Introduction to the Neck
The neck is a biomechanical wonder!

- Connects the head to the trunk
- Conduit for blood vessels, nerves, and hollow organs
- All of these complicated structures are packed in a very narrow area that allows for a great deal of mobility for the head as it moves relative to the ground
Adam's Apple

Cricothyroid Membrane

Cricoid cartilage
Emergency Cricothyroidotomy

Step One: Transverse skin incision over CT membrane
Step Two: Pop through the membrane and make some space
Emergency Cricothyroidotomy

Step Three: Create an orifice (straw, ballpoint pen, etc.)
Emergency Cricothyroidotomy

Improvise if you have to!
Sternocleidomastoid

- Flexes and rotates the head
- Innervation is by CN XI
Trapezius

• Moves and stabilizes the scapula, extends the head

• Innervation is by CNXI
Suprahyoid Muscles
Suprahyoid Muscles
(geniohyoid)
Infrahyoid (Strap) Muscles

- Thyrohyoid membrane
- External carotid artery
- Internal jugular vein
- Thyrohyoid muscle
- Thyroid cartilage
- Omohyoid muscle (superior belly)
- Sternohyoid muscle
- Median cricothyroid ligament
- Cricoid cartilage
- Scalene muscles
- Trapezius muscle
- Omohyoid muscle (inferior belly)
- Hyoid bone
- Digastric muscle (anterior belly)
- Mylohyoid muscle
- Hyoglossus muscle
- Stylohyoid muscle
- Digastric muscle (posterior belly)
- Fibrous loop for intermediate digastric tendon
- Sternohyoid and omohyoid muscles (cut)
- Thyrohyoid muscle
- Oblique line of thyroid cartilage
- Cricothyroid muscle
- Sternothyroid muscle
- Omohyoid muscle (superior belly) (cut)
- Thyroid gland
- Sternohyoid muscle (cut)
- Clavicle
- Trachea
Actions of Suprahyoid and Infrahyoid Muscles

- Styloid process
- Mastoid process
- Stylohyoid muscle
- Digastric muscle (posterior belly)
- Digastric muscle (anterior belly)
- Geniohyoid muscle
- Thyrohyoid muscle
- Oblique line of thyroid cartilage
- Omohyoid muscle (superior belly)
- Omohyoid muscle (inferior belly)
- Sternothyroid muscle
- Scapula

Infrahyoid and suprahyoid muscles and their action: schema
Deep Cervical (Prevertebral) Muscles
Platysma

• Muscle of Facial Expression
• Innervated by the cervical branch of the facial nerve
Innervation and Venous Drainage of the Neck
SVC Syndrome

Occlusion of the SVC causes engorgement of the superficial veins that drain the head and neck (usually due to cancer)
Practical Application of Anatomy!

A little pressure to the cervical plexus and...
VOILA!
Deep Cervical Fascia

- Form the boundaries of compartments
- Fascial spaces can communicate infection or fluid to other regions of the body
- Used as a guide to surgical dissection
- Allow the neck structures to glide past one another
- Supports the thyroid, lymph nodes and blood vessels
Deep Cervical Fascia

- Superficial (investing) layer of deep cervical fascia
- Infrahypoid fascia
- Pretracheal (visceral) fascia
- Buccopharyngeal (visceral) fascia
- Carotid sheath
- Subcutaneous tissue
- Prevertebral layer of (deep) cervical fascia
- Alar fascia
- Cross section
- Retropharyngeal space
- Subcutaneous tissue
- Cervical vertebra (C7)
- Platysma muscle
- Sternohyoid muscle
- Trachea
- Sternothyroid muscle
- Thyroid gland
- Esophagus
- Omohyoid muscle
- Sternocleidomastoid muscle
- Recurrent laryngeal nerve
- Common carotid artery
- Internal jugular vein
- Vagus nerve (X)
- Phrenic nerve
- Anterior scalene muscle
- Sympathetic trunk
- Spinal nerve
- Middle and posterior scalene muscles
- Longus colli muscle
- Levator scapulae muscle
- Trapezius muscle
- Deep cervical muscles
Deep Cervical Fascia

Sagittal section

- Pharynx
- Buccopharyngeal (visceral) fascia
- Retropharyngeal space
- Alar fascia
- Prevertebral fascia
- Trachea
- Esophagus
- Mandible
- Geniohyoid muscle
- Geniohyoid fascia
- Investing layer of (deep) cervical fascia
- Fascia of infrahyoid muscles
- Pretracheal (visceral) fascia
- Thyroid gland
- Subcutaneous tissue
- Suprasternal space (of Burns)
- Manubrium of sternum
- Aorta
- Pericardium

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Deep Cervical Fascial Spaces

• Retropharyngeal - b/n prevertebral and buccopharyngeal
• Pretracheal - b/n infrahyoids and trachea
• Lateral pharyngeal - lat to pharynx and communicate with RP and SM spaces
• Submandibular - below tongue
  – deep portion above mylohyoid
  – superficial portion below mylohyoid
Submandibular Space
Submandibular Abscess in a person with Diabetes
Posterior Triangle of the Neck
Anterior Triangle of the Neck
Anterior Triangle
Submental Triangle
Carotid Triangle

- Masseter muscle
- Parotid gland
- Platymsa muscle (cut away)
- Mastoid process
- Hyoid bone
- Carotid sheath
- Flexes of infrahyoid muscles and cut edge
- Thyroid cartilage
- Investing layer of (deep) cervical fascia and cut edge
- Cricoid cartilage
- Pretracheal layer of (deep) cervical fascia over thyroid gland and trachea
- Suprasternal space (of Burns)
- Manubrium of sternum
- Jugular notch
- Sternothyroid muscle
- Sternohyoid muscle
- Omohyoid muscle (superior belly)
- Clavicular head
- Sternal head
- Sternoceiddomastoid muscle
- Clavicle
- Pectoralis major muscle
- Scalenene muscles
- Trapezius muscle
- Deltoid muscle
- Thyroid gland
- Fibrous loop for intermediate digastic tendon
- Stylohyoid muscle
- Digastric muscle (anterior belly)
- Mylohyoid muscle
- Submandibular gland
- External carotid artery
- Internal jugular vein
- Omohyoid muscle (inferior belly)
Submandibular Triangle

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