PECTORAL REGION

MAMMARY GLAND (LE)

MAMMARY GLAND- BLOOD SUPPLY, LYMPHATIC DRAINAGE AND APPLIED ANATOMY. (SE)

The female mammary gland is a gland of lactation. Though it is present in males it is not functional.

Extent

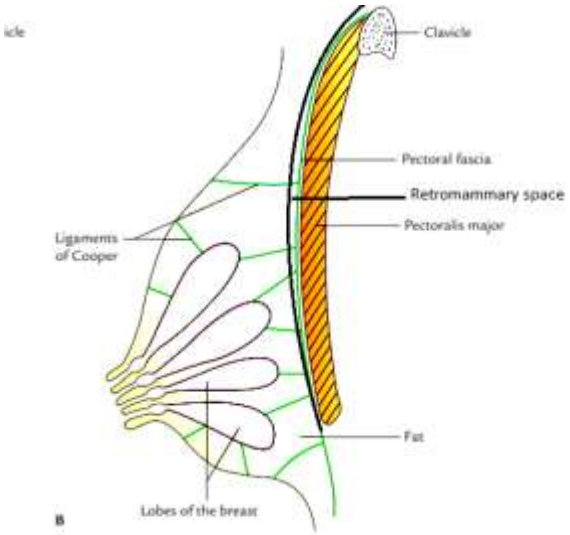
Transversely from lateral margin of sternum to midaxillary line
Vertically from 2nd to 6th rib
A small extension into the axilla is known as Axillary tail

Structure-

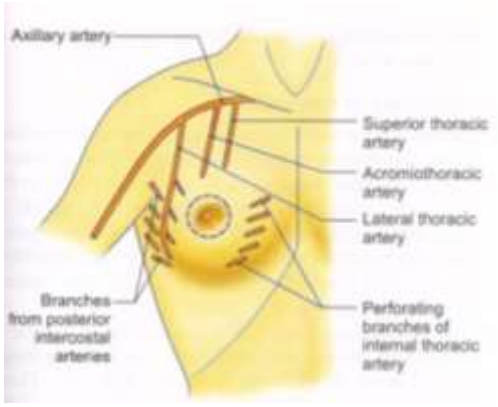
The mammary gland is made up of modified sweat glands and fibro-fatty tissue and lies wholly in the superficial fascia. In the central part there is a projection called the nipple and around it a pigmented area known as areola. The gland has 18 to 20 lobes, seperated by connective tissue. Each lobe is made up of a number of acini which opens separately through the nipple by lactiferous duct and presents a dilatation close to the terminal part called lactiferous sinus.

Fibrous septae extending between skin and pectoral fascia called suspensory ligament, anchors the gland to the underlying deep fascia.

Loose areolar tissue lies between the gland and the pectoral fascia known as retromammary space. It allows movement of the breast over the fascia



Blood supply:



Arterial supply

Lateral thoracic branch of axillary artery, internal thoracic artery, 3rd, 4th and 5th intercostal arteries

Venous drainage

Internal thoracic vein, Axillary vein, Intercostal veins.

Lymphatic drainage

Skin:

Skin over the breast is divided into 4 quadrants- upper medial and lateral, lower medial and lateral.

upper and lower medial: into parasternal nodes and passes the midline to communicate with opposite parasternal nodes becoming bilateral.

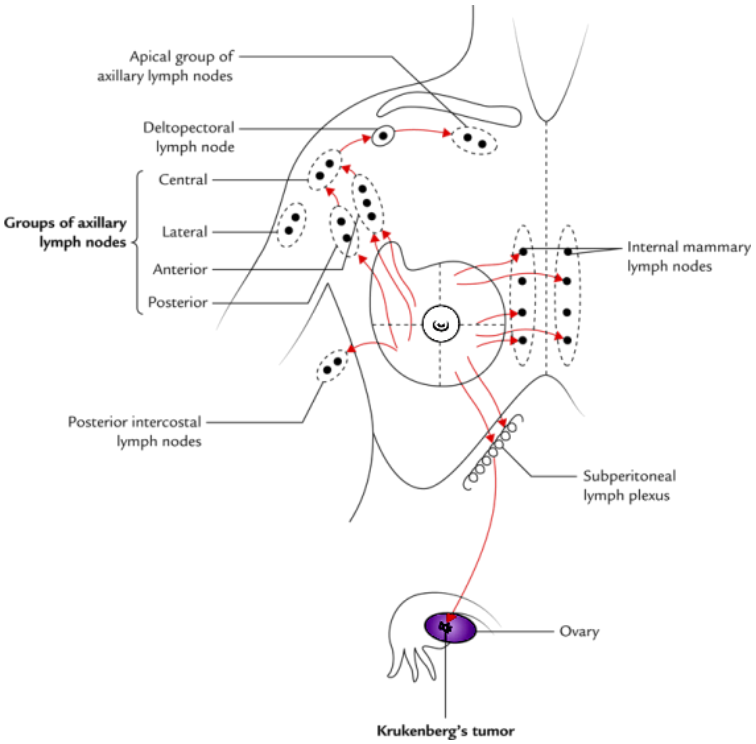
Lower medial: sub-diaphragmatic nodes

Upper and lower lateral: axillary nodes

Lower lateral : posterior intercostal nodes

Parenchyma:

75% drain into axillary lymph nodes, 20% into internal thoracic, and 5% into posterior intercostal nodes



Nerve supply

Anterior and lateral cutaneous branches of 3rd, 4th and 5th intercostal nerves

Applied anatomy

Incisions on breast should be radial so as not to cut the ducts.
Cancer of breast may spread along lymphatics to liver, lungs, bones and ovary.
Regional lymph nodes become stony hard and fixed in cancer.
There may be retraction/ puckering of skin due to involvement of ligaments of Cooper.
Peau d' orange or edema with pitting skin- Cancer cells may obstruct cutaneous lymphatics causing edema and there will be fixation of hair follicles leading to pitting of skin.

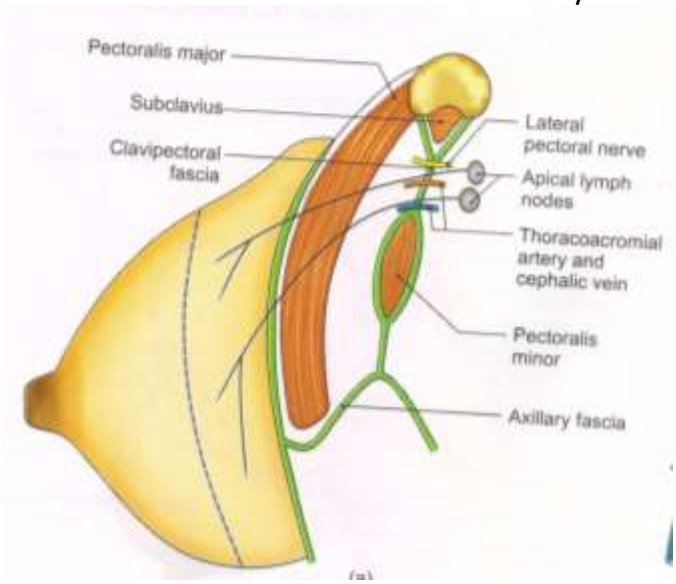
Development

2 milk ridges appear as linear thickenings of ectoderm on the ventral part of the embryo extending from axilla to groin.
In the milk ridges of pectoral region ectodermal cells grow into underlying mesenchyme to form glands.
From puberty in female- Gland enlarges due to deposition of fat and glandular proliferation.

CLAVIPECTORAL FASCIA (SE)

Extent-

Vertical- clavicle to axillary fascia
Horizontal- sternum to midaxillary line



Attachments

Medial: fuses with anterior intercostal membrane of upper two spaces, first costochondral junction
Lateral: coracoid process, blends with coraco-clavicular ligament
Above: splits to enclose subclavius muscle and attaches to clavicle
Below: splits to enclose pectoralis minor, reunites at lower border of the muscle and extends down as suspensory ligament of axilla.

Structures piercing

cephalic vein, lymphatics, lateral pectoral nerve, thoraco-acromial vessels.

SERRATUS ANTERIOR (SE)

Attachments

Origin

upper 8 ribs

Insertion

costal surface of medial border of scapula

Nerve supply-

Nerve to serratus anterior (C5, C6, C7)

Actions

Whole muscle- protraction of scapula (boxer's muscle)
Keeps medial border of scapula in firm apposition with chest wall
Lower 4 or 5 digitations- rotates scapula laterally and upwards

Applied anatomy

Injury to nerve to serratus anterior results in winging of scapula.

The medial border and inferior angle of scapula is raised when a person places hands on a wall and pushes.

RETROMAMMARY SPACE (SA)

It is present between base of mammary gland and deep fascia covering pectoralis major muscle.

It contains fat and allows the gland to move on it.

The space is relatively avascular with free flow of lymphatics.

Fibrous septae extending between skin and pectoral fascia called suspensory ligaments of Cooper.

They anchor the mammary gland to the underlying deep fascia.

Malignant tumors may invade deep fascia & pectoralis major muscle leading to fixation of breast.

PEU DE ORANGE (SA)

Peau d' orange refers to appearance of skin of breast affected by carcinoma. It resembles the skin of an orange.

Skin becomes edematous due to obstruction of cutaneous lymphatics by cancer cells .

There will be fixation of hair follicles leading to pitting of skin, resembling the skin of an orange.

PECTORALIS MINOR MUSCLE (SA)

Origin

Outer surface of 3rd, 4th and 5th ribs near costochondral junction

Insertion

Medial margin of coracoid process of scapula

Nerve supply

Medial and lateral pectoral nerves

Action

Forward movement of scapula and helps forced inspiration.

PECTORALIS MAJOR MUSCLE (SA)

Origin

One half of anterior surface of sternum

Medial 2/3 of clavicle

Insertion

Lateral lip of inter-tubercular sulcus of humerus

Nerve supply

Lateral and medial pectoral nerves

Action

Flexion, adduction and, medial rotation at the shoulder joint

CLAVIPECTORAL FASCIA/ STRUCTURES PIERCING CLAVIPECTORAL FASCIA (SA)

Attachments

Medial:

Fuses with anterior intercostal membrane of upper two spaces,

Lateral:

coracoid process, blends with coraco-clavicular ligament

Above:

Splits to enclose subclavius muscle and attaches to clavicle

Below

Splits to enclose pectoralis minor, reunites at lower border of the muscle and extends down as suspensory ligament of axilla.

Structures piercing:

Cephalic vein, lymphatics, laterals pectoral nerve, thoraco-acromial vessels.

WINGING OF SCAPULA (SA)

Winging of scapula is due to paralysis of serratus anterior muscle.
It is due to injury to nerve to serratus anterior also called long thoracic nerve.
The medial border and inferior angle of scapula is raised when a person places hands on a wall and pushes.
The name of this condition comes from its appearance, a wing-like resemblance, due to the medial border of the scapula projecting straight out from the back.
It can affect a person's ability to lift, pull, and push heavy objects. In some serious cases, the ability to perform activities of daily living such as changing one's clothes and washing one's hair may be hindered.