

Head injury

➤ *It is defined as any injury to the scalp & or skull & or brain, it is the most common cranial condition that the neurosurgeon deal with.*

Classification:

➤ A) according to the mechanism :

☐ 1) closed head injury:

a) high velocity (auto-accident)

b) low velocity (falls, assaults).

☐ 2) penetrating head injury:

a) gun shots wounds

b) other open injuries.

➤ *B) according to the severity which depends on GCS:*

❑ *1) mild head injury: GCS (14-15) 80%*

❑ *2) moderate head injury: GCS (9-13)
10%*

❑ *3) severe head injury: GCS (8 or less)
10%*

➤ ***C) according to the morphology which depends on CT image:***

□ ***1) skull fractures***

a) vault (linear or depressed fractures or comminuted fractures).

b) basilar (with or without CSF leak or cranial nerve palsies).

□ ***2) intra-cranial lesion***

a) focal (epidural, subdural or intra-cerebral hematomas)

b) diffused (concussion, diffused axonal injury)

Glasgow Coma Scale (GCS)

It's established in 1974 by Teasdale & Jennet.

➤ *A) best eye opening (E)*

- | | |
|-----------------------|----------|
| <i>1) spontaneous</i> | <i>4</i> |
| <i>2) to call</i> | <i>3</i> |
| <i>3) to pain</i> | <i>2</i> |
| <i>4) none</i> | <i>1</i> |

➤ *B) best verbal response (V)*

- | | |
|------------------------------------|----------|
| <i>1) oriented</i> | <i>5</i> |
| <i>2) confused (disoriented)</i> | <i>4</i> |
| <i>3) inappropriate words</i> | <i>3</i> |
| <i>4) incomprehensible sound</i> | <i>2</i> |
| <i>5) none</i> | <i>1</i> |

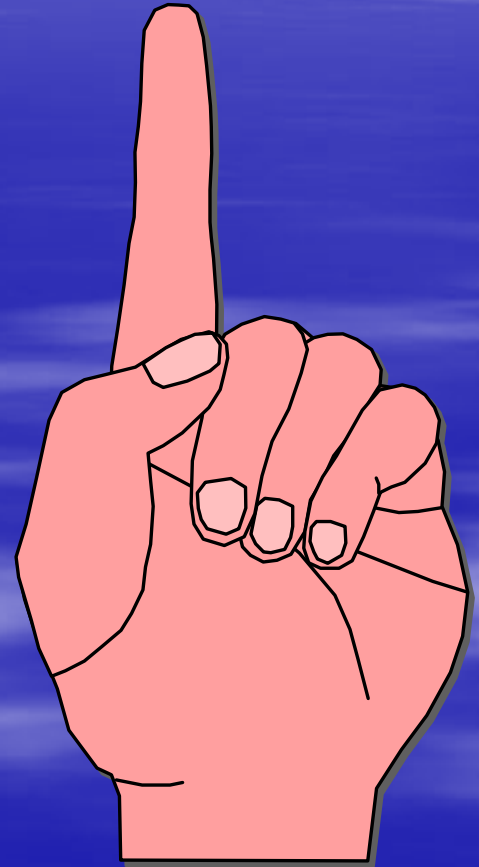
➤ *C) best motor response (M)*

- | | |
|---|----------|
| <i>1) obeys commands</i> | <i>6</i> |
| <i>2) localizes pain</i> | <i>5</i> |
| <i>3) normal flexion (withdrawal)</i> | <i>4</i> |
| <i>4) abnormal flexion (decorticate)</i> | <i>3</i> |
| <i>5) abnormal extension (decerbrate)</i> | <i>2</i> |
| <i>6) None</i> | <i>1</i> |

Epidemiology

Head injury

- Number One Killer in Trauma
- 25% of all trauma deaths
- 50% of all deaths from MVC
- 200,000 people every year in the world live with the disability caused by these injuries



Etiology

Road traffic accidents (RTA) – most common cause ■

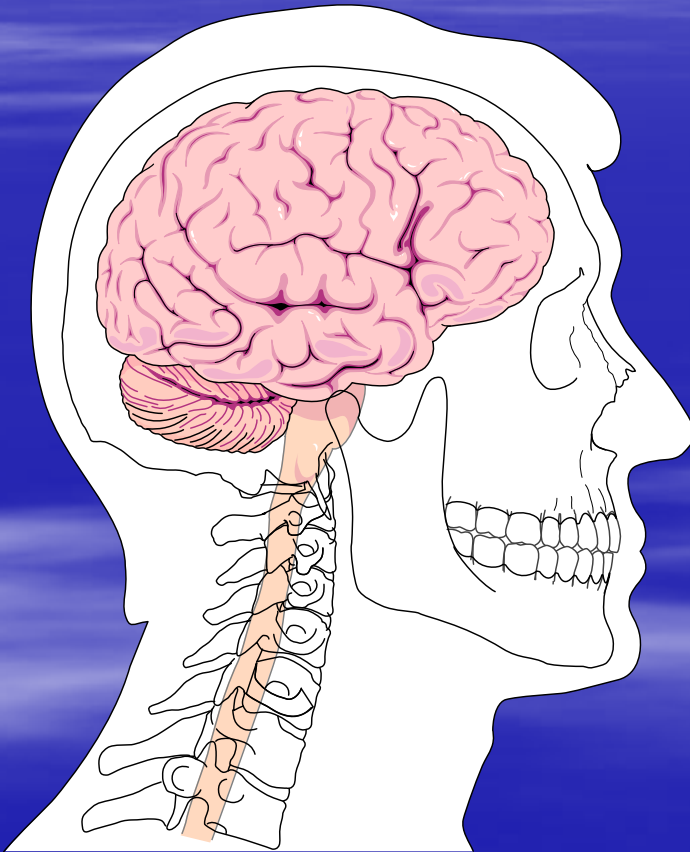
Falls ■

Sports injury ■

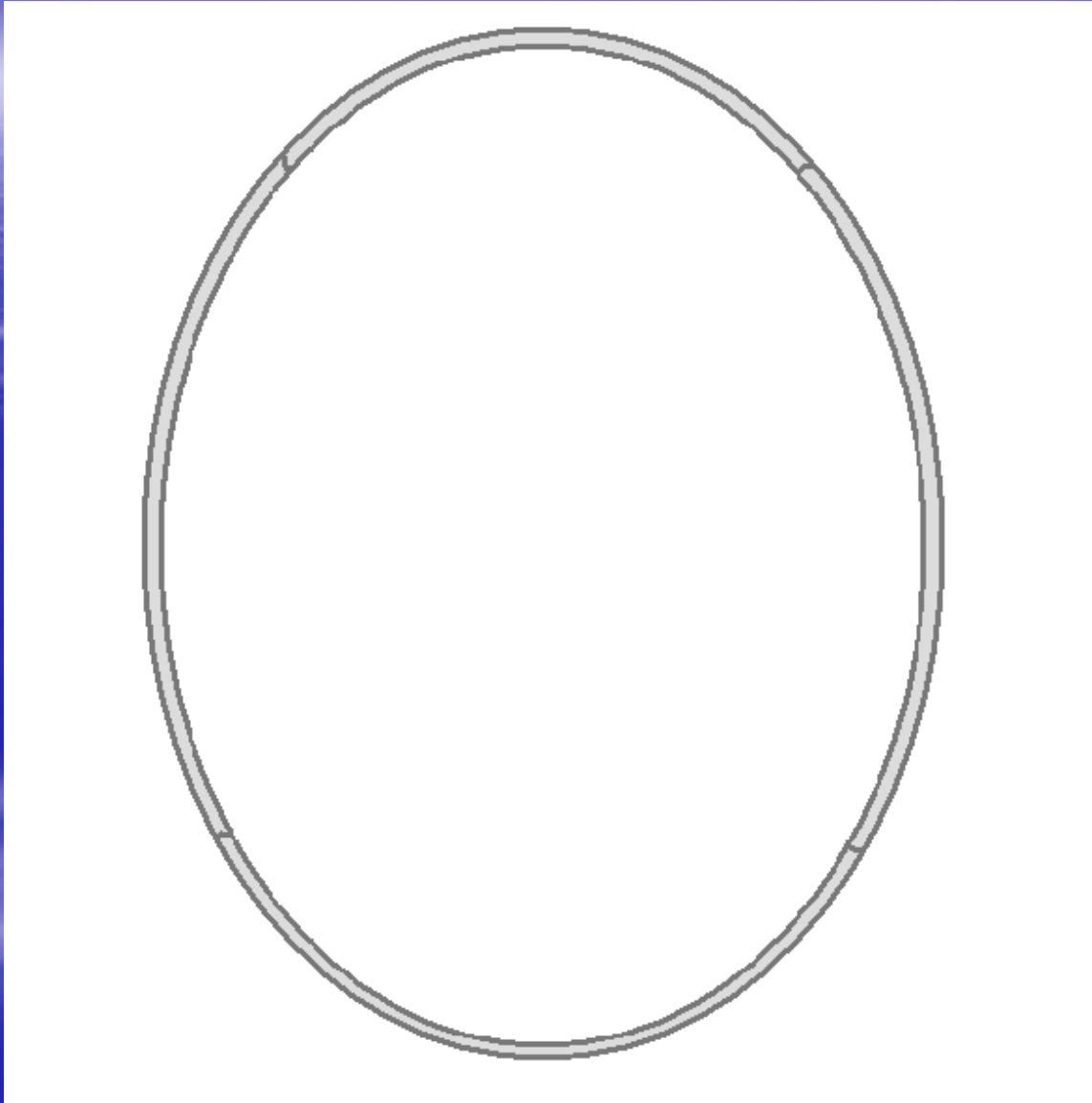
Assault ■

Gun shot wounds to head ■

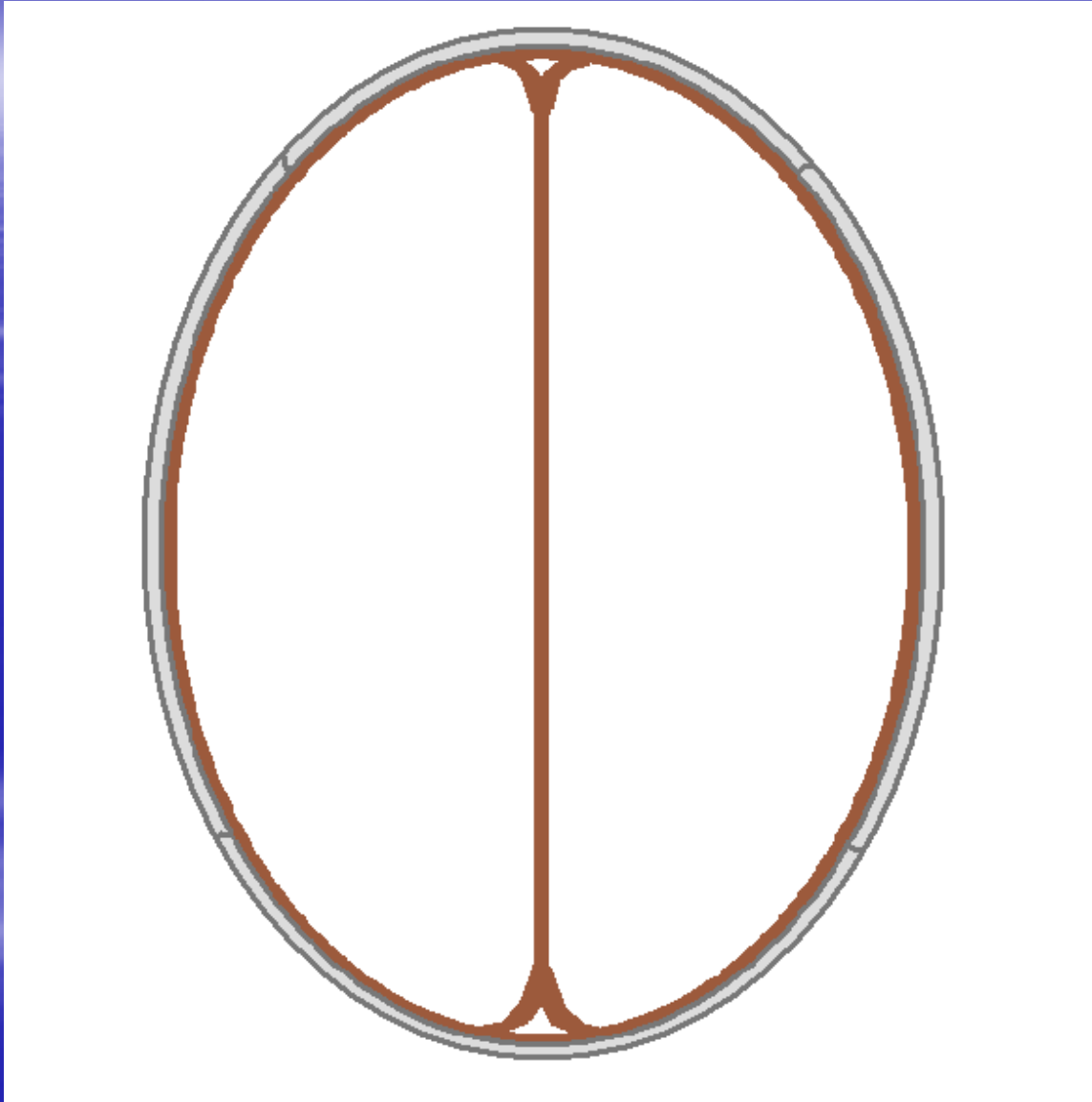
Basic Anatomy



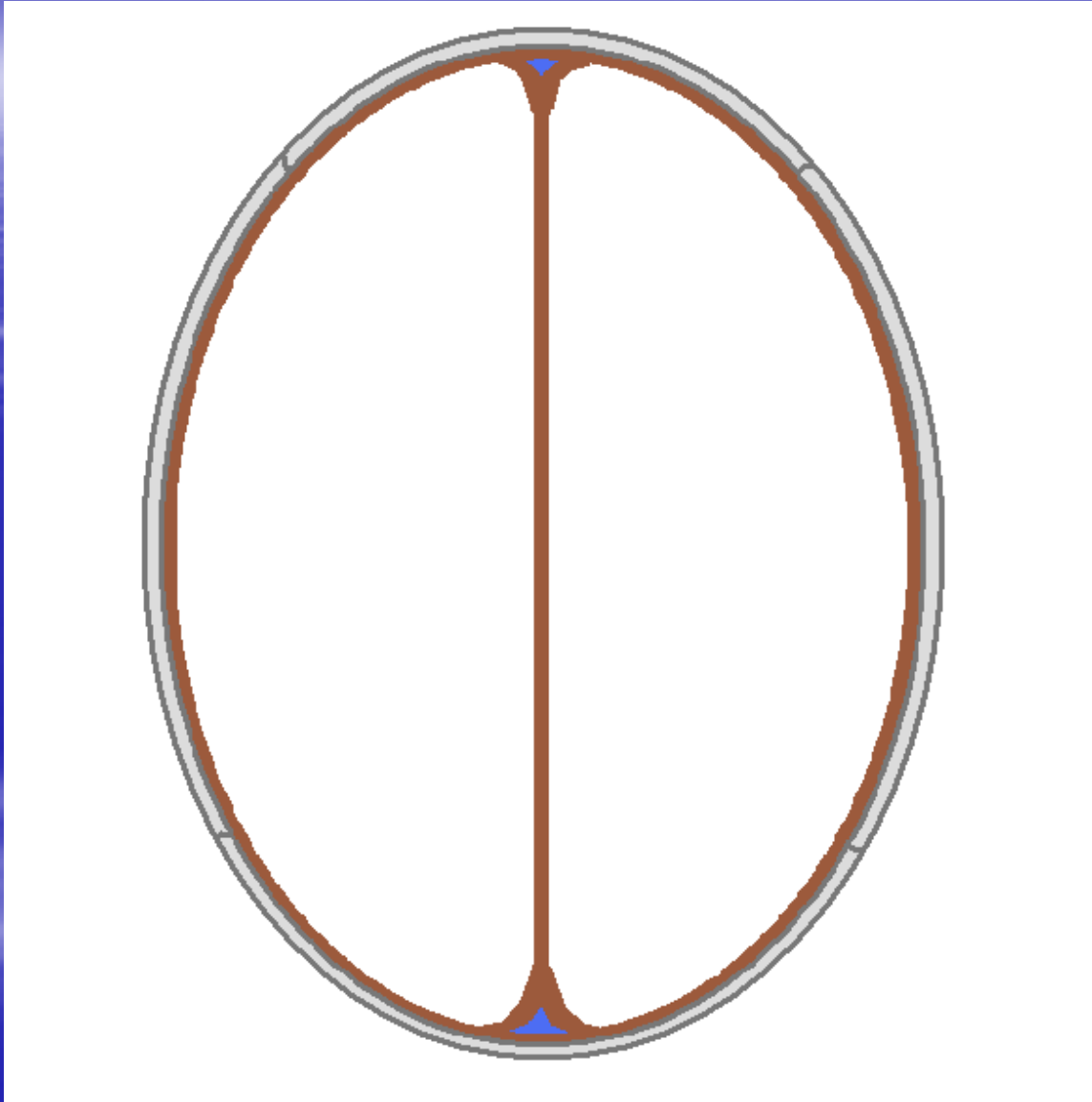
- Scalp
- Skull
- Meninges
 - Dura Mater
 - Arachnoid
 - Pia Mater
- Brain Tissue
- CSF and Blood



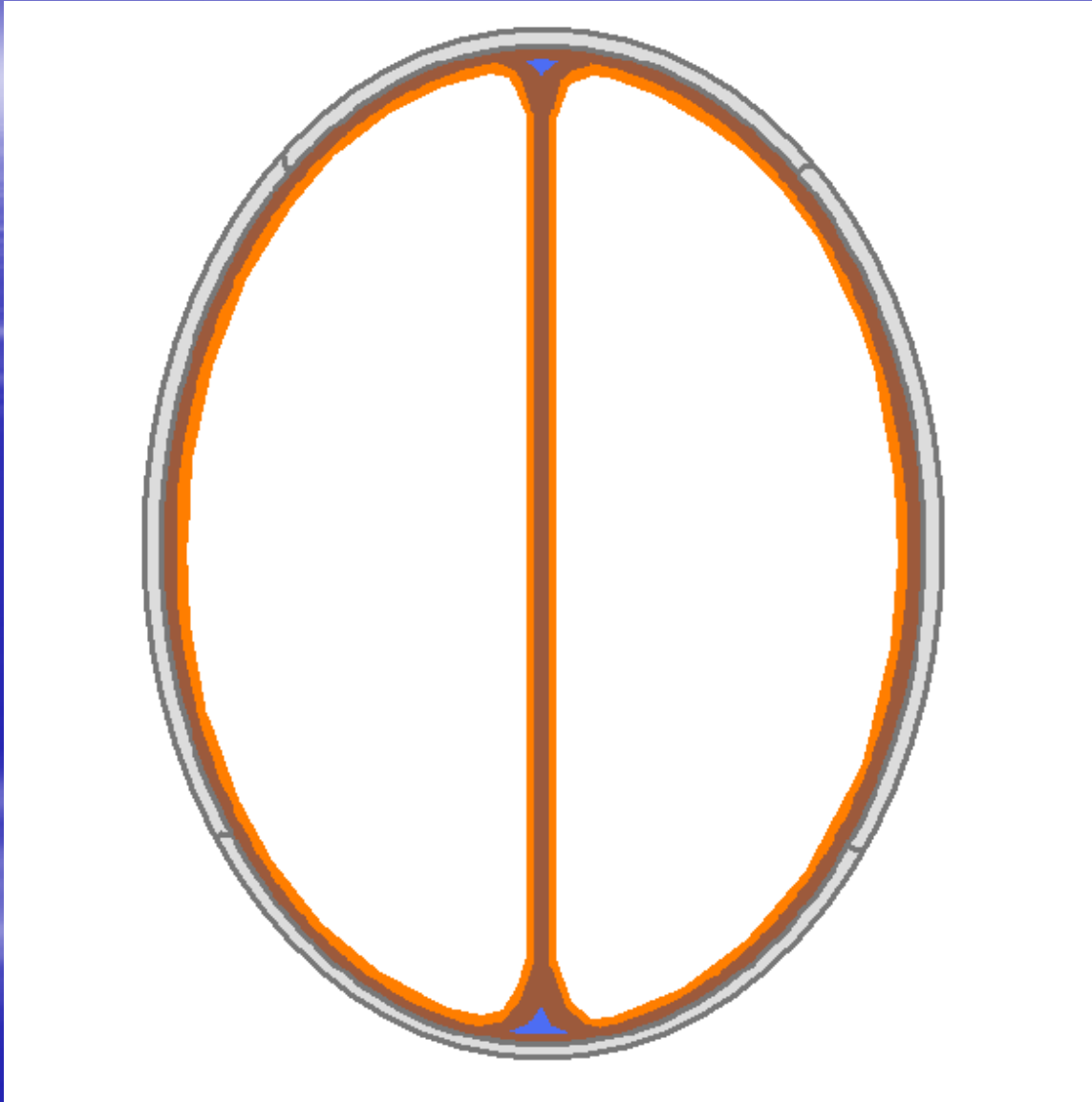
Skull



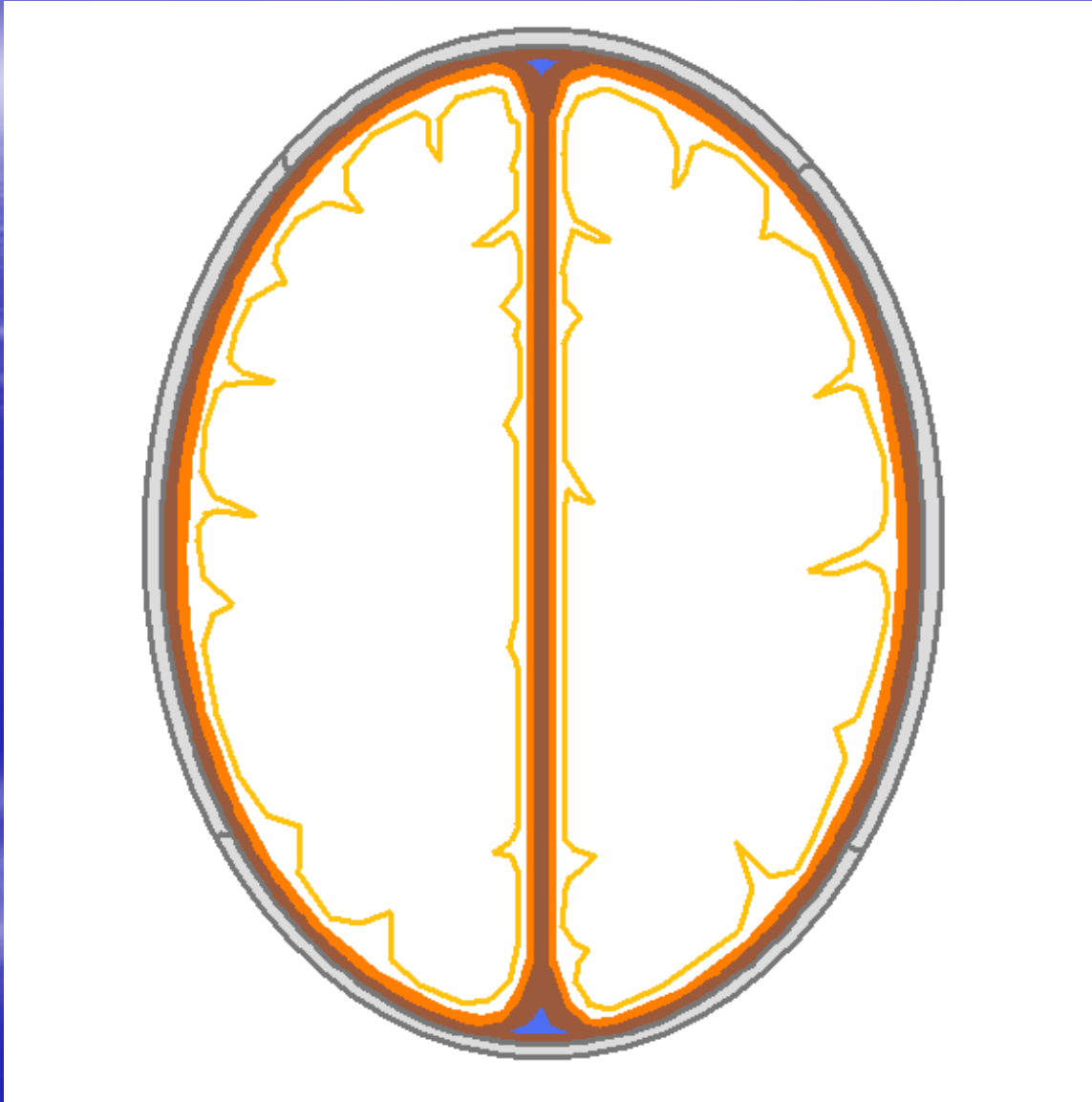
Dura-
mater



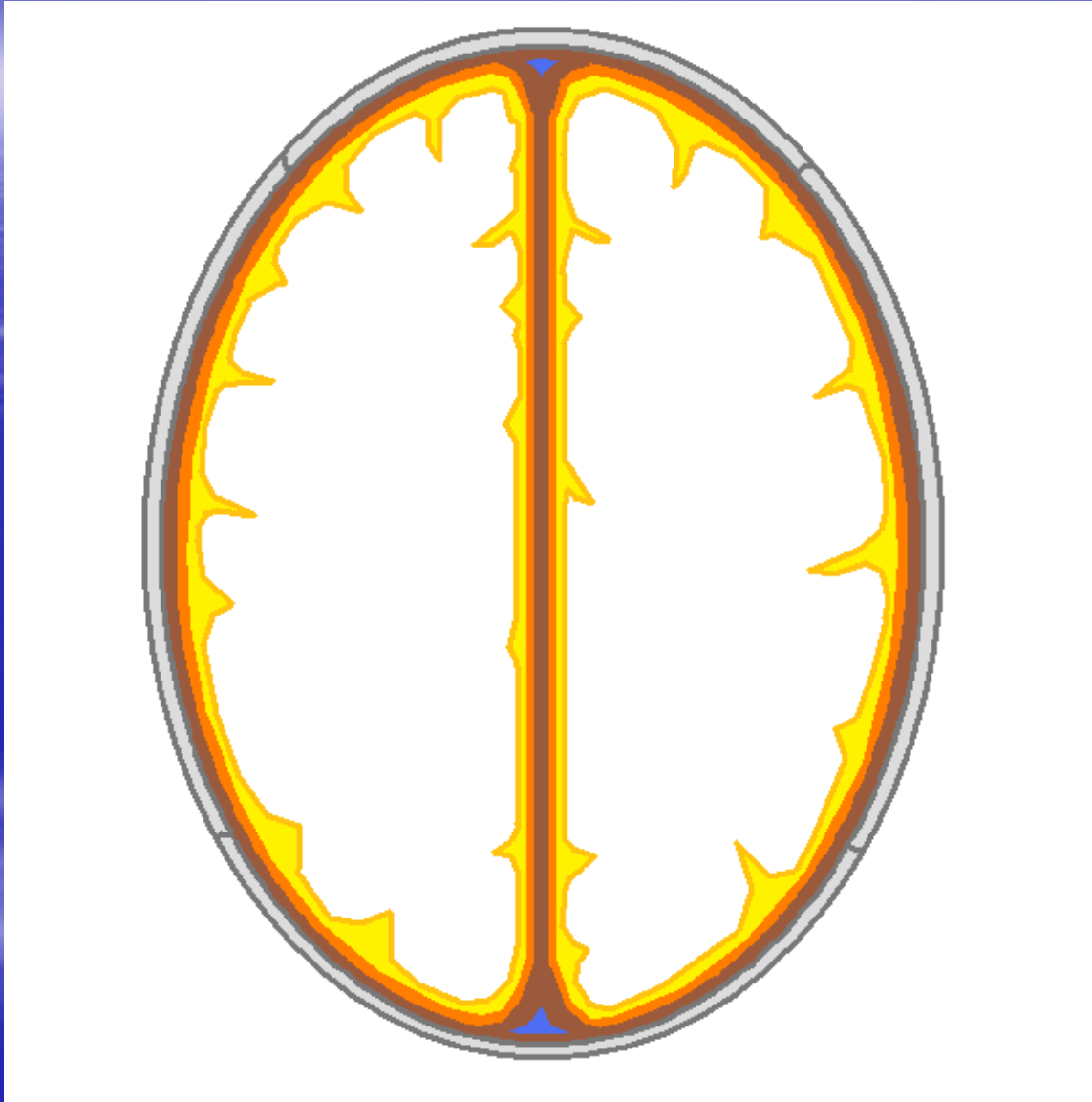
Venous
sinuses



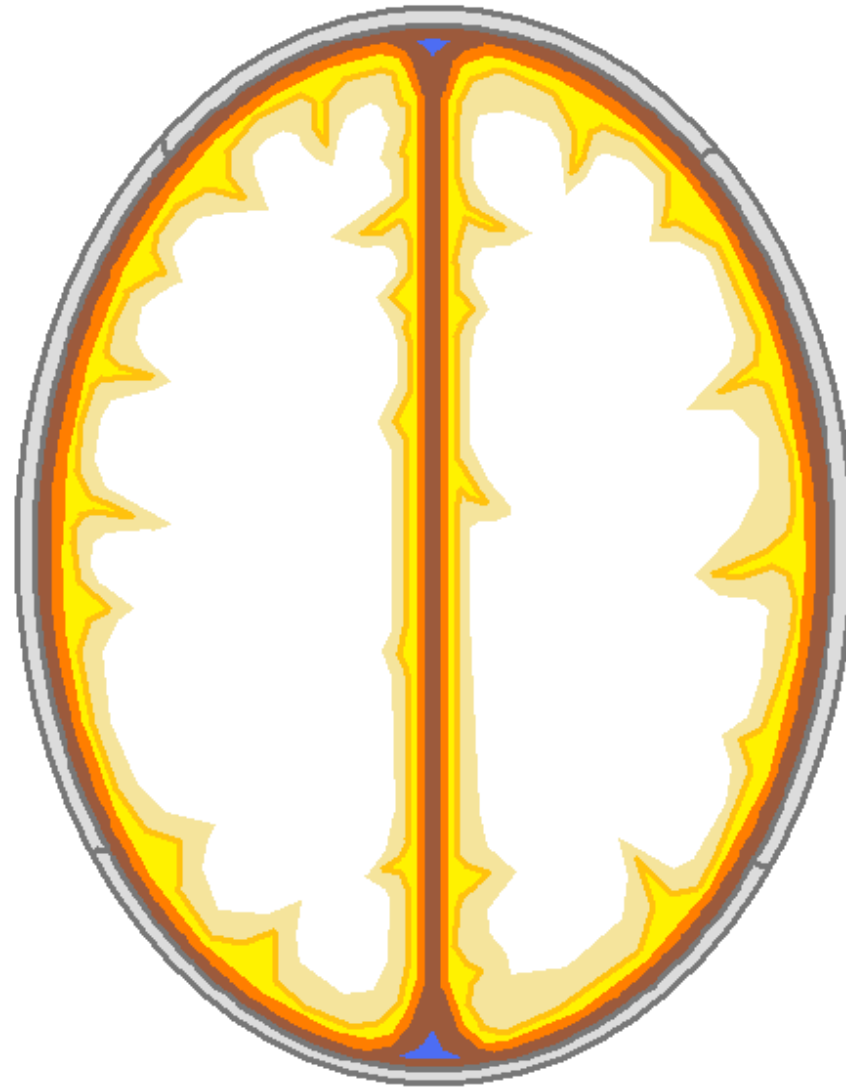
Arachnoid
mater



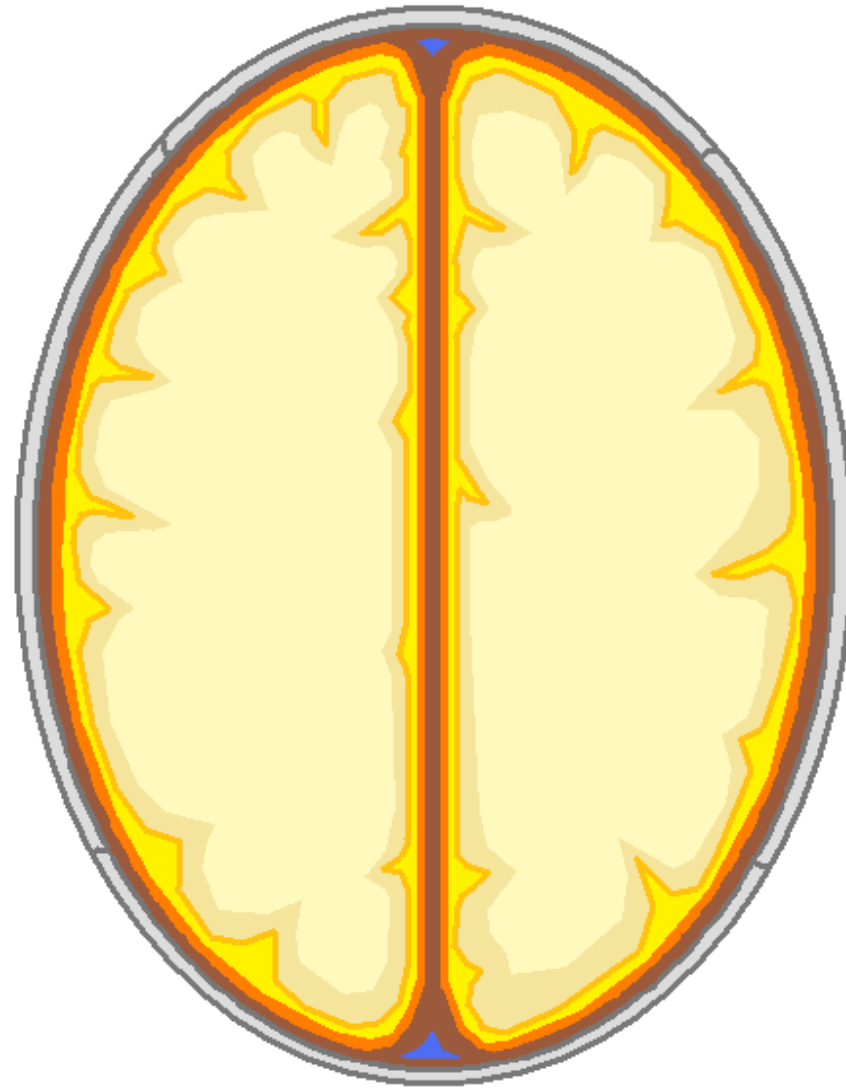
Pia-
mater



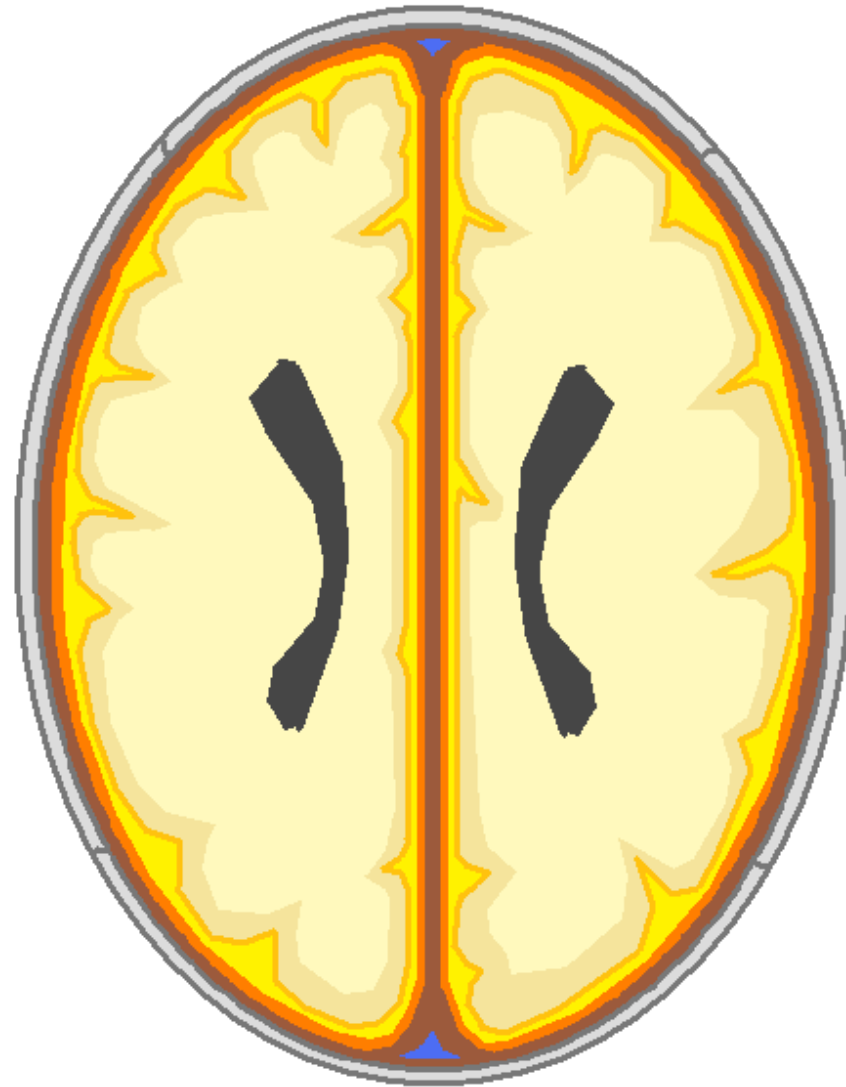
CSF



Grey
matter



White
matter



Ventricles

Intracranial Volume

- 80%
Brain Matter
- 10%
Blood
- 10%
CSF

