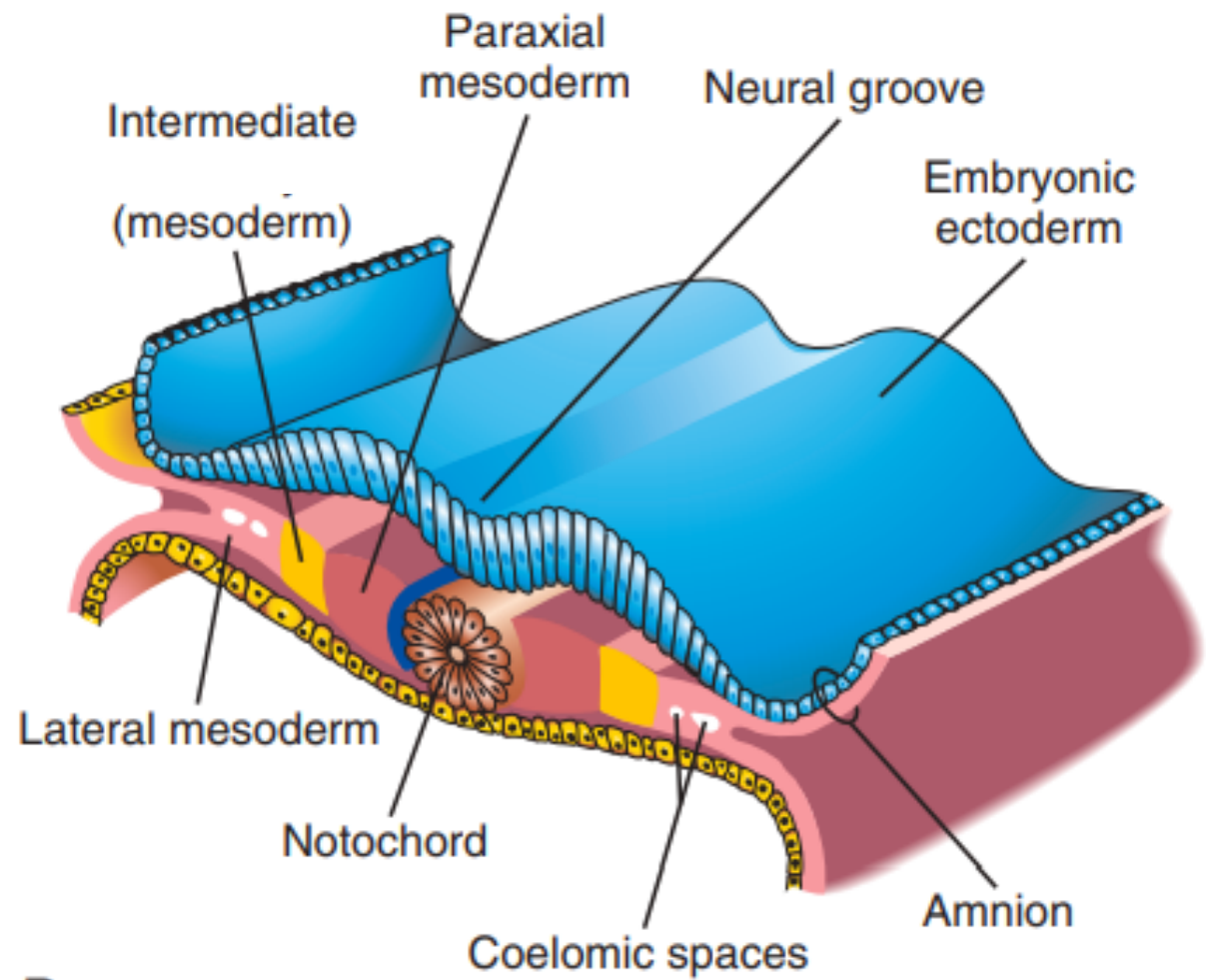


Development and teratology of urinary system

28.3.2022

Anna Mac Gillavry Danylevska

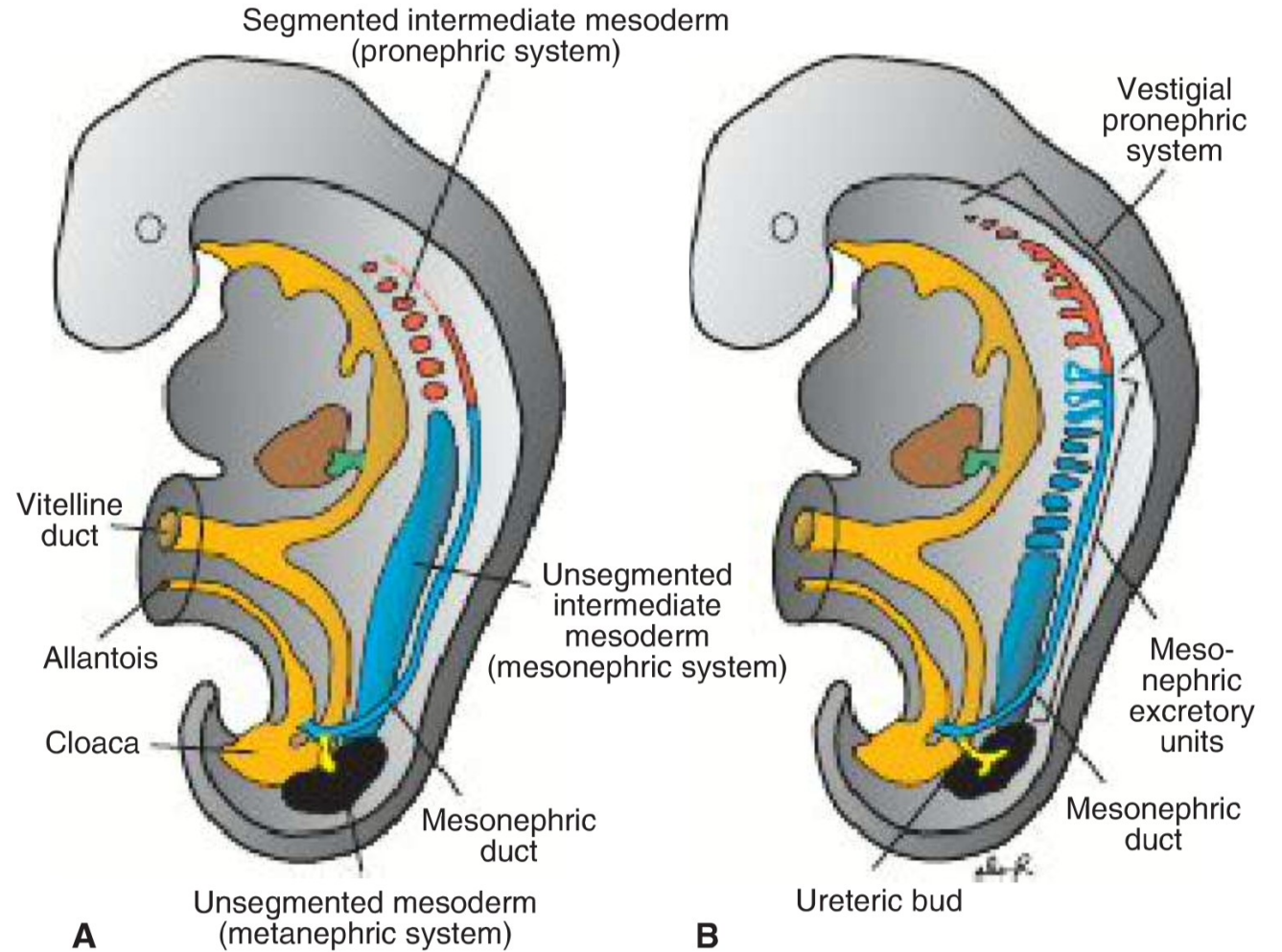


B

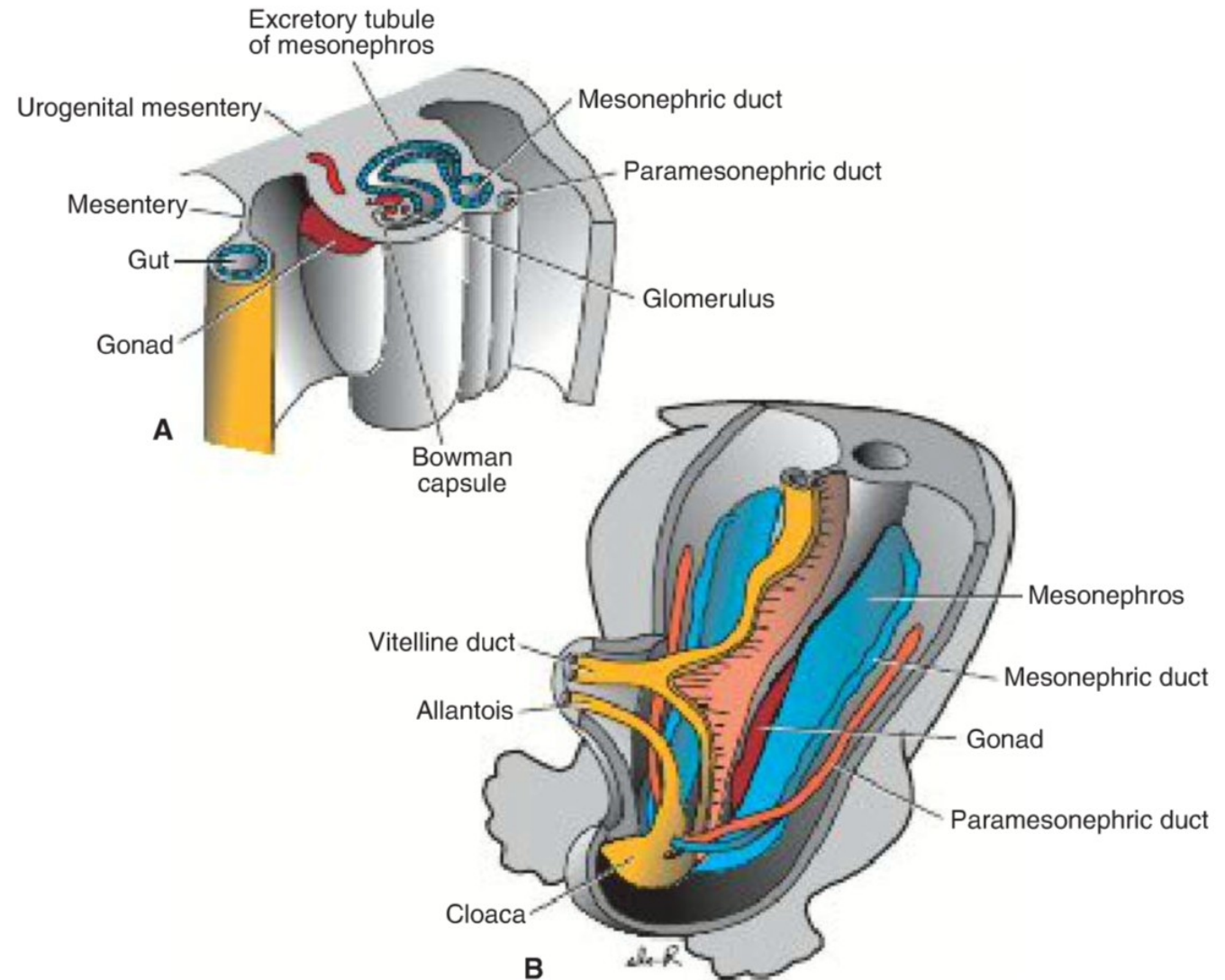
Pronephros: 4th week

Mesonephros: 4th – 10th week (6th – 12th week)

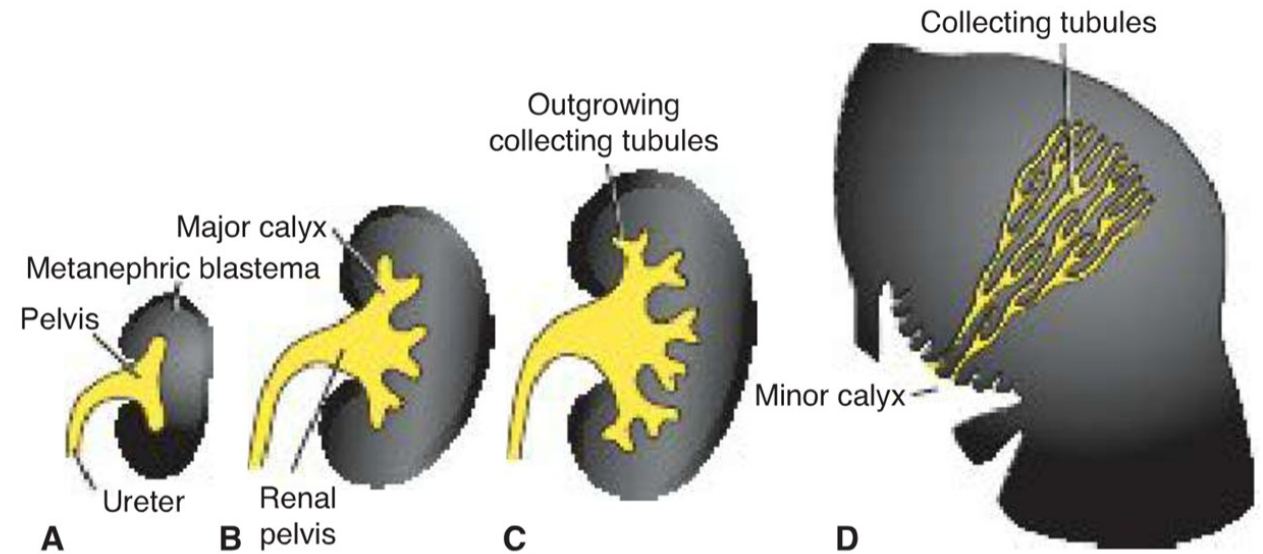
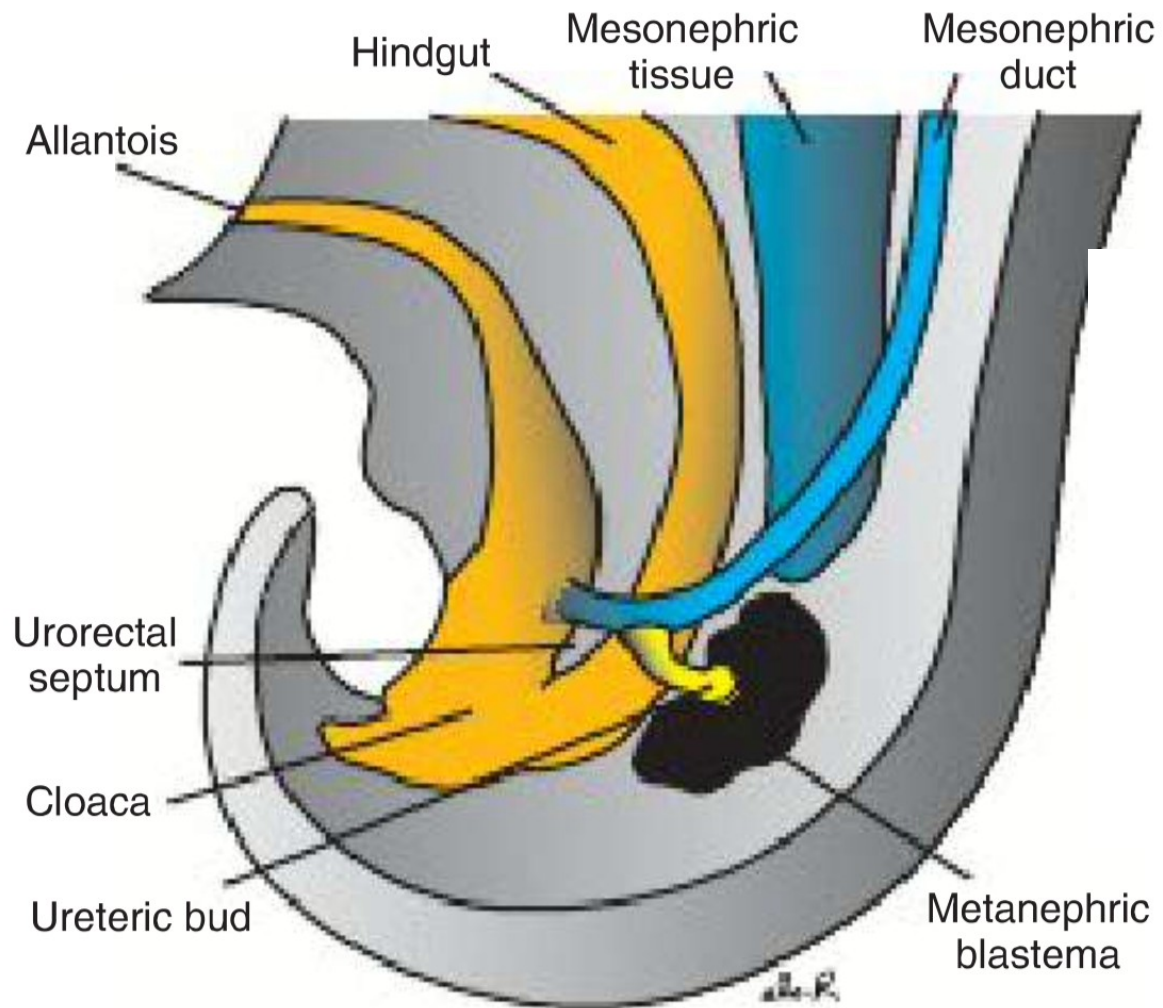
Metanephros: 5th to 9th week (12th week)



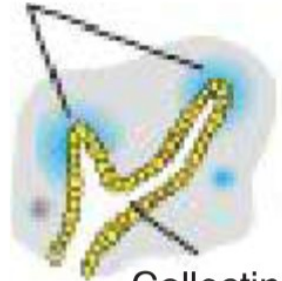
Mesonephros



Metanephros

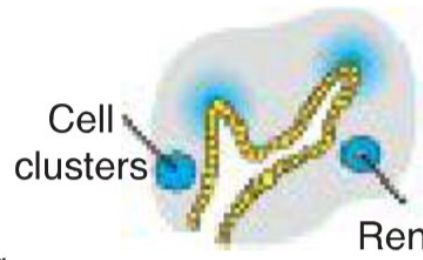


Metanephric tissue caps



A

Collecting tubule



B

Cell clusters

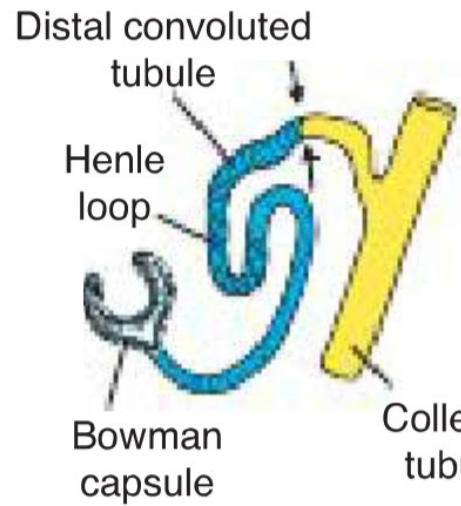
Renal vesicle



C

Nephron

Bowman capsule



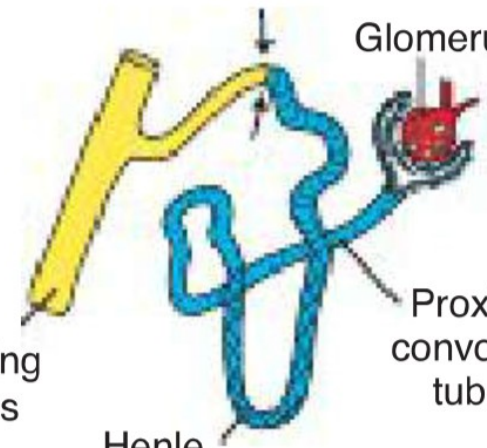
D

Distal convoluted tubule

Henle loop

Bowman capsule

Collecting tubules



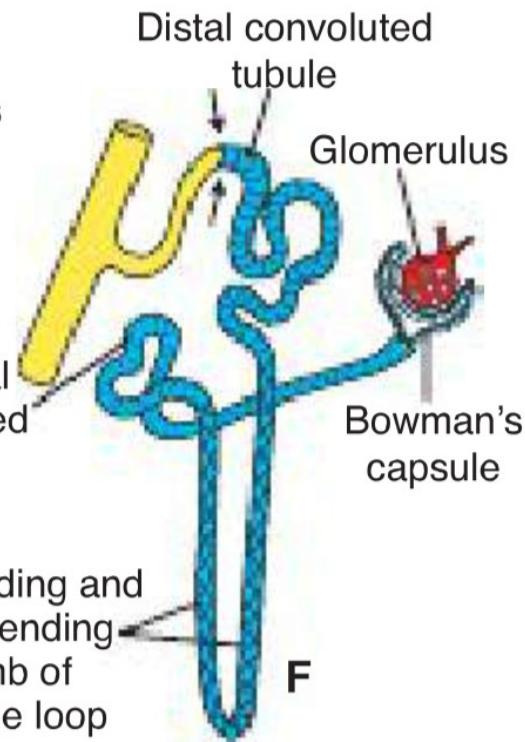
E

Glomerulus

Henle loop

Proximal convoluted tubule

Ascending and descending limb of Henle loop



F

Distal convoluted tubule

Glomerulus

Bowman's capsule

Renal defects

- Renal agenesis: unilateral (1 in 1000)/bilateral (1 in 3000 – 10000; 3:1 males to females; Potter sequence: anuria, oligohydramnios, pulmonary hypoplasia)
- Renal displasia
- Multicystic displastic kidney
- Congenital polycystic kidney disease: autosomal recessive (1 in 5000)/autosomal dominant (1 in 500 to 1000) – group of cilliopathies Bardet-Biedl syndrome, Mackel-Gruber syndrom
- Wilms tumor – affects children by 5 years of age incl. fetal period – WAGR syndrom, Denis-Drash syndrome

Renal defects

- Duplication of the ureter – splitting of the uretric bud
- Ectopic ureter – development of two uretric buds
- Supernumerary kidney

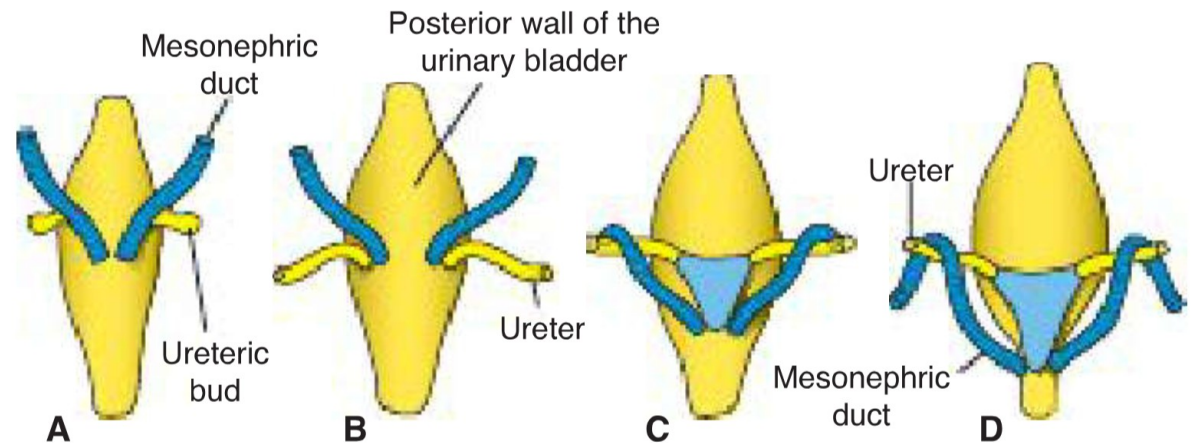
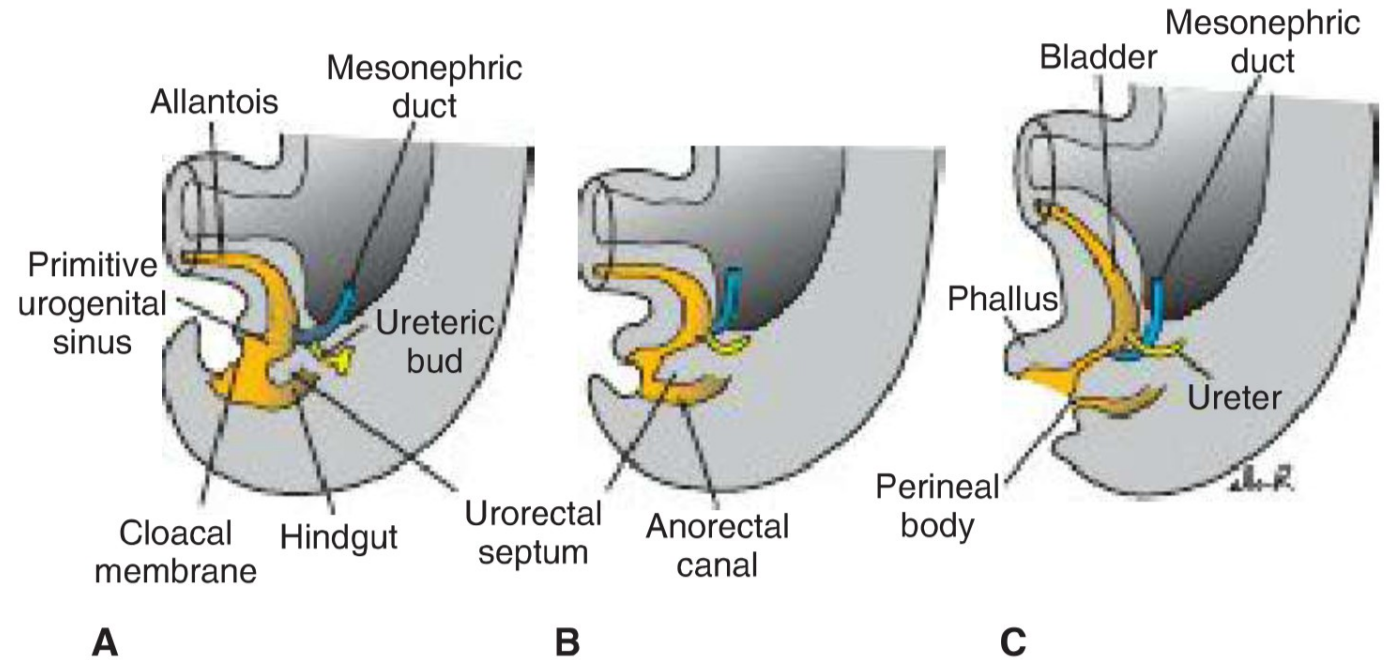
Abnormal location:

- pelvic kidney
- horseshoe kidney (1/600)
- unilatelar fused kidney
- accessory (suprenumeral) renal arteries – 25% of kidneys have 2 to 4 arteries

Bladder and urethra

Urogenital sinus:

- vesical part
- pelvic part
- phallic part



- Urachal abnormalities:
 - urachal sinus
 - urachal cyst
 - urachal fistula

Extrophy of the bladder
(1-2/10000-40000)

Extrophy of the cloaca

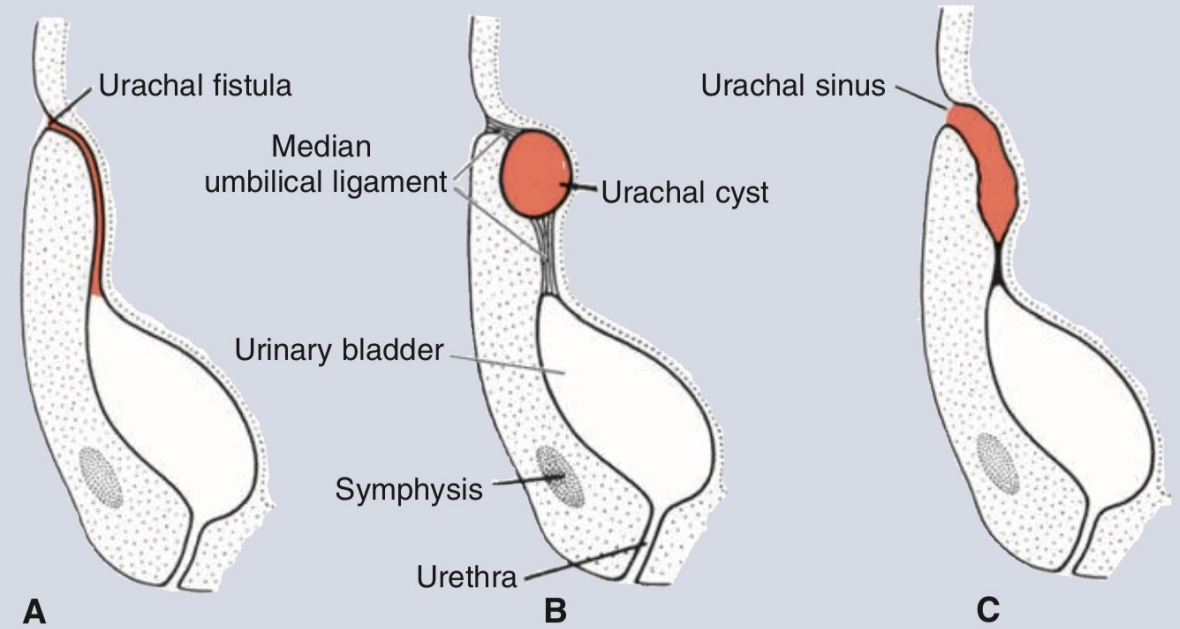


Figure 16.15 A. Urachal fistula. B. Urachal cyst. C. Urachal sinus. The sinus may or may not be in open communication with the urinary bladder.



Figure 16.16 A. Extrophy of the bladder. B. Cloacal extrophy in a newborn.