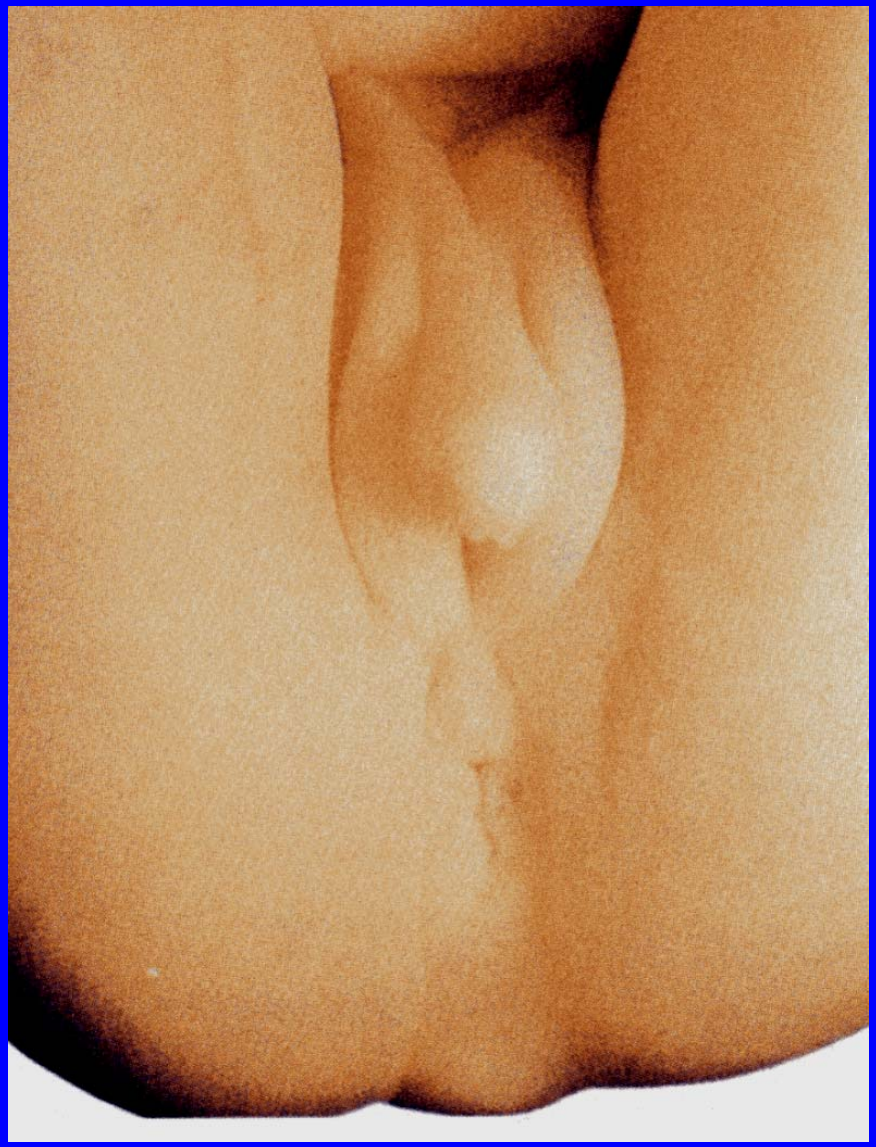


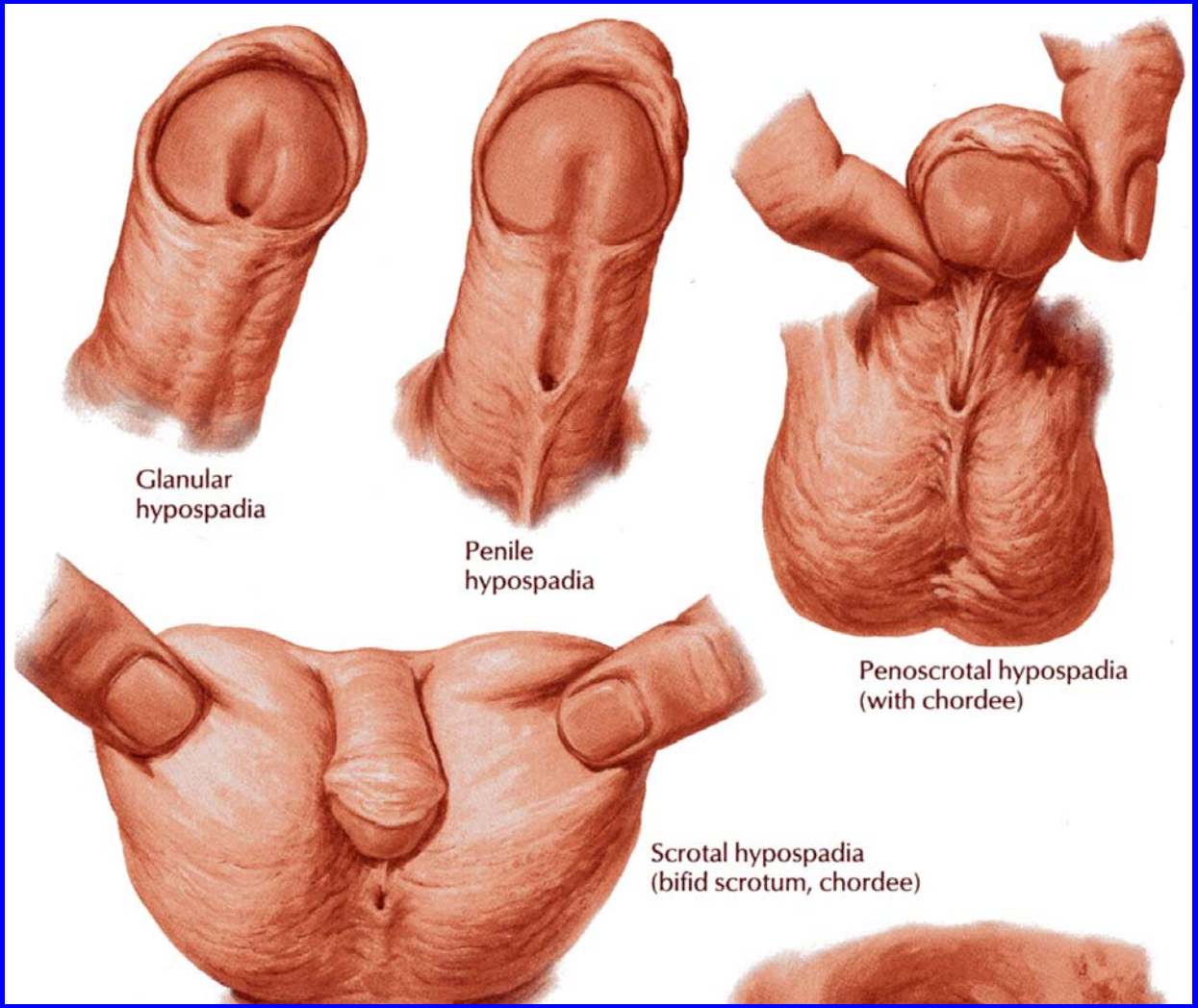
FIG. 17-28 Regions of the male reproductive tract sensitive to testosterone (gray) and dihydrotestosterone (blue).

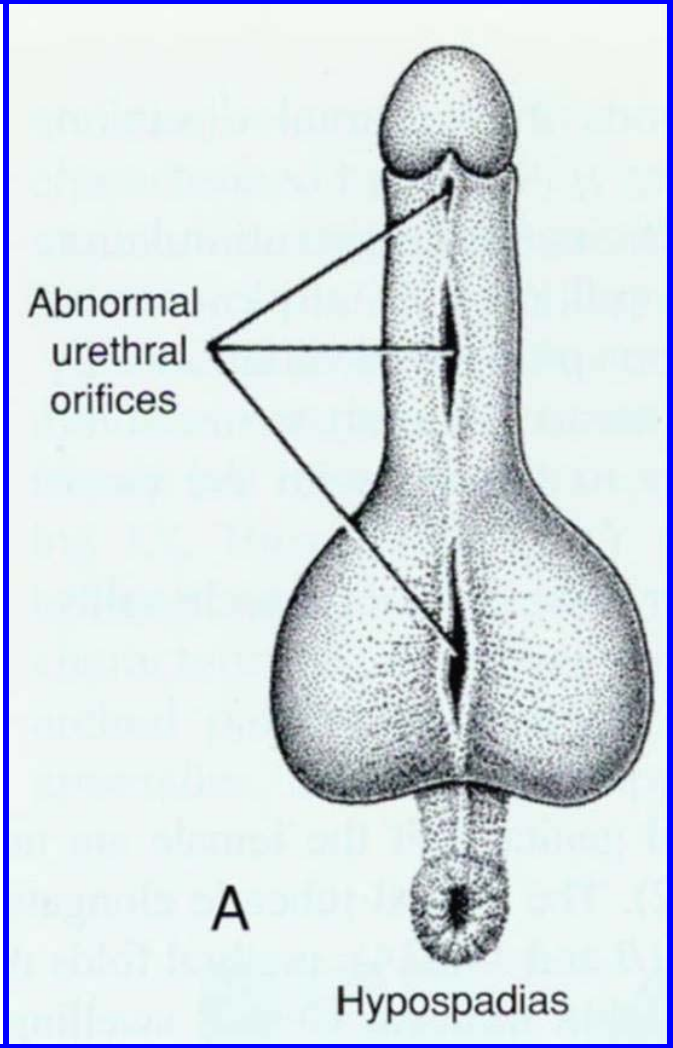
Male/Female – week 9 (left)
Female – week 12 (right)



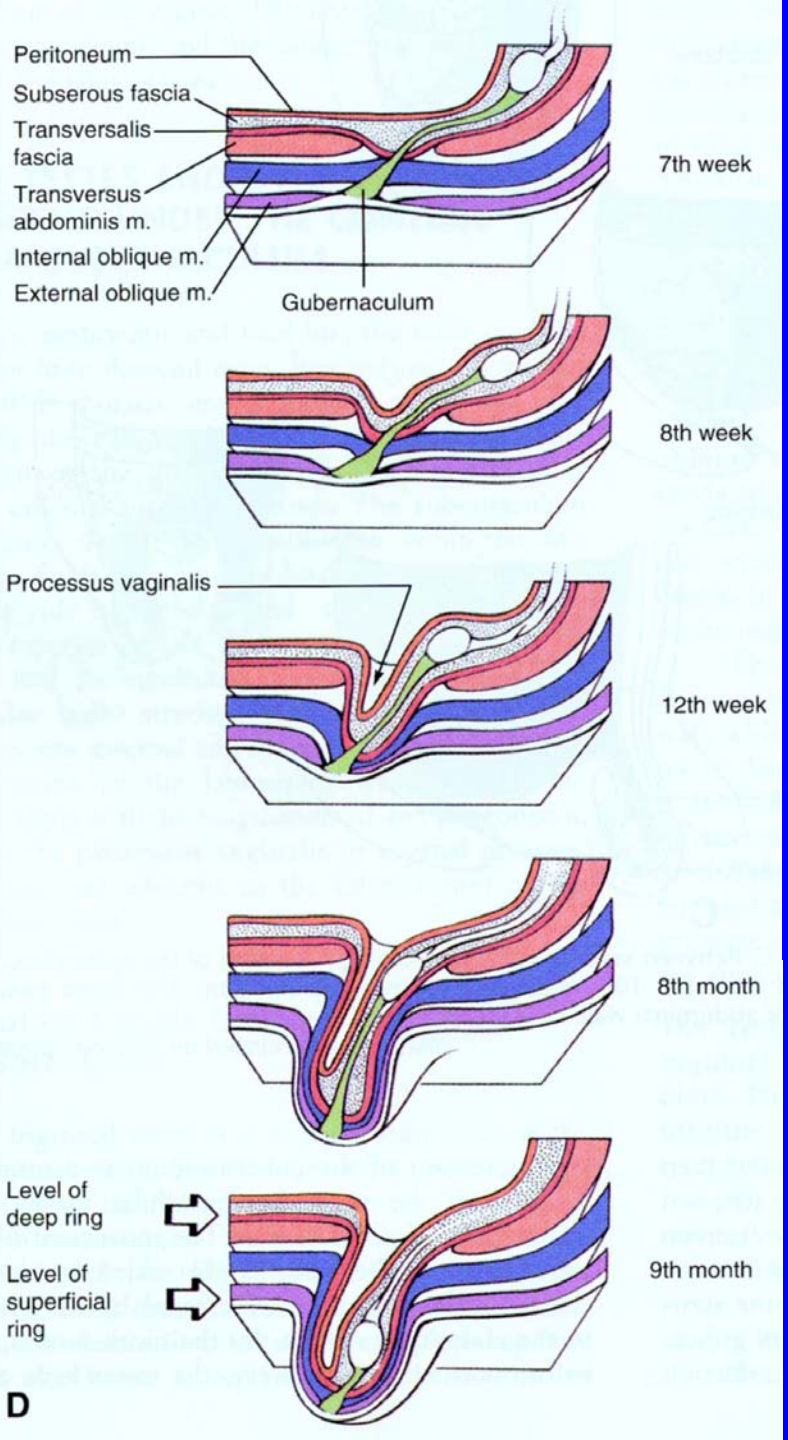


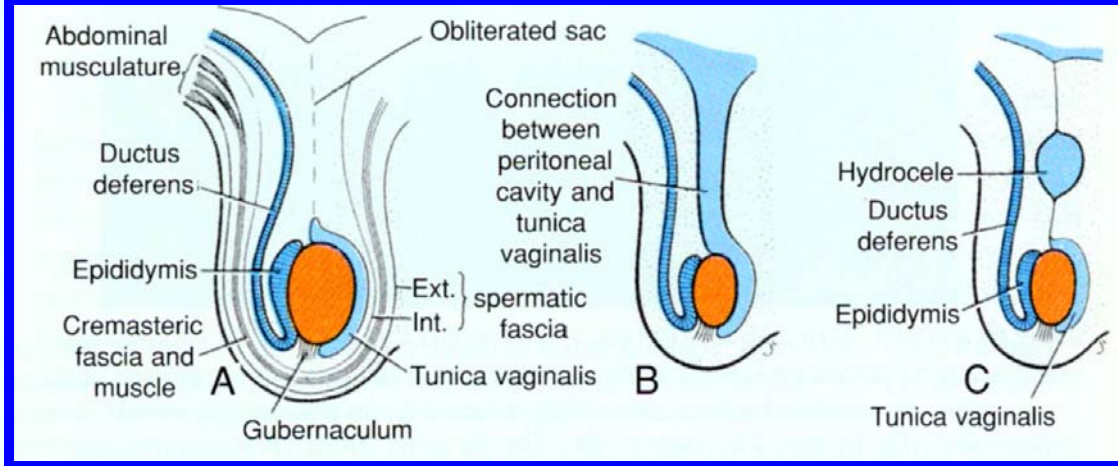
Hypospadius

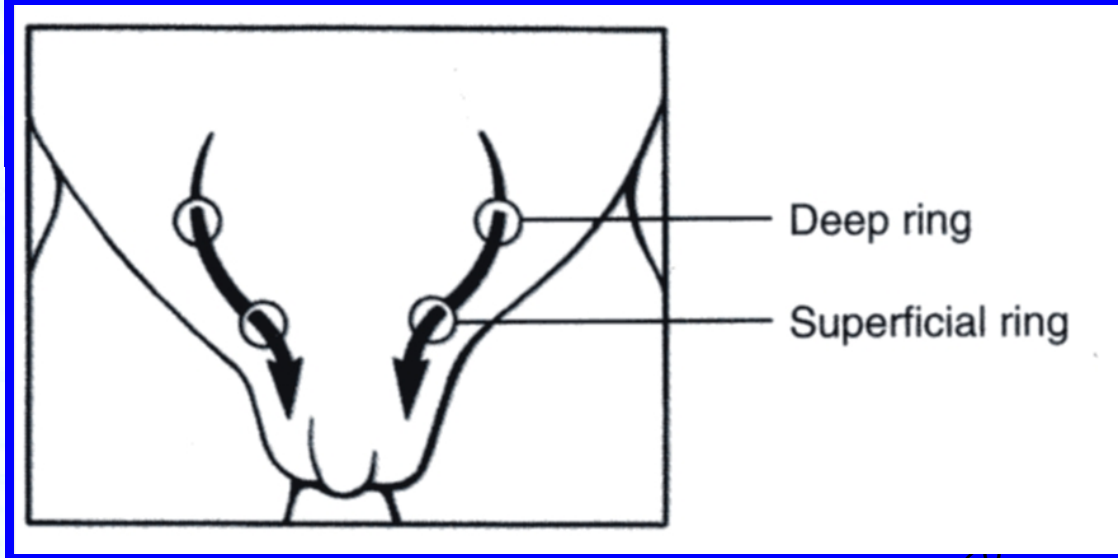




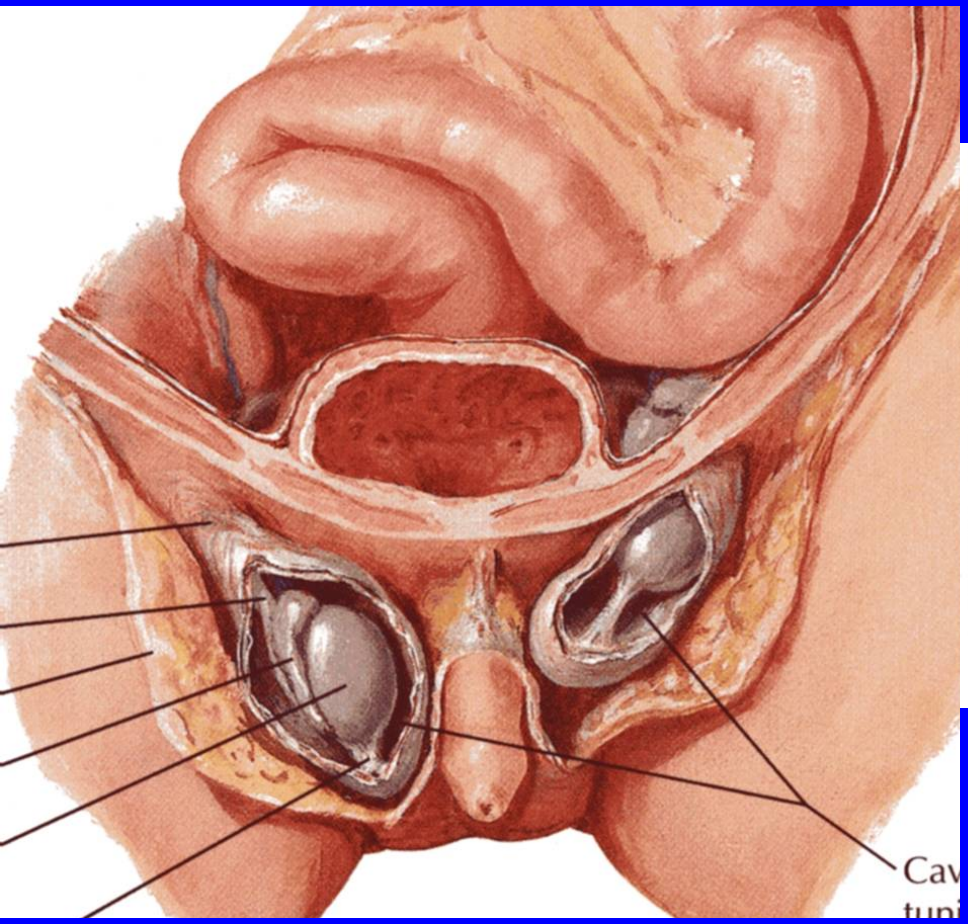
Descent of the Testes into the Scrotum

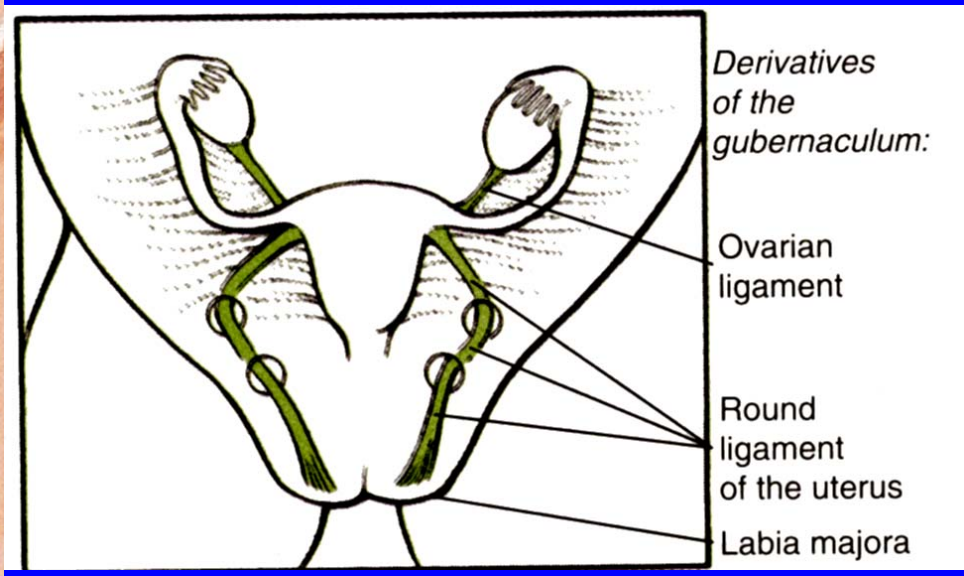




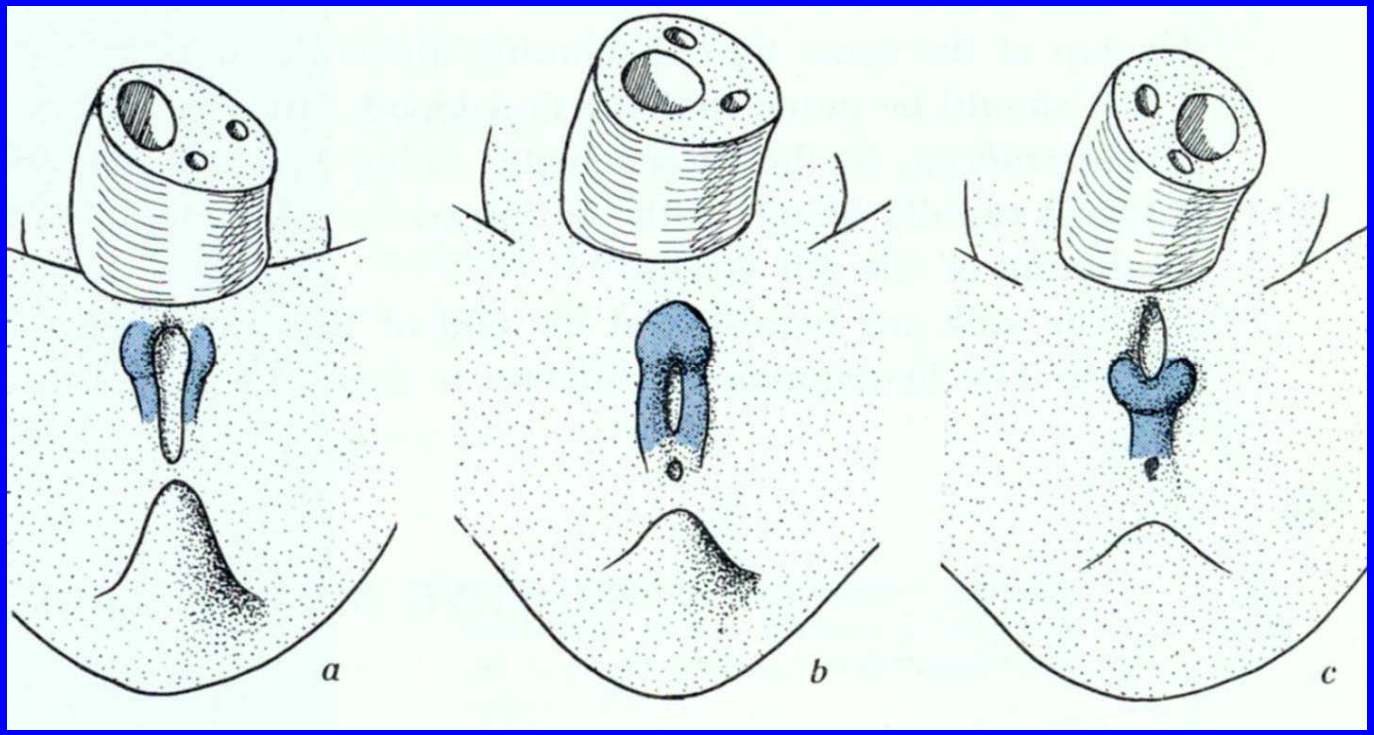


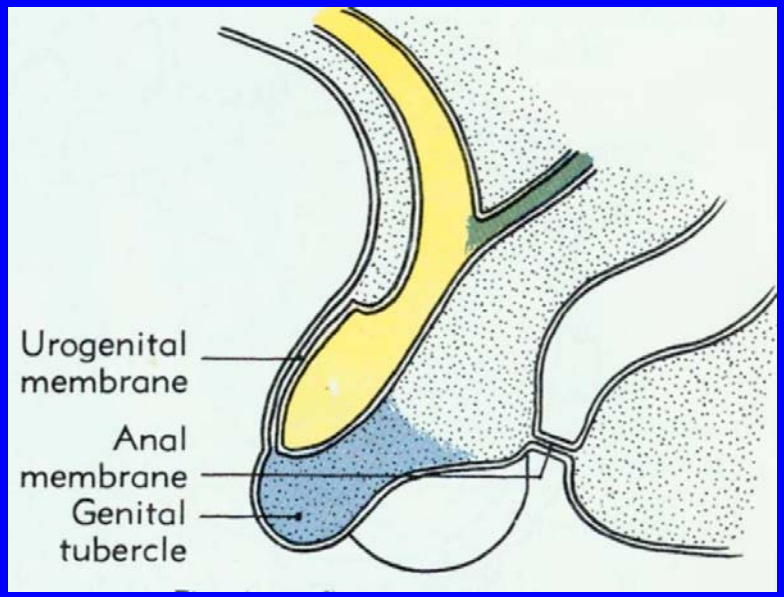
Descent of the Testis in the Male
Derivatives of the Gubernaculum in the Female

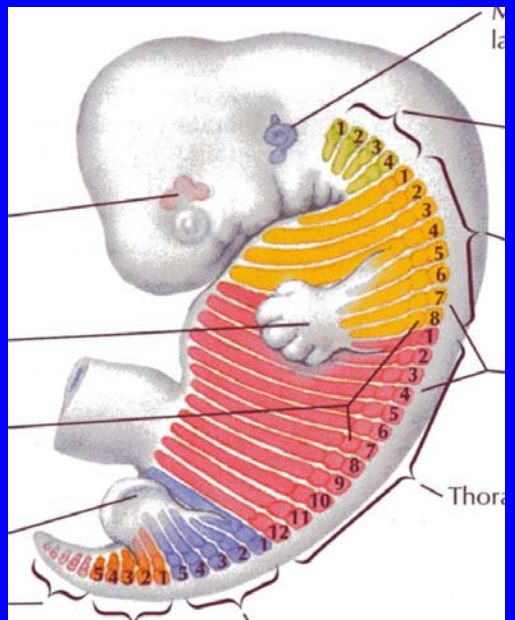




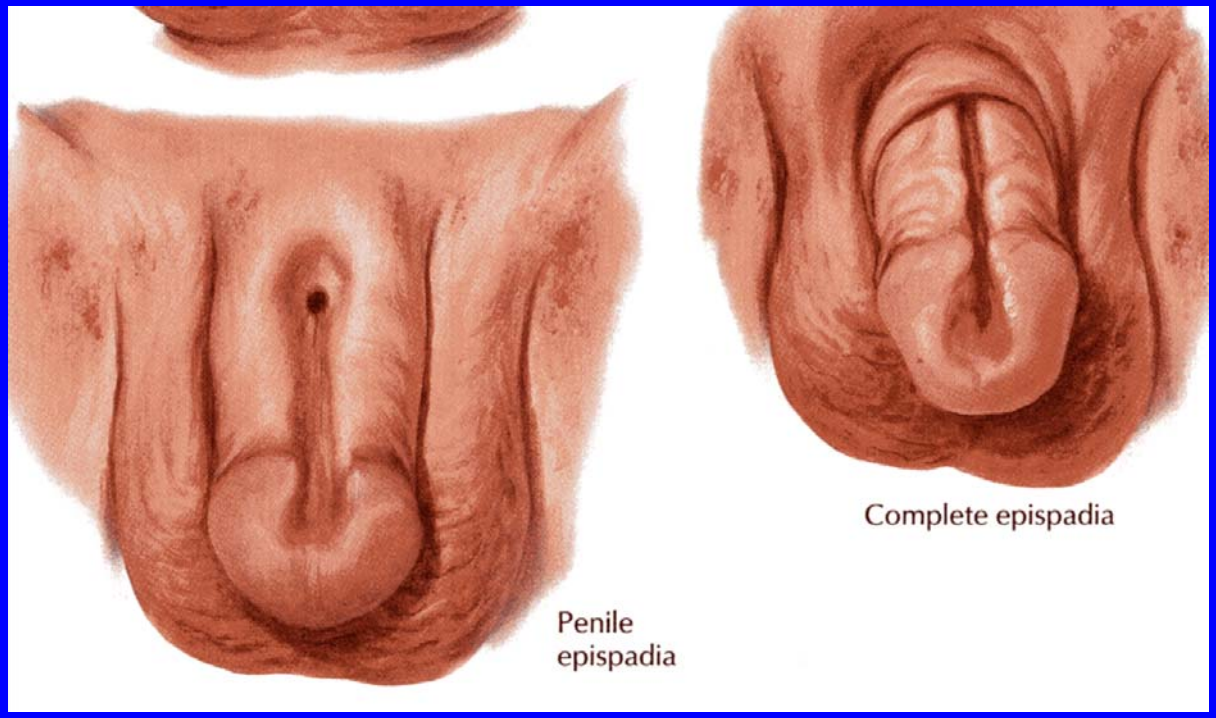
Epispadius & Extrophy of the Bladder I

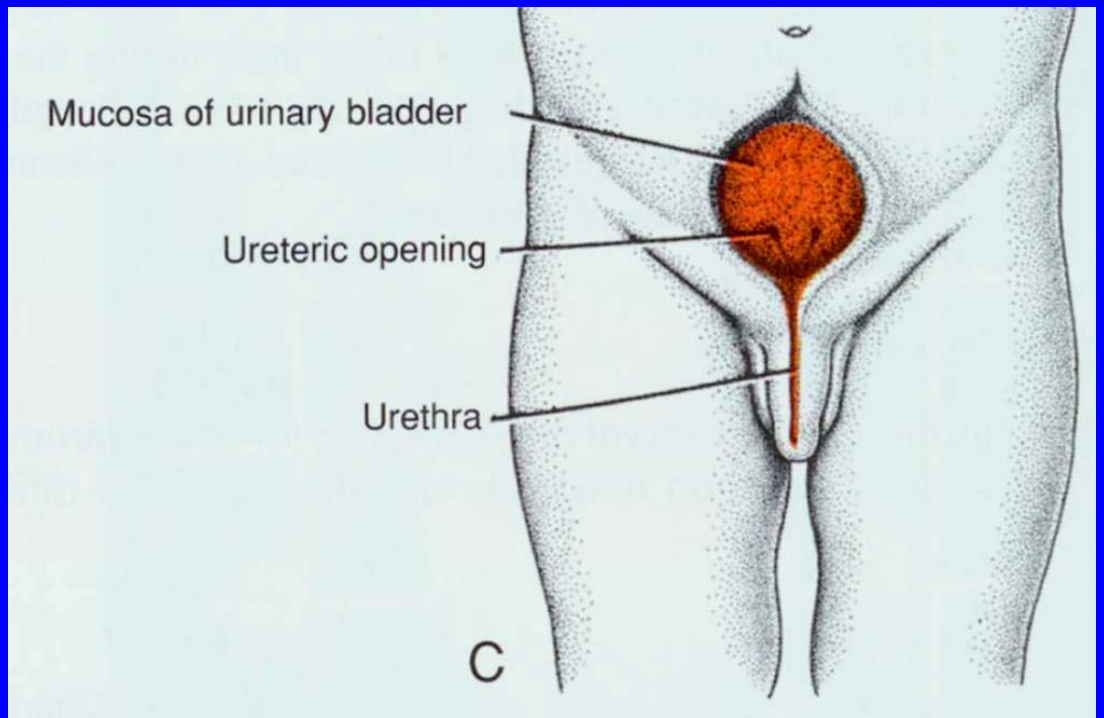






Epispadius & Extrophy of the Bladder 2





Abnormal Development of the Genital System

- Male pseudohermaprodites are genetic males with a feminized phenotype. Female pseudohermaphrodites are genetic females with a masculinized phenotype (hyperplastic suprarenal cortex can make androgens).

- Male pseudohermaphrodites can result from failure to produce adequate testosterone/dihydrotestosterone or just dihydrotestosterone.

- Male pseudohermaphrodites can also result from androgen insensitivity in responding tissues.

- True hermaphrodites (rare) may be XX/XY mosaics with ovotestes.

The End