The Neck

Overview
- Transitional area between base of cranium and clavicles.
- Slender with flexibility necessary to position the head to maximize use of sensory organs – point sensory structures where they need to go.
- Many important and vulnerable structures are crowded into a small area.
- Vital structures lack bony protection.
- Superior Thoracic Aperature: highway

Neck divided into regions: lateral, anterior, posterior and other SCM
Superficial: Platysma (thin, sheet like muscle, fascial expression, tightens neck, muscles, and fascia)

Atypical Cervical Vertebrae
- CA, chapter 4, chapter 8, p. 984
- C1 (atlas)- kidney shaped, ring-like, lacking a spinous process or body.
- Superior articular facets support the occipital condyles.
- Cruciate ligament (transverse ligament of atlas and longitudinal bands).
- C2 (axis)- strongest cervical vertebra
- Tooth-like dens (odontoid process) extends superiorly from body for rotation of cranium and C1.
  o Peg that superior section of head transitions on, rotates around
- Large bifid spinous process deep in the nuchal groove.
  o Most superior one you can feel

Craniovertebral Joints- 2 sets (not specific questions, just sense of how it is set up)
- Atlanto-occipital joints- C1 (atlas) and occipital condyles. Synovial condyloid. Permits flexion/extension and sideways tilting of head.
- Atlanto-axial joints- 3 joints total
  o 2 (right and left) lateral joints formed by inferior facets of lateral masses of C1 and superior facets of C2. Gliding synovial joints.
  o 1 median formed between the dens of C2 (atlas) and anterior arch of C1 (axis).
  o All three working together: rotation of head (cranium and C1 rotate on C2).

Bones of Neck
- Hyoid Bone- unique among bones, does not articulate with any other bone.
  o Suspended in anterior neck at C3 level; between mandible and thyroid cartilage.
  o Stylohyoid ligaments from styloid processes firmly anchored to thyroid cartilage = holds hyoid in place
  o Serves as attachment for anterior neck muscles and aids in airway maintenance

Clinical Aspects
- Injury to cervical vertebrae- with articular facets oriented in a more horizontal manner, cervical vertebrae are "stacked like coins" → require less force to dislocate than to fracture → with possible facet jumping
  o Facet joints unlock and cervical vert. get stuck; potential damage to cord
- Fracture/dislocation of atlas: occur with vertical forces compressing the lateral masses, fracturing the ant./post. arches (Jefferson burst fracture). Spinal cord is more likely to be injured if transverse ligament is ruptured (Steele’s Rule of Thirds).
  o Jefferson: diving into a pool, can bi in a car crash, whenever you directly land on your head
• Arytenoid cartilages - pyramidal cartilages articulating with laterosuperior surface of cricoid at cricoarytenoid joints (allows approximating, tensing, and relaxing vocal folds).
  - Corniculate and cuneiform - small nodules in posterior part of ary-epiglottic fold.

• Epiglottic - heart-shaped elastic cartilage covered with mucous membrane. Forms the superior part of the anterior wall and superior margin of the laryngeal inlet.
  - Broad superior end is free, tapered stalk is attached to the thyroid laminae by the thyro-epiglottic ligament. Attached to the hyoid by the hyo-epiglottic ligament.

Interior of Larynx

- Laryngeal cavity: Extends from laryngeal inlet to inferior border of cricoid cartilage.
  - Vestibular fold - superior to vocal fold, formed from quadrangular membrane and vestibular ligament. Protective in function.
  - Vocal ligaments (vocal folds) - extend from the laminae of thyroid cartilage to the vocal processes of the arytenoid cartilages. The glottis controls sound production and with complete adduction of folds, prevents entry of air.

Muscles of Larynx

- Extrinsic - previously discussed.
- Intrinsic - alter the length and tension of vocal folds, size and shape of rima glottidis.
  - Everything but cricothyroid (superior laryngeal) supplied by recurrent laryngeal nerve (branch of CN X).