
Breast, Axillary and Brachial Plexus Anatomy

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Presented on the 13 October 2014

Mammary Gland

Anterolateral dissection

Pectoralis major muscle

Serratus anterior muscle

External abdominal oblique muscle

Clavicle

2nd rib

Pectoralis major muscle

Pectoral fascia

Intercostal muscles

Intercostal vessels and nerve

Lung

6th rib

Suspensory ligaments (of Cooper)
Areolar glands

Areola

Lactiferous ducts

Ampulla

Fat

Gland lobules

Suspensory ligaments (of Cooper)

Ampulla

Lactiferous duct

Gland lobules

Fat

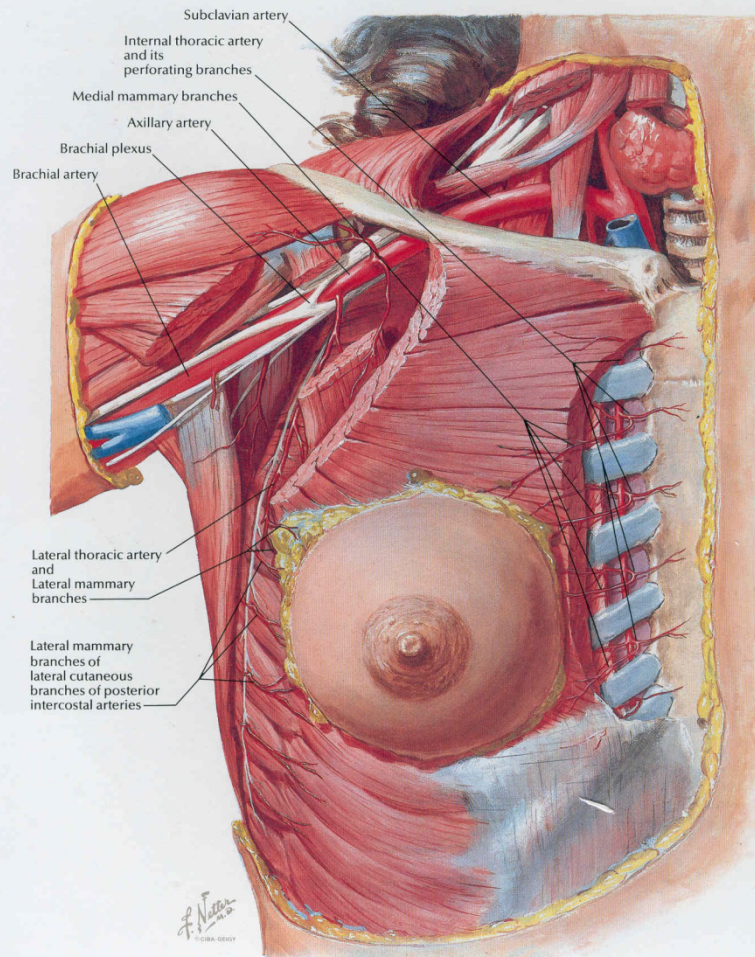
Sagittal section

F. Netter M.D.
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Breast Anatomy

- Near midline to near mid axillary line
- Spans from 2nd to 6th ribs
- Overlies Pect Major, overlapping serratus anterior and small part of rectus sheath and ext oblique
- Small part of the upper outer quadrant extends laterally to form the axillary tail
- 15-20 lactiferous ducts converge in a radial direction to open at the nipple
- Areola – pigmented portion of skin which has some large sebaceous glands (tubercles of montgomery)
- Deep to the breast, is the superficial fascia (upward continuation of the membranous layer of scarpa which condenses to form the posterior capsule
- Suspensory ligament of cooper connects the dermis of the overlying skin to this fascia

Arteries of Mammary Gland



Arterial Supply

- Derived mainly from the lateral thoracic artery by branches that curl around the border of pect major and by other branches that peirce the muscle
- Internal thoracic artery also sends branches through the intercostal spaces beside the sternum (2nd and 3rd spaces being the largest branches)
- Small perforating branches arise from the intercostal arteries
- Pectoral branches of the thoraco-acromial artery supplies the upper part of the breast

Venous Drainage

- Via deep veins that run with the arteries to the internal thoracic vein and axillary vein
- Some drainage to the posterior intercostal veins which provide an important link to the vertebral veins (explains vertebral mets in breast cancer)

Lymphatic Drainage

- Lateral part of the breast drain to the axillary and infra-clavicular nodes
- Medial part drain through the intercostal spaces to the internal thoracic lymph nodes
- There are no valves in the intramammary channels
- Most lymph drain to the axilla, some to the internal thoracic nodes (mainly via the first 3 spaces, within 3cm of the sternal margin)

Nerve Supply

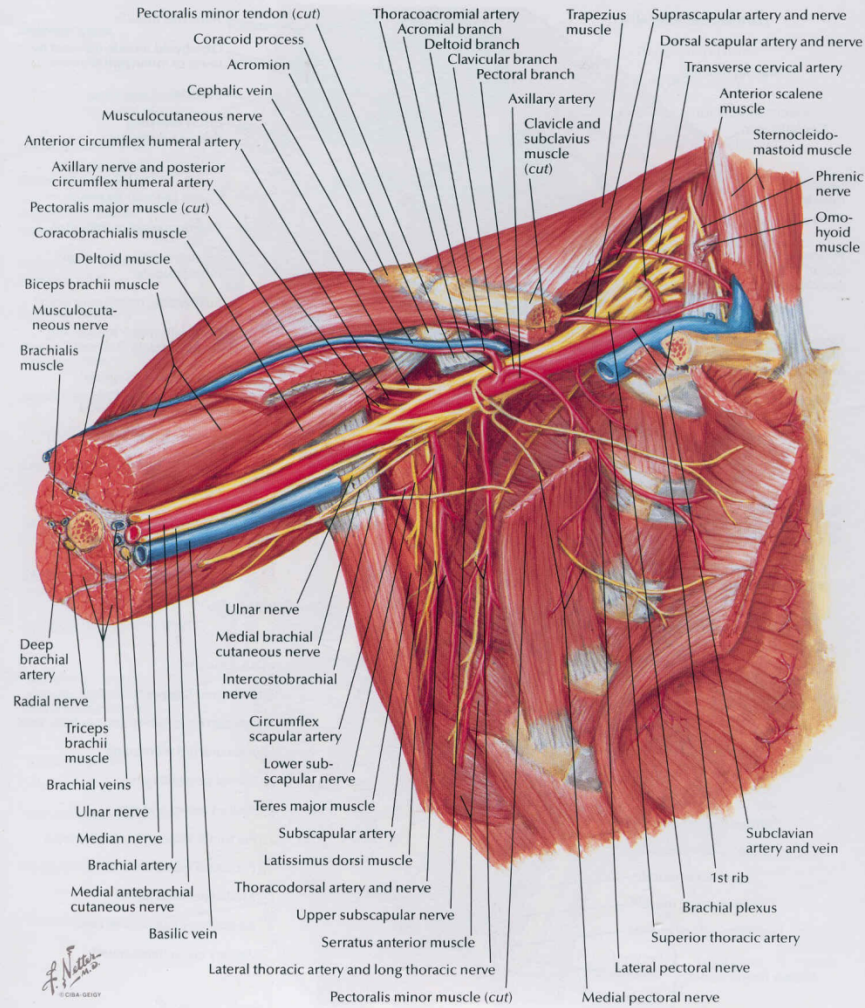
- Cutaneous Supply
 - Intercostal nerves from T4-6
- Sympathetic fibres follow the blood vessels
- Control of lactation is hormonal

Axilla

Axilla

- Communication to the posterior triangle of the neck
- Floor – axillary fascia
- Anterior – Pect major and minor, subclavius, clavipectoral fascia
- Posterior – Subscapularis, Teres major, tendon of latissimus dorsi
- Medial – Upper part of serratus anterior, lower limit of the axilla is the level of the 4th rib
- Lateral – Intertubercular groove

Axilla (Dissection): Anterior View



Contents of the axilla

- Neurovascular bundle
- Cords of the brachial plexus formed behind the clavicle and enters the upper part of the axilla above the artery
- Cord then approaches the artery and embraces it in the 2nd part which lies behind pectoralis minor
- Axillary vein lies on the medial aspect of the artery and nerve throughout its course
- Lymph nodes

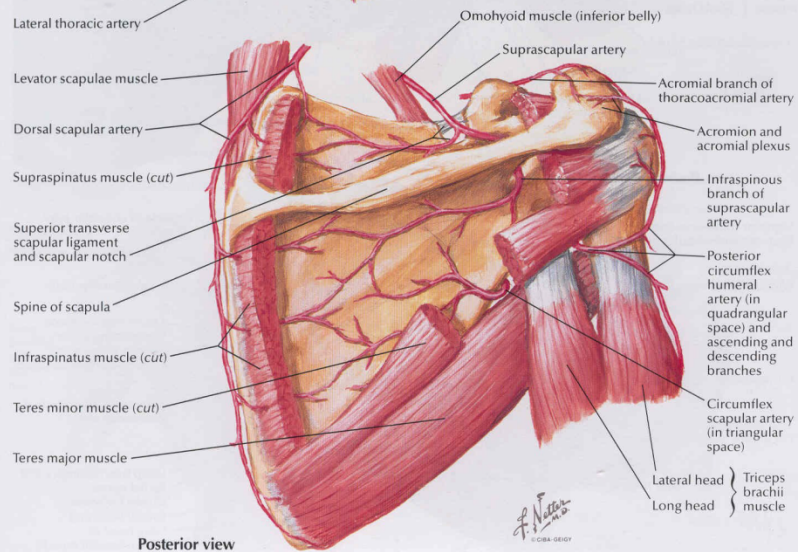
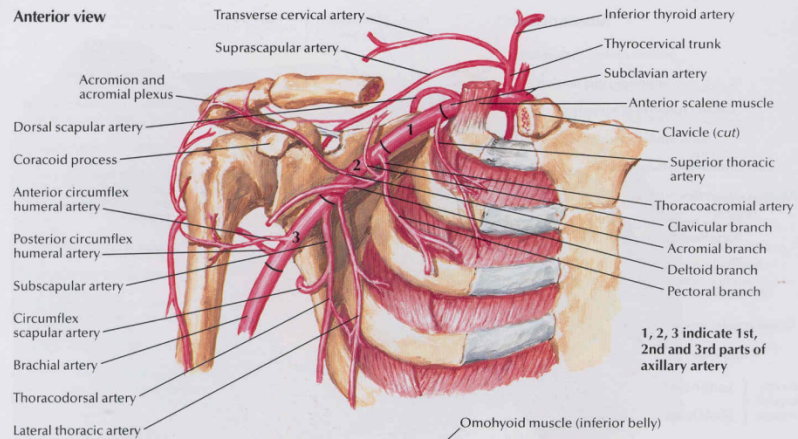
Axillary Artery

- A continuation of the third part of the subclavian artery
- Ends at the lower border of teres major to become the brachial artery
- Enters the apex of the axilla over the first digitation of the serratus anterior, at the outer border of the first rib, behind the midpoint of the clavicle
- Invested in axillary sheath, which is projection from the prevertebral fascia

Axillary Artery and Anastomoses Around Scapula

SEE ALSO PLATES 28, 409

Anterior view



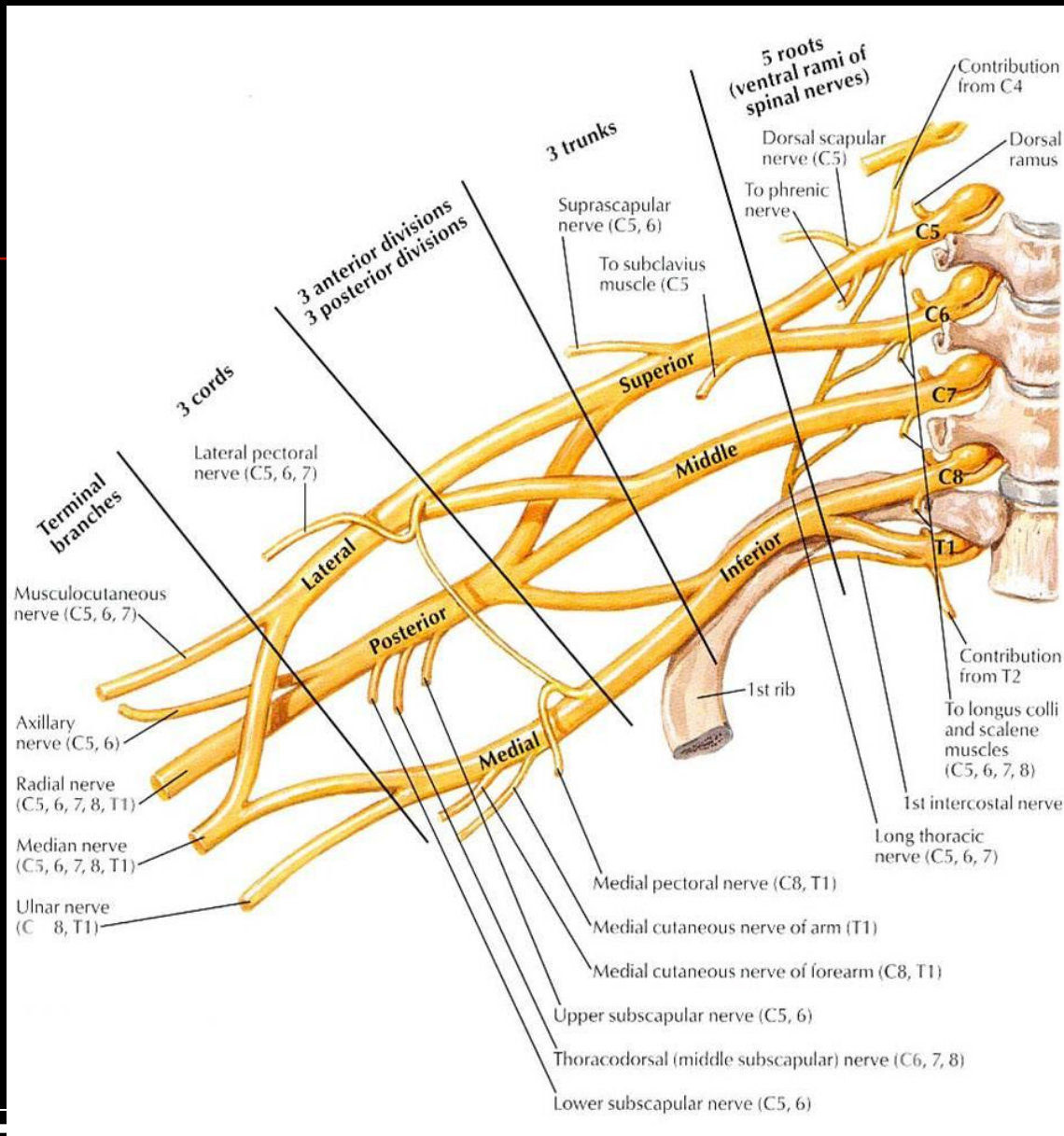
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- Divided into 3 parts by pectoralis minor
 - Branches:
 - 1st part one branch – Superior thoracic artery
 - 2nd part two branches - Thoraco-acromial trunk, Lateral Thoracic artery
 - 3rd part three branches – Subscapular artery, Anterior and Posterior circumflex scapular arteries

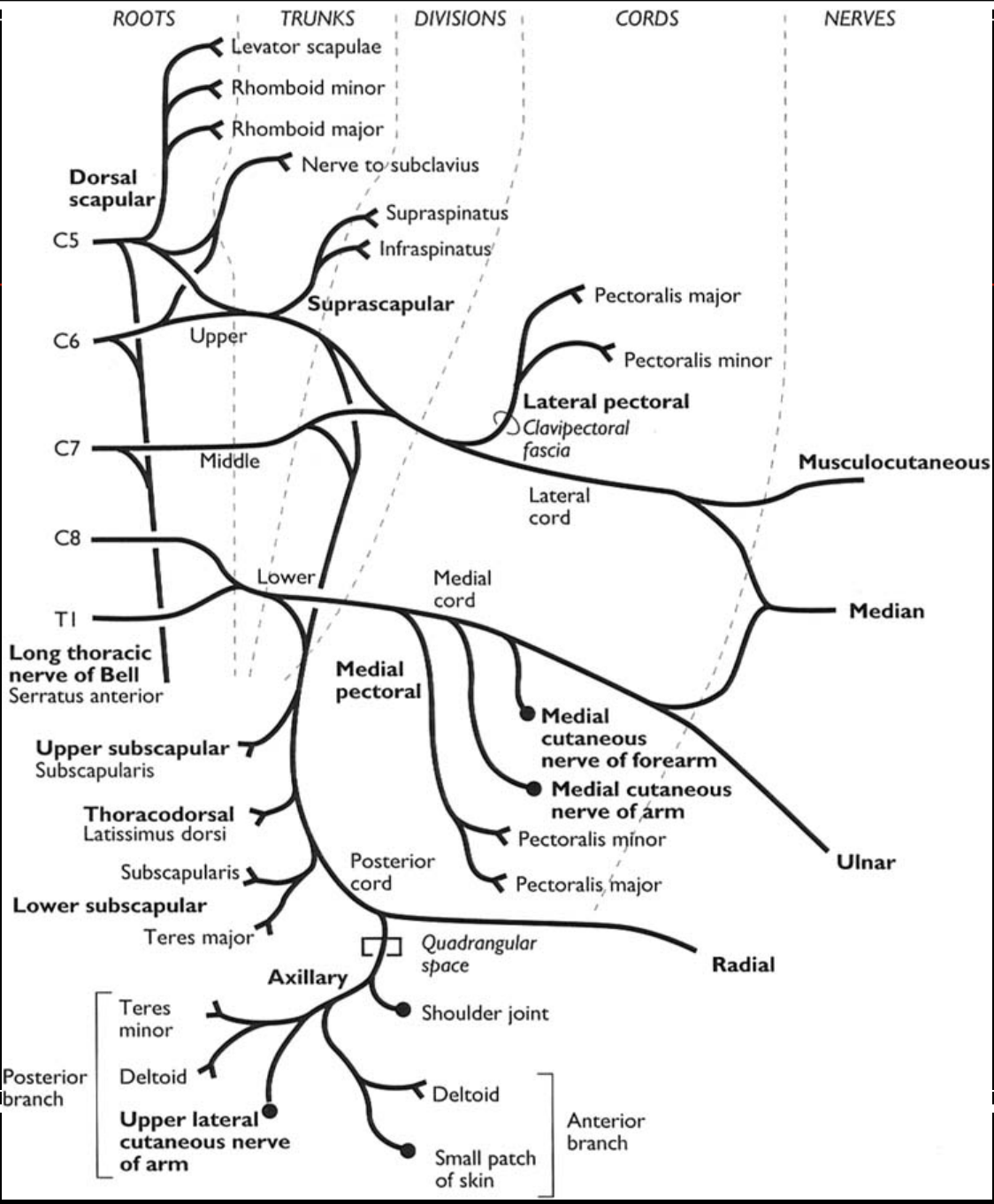
Axillary Vein

- Venae comitantes of the brachial artery are joined by the basilic vein to form the axillary vein
- Over the upper surface of the first rib, in front of scalene anterior, it becomes the subclavian vein
- Tributaries of the vein are as for the artery in the 2nd and 3rd parts but in the 1st, there is the cephalic vein which enters after piercing the clavipectoral fascia
- No sheath to allow expansion

Brachial Plexus

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- From C5-T1
 - Divided into:
 - Roots
 - Trunks
 - Divisions
 - Cords
 - Nerves
 - Relation of the cords to the axillary artery





BRACHIAL PLEXUS

