Head and Neck Anatomy for Neurosurgeons

The superior articular facets of C2 overlie the transverse foramen so that the vertebral artery has to project laterally to enter the transverse foramen at C1.

The inferior articular facets of C2 are behind the transverse foramen.

The posterolateral lips of the C3-C7 vertebral bodies project upwards to form the uncinated processes. They form the anterior wall of the intervertebral foramina.

The vertebral artery is lateral to the C1-C2 joint, and anterior to the C3-C7 joints.

Platysma is innervated by the cervical branch of the facial nerve.

Marginal mandibular branch of the facial nerve: innervates the musculature of the lower lip (injury may cause asymmetry of the smile) – place incision 2cm below the angle of the mandible to avoid injury to this nerve.

SCM most important muscle in dividing neck into triangles

Anterior triangle: SCM, midline, angle of the mandible  
posterior triangle: SCM, clavicle, trapezius

Hyoid divides the anterior triangle into suprahyoid (divided by the digastric muscle into two triangles: submental – fat and lymphatic nodes, submandibular – CN XII passes below the posterior belly of the digastric muscle and in front of the carotid artery) and infrahyoid portions.

Omohyoid muscle divides the infrahyoid triangle into two: above is the carotid triangle (marginal mandibular nerve crosses this triangle). Inferior one is the muscular triangle.

Ansa cervicalis: comes from hypoglossal and cervical nerves to innervate the infrahyoid muscles; often superficial to the vein

CN X runs between the carotid artery and the internal jugular vein

High carotid bifurcations lie above the angle of the mandible.

Carotid body – oval structure at the carotid bifurcation

Carotid sinus – an arterial dilation of the ICA at the level of bifurcation

Brachiocephalic trunk, subclavian, aortic arch …

Thoracic duct drains into jugular-subclavian junction? – how to repair a thoracic duct injury

Herb’s point – ½ distance of the superior and inferior insertions of SCM; important because the subcutaneous branches of the cervical plexus can be used (greater auricular nerve, transverse cervical nerves, accessory nerve, suboccipital nerve, supraclavicular nerves) as nerve grafts

Dorsal ramus of C2 gives the greater occipital nerve

ECA branches (SALFOPSMS):   
1. Superior thyroid artery  
2. Ascending pharyngeal artery  
3. Lingual artery  
4. Facial artery  
5. Occipital artery  
6. Posterior auricular artery  
7. Internal maxillary artery  
8. Superficial temporal artery

Recurrent laryngeal nerve  
- branch of the vagus nerve  
- supplies all the intrinsic muscles of the larynx except the cricothyroid muscles  
- travel alongside the trachea  
- posterior cricoarytenoid muscles (only muscles that can open the vocal cords) are innervated by RLN

