

SEM IV ZOOA

CC8 UNIT 5: URINOGENITAL SYSTEM (Part - 3)

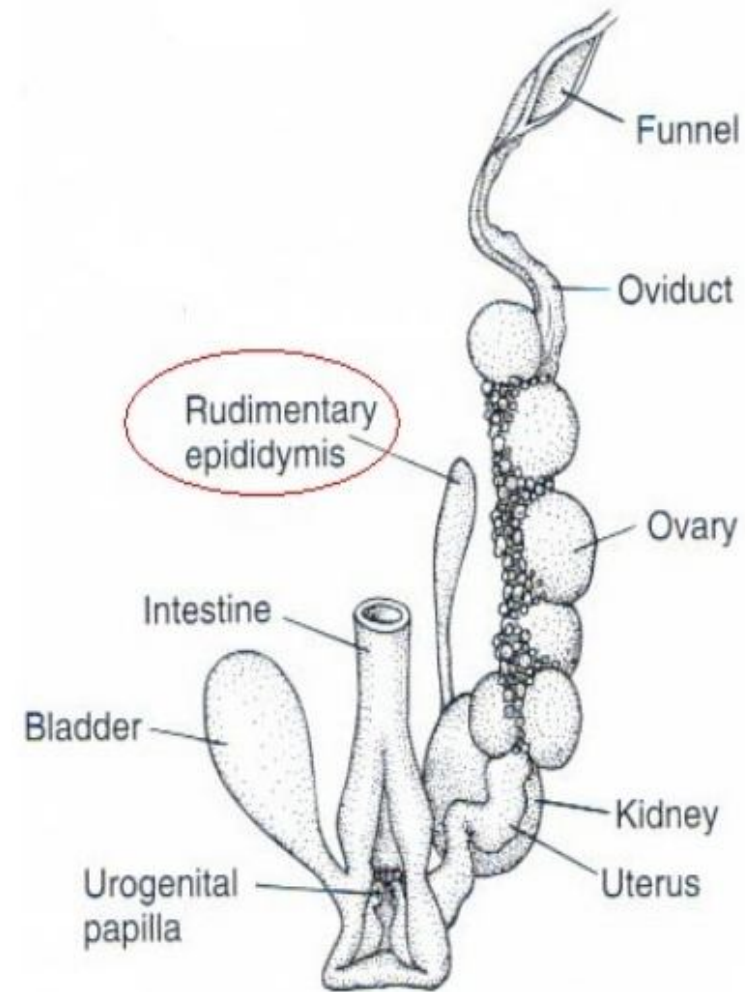
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COMPARATIVE ANATOMY OF THE METANEPHROS

Reptiles

- Kidneys restricted to the posterior half of the abdominal cavity and confined to the pelvic region.
- Generally small and compact, with lobulated surface.

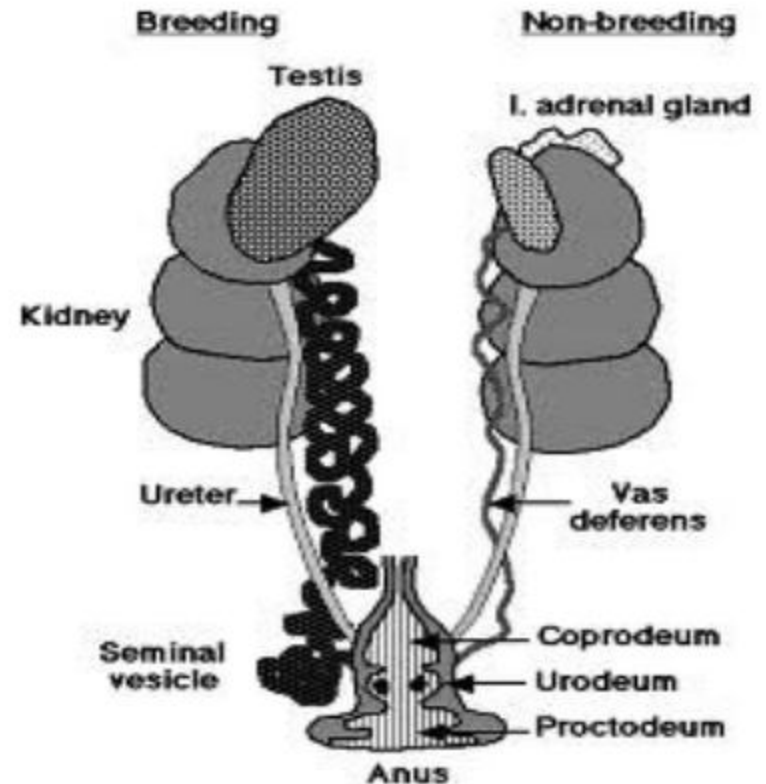


Urogenital system of female sphenodon

COMPARATIVE ANATOMY OF THE METANEPHROS

Birds

- Kidneys located in the pelvic region of the body cavity, with the posterior ends usually united.
- Lobed structures with short ureters which open into the cloaca.

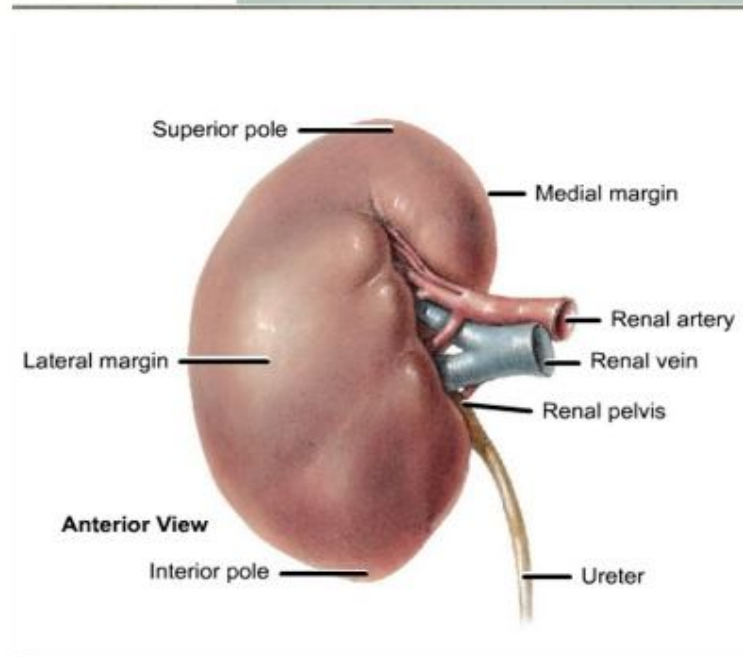
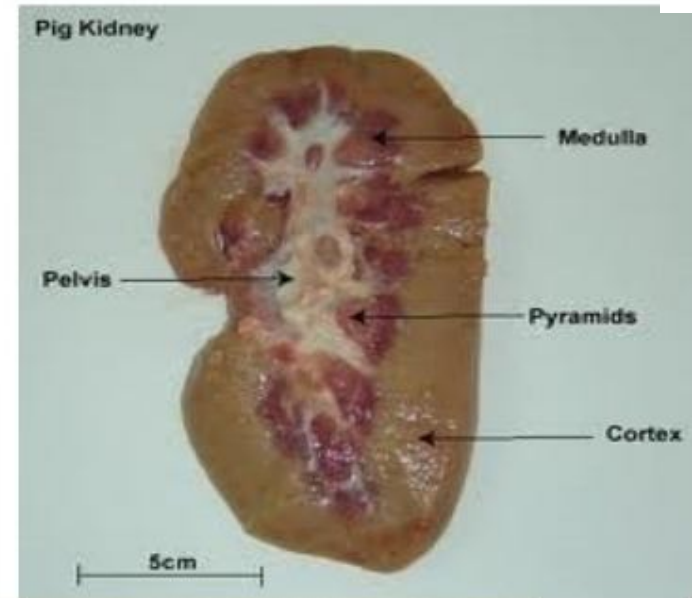


Male bird's urogenital system

COMPARATIVE ANATOMY OF THE METANEPHROS

Mammalian kidney

- Compact, bean-shaped organ attached to the body wall.
- **Ureter** leaves the hilum or hilus.
- **Hilum** is also the part where blood vessels and nerves enter and leave the kidney.

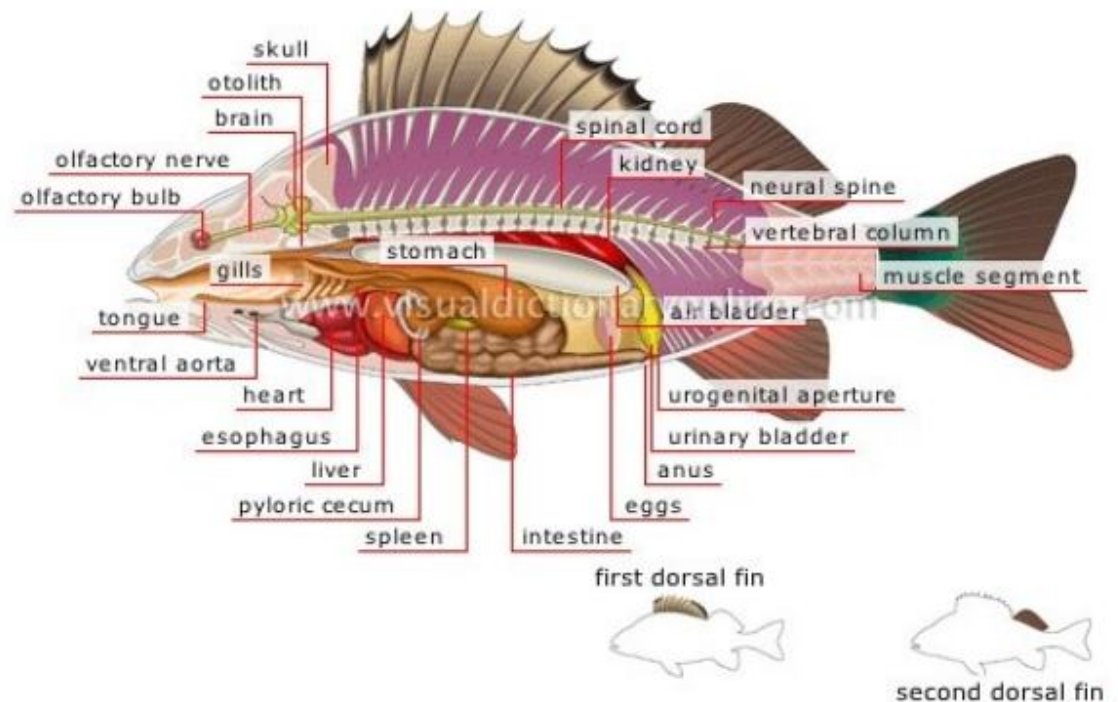


URINARY BLADDER

- Embryonic origin: ventral cloacal wall and portion of the allantois.
- Function: temporary storage of urine before disposal or voiding
- It may serve as a reservoir of water in terrestrial vertebrates.
- Water, reabsorbed from the bladder results from the action of an antidiuretic hormone.
- This is important to prevent dehydration.
- In some lower vertebrates, it may serve as recovery sites for some ions that are scarce in their niche.

URINARY BLADDER: FISHES

- It is an insignificant enlargement of the conjoined posterior ends of the urinary ducts.
- Not significant because fishes are immersed in water.
- Many marine fishes can extract fresh water from sea water by drinking sea water and quickly excreting the salts.



URINARY BLADDER

Amphibians

- Large and thin walled
- It connects with the cloaca a short distance beyond the openings of the archinephric ducts.



URINARY BLADDER

- **Crocodylians, snakes, some lizards, and birds** do not have urinary bladder.

Birds

- Absence in birds reduces the energy requirements for flight.
- Urinary wastes, mainly in the form of uric acid are eliminated via the cloaca along with the feces.

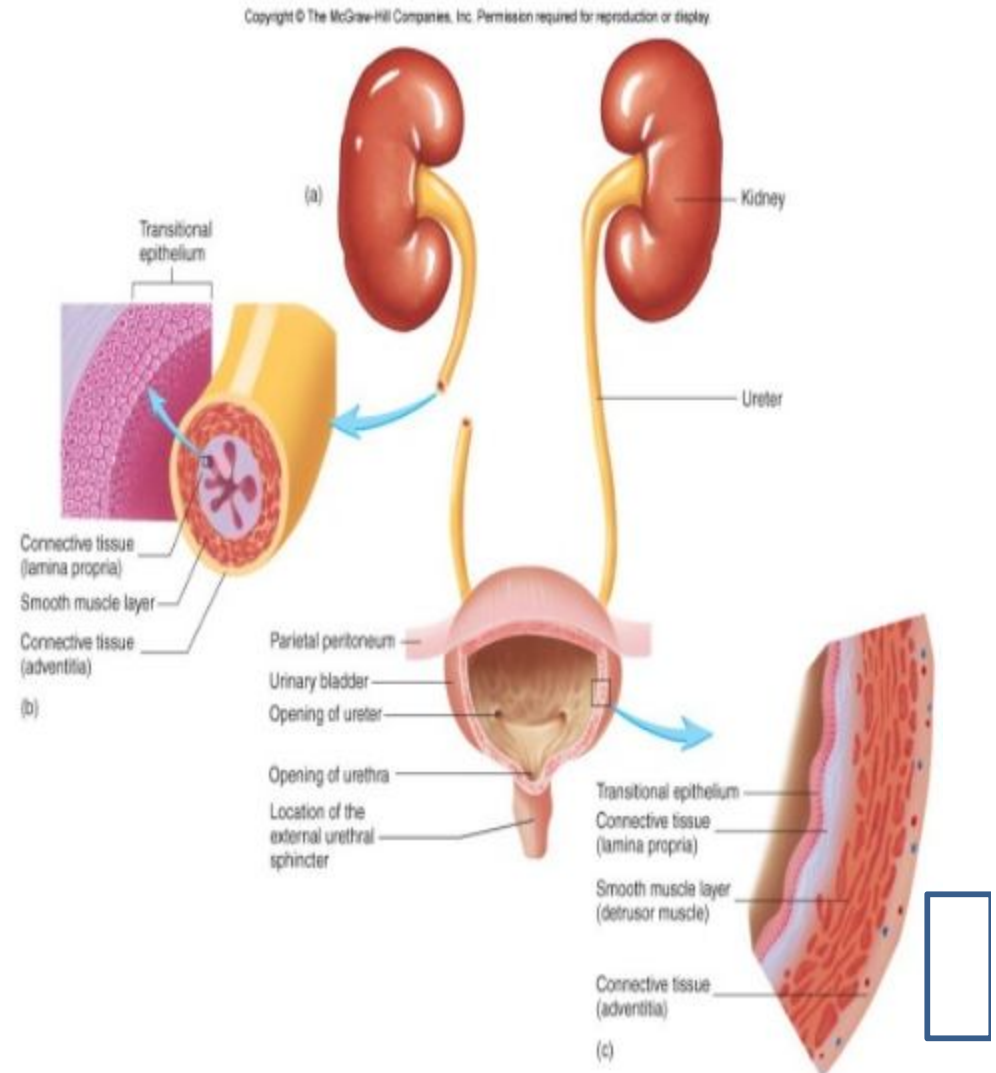
Turtles

- With a pair of accessory urinary bladders which is connected with the cloaca, and functions as accessory organs for respiration
- These may be filled with water in females, which is used to soften the ground in preparing a nest.

URINARY BLADDER

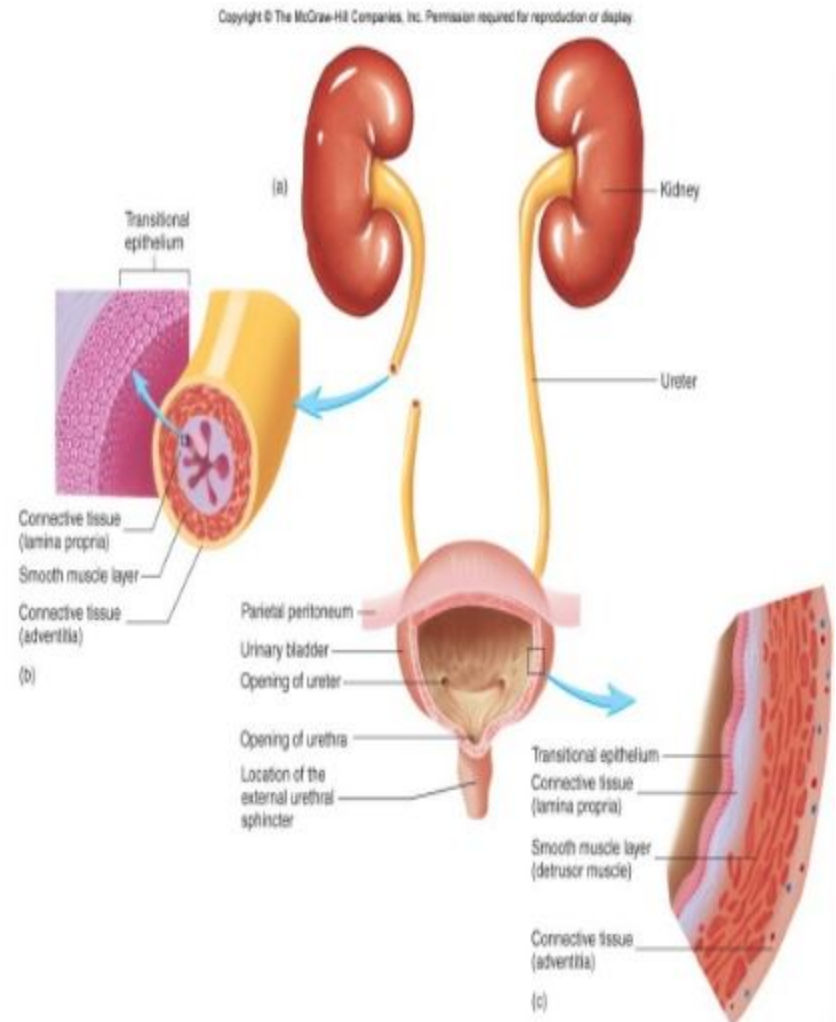
Mammals

- Present in all mammals.
- It is muscular and connects to the outside by the urethra
- Lower ends of ureters opens directly into the bladder on its posterior dorsal surface.



URINARY BLADDER

- Much of the muscles of the bladder continues down into the urethra.
- In males, the urethra is longer and passes through the penis and open at the tip through the **external urethral orifice** or **meatus**.
- Female rats and mice have their urethra that opens independently to the outside, passing through the clitoris.
- In other mammals, the urethra enters a **urogenital sinus** or **vestibule**.



REFERENCES:

Kent, George C & Carr, Robert K. Comparative Anatomy of the Vertebrates. *Urinogenital System.*