UNIT 10. DISSECTION: POSTERIOR AND ANTERIOR TRIANGLES OF THE NECK

STRUCTURES TO IDENTIFY:

Hyoid bone  
Thyroid cartilage  
Cricoid cartilage  
Trachea  
Sternocleidomastoid m.  
Platysma m.  
Cervical Plexus  
Lesser occipital n.  
Great auricular n.  
Transverse cervical n.  
Supraclavicular nn.  
Ansa cervicalis  
Superior root or descendens hypoglossi  
Inferior root or descendens cervicalis  
Phrenic n.  
External jugular v.  
Suprascapular a.  
Ascending cervical a.  
Subclavian v.

Scaleus anterior  
Scaleus medius  
Scaleus posterior  
Omohyoid  
Spinal accessory n.  
C5, 6, 7, T1  
Brachial plexus  
Upper trunk  
Middle trunk  
Lower trunk  
Dorsal scapular n.  
Long thoracic n.  
Suprascapular n.  
Transverse cervical a.  
Dorsal scapular a.  
Subclavian a.

DISSECTION INSTRUCTIONS:

1. The skin of the neck is very thin so make incisions only one millimeter deep.
   
   • **First incision** should begin at the point of the chin (mental protuberance) and extend inferiorly in the midline to just below the jugular notch.
   
   • **Second incision** should be made just along the inferior edge of the mandible from the mental protuberance to the mastoid process.
   
   • **Third incision** from the lower end of the first incision, one laterally along the lower border of the clavicle to the acromion. Reflect the skin posteriorly. Be careful to reflect the skin alone from the superficial fascia, which is very thin in the neck. The superficial fascia of the neck is not different from the same layer in other regions, except that it contains the platysma m.
2. Clean the platysma (N. plate 26; G. p. 746). This thin, sheet-like muscle belongs to the facial expression group of muscles and is often poorly developed. Do not mistake the fibers of the sternocleidomastoid for those of the platysma; observe the different ways that the fibers of these two muscles run (N. plates 26 - 28; G. plate 8.5). When the muscle has been cleaned, reflect it from the clavicle upward to the lower border of the mandible. As the angle of the mandible is approached, attempt (this is hard to do) to secure the cervical branch of the facial nerve. It emerges from behind the lower part of the parotid gland to enter the deep surface of the muscle.

3. Now clean the sternocleidomastoid muscle (great landmark to locate the superficial structures). These structures are the external jugular vein and the four cutaneous nerves of the cervical plexus. Locate the external jugular vein running from just below the ear obliquely downward across the sternocleidomastoid muscle to just below the clavicle (N. plates 25, 31; G. plates 8.2, 8.5). The lesser occipital nerve (C2) runs on the posterior border of the sternocleidomastoid to distribute branches to the skin and scalp posterior to the ear. The great auricular nerve (C2 3) parallels the external jugular vein to supply the skin over the angle of the mandible and the ear. The transverse cervical nerve (C2 3) crosses the sternocleidomastoid around its middle to supply the skin over the anterior triangle. The supraclavicular nerve (C3 4) descend from the lower border of the sternocleidomastoid muscle out over the clavicle; it divides into medial, intermediate and lateral branches (N. plates 24, 31, 32; G plate 8.5).

4. When the sternocleidomastoid and the cutaneous structures have been cleaned, proceed to the posterior triangle (N. plates 27 - 29; G. plates 8.5 D - F). The roof of
the posterior triangle is formed by the investing layer of the deep cervical fascia, which stretches between the sternocleidomastoid and the trapezius muscles and is attached inferiorly to the clavicle. The floor of the posterior triangle is formed by several of the deep muscles of the neck covered by the prevertebral layer of cervical fascia. The muscles, from above down are the splenius capitis, the levator scapulae and scalenus posterior, medius and anterior.

5. Trace the cutaneous nerves that have already been displayed back to the points at which they emerge from under the posterior border of the sternocleidomastoid. The cervical plexus, from which all of these nerves arise, is under cover of the sternocleidomastoid and will be displayed later when the muscle is reflected. Next identify and clean the spinal accessory nerve. It emerges from under the sternocleidomastoid (which it supplies), is closely related to the lesser occipital nerve and runs downward and posteriorly on the levator scapulae to disappear under the trapezius (which it supplies). Somewhat lower, one or two smaller nerves will be found following a similar course through the triangle; they are muscular branches (C₃ ₄) of the cervical plexus, which provide additional supply to the trapezius.

6. In the lower part of the posterior triangle of the neck, locate and clean the inferior belly of the omohyoid muscle (N. plates 27 - 29; G. plates 8.5E, 8.10). It courses from the posterior border of the sternocleidomastoid, superficial to the scalenus anterior, toward its attachment to the superior border of the scapula.

7. On a slightly deeper plane, the transverse cervical artery, usually a branch of the thyrocervical trunk off of the subclavian artery, emerges from behind the sternocleidomastoid and crosses the posterior triangle above and roughly parallel to the clavicle. It divides into two branches; the superficial branch passes laterally to the trapezius and the deep branch enters the floor of the triangle in the interval between the scalenus medius and the levator scapulae muscles to go to the rhomboids. The origin and course of these arteries is variable; often only the superficial branch (superficial cervical artery) arises off of the thyrocervical trunk, while the deep branch (dorsal scapular artery) arises directly off of the subclavian artery (N. plates 32 - 34; G. plates 8.5, 8.17, 8.18, pp. 764, 765, 774).

8. Next direct your attention to the roots and trunks of the brachial plexus, which lies deep in the lower part of the posterior triangle. They pass downward and laterally into the triangle from the interval between the scalenus anterior and the scalenus medius muscles (N. plates 28-29; G. plates 6.23, 8.5, 8.17, 8.18, pg. 507). Clean the upper trunk first. It is formed by the junction of the ventral rami of C₅ ₆ and gives rise to two branches in the posterior triangle; the suprascapular nerve and the nerve to the subclavius. The nerve to the subclavius is very small and hard to find. The suprascapular nerve is a much larger branch that passes laterally toward the upper border of the scapula. The middle trunk of the brachial plexus lies below the upper trunk and is the direct continuation of the ventral ramus of C₇; it has no branches in the posterior triangle. The lower trunk is formed by the junction of C₈ and T₁; its
course in the posterior triangle is very short (may be hard to show); it is also devoid of branches in the posterior triangle.

9. Identify and clean the dorsal scapular and the long thoracic nerves (N. plate 189; G. plates 6.26, 6.27, 8.5E). The dorsal scapular nerve is derived from C₄₅, and the long thoracic nerve is derived from C₅₆₇, but their origin is too far medial to be seen at this time. They enter the triangle through the scalenus medius muscle; the dorsal scapular passes downward and posteriorly. It leaves the triangle between scalenus medius and the levator scapulae in close relationship to the deep branch of the transverse cervical artery. The long thoracic nerve, which supplies the serratus anterior, takes a more lateral course and passes posterior to the trunks of the plexus into the axilla.

10. Clean the portions of the subclavian vein and the subclavian artery that are in the posterior triangle (N. plates 33, 189, 191; G. plate 8.5). The subclavian vein lies immediately posterior to the clavicle in the lower part of the posterior triangle and passes medially behind the sternocleidomastoid and anterior to the scalenus anterior. In this region it receives the termination of the external jugular vein. Posterior to the subclavian vein, the suprascapular artery (usually a branch of the thyrocerivical trunk) crosses anterior to the scalenus anterior and joins the suprascapular nerve close to the upper border of the scapula. The second part of the subclavian artery lies posterior to the scalenus anterior, which separates it from the vein. The third part extends from the lateral border of the scalenus anterior to the outer border of the 1st rib where it becomes the axillary artery. Clean these structures.