Brain Anatomy (Part III)

29 June 2017

Meninges (Greek ‘membrane’)

- Meninges and CSF serve to stabilize the brain and provide buoyancy.

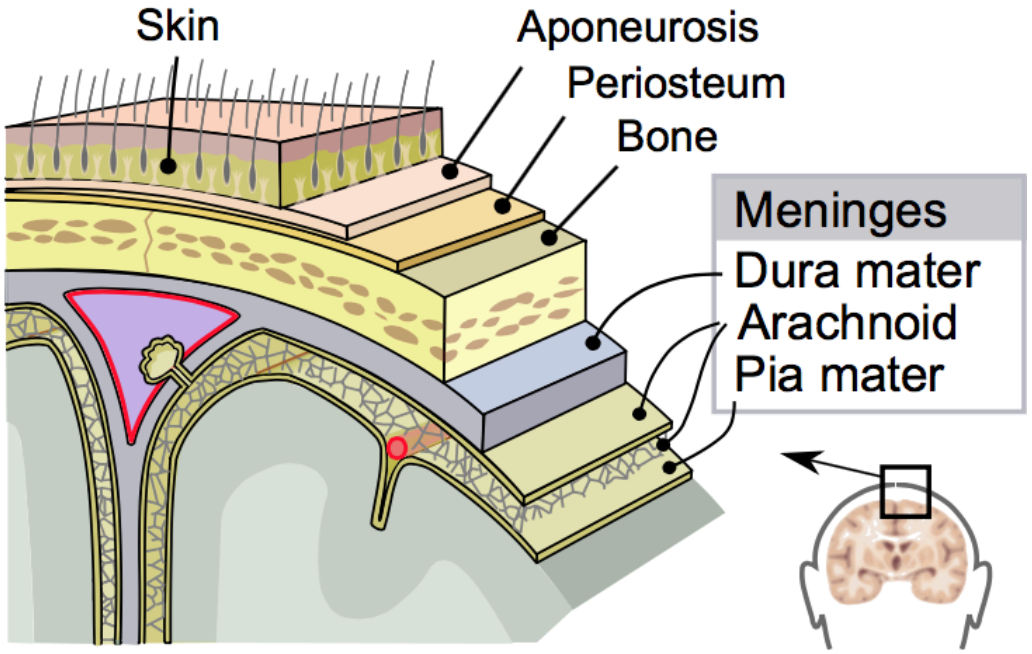
- The brain actually weighs ~3 lbs. However, stabilized by the meninges and ‘floating’ in CSF, the brain effectively weighs ~0.10lb.

Meninges

(proceeding from inner surface of skull to cortex)

- **Dura mater ('tough/hard mother')**
  - Thick, strong, consists of layers of tightly packed collagen fibers.
  - Adheres to the cranial cavity.
- **Arachnoid mater**
  - Wispy connective tissue, made up of layers of cells and collagen bundles (fascicles).
  - Arachnoid trabeculae ('little rods') – collagen tissue that extends and blends into pia mater.
- **Pia mater ('devoted/loving mother')**
  - Very thin, conforms tightly to the cortex.

Meninges



- CSF present between arachnoid and pia
- Of the meninges, only dura has sensory innervation (and thus abnormalities that affect dura can cause head pain).

Dura, Arachnoid, and Pia

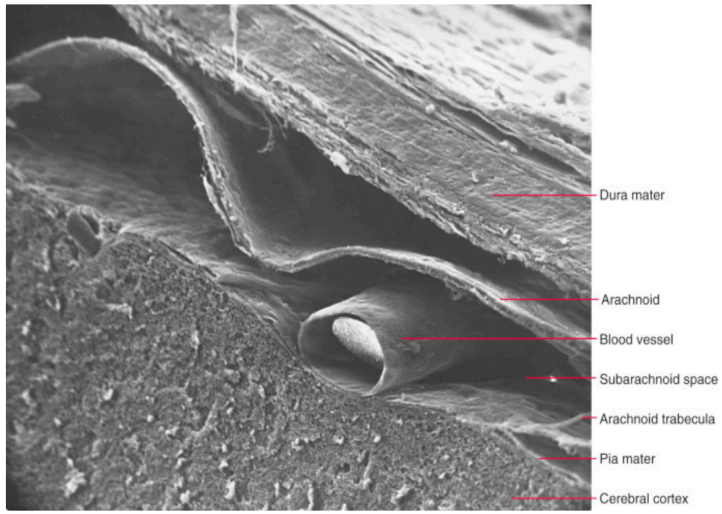


Figure 4-2

Scanning electron micrograph of the cranial meninges of a young dog. The apparent space between the dura mater and the arachnoid is an artifact of processing and would not normally be present.

(Courtesy Dr. Delmas J. Allen, Medical College of Ohio.)

Dural Folds

- Places where inner dural layer folds into the cranial cavity
- 2 important dural folds
  - **Falx cerebri:** invests the longitudinal fissure (which divides two hemispheres.
  - **Tentorium cerebelli:** separates cerebrum from cerebellum.