Notes for Friday September 27, 2002

Outline:
- Reflexes
- Nerve & nerve cord injuries
- Brain – general
- Protection of the brain

Flexor/Withdrawal Reflex
- Three neurons
- Two synapses
  (polysynaptic)

Crossed Extensor Reflex
- Sensory impulse enters on one side of S.C. and motor impulse exits on opposite side
- Spinal cord injuries
  - Paraplegia = paralysis of both lower limbs; transection below cervical region
  - Quadriplegia = paralysis of all four limbs; transection in cervical region

Nerve injuries
- In PNS: regeneration only if cell body is intact and Schwann cells are functional
- In CNS: neurons cannot regenerate.

Please note regarding Myelin:
- In PNS formed by Schwann cells
- In CNS formed by Oligodendrocytes

The Brain
- Cephal = brain
- Cereb = brain

Regions of the brain
1. Brain stem
2. Diencephalon
3. Cerebrum: two cerebral hemispheres
4. Cerebellum
Protection of brain

- Cranial bones
- NO epidural space
- Cranial meninges:
  - double layer dura mater separated by dural sinus
  - subdural space
  - arachnoid membrane
  - arachnoid space - CSF
  - pia mater

- Function to provide cushioning and protection

Cerebrospinal Fluid

- Produced in the choroid plexuses of the four ventricles
- Formed by filtration of blood plasma (blood-CSF barrier)
- Circulates thru’ ventricles, subarachnoid space & central canal (in spinal cord)

- CSF is produced at the same rate it is reabsorbed to maintain constant pressure.
- Abnormalities in CSF flow (tumor, inflammation) can cause increase in pressure = HYDROCEPHALUS

Functions of CSF

- Mechanical protection
- Chemical protection
- Supply of nutrients and removal of wastes

Brain blood supply

- Blood brain barrier prevents certain substances from entering nerve tissue
- Nerve tissue has demand for glucose & oxygen

Cerebrovascular Accident (CVA)
  = Stroke = brain attack

- Resulting from:
clot; plaque; hemorrhage

- Often preceded by Transient Ischemic Attack