

Axillary fossa →

Anterior
axillary
line →

Midaxillary
line →

Posterior
axillary line →

The axilla

The axilla

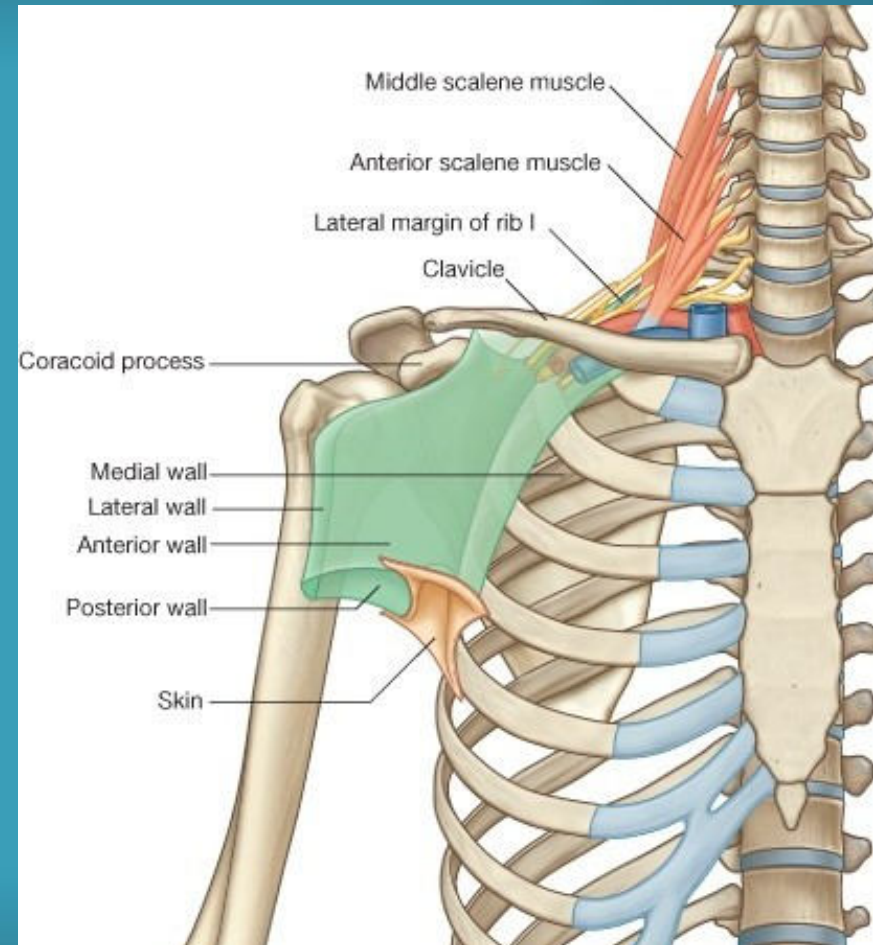
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- **Definition:** The axilla (armpit) is a pyramid-shaped space between the upper part of the arm and the side of the chest
- **Functions:** It forms an important passage for nerves, blood, and lymph vessels as they travel from the root of the neck to the upper limb.

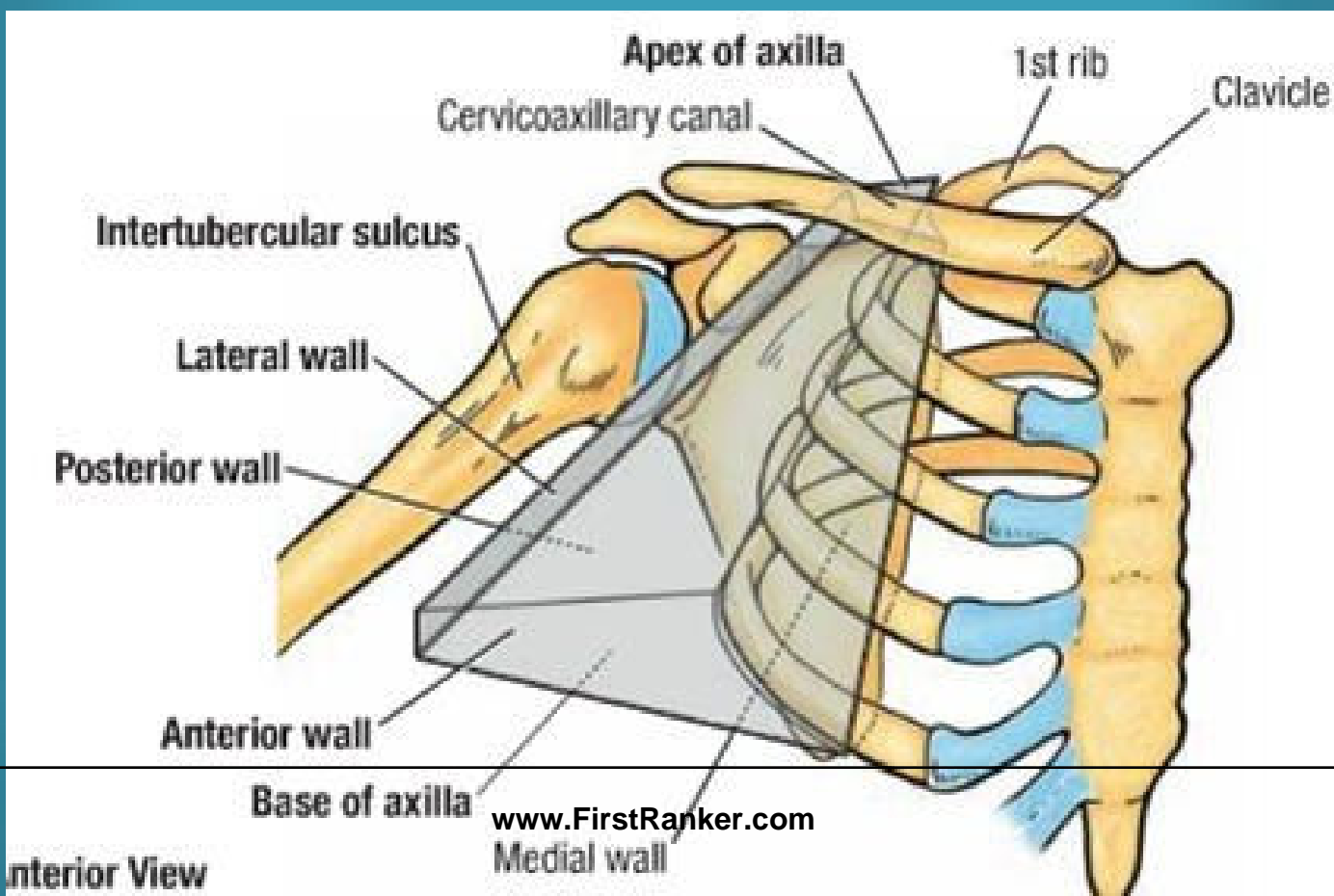
INTRODUCTION

- 'Truncated pyramidal' space between upper part of arm and chest wall
- Has 4 walls, apex, base



Boundaries of the axilla

The axilla has an **apex**, **base** and **4 walls**
(Anterior, posterior, medial and lateral walls)

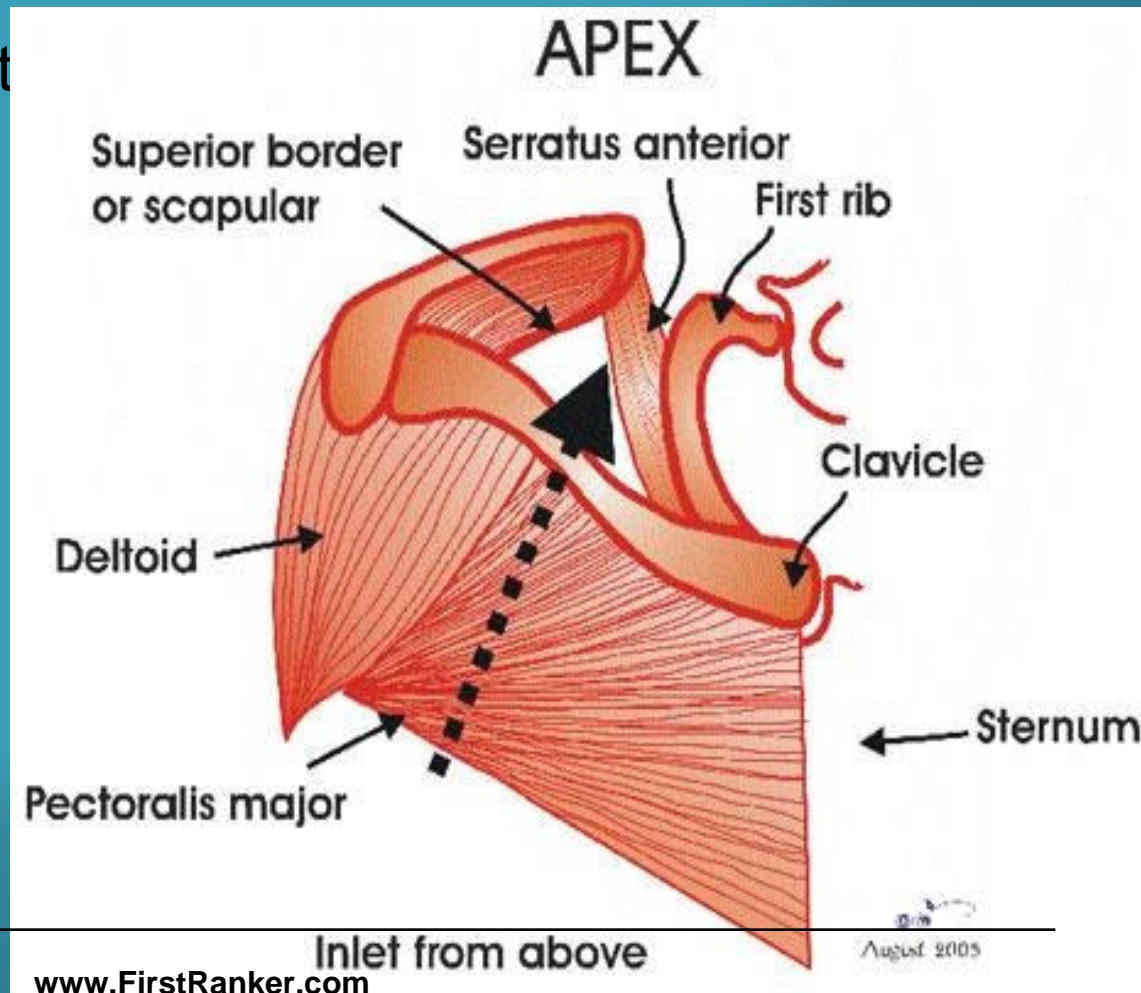


Apex of the axilla

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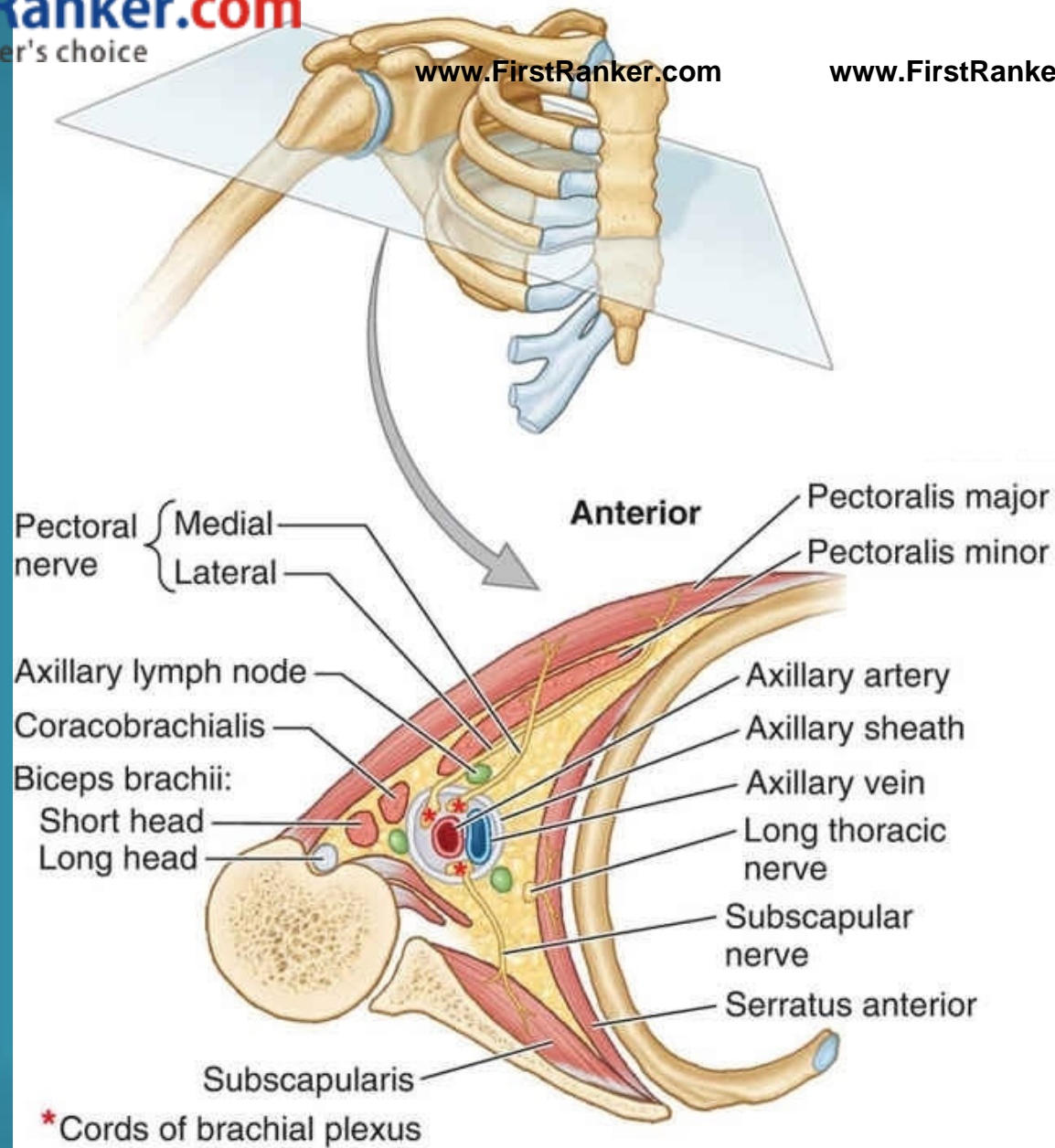
- It is the upper end of the axilla
- It continues into the root of the neck (posterior triangle of the neck) through the cervico-axillary canal.
- **Boundaries of the cervico-axillary canal**
- **In front** by the clavicle,
- **Behind** by the upper border of the scapula,
- **Medially** by the outer border of the first rib



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Base of the axilla

- It is the lower end of the axilla.
- The base is formed by the skin stretching between the anterior and posterior walls.
- **Boundaries:**
- **In front** by the anterior axillary fold (formed by the lower border of the pectoralis major muscle), **behind** by the posterior axillary fold (formed by the tendon of latissimus dorsi and the teres major muscle), **medially** by the chest wall

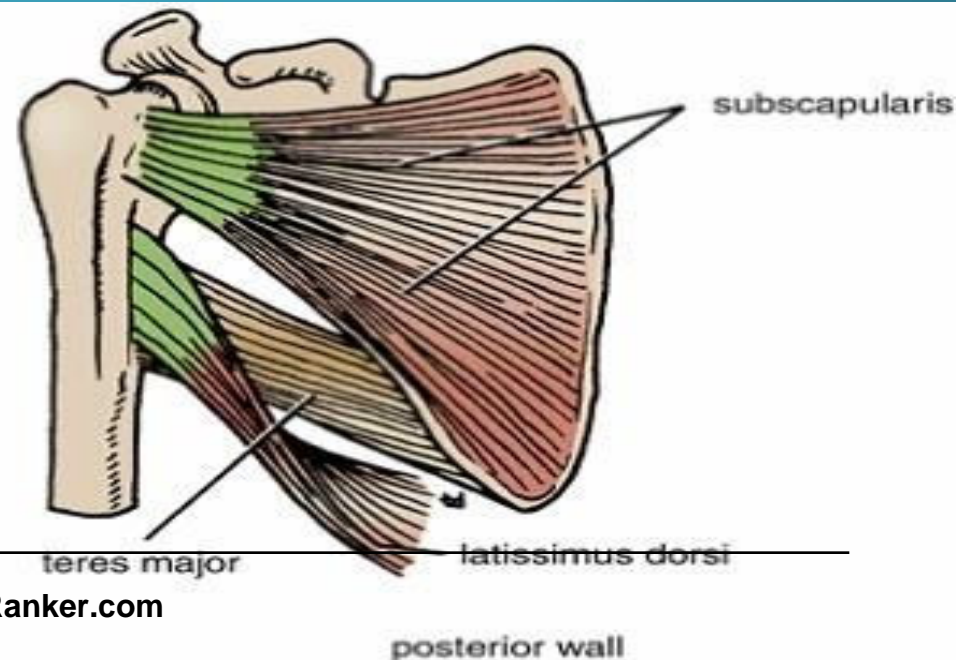
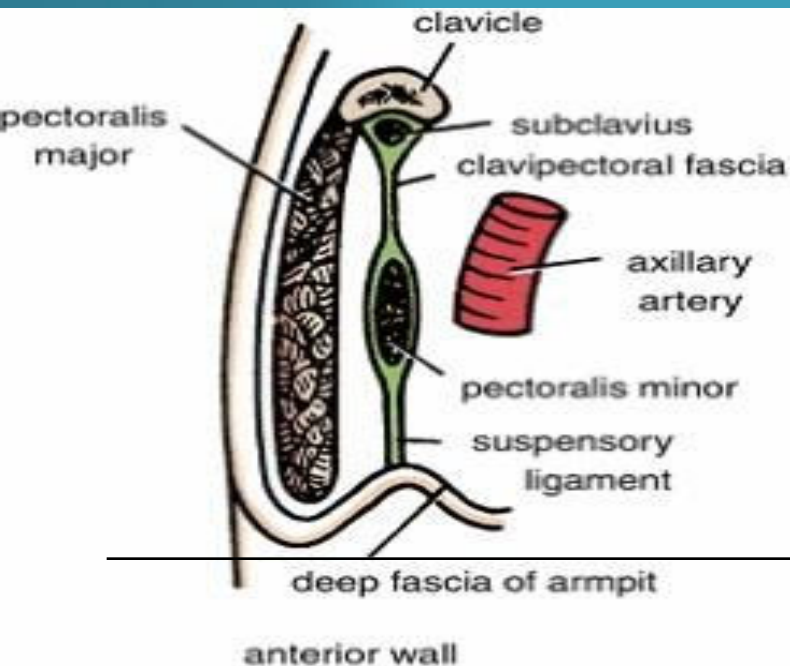


**(A) Inferior view of
transverse section**

Walls of the Axilla

The walls of the axilla are made up as follows:

- **Anterior wall:** By the pectoralis major, subclavius, and pectoralis minor muscles.
- **Posterior wall:** By the subscapularis, latissimus dorsi, and teres major muscles.



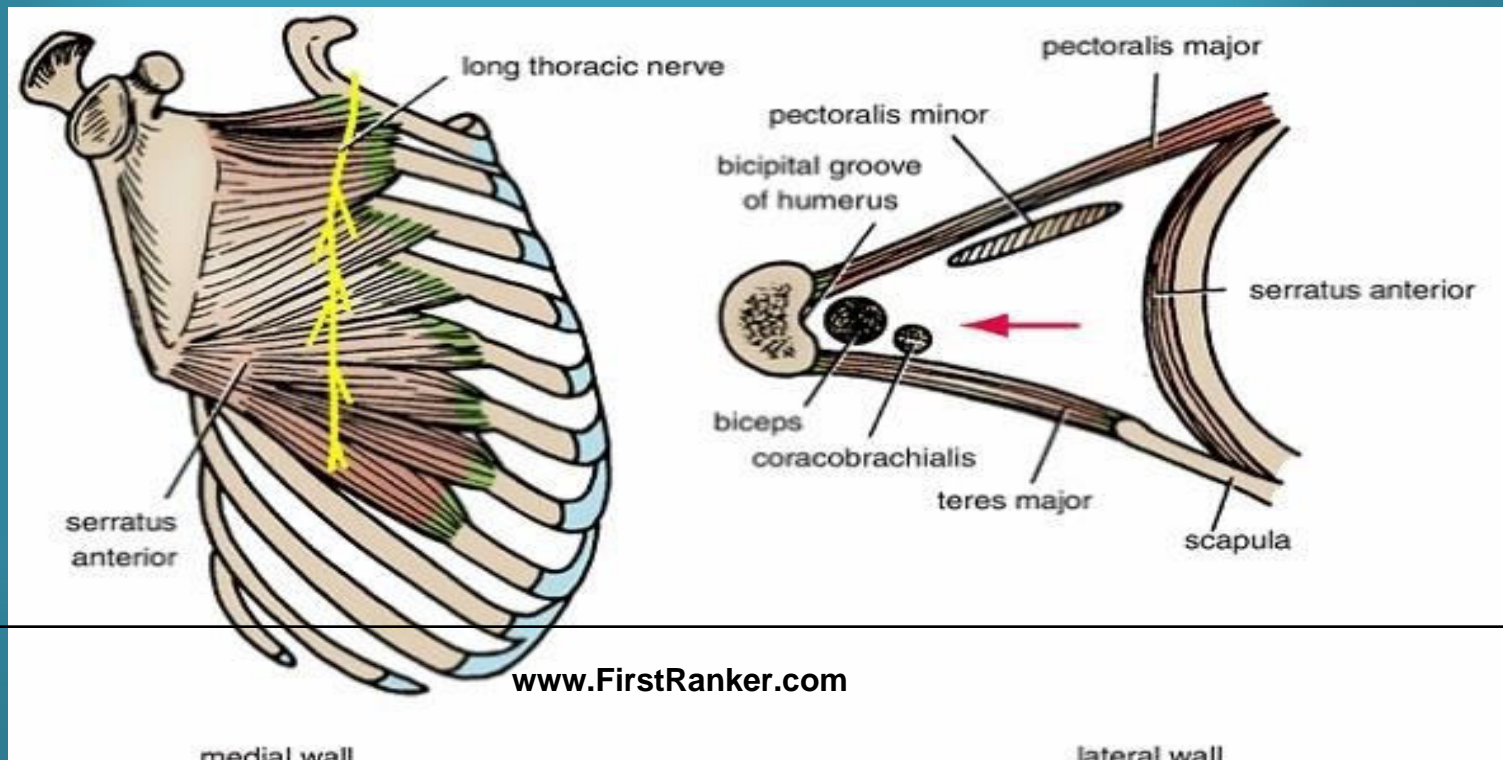
Walls of the Axilla

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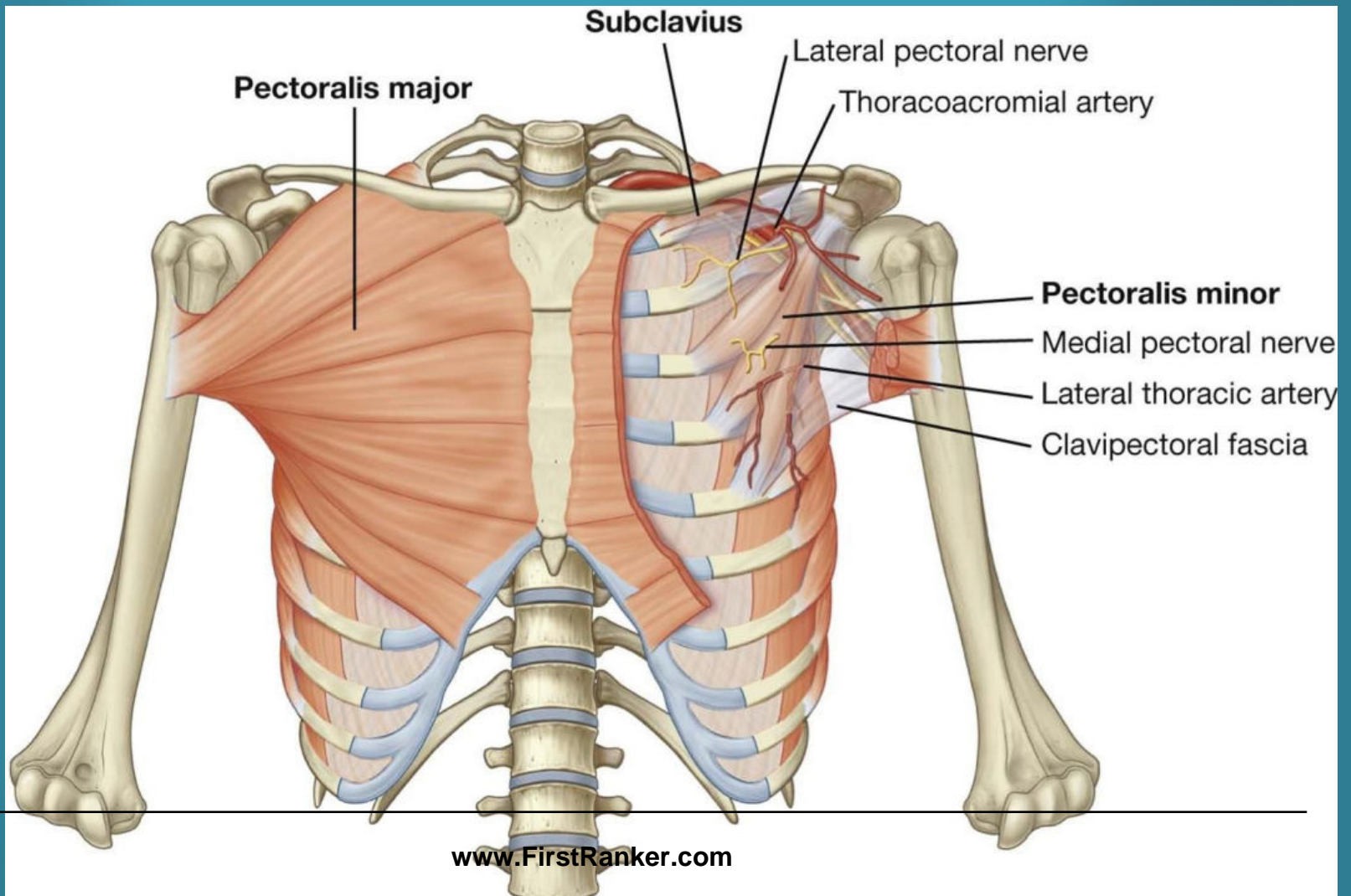
The walls of the axilla are made up as follows:

- **Medial wall:** By the upper four or five ribs and the intercostal spaces covered by the serratus anterior muscle.
- **Lateral wall:** By the coracobrachialis and biceps muscles in the bicipital groove of the humerus.

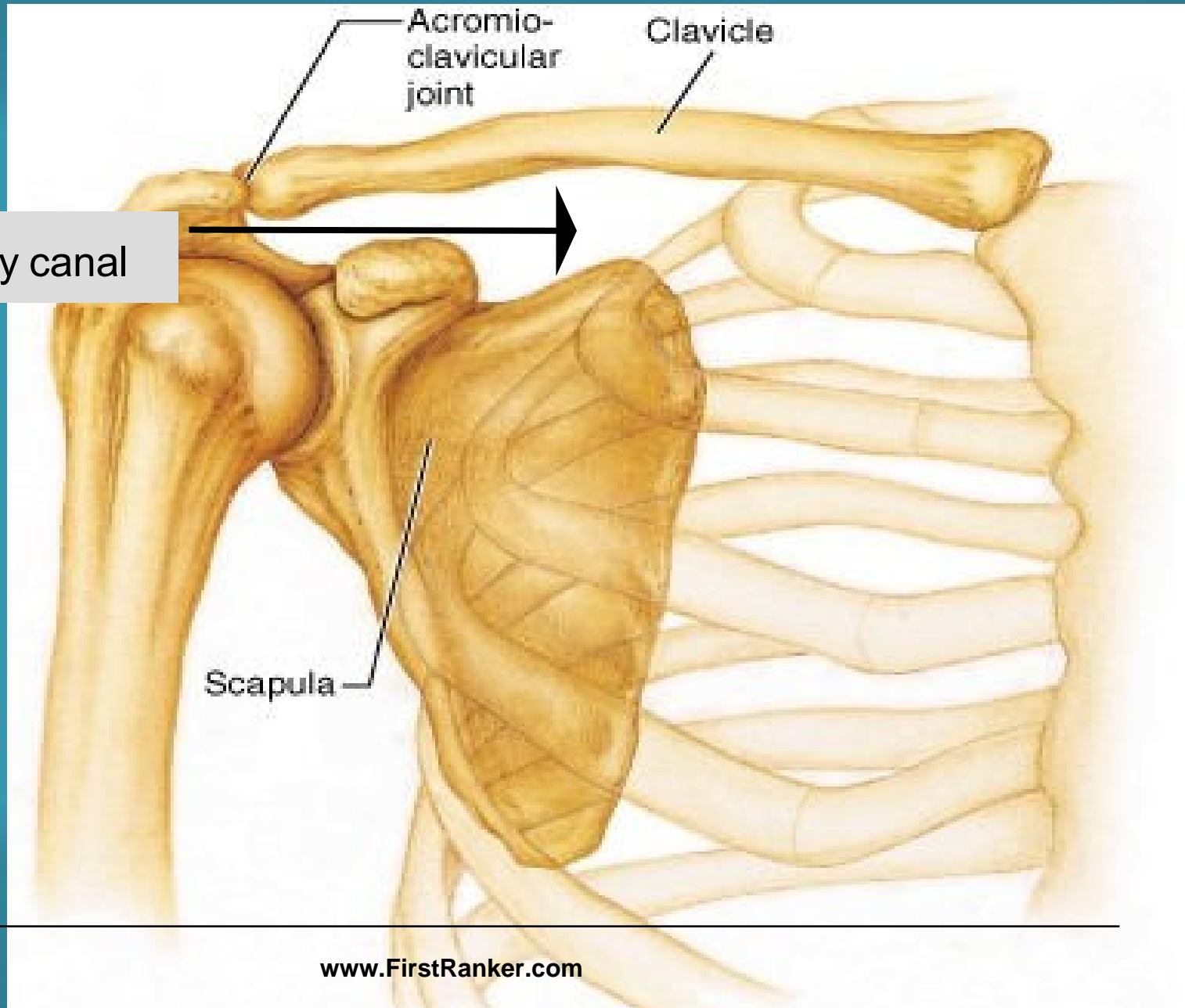


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- **Anterior wall:** By the pectoralis major, subclavius, and pectoralis minor muscles, clavipectoral fascia.



cervico axillary canal

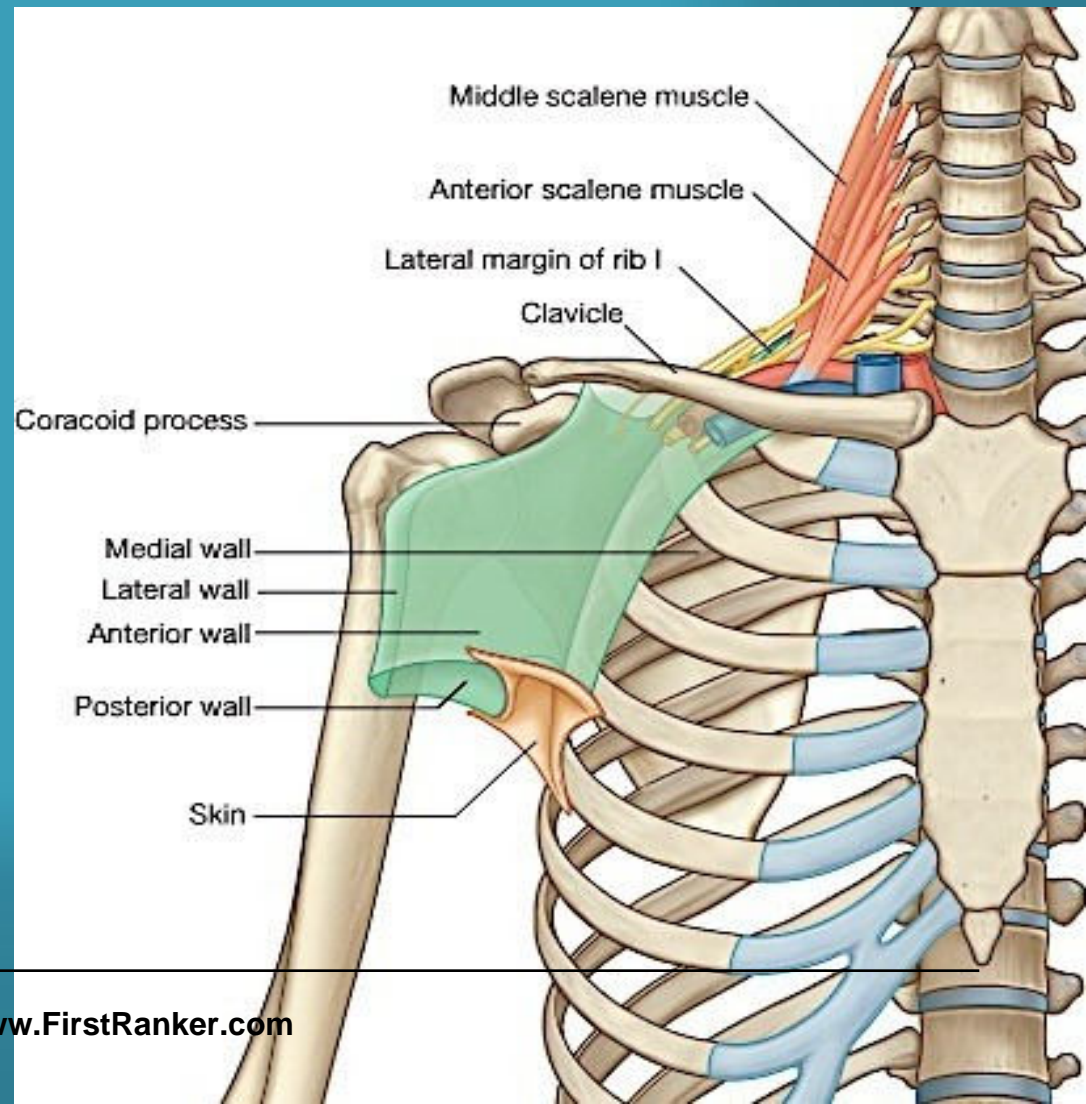


Structures passing through apex

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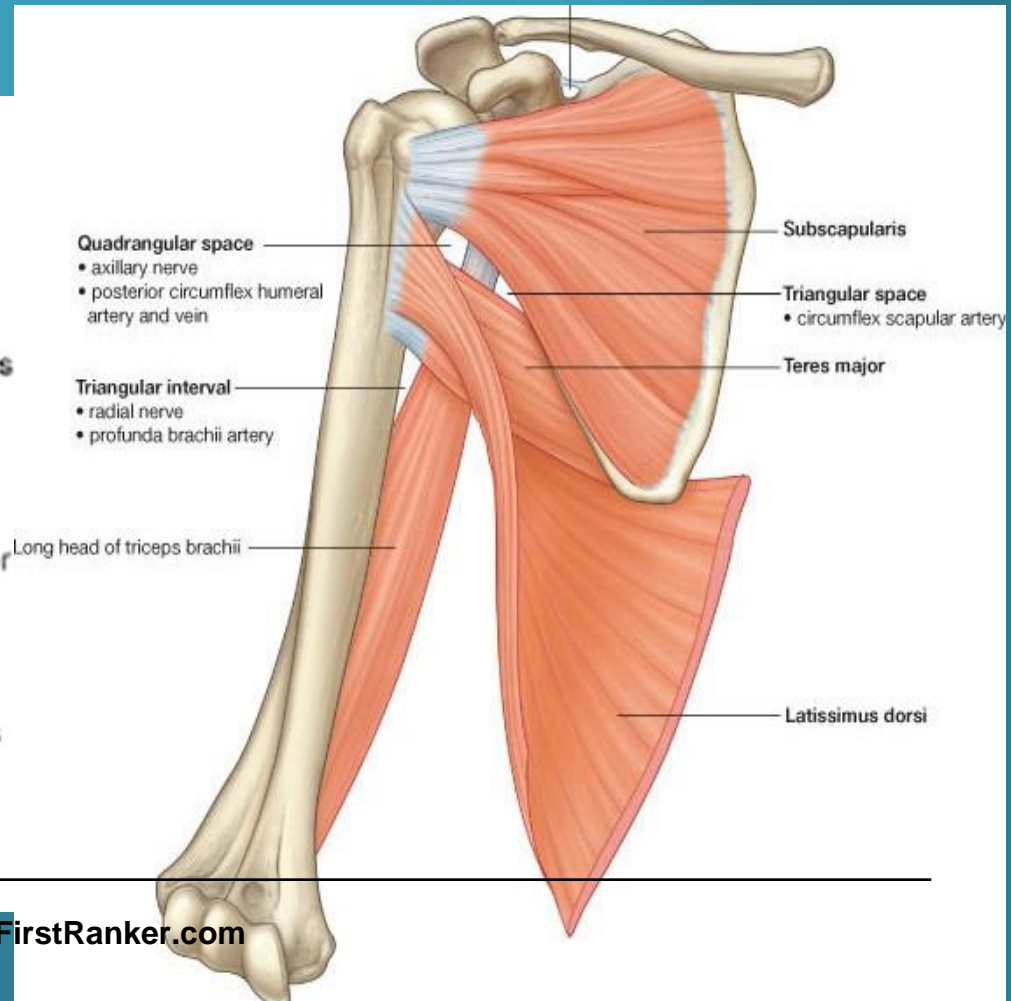
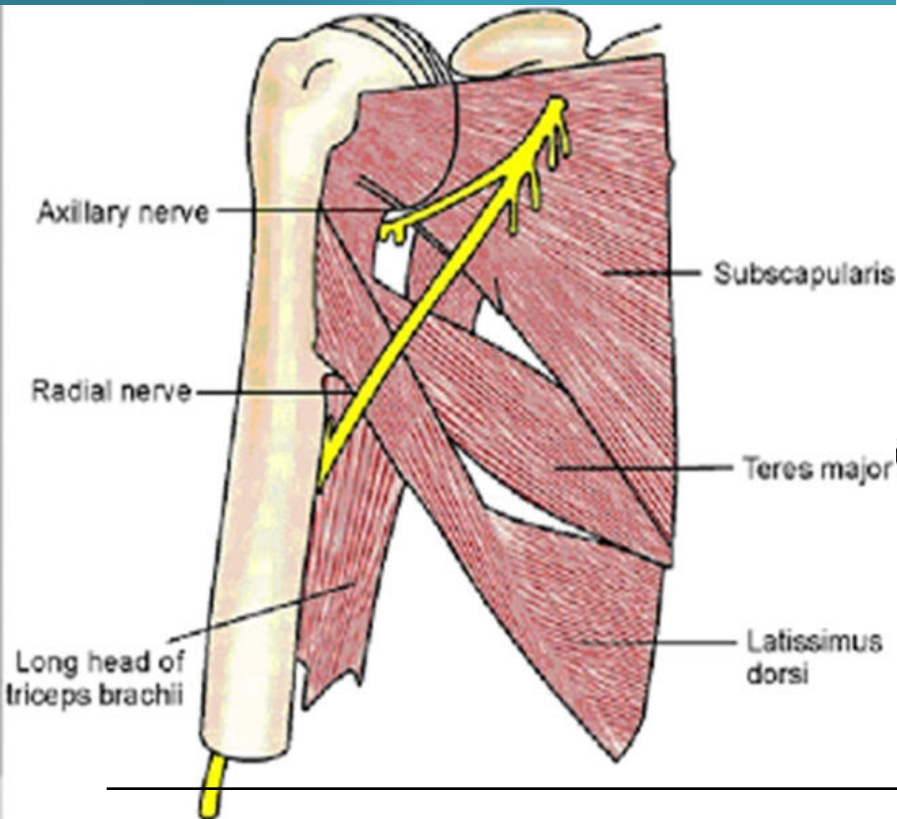
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- Axillary vessels
- Cords of BP
- Long thoracic Nerve
- LN efferents



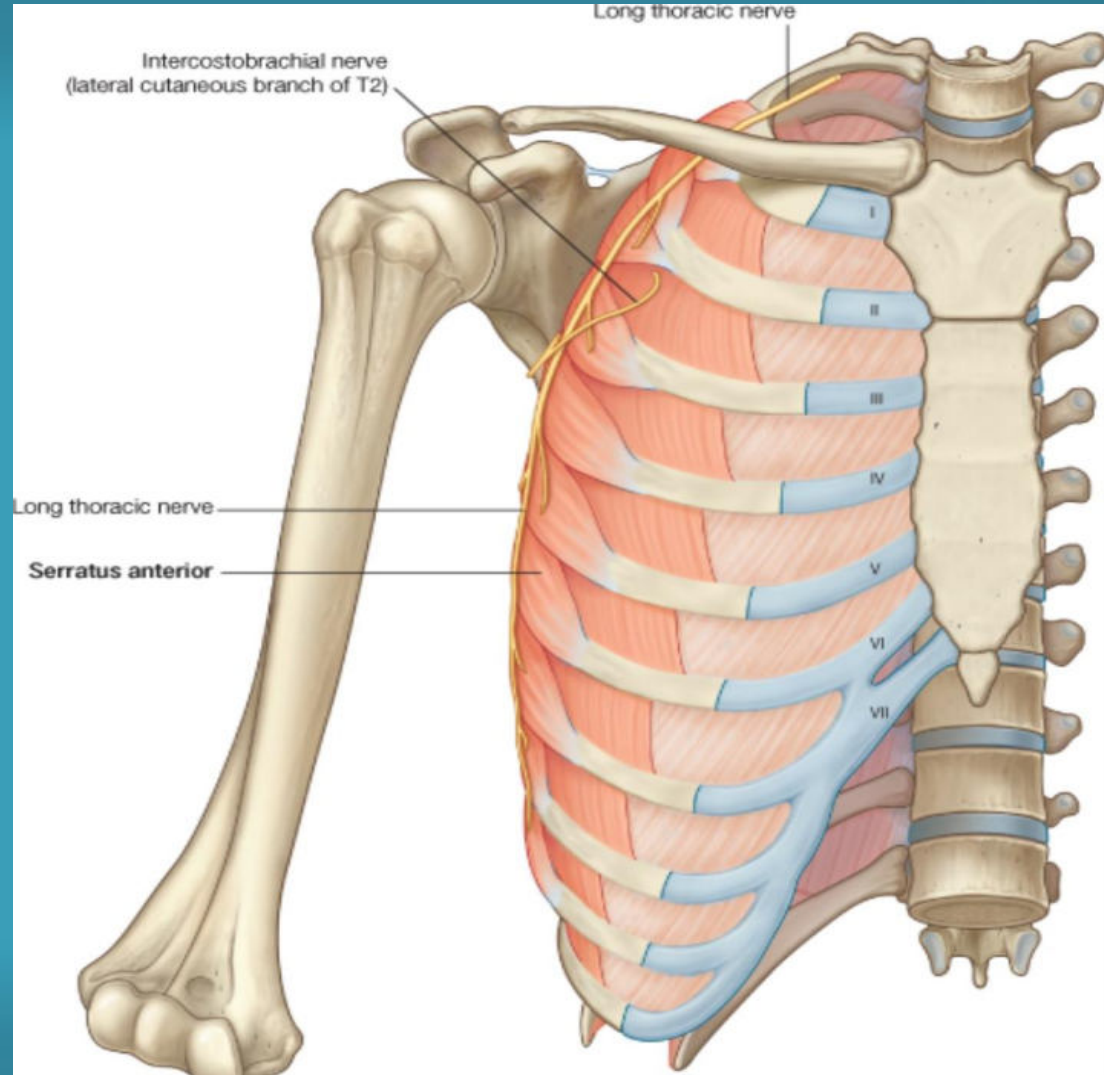
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- **Posterior wall:** By the subscapularis, latissimus dorsi, and teres major muscles.



- **Medial wall:**

By the upper four or five ribs and the intercostal spaces covered by the serratus anterior muscle



Contents of the axilla

- Axillary artery
- Axillary vein
- Brachial plexus
- Axillary lymph nodes

Base

- Concavity directed below
- Boundaries
 - Ant : anterior axillary fold
 - Post: posterior axillary fold
 - Medial: Chest wall
 - Lateral: arm
- Formed by: skin, superficial fasciae, & deep fascia
- **Deep fascia**: axillary fascia extending between Pectoralis Major (ant fold) and Lat Dorsi & Teres Major (post fold)
- Supported by Suspensory lig of Axilla

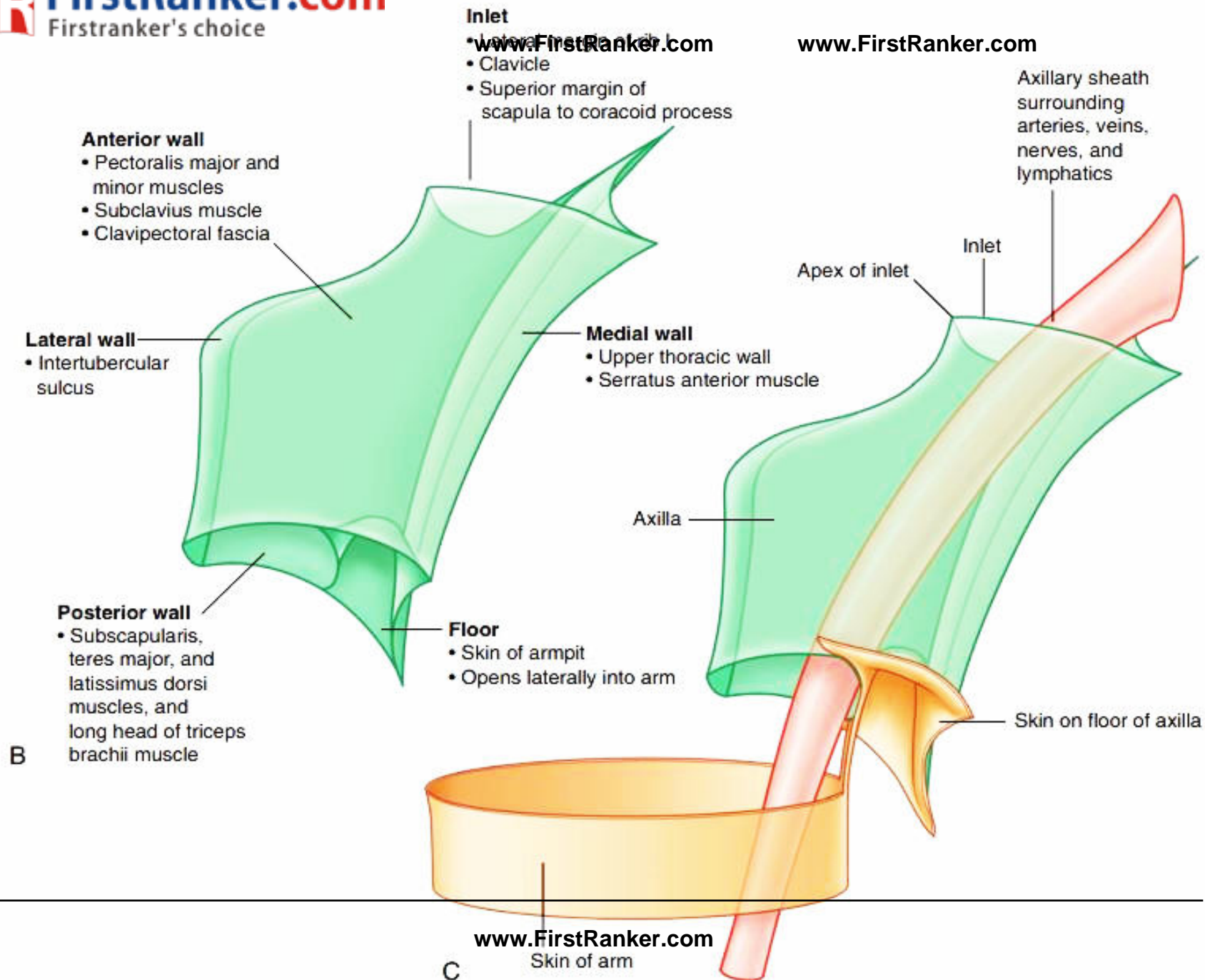


Axillary Artery

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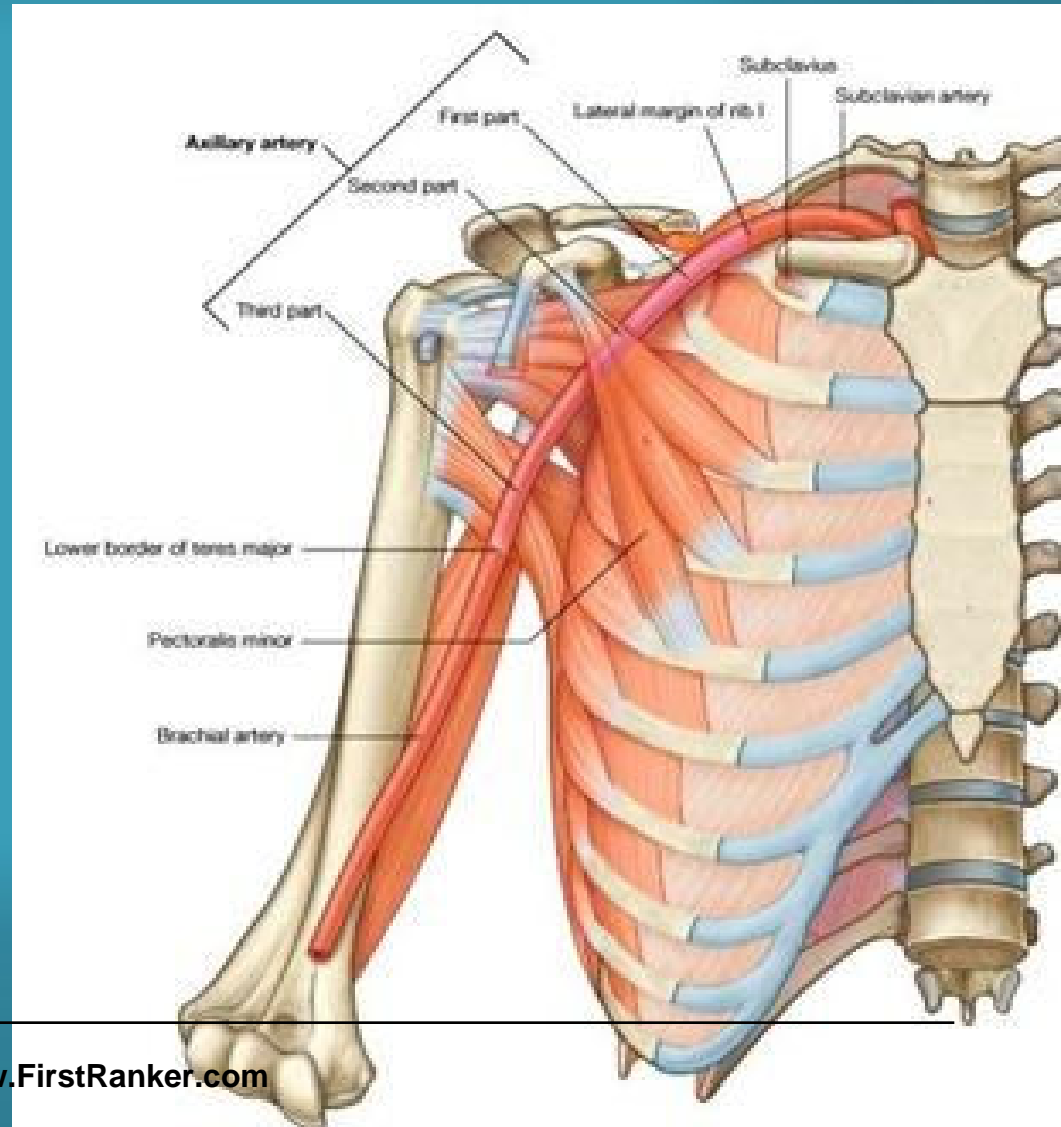
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- **Beginning:** The axillary artery begins at the lateral border of the first rib as a continuation of the subclavian artery
- **Termination:** at the lower border of the teres major muscle, where it continues as the brachial artery.
- The artery is closely related to the cords of the brachial plexus and their branches and is enclosed with them in a connective tissue sheath called the axillary sheath. If this sheath is traced upward into the root of the neck, it is seen to be continuous with the prevertebral fascia



Parts of the axillary artery

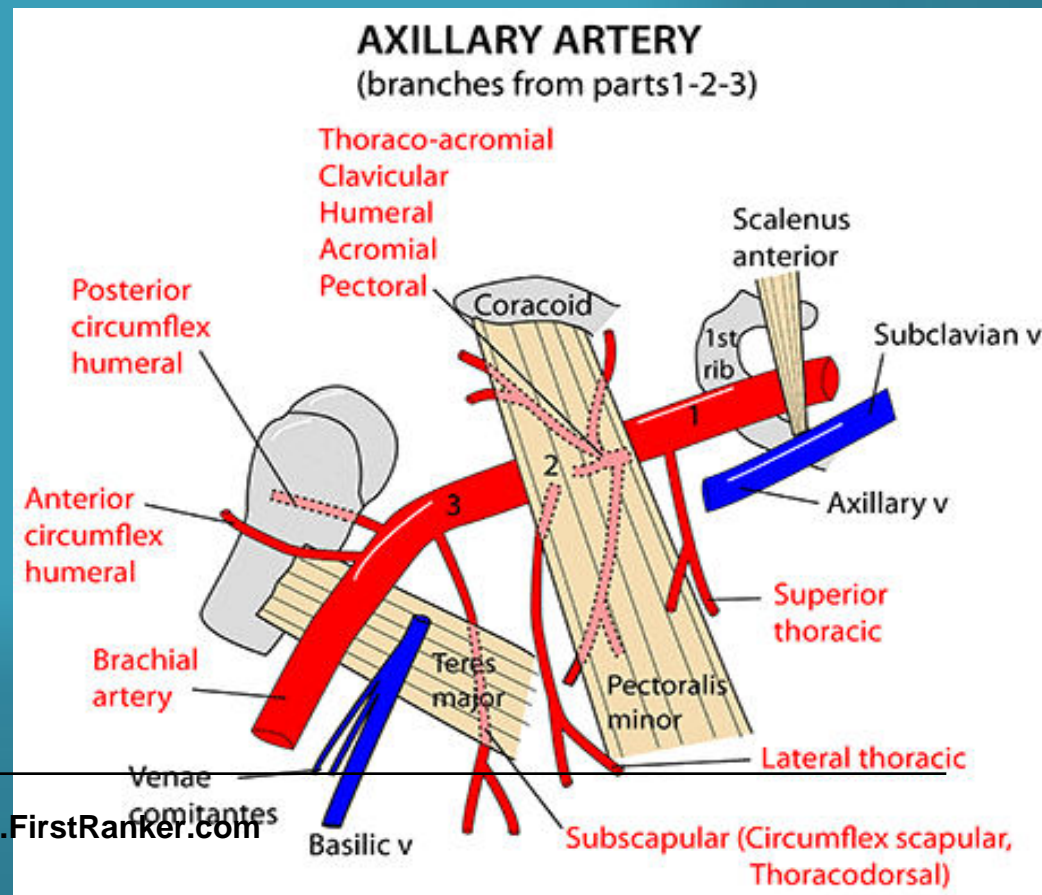
- The pectoralis minor muscle crosses in front of the axillary artery and divides it into three parts:
- **First part** above the pectoralis minor muscle
- **Second part** behind the pectoralis minor muscle
- **Third part** below the pectoralis minor muscle



- This extends from the lateral border of the first rib to the upper border of the pectoralis minor.

Relations

- **Anteriorly:** The pectoralis major and the skin.
- **Posteriorly:** The long t thoracic nerve (nerve to the serratus anterior)
- **Laterally:** The three cords of the brachial plexus
- **Medially:** The axillary vein



Second Part of the Axillary Artery

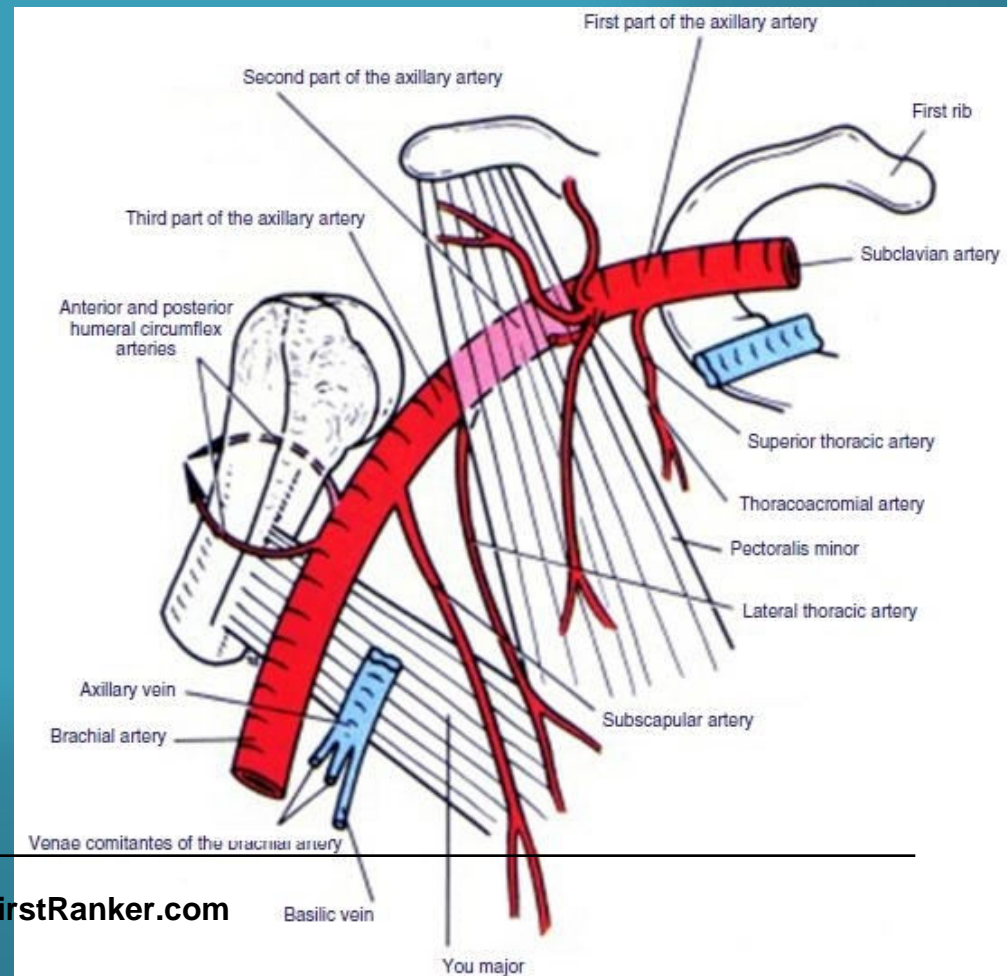
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- This lies behind the pectoralis minor muscle.

Relations

- **Anteriorly:** The pectoralis minor, the pectoralis major, and the skin
- **Posteriorly:** The posterior cord of the brachial plexus, the subscapularis muscle, and the shoulder joint.
- **Laterally:** The lateral cord of the brachial plexus.
- **Medially:** The medial cord of the brachial plexus and the axillary vein.

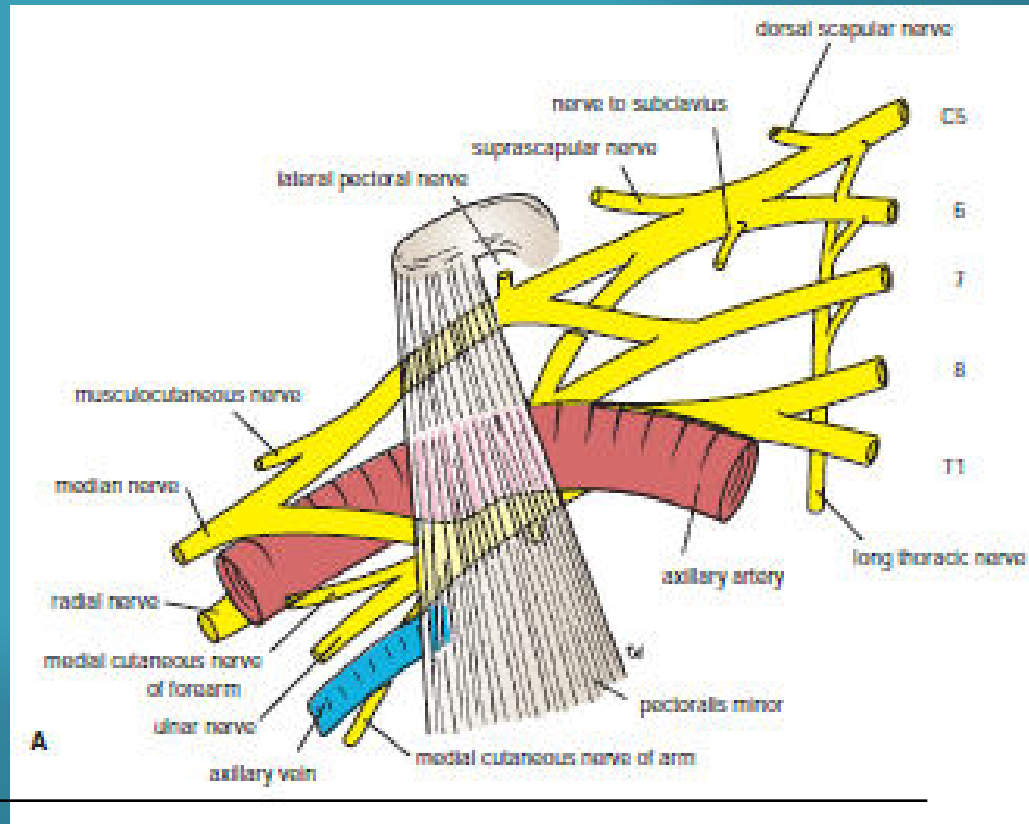


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Basilic vein

You major

- This extends from the lower border of the pectoralis minor to the lower border of the teres major.
- **Relations**
 - **Anteriorly:** The pectoralis major for a short distance; lower down the artery is crossed by the medial root of the median nerve.
 - **Posteriorly:** The subscapularis, the latissimus dorsi, and the teres major. The axillary and radial nerves also lie behind the artery.
 - **Laterally:** The coracobrachialis, the biceps, and the humerus. The lateral root of the median and the musculocutaneous nerves also lie on the lateral side.
 - **Medially:** The ulnar nerve, the axillary vein, and the medial cutaneous nerve of the arm.



Branches of the Axillary Artery

From the first part:

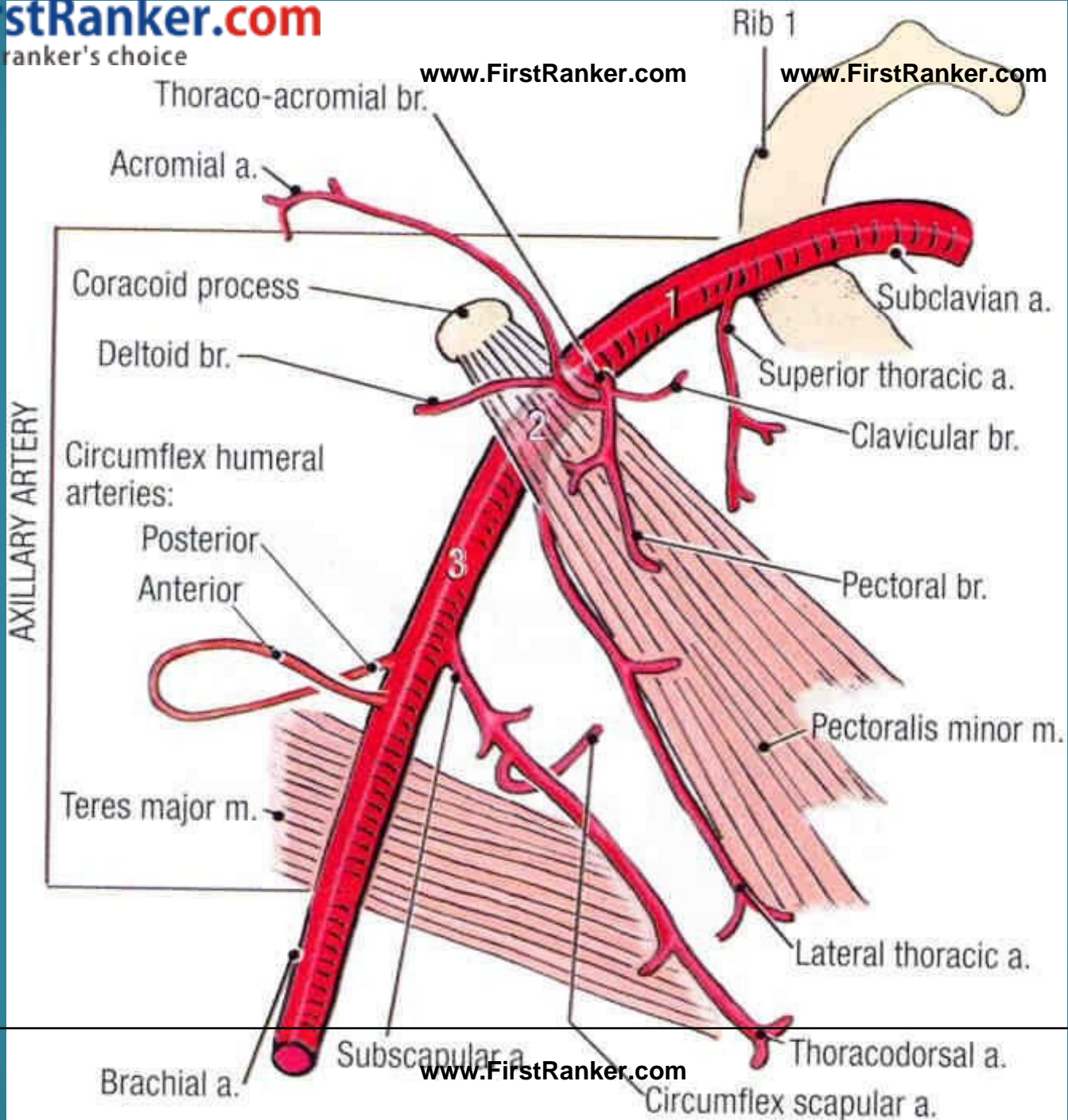
- **The superior (highest) thoracic artery** is small and runs along the upper border of the pectoralis minor.

From the second part:

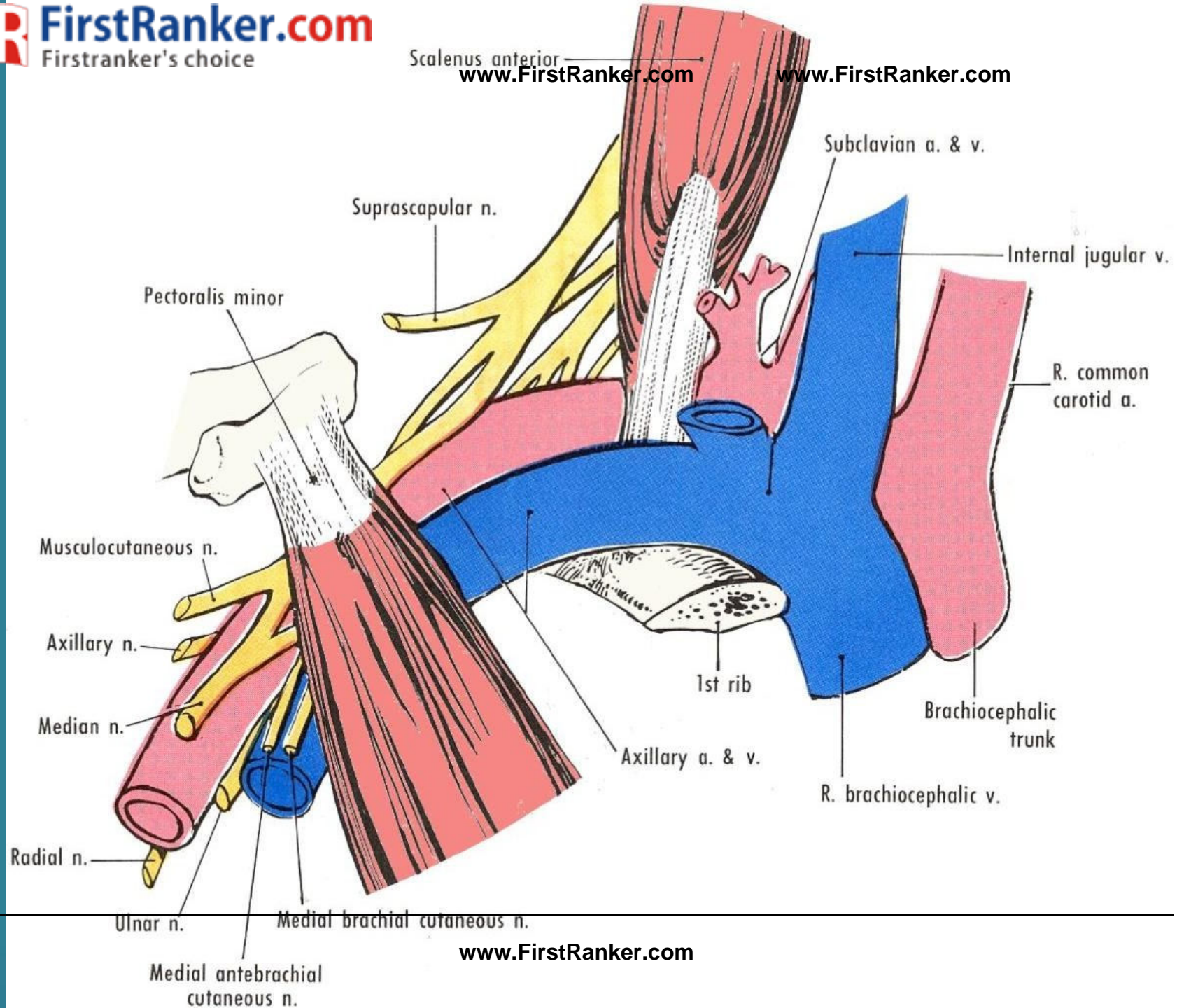
- **1. The thoracoacromial artery** immediately divides into terminal branches.
- **2. The lateral thoracic artery** runs along the lower border of the pectoralis minor

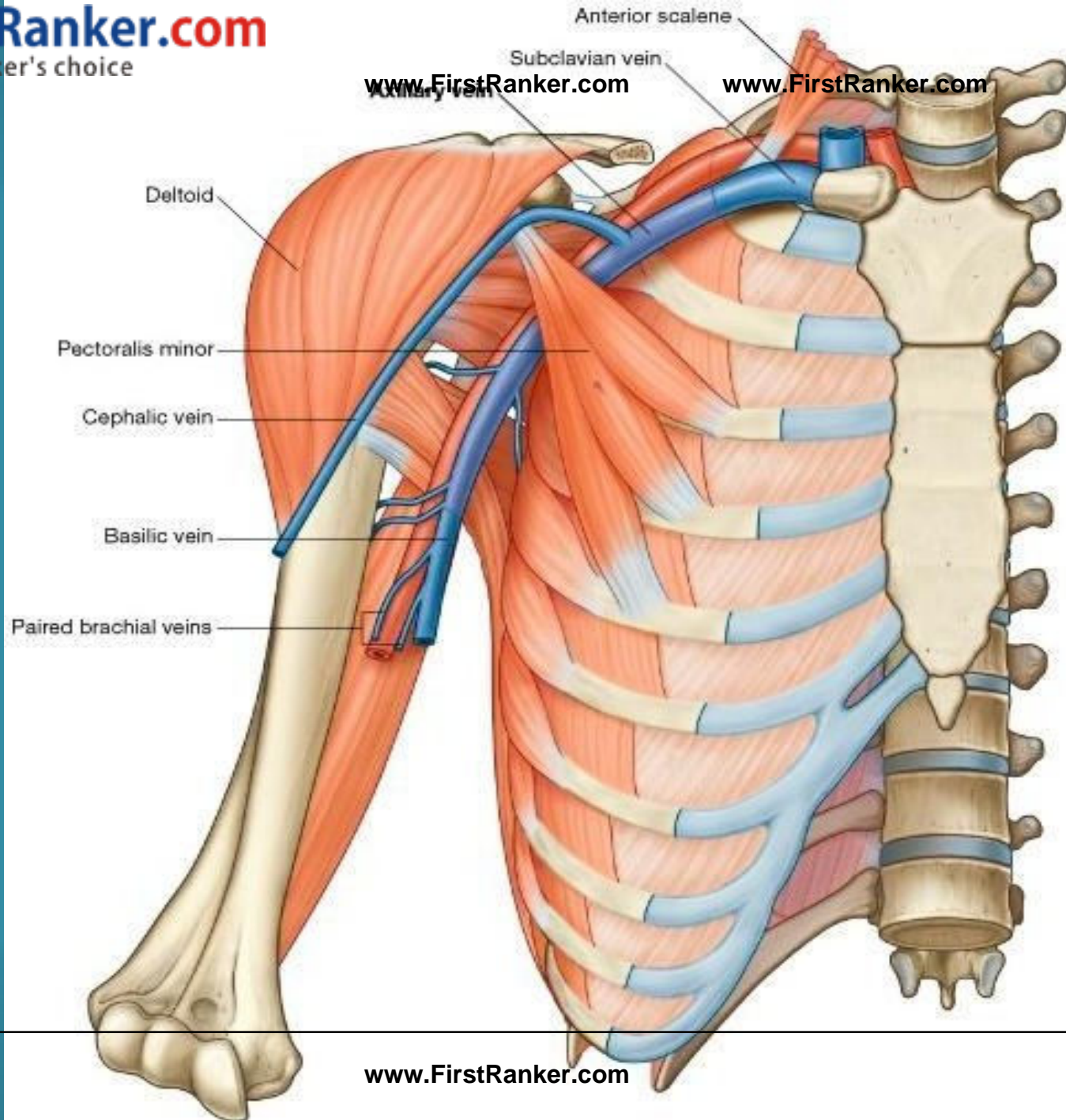
From the third part:

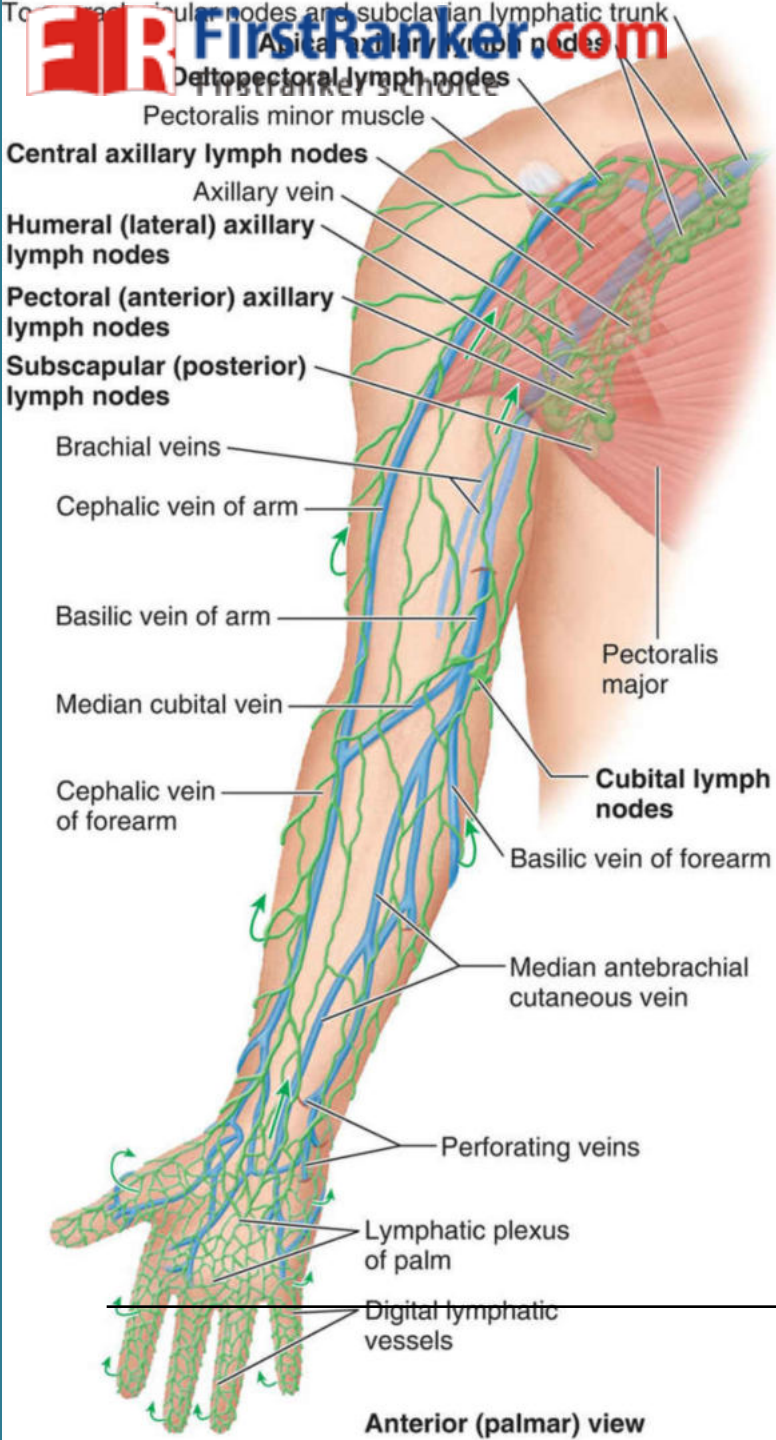
- **1. The subscapular artery** runs along the lower border of the subscapularis muscle.
- **2. The anterior circumflex humeral artery** wind around the front of the surgical neck of the humerus.
- **3. posterior circumflex humeral artery** wind around the back of the surgical neck of the humerus



- The axillary vein is formed at the lower border of the teres major muscle by the union of the venae comitantes of the brachial artery and the basilic vein.
- It runs upward on the medial side of the axillary artery and ends at the lateral border of the first rib by becoming the subclavian vein.
- The vein receives tributaries, which correspond to the branches of the axillary artery, and the cephalic vein







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Lymph drainage of upper limb.

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20-30 in number, embedded in the fibro fatty tissue of Axilla Drain

- ❖ Lateral part of breast.
- ❖ Superficial lymphatic vessels from thoraco lumbar region above level of umbilicus. Approx 75% of lymph from breast is drained to axillary group of LNs, making them important for diagnosis of cancer by biopsy. Axillary LNs are of 05 groups.
- ❖ Whole of upper limb except lateral side of arm, forearm, hand.
- ❖ Due to the surgical removal of metastasized axillary LNs in case of Ca-breast chance of lymphoedema is very high.
- ❖ In case of surgical management of Ca-breast draining LNs are usually removed to prevent recurrence of further metastasis.

ANTERIOR; (pectoral) along medial wall with Lateral Thoracic vein

POSTERIOR: (Subscapular) along medial wall with Subscapular vein

LATERAL: along medial side of axillary vein **CENTRAL:** in

Centre of Axillary fat, Related to Intercostobrachial Nv.

APICAL: at apex of Axilla.

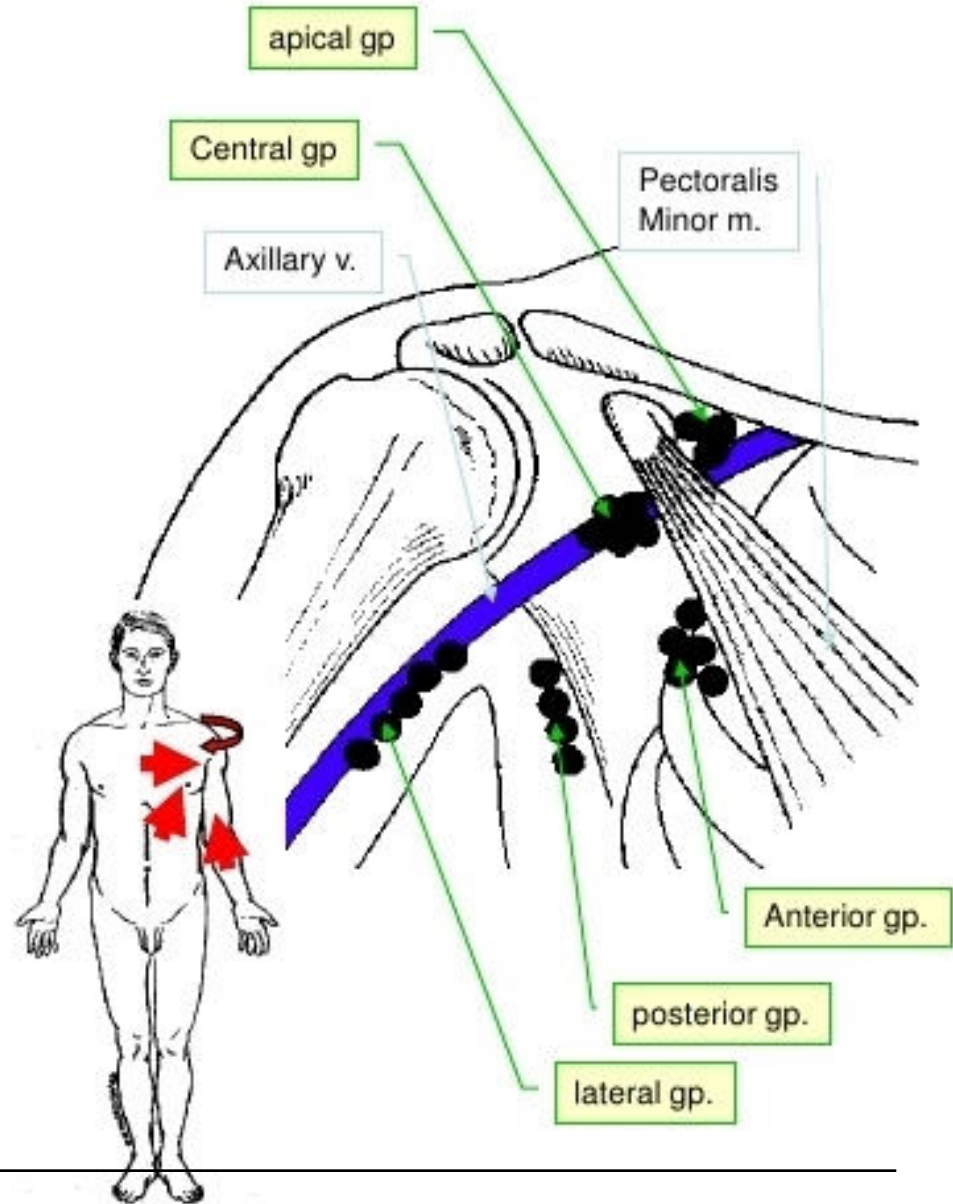
INFRACLAVICULAR: on Clavipectoral fascia in deltopectoral groove.

Axillary lymph nodes

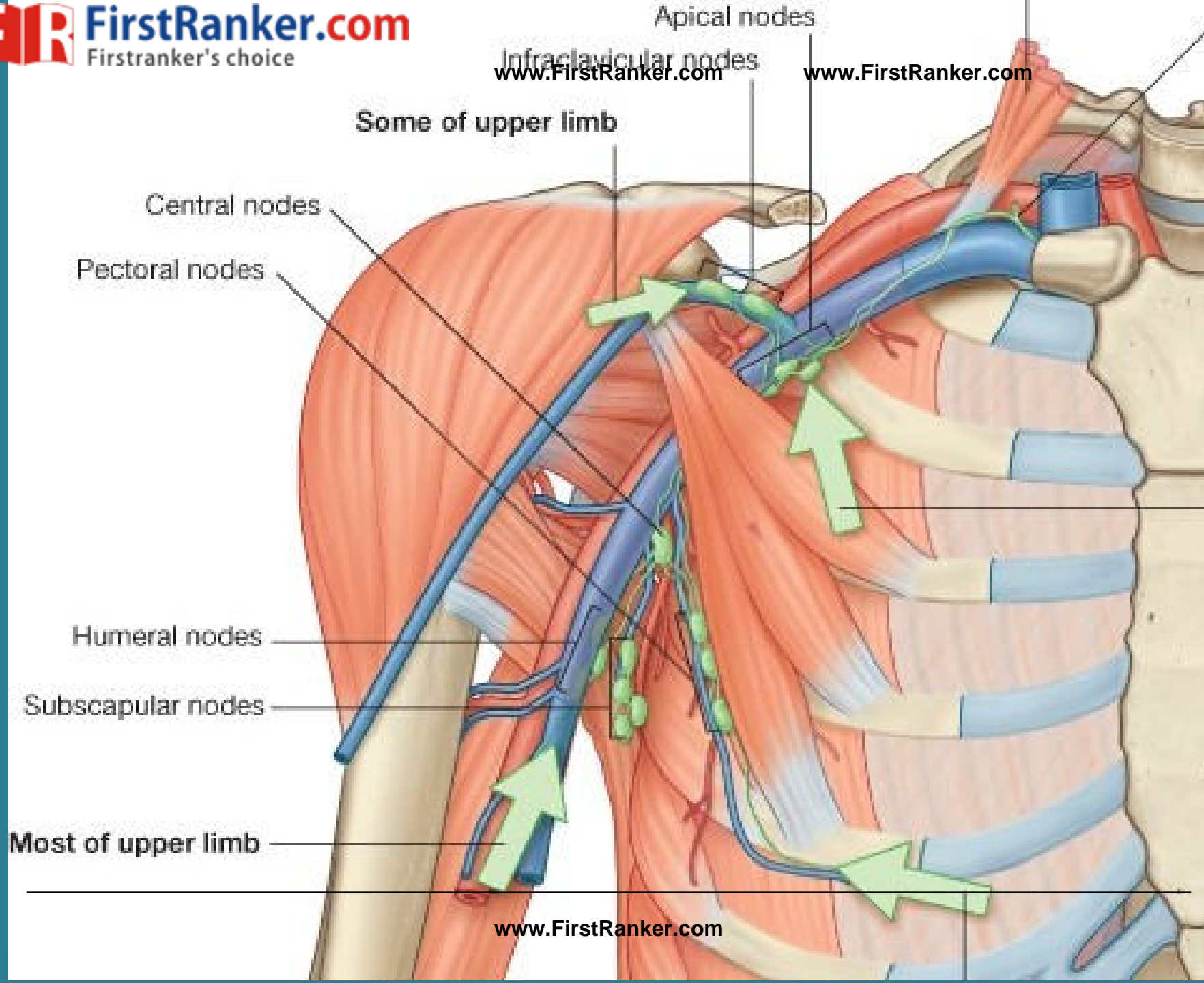
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- **Arrangement:**
- Anterior or pectoral group lying deep to pectoralis major along the inferior border of pectoralis minor muscle: drain most of the lymph of the breast.
- Posterior or subscapular group, lie in front of subscapularis on the posterior wall of the axilla.
- Lateral group lying along the axillary vein.
- Central group lying in the axillary fat.
- Apical group lying behind the clavicle at the apex of the axilla.
- **Drainage area**
 - Breast.
 - Pectoral region.
 - Upper part of the abdominal wall.
 - Upper part of the back.
 - Upper limb.



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Supraclavicular lymph nodes

Infraclavicular lymph nodes

- 1 Brachial vein
- 2 Axillary vein
- 3 Subclavian vein

Axillary lymph nodes

Humeral (lateral) lymph nodes

Central lymph nodes

Apical lymph nodes

Subscapular (posterior) lymph nodes

Pectoral (anterior) lymph nodes

Pectoralis minor

Interpectoral nodes

Pectoralis major

Subareolar lymphatic plexus

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Subclavian lymphatic trunk

Deep cervical lymph nodes

Internal jugular vein

Right lymphatic duct

Right brachiocephalic vein and artery

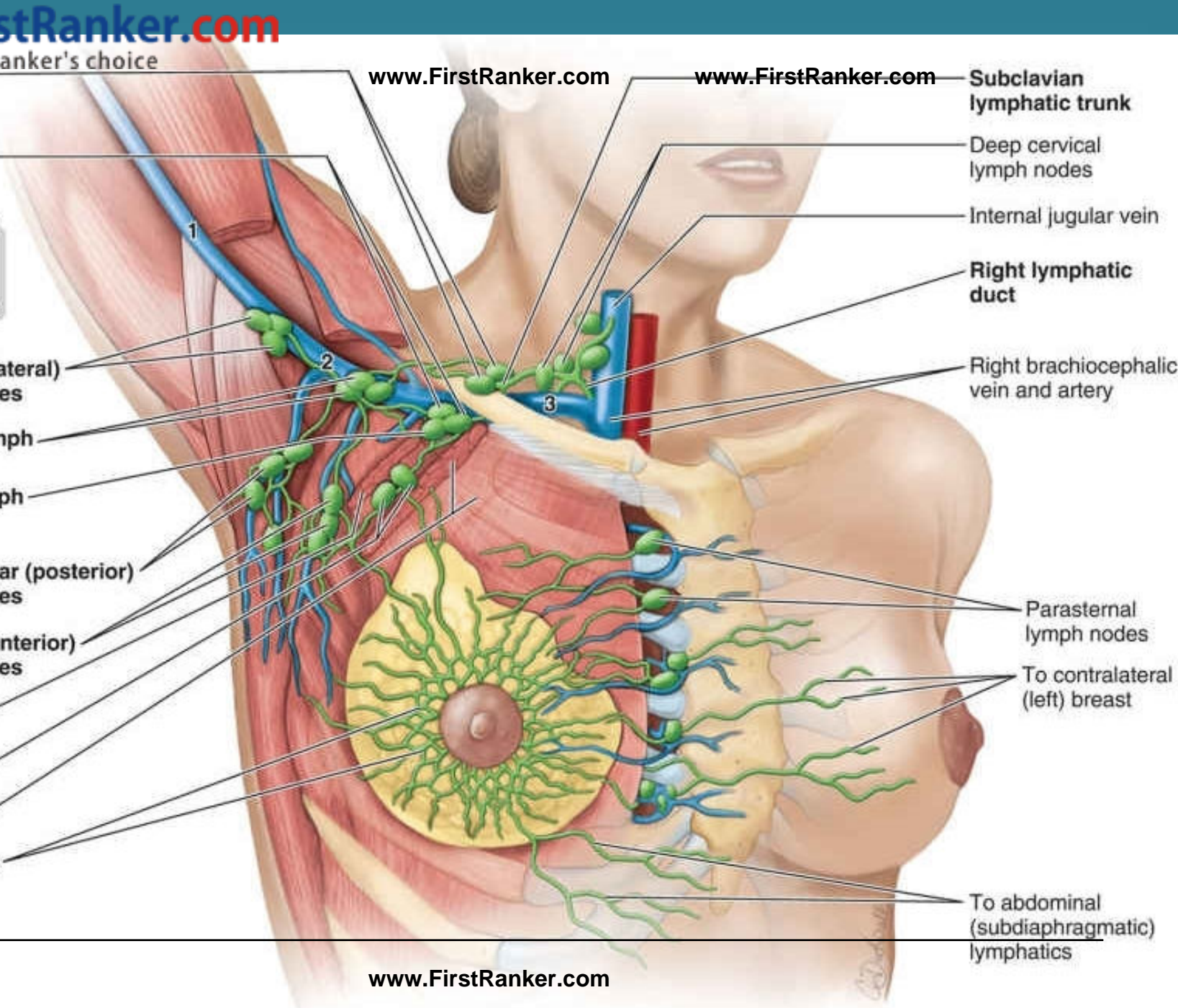
Parasternal lymph nodes

To contralateral (left) breast

To abdominal (subdiaphragmatic) lymphatics

A) Anterior view

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Supraclavicular

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Infraclavicular

Apical

Central

Lateral

Posterior

Medial

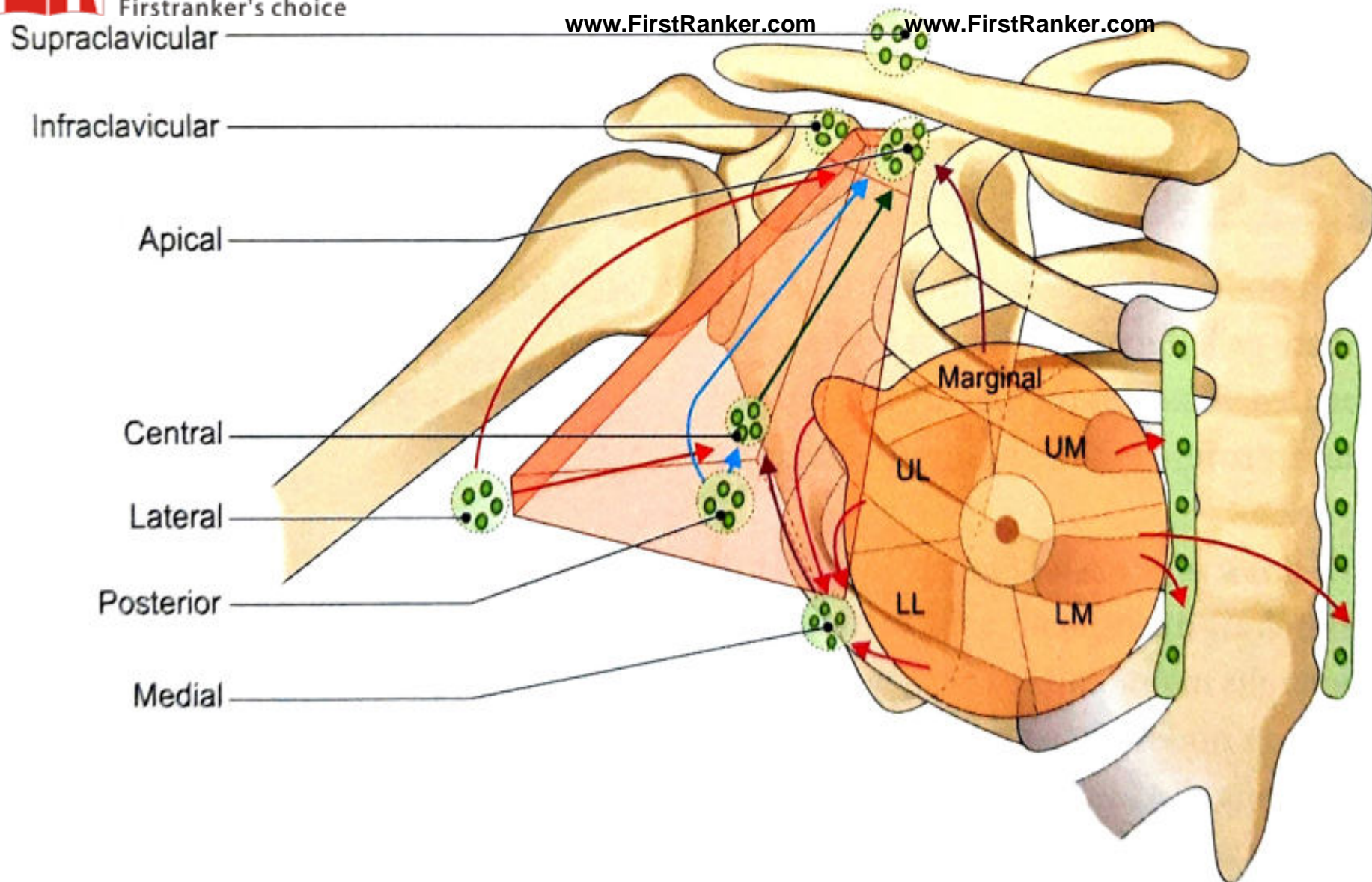
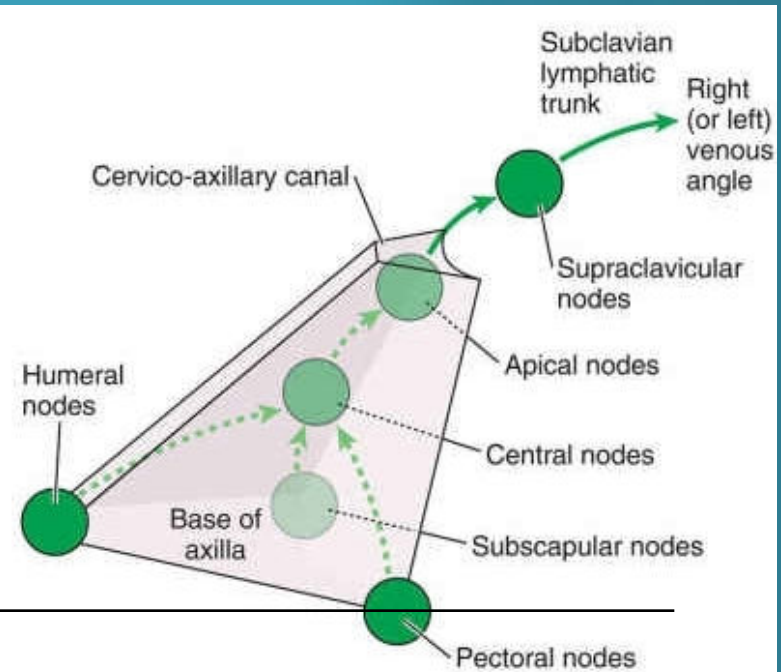
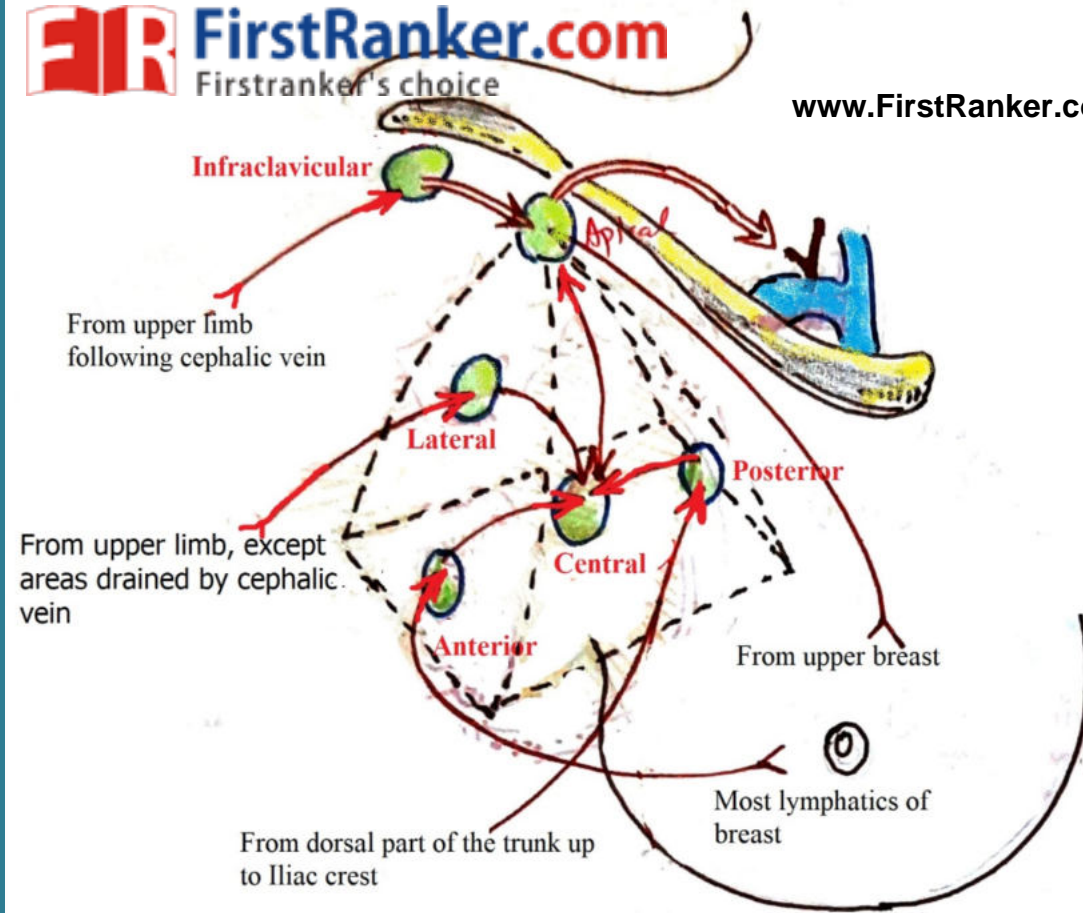
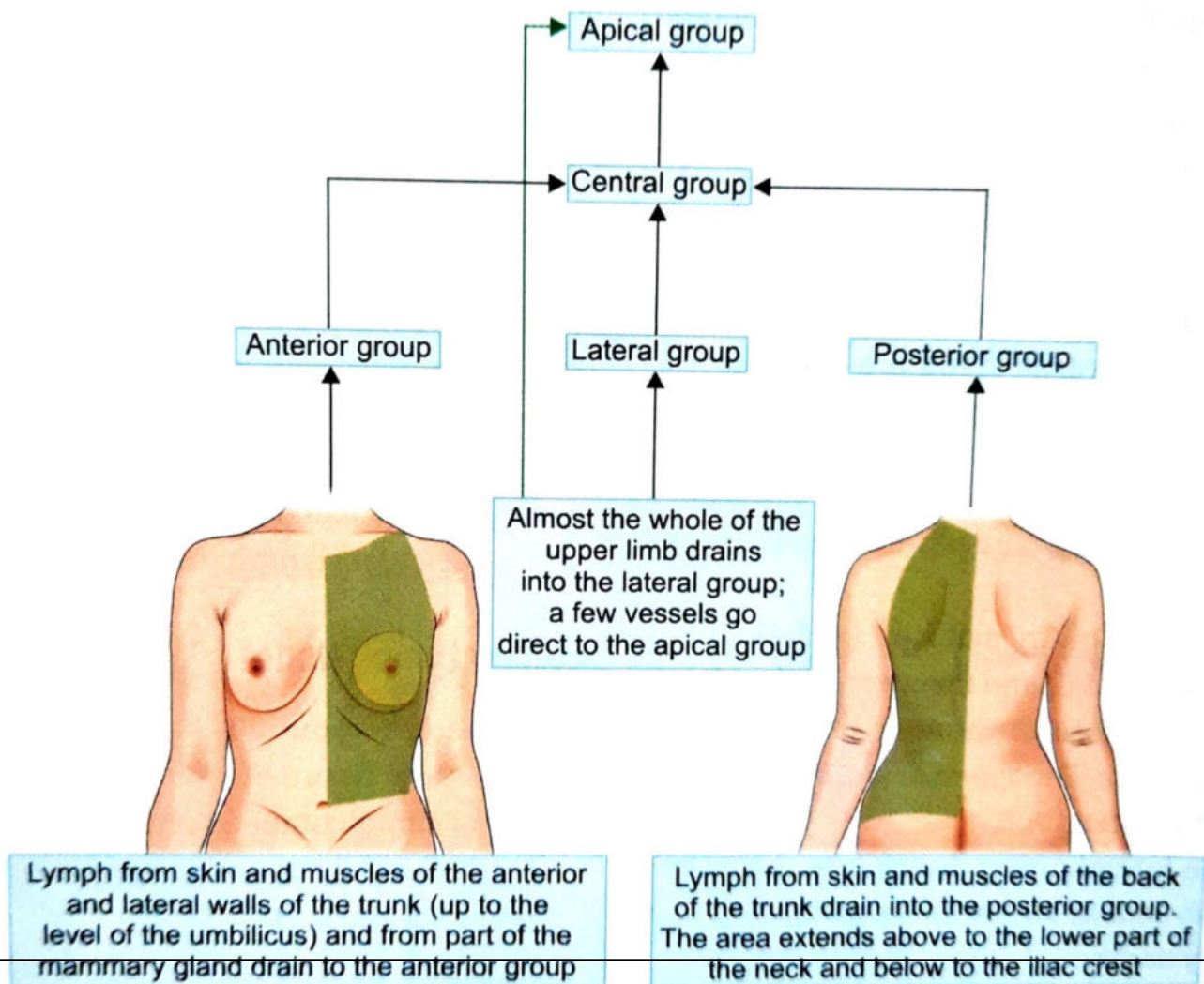
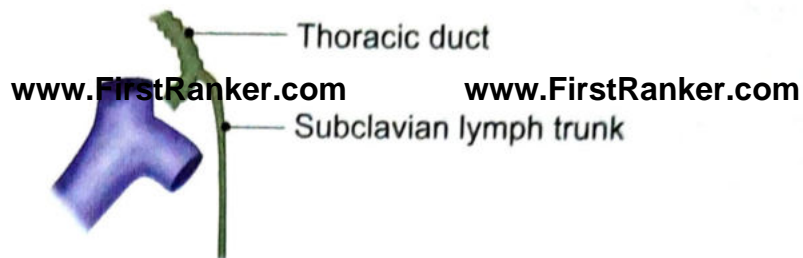


Fig. 6.4: Axillary lymph nodes and lymphatic drainage of mammary gland.

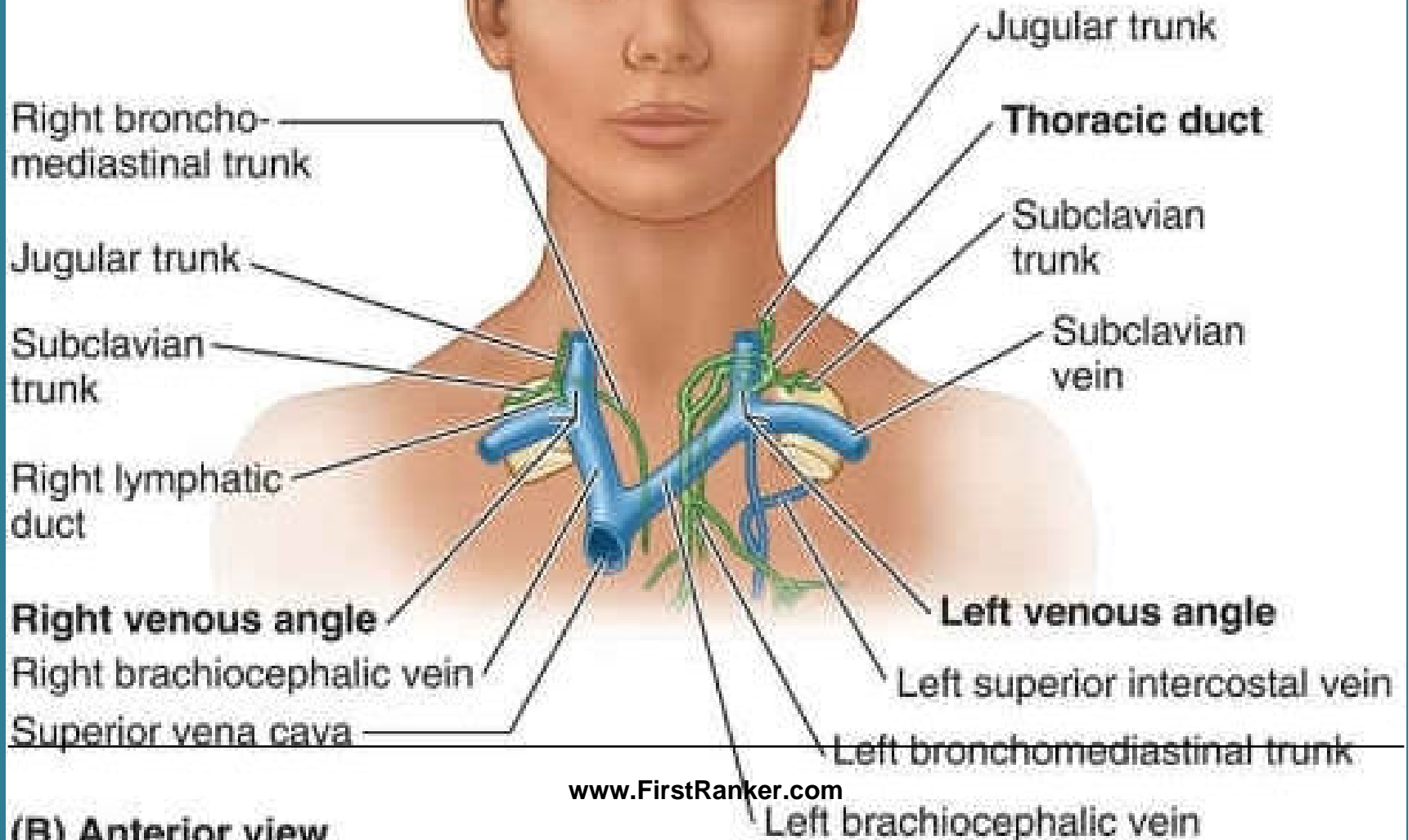
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(C) Axillary lymph nodes



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Fig. 6.3: Areas of drainage of axillary lymph nodes.



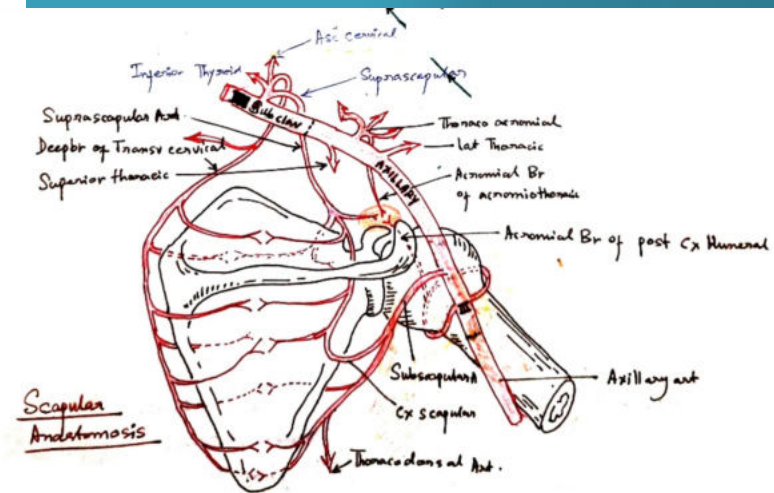
Around the scapula, **collateral anastomoses** are observed between the branches of the first part of subclavian artery and the third part of axillary artery in the following regions (Fig. 6.6) :

In each of subscapular, suprascapular and infrascapular fossae

- Suprascapular, and
- Deep branch of transverse cervical arteries (from thyrocervical trunk of subclavian artery);
- With** Circumflex scapular artery (from third part of axillary artery).

Over the acromial process

- Acromial branch of suprascapular artery (from subclavian artery), **with**
- Thoraco-acromial, and
- Posterior circumflex humeral arteries (from axillary artery).





SCAPULAR ANASTOMOSIS



Thank you

