SPINAL CORD AND NERVES

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The Spinal Cord: (p 419) as embryo grows, cord grows less.
End of cord branches extensively at L1: meninges form filum terminale at conus medularis. (p 419)
lumbar puncture between L3 and L4 where cauda equina is found (test for meningitis, blood)
Two enlargements: cervical and lumbar innervate upper and lower limbs
Anterior median fissure, posterior median sulcus on cord
dura mater extends laterally, blends with epineurium (connective tissue covering nerve )
arachnoid and pia mater as in brain.

ANATOMY OF SPINAL CORD, CROSS SECTION: (P 423)

- anterior gray horn
  somatic motor cell bodies

- posterior gray horn
  axons of sensory, internuncial cell bodies

- lateral horn
  cell bodies of visceral (autonomic) motor neurons

gray commissure
- posterior funiculus (white) sensory cord
- lateral funiculus (white) sensory and motor cord
- anterior funiculus (white) sensory and motor cord

- posterior median sulcus
  infolding of pia mater

- anterior median fissure
  ventral root carries only motor fibers
dorsal root of spinal nerve carries axons from dorsal root ganglion
dorsal root ganglion sensory neurons
spinal nerve forms where dorsal and ventral roots unite
central canal lined with ependymal cells, contains CSF

vertebra features: [neural arch]
[centrum of vertebra]
[denticulate ligament]
arachnoid's largest connection to cord

SPINAL NERVES: dorsal ramus carries motor and sensory fibers for skin and back muscles:
dermatome (area of skin on surface of body) and muscles (p. 428), shingles, p 428.referred pain, p.506,
Upper limbs cervical and T1
Trunk C4 to L5
Lower limbs L1 to S2
Buttocks S1 to S5

THREE MAJOR PLEXUSES Ventral rami intermix in plexuses: (p 429-445)

1 Cervical: (430)
  neck and shoulder,
  phrenic laryngeal
  supplies diaphragm, to voice box, etc

2 Brachial: (431)
  formed from cervical nerves C5-C8,
  Three cords posterior, medial and lateral cords
  radial median ulnar
  “funny bone”

3 Lumbosacral: (433)
  separate into two plexi:
  lumbar plexus: from T12-L4:
  femoral skin & muscles of buttocks, pelvis, lower abdomen, legs
  sciatic pudendal largest nerve in body
  skin and muscles of genitals, perineum, anal, GU&I sphincters

SPINAL REFLEX: bisynaptic reflex arc: p 436, stretch reflex: p 439 (muscle spindle p 439), polysynaptic: p 442
Illustrate: sensory dorsal root ganglion, dorsal root (pain or proprioceptor), spinal nerve
association posterior grey horn (axon can cross posterior grey commissure, inhibit antagonistic muscle.)
motor anterior grey horn, ventral root, spinal nerve