UNIT 12. DISSECTION: AXILLA

STRUCTURES TO IDENTIFY:

Axillary artery
   Superior thoracic artery
   Thoracoacromial trunk
   Acromial branch
   Pectoral branch
   Clavicular branch
   Deltoid branch
Lateral thoracic artery
Subscapular artery
   Circumflex scapular artery
   Thoracodorsal artery
Anterior humeral circumflex artery
Posterior humeral circumflex artery
Brachial plexus (all its branches)
Serratus anterior
Subscapularis

DISSECTION INSTRUCTIONS:

1. Review the origins and insertions of the pectoralis major, pectoralis minor and the subclavius mm; these muscles, along with the clavicle form the anterior wall of the axilla. Detach the pectoralis minor muscle from its origin and reflect it upward and lateral. Review the plan of the brachial plexus and relate it to the axilla (N. plate 429-430; G. 6.23 – 6.26, Table 6.4, p. 507).

2. Expose the nerves and the vessels entering the arm from the lateral part of the axilla. Start by removing the deep fascia from the upper part of the arm, where it forms the lateral wall of the axilla. This will expose the coracobrachialis muscle and the short head of the biceps brachii muscle, which arise together from the coracoid process of the scapula. Descending along the medial border of the coracobrachialis is the large median nerve. Medial to it, the distal part of the axillary artery should be exposed and cleaned. Medial to the artery is the ulnar nerve; it may be overlapped by the axillary vein whose general position is medial and somewhat anterior to the artery.

3. Now push the coracobrachialis laterally and expose the musculocutaneous nerve. This nerve lies lateral to the median nerve in the upper part of the arm and disappears from view where it enters the substance of the coracobrachialis. Trace the musculocutaneous nerve proximally to the lateral cord (lateral to the axillary artery); you will find a lateral head that joins a medial head and together they form the median nerve. Now trace the medial head proximally to the medial cord (medial to
the axillary artery). The medial cord’s terminal branch is the ulnar nerve. The musculocutaneous nerve, the two heads of the median nerve, and the ulnar nerve form a “M”.

4. Without damaging the axillary artery or its branches, follow the components of the brachial plexus back into the neck. The lateral cord will give off the lateral pectoral nerve to the pectoral muscles. The medial cord will give off the medial pectoral nerve (to the pectoral muscles), the medial antebrachial (to the forearm) and the medial brachial (to the arm) cutaneous nerves to the upper limb. The latter nerve will be joined by the intercostobrachial nerve coming from the second intercostal space. The lateral cord is formed by the anterior divisions of the upper and middle trunks of the plexus, while the medial cord is the continuation of the anterior division of the lower trunk. The divisions have no branches. Identify and clean all parts of the brachial plexus that you have identified so far.

5. Review: The upper trunk is formed from C5 6, the middle trunk from C7 and the lower trunk from C8 T1. All of the trunks divide into anterior and posterior divisions. Follow the anterior divisions of the upper and middle trunks to the lateral cord and the anterior division of the lower trunk to the medial cord.

6. Return to the trunks and locate each of the posterior divisions and follow them until they join each other to form the posterior cord (posterior to the axillary artery). The posterior cord gives off at least three branches before dividing into the axillary and radial nerves. The branches are the upper, middle (thoracodorsal) and the lower subscapular nerves which innervate the posterior wall of the axilla. Clean the upper subscapular nerve to the subscapularis m. Follow and clean the thoracodorsal nerve to the latissimus dorsi muscle without destroying the accompanying artery (thoracodorsal artery). The lower subscapular nerve sends its branches to the subscapularis and teres major muscles. The radial nerve enters the posterior compartment of the arm, while the axillary nerve disappears posteriorly to the humerus with the posterior humeral circumflex artery, both going to the deltoid m.

7. The axillary vein is anterior and medial to the axillary artery (N. plate 429; G. plate 6.19); if the vein is too large to work around, it may be removed. Find and clean the branches of the axillary artery. (N. plate 427; G. plates 6.22, 6.24, 6.25, Table 6.3, p 505)The first part of the axillary artery is medial to the pectoralis minor and has one branch, the superior (highest) thoracic artery. It is small (may be destroyed) and supplies the first intercostal space. The second part of the artery is deep to the pectoralis minor and has two branches. The thoracoacromial trunk has four branches: the clavicular (goes to the region of the subclavius m.), the acromial (to the region of the acromion process), the deltoïd (in the deltopectoral triangle) and the pectoral (to the pectoral muscles). The lateral thoracic artery is running on the lateral thoracic wall. The third part of the axillary artery is lateral to the pectoralis minor and has three branches. The subscapular artery comes off of the axillary artery and immediately divides into the circumflex scapular and the thoracodorsal arteries. The circumflex scapular artery goes between the scapula and the teres major muscle to
supply the posterior aspects of the scapula (we will trace it in the next unit). The thoracodorsal artery travels with the thoracodorsal nerve to the latissimus dorsi muscle. The anterior and posterior humeral circumflex arteries arise near the end of the axillary artery and pass anterior or posterior, respectively, to the humerus. The posterior humeral circumflex artery is larger and travels with the axillary nerve. At the lateral border of the teres major muscle, the axillary artery becomes the brachial artery.