The Breast

Modified sweat gland between the superficial and deep layers of the chest wall

Cooper's Ligament

Fibrous band of tissue –

Female breast extends vertically from the 2nd or 3rd rib to 6th or 7th

Laterally from sternal margin to midaxillary line

Sets on ;

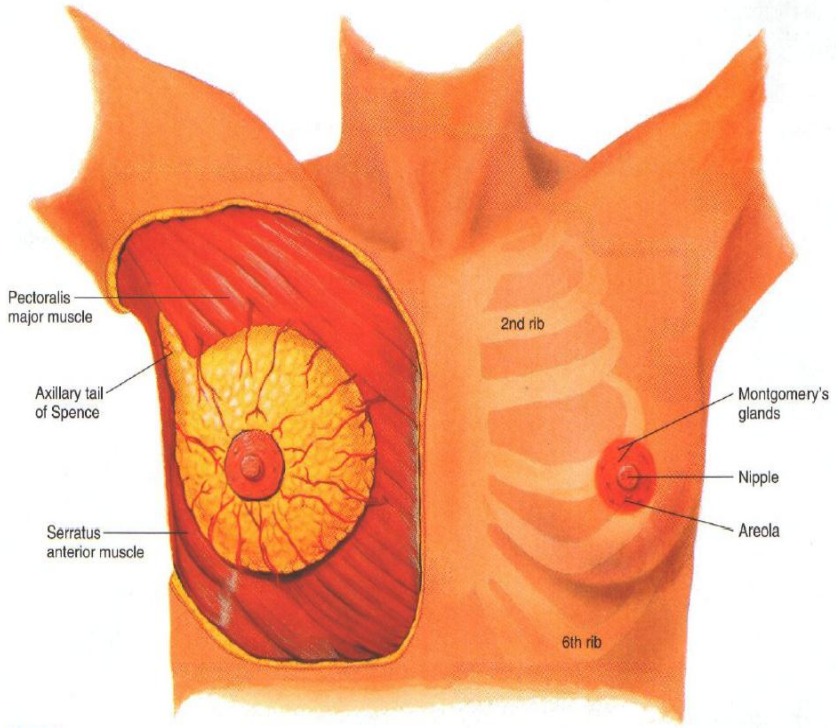
60% Pec. Major –

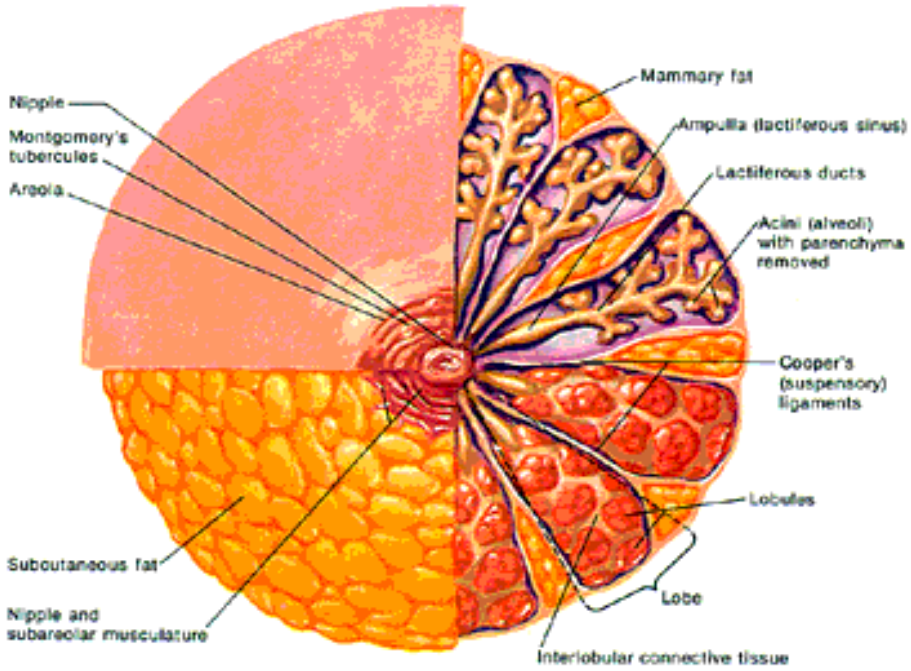
30% Serratus anterior

10% Rectus sheath

15-20 lobules separated by fibrous septa (Cooper's ligaments).

Axillary tail of spence.





أمراض الثدي

- الثدي : - غدة عرقية مفرزة معدلة ملحقة بالجهاز التناسلي , تمتد بين الورب الثالث و السابع و من القص إلى الإبط , و محاطة بلفافة سطحية و عميقة . تتثبت بالجلد و اللفافة العميقة بأربطة ليفية " أربطة كوبر " , و هذه الأربطة يمكن أن تنكمش أثناء الأورام .
- - الثدي الأيسر يكون أكبر حجماً بشكل بسيط , و للثدي قاعدة دائرية ,و طافياً أو محدب محيطياً .
- - كل ثدي يتألف من 15-20 فص نسيجي مفرز , وكل فص يملك قناة لبنية واحدة , و الفصوص و الأقنية تصطف بشكل شعاعي , و الفص يتألف من فصيصات , و الفصيص يتألف من فصيصات عنبية , و بين الفصوص يوجد النسيج الضام والشحمي , و كذلك يتوضع محيطياً النسيج الشحمي, و هو الذي يحدد شكل و حجم الثدي .
- - ذيل سبنس (tail spence) : امتداد الربع العلوي الخارجي من الثدي باتجاه الإبط , و يعبر تحت اللفافة الإبطية , و يمكن الخطأ بها مع العقد اللمفية .
- - اللعوة The Areola: تحوي تصبغات قاتمة و تزداد أثناء الحمل , و في مركزها توجد الحلمة في مستوى الورب الرابع

- **ـ اللعوة The Areola:**

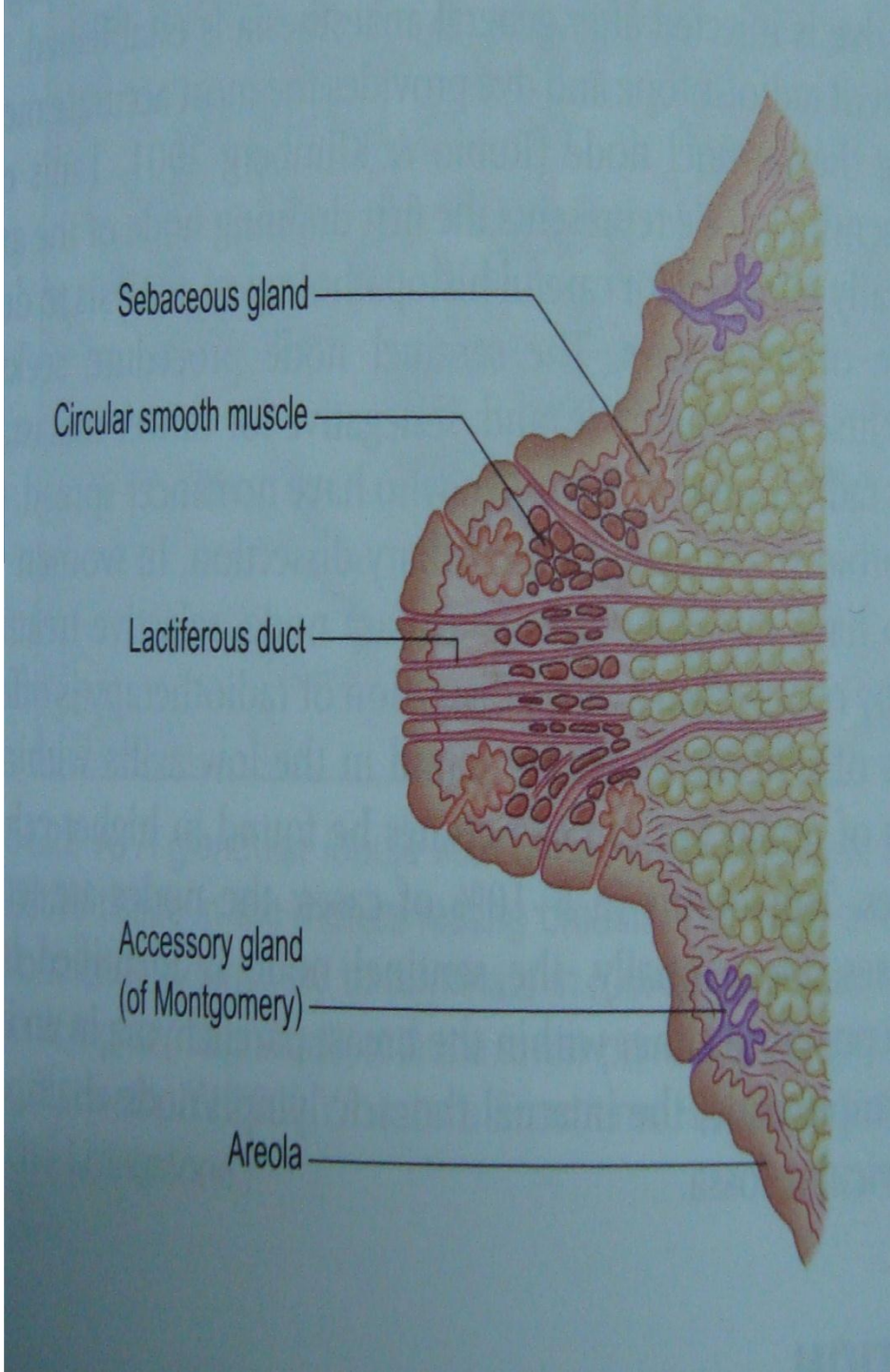
- ان النسيج الخلوي تحت الجلد يحتوي على عضلات لاإرادية تصطف بشكل حلقة دائرية , وإن الأبتليوم في منطقة اللعوة يحتوي على أعداد كبيرة من الغدد الدهنية والتي تعرف باسم **غدد مونتغمري** وتتضخم بشكل ملفت للنظر خلال الحمل وتساعد في تزليق «تزييت» الحلمة أثناء الإرضاع.

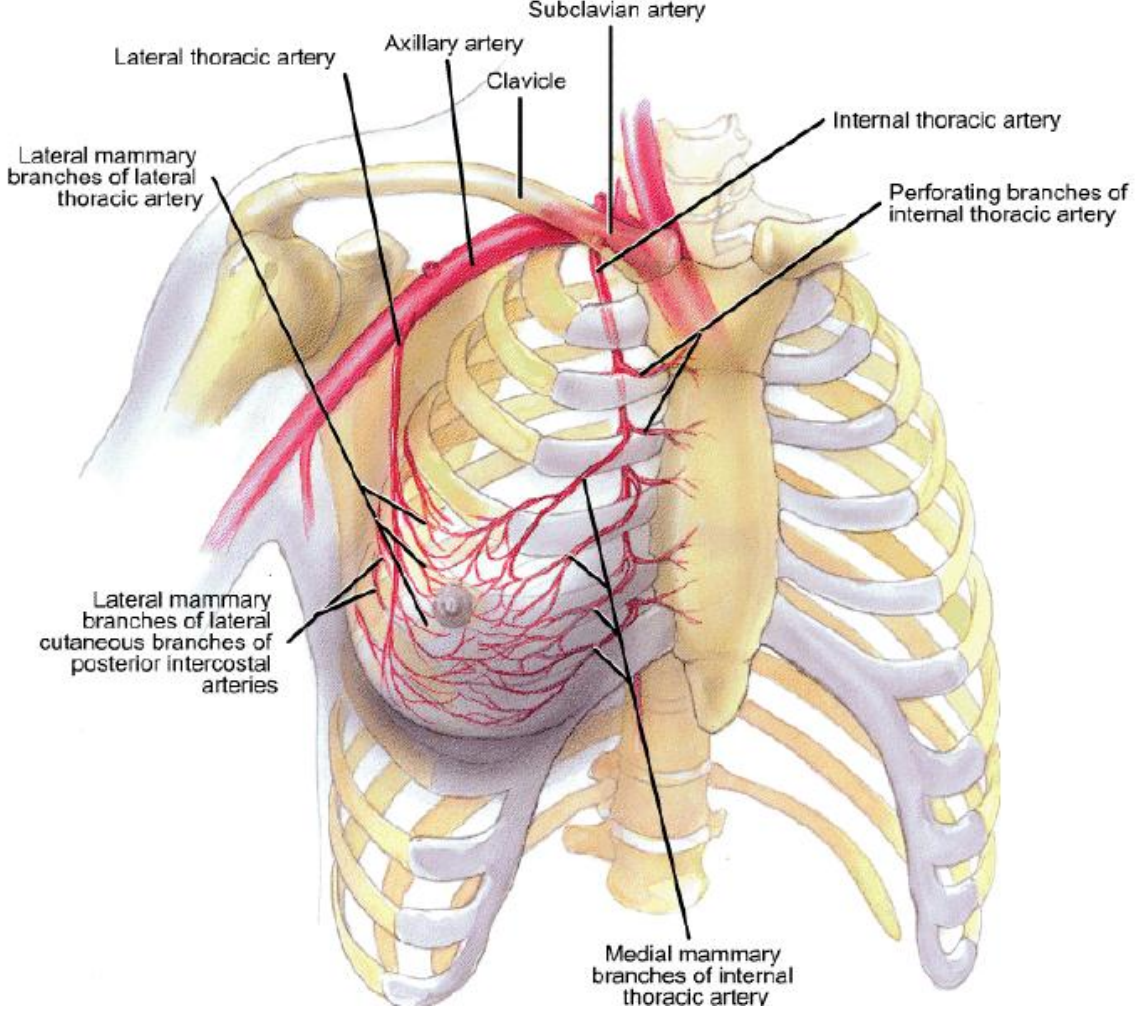
- **ـ الحلمة The Nipple:**

- تقع في منتصف اللعوة وتتكون من طبقة جلدية ثخينة ومتجعدة وتنفتح في مقدمة الحلمة فوهات الأقنية اللبنية

- وإن كلاً من الحلمة واللعوة عند الشابات تكونان بلون أحمر وردي ولكن بوجود الحمل تصبح مليئة بالأصبغة القتامينية.

- إن الحلمة تحتوي على ألياف عضلية ملساء مرتبة بشكل دائري وطولاني وإن هذه العضلات تساهم في انتصاب الحلمة أثناء عملية الإرضاع.





-
-

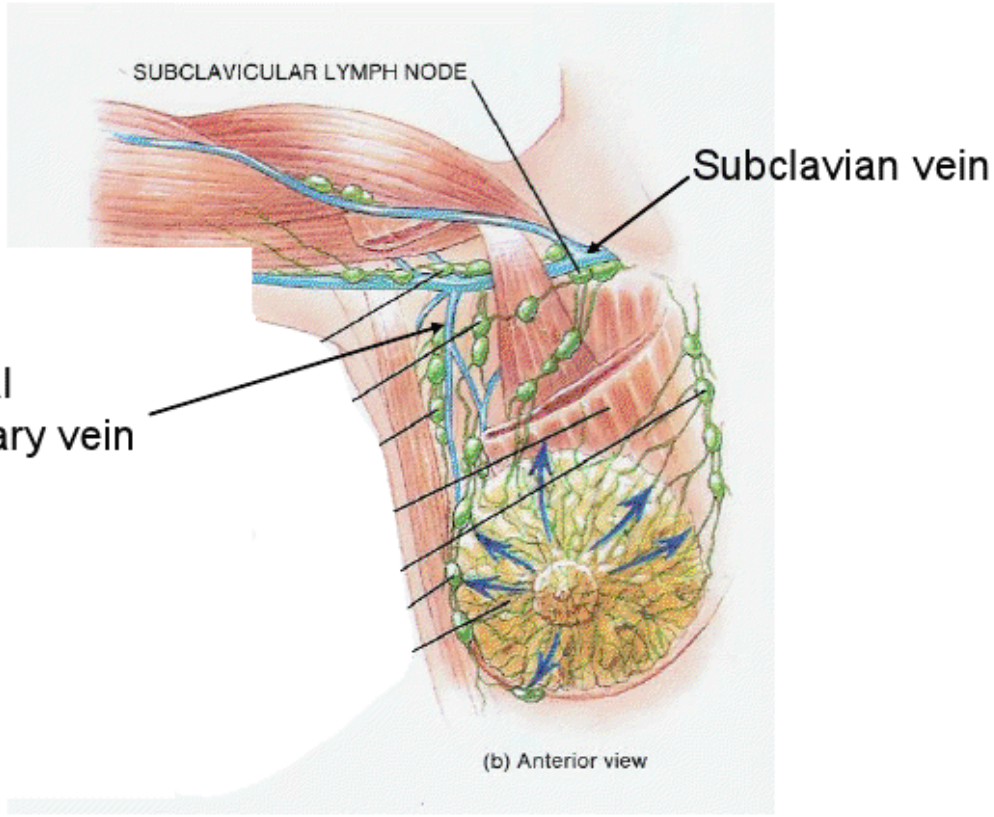
- التروية الشريانية :
- - من الشريان الإبطي
- عن طريق الشريان
- الصدري الوحشي ,
- - الشريان الثديي الباطن
- - الشرايين بين الأضلاع

العود الوريدي :

تتشكل حلقة حول قاعدة الحلمة , الى الوريد الثديي الخارجي و منه الى الوريد الإبطي

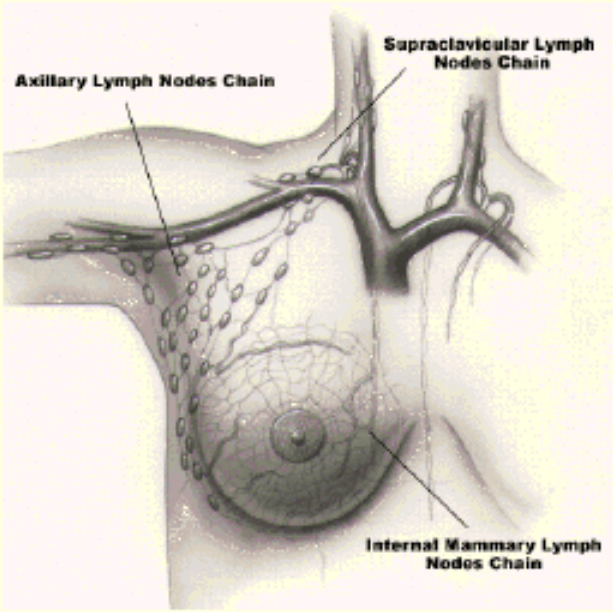
- الوريد الثديي الباطن و منه الى تحت الترقوة .

Veins draining the Breast



Anatomy

- **Lymphatic drainage**
  - Majorly to the Axillary nodes
  - Inter mammary and the supra clavicular lymph nodes.
- **Three Lymph Node Levels**
  - Level I – Lateral and inferior to Pectoralis Minor
  - Level II – Deep to Pectoralis Minor
  - Level III – Medial to Pectoralis Minor
  - Rotter's – Between Pectoralis Minor & Major
- **Nerves**
  - Long Thoracic Nerve:
    - Serratus Anterior m.
    - Winged Scapula
  - Thoracodorsal Nerve:
    - Latissimus Dorsi
  - Intercostobrachial Nerve



Axillary lymph nodes; defined by pectoralis minor muscle

- Level 1 – lateral –
- Level 2 – posterior –
- Level 3 – medial to pectorals minor –

Long Thoracic Nerve

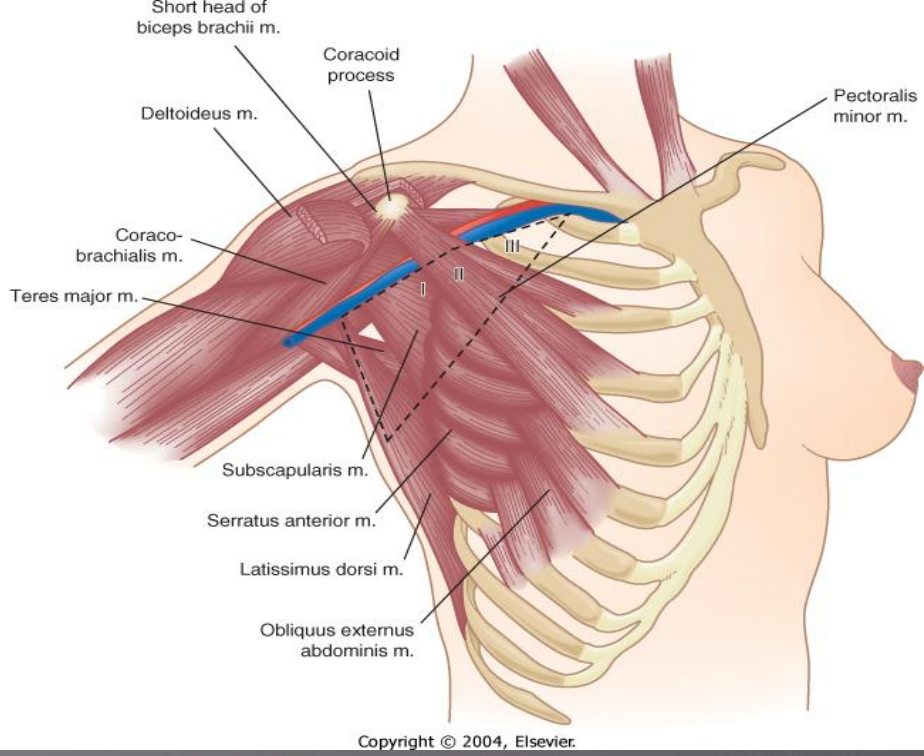
- Serratus anterior –

Thoracodorsal Nerve

- Latissimus Dorsi –

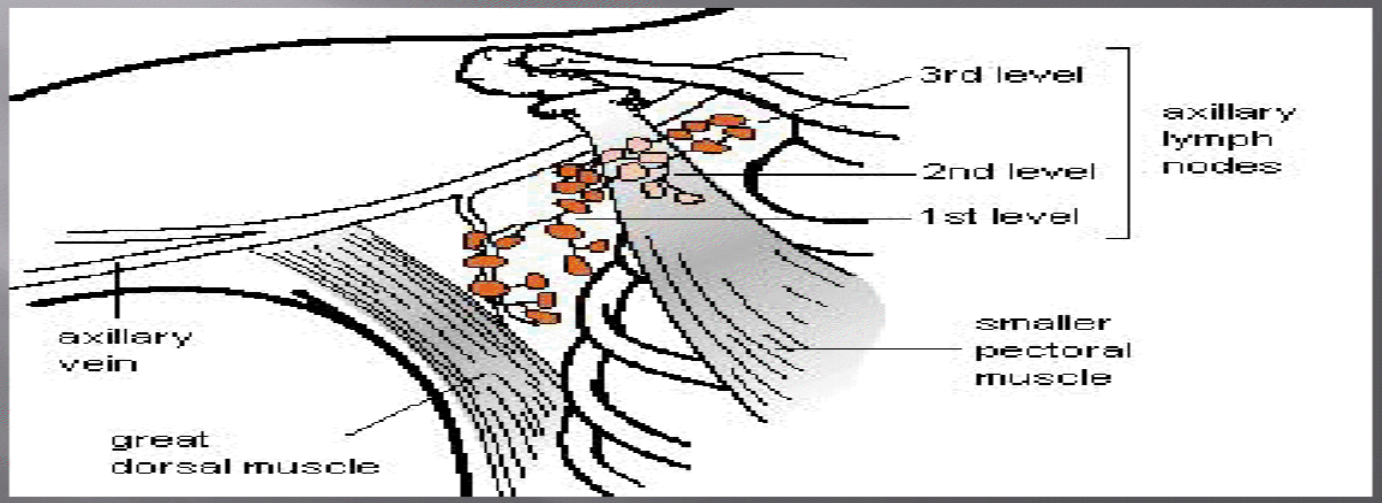
Intercostalbrachial Nerve

- Lateral cutaneous –
- Sensory to medial arm & axilla –

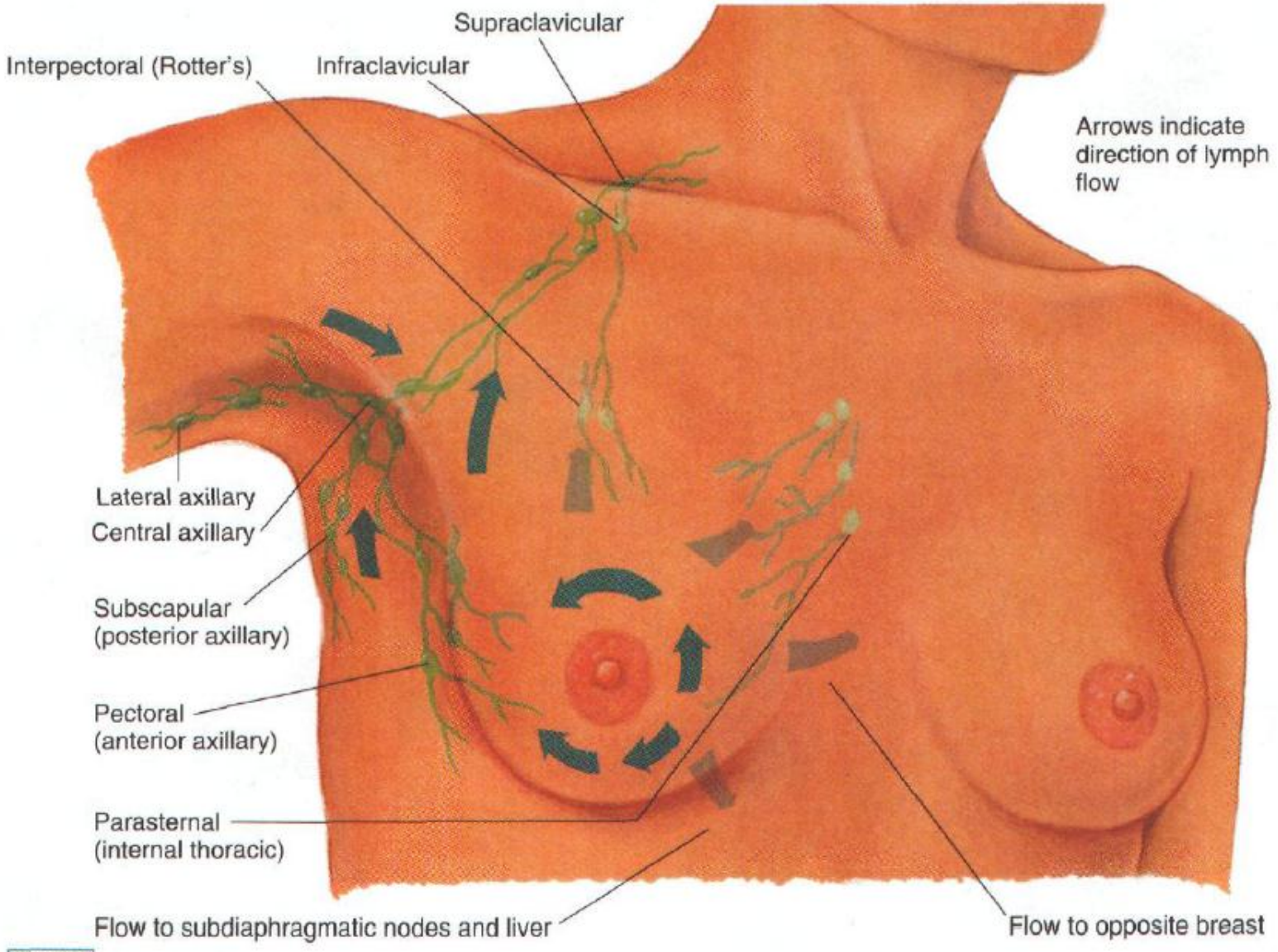


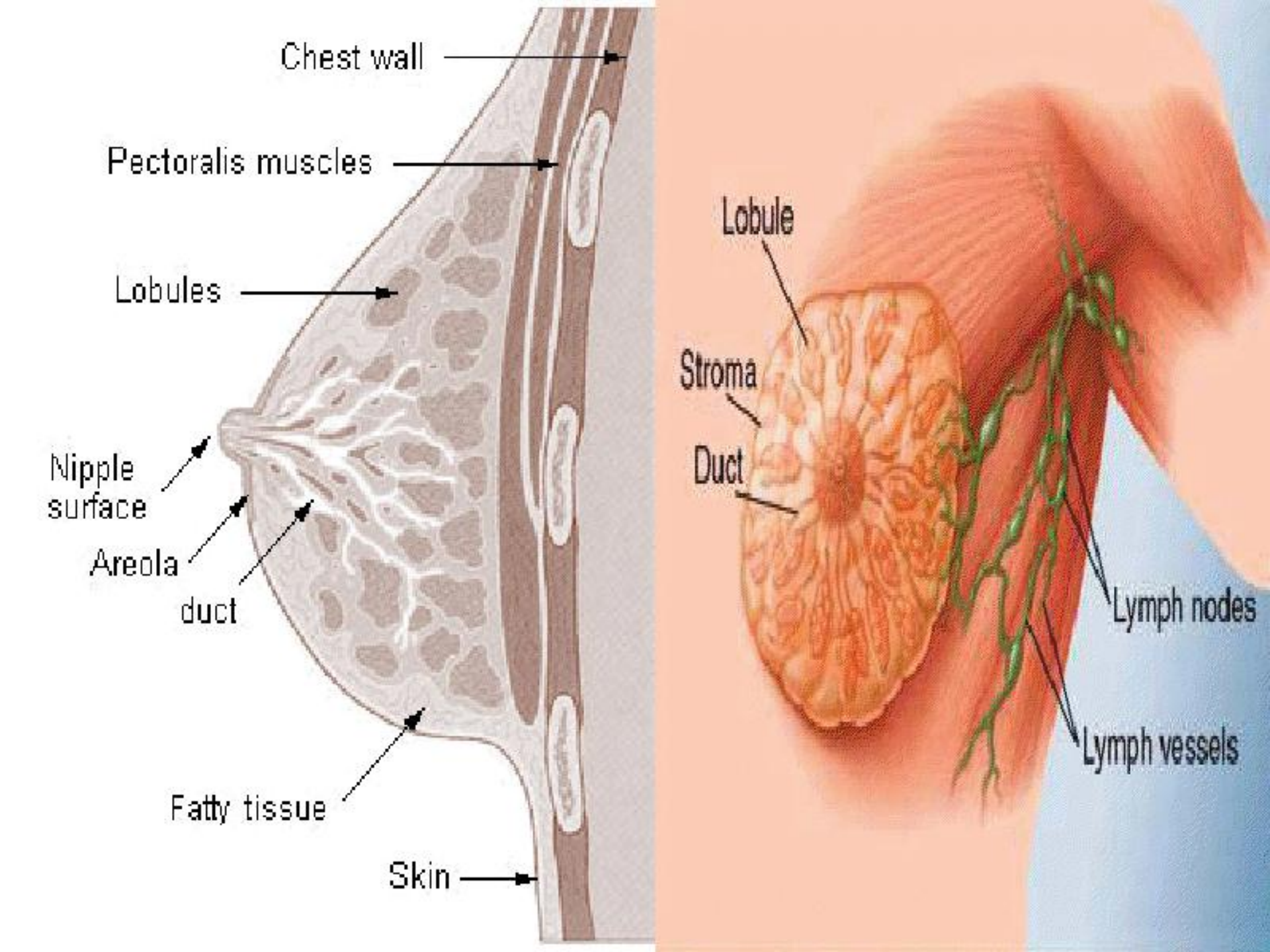
Breast cancer

Node levels

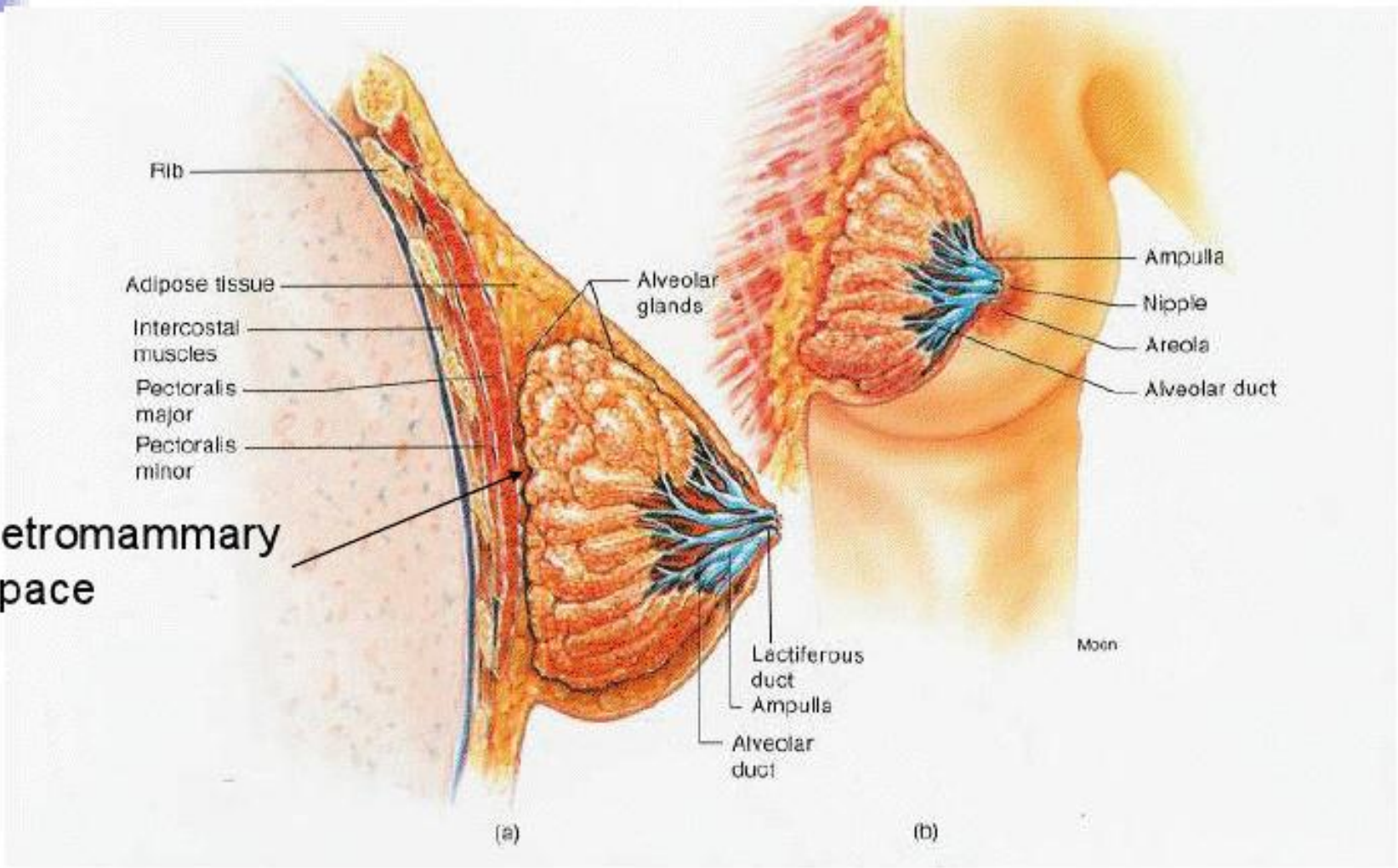


Breast Lymphatic Drainage

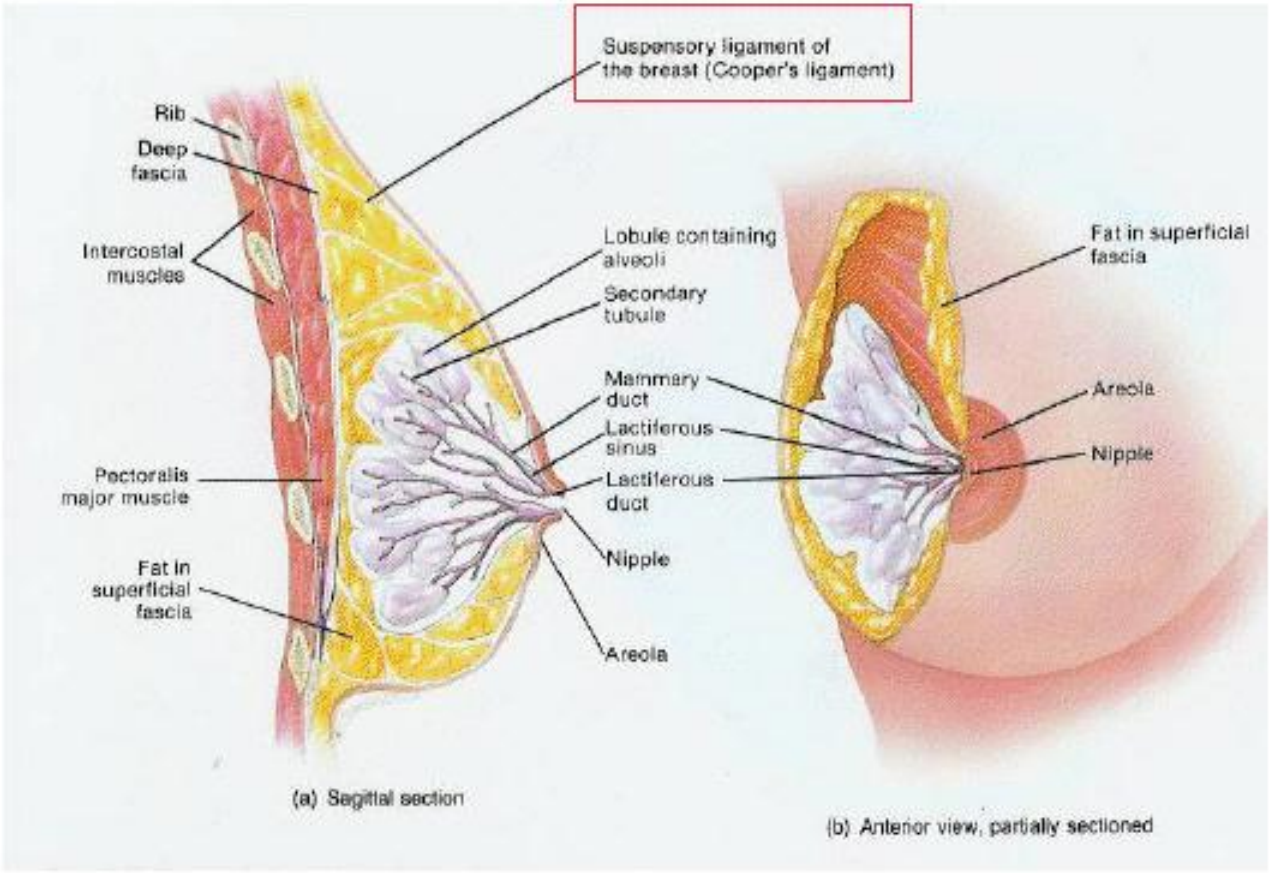



Chest wall
Pectoralis muscles
Lobules
Nipple surface
Areola
duct
Fatty tissue
Skin
Lobule
Stroma
Duct
Lymph nodes
Lymph vessels

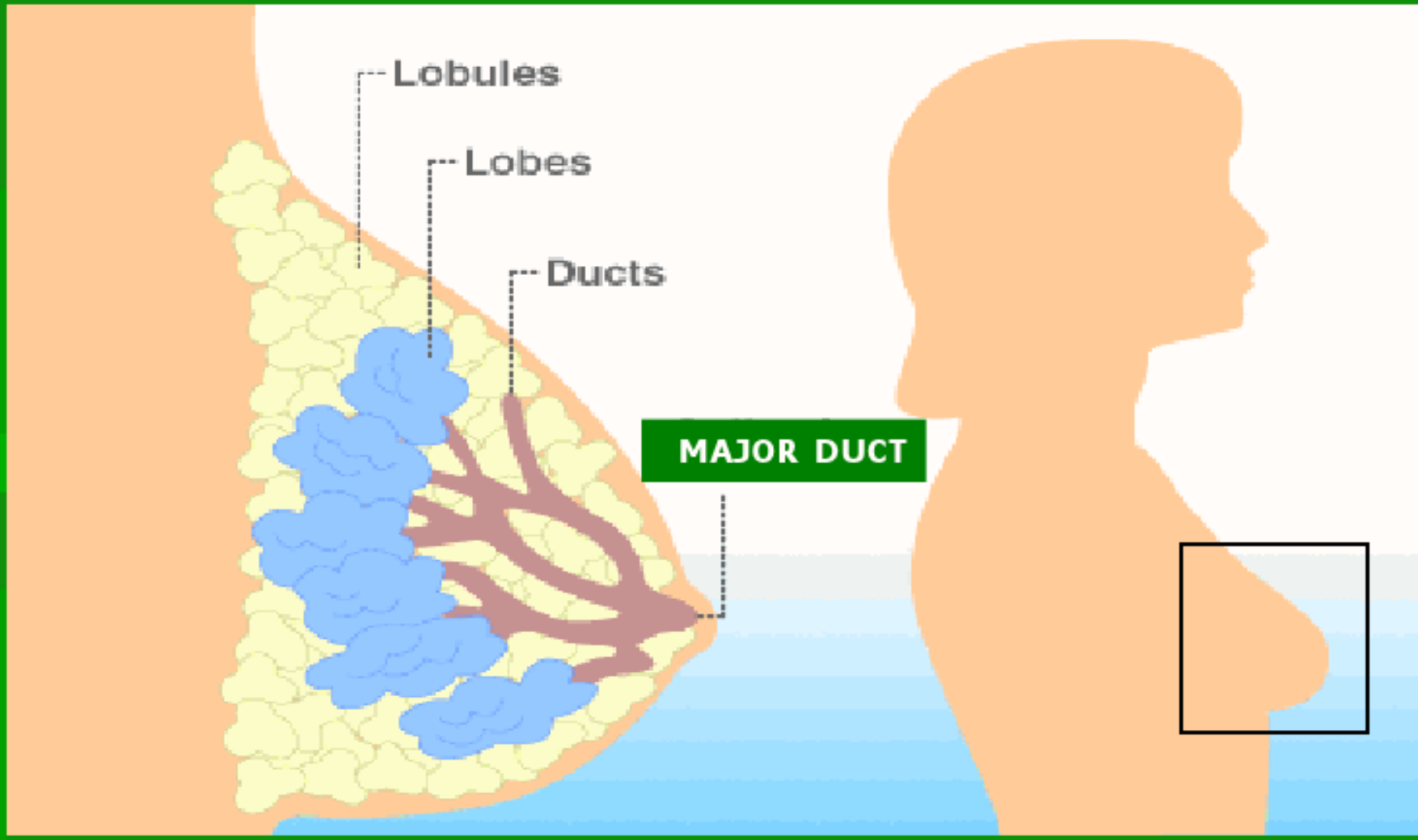
Retromammary Space

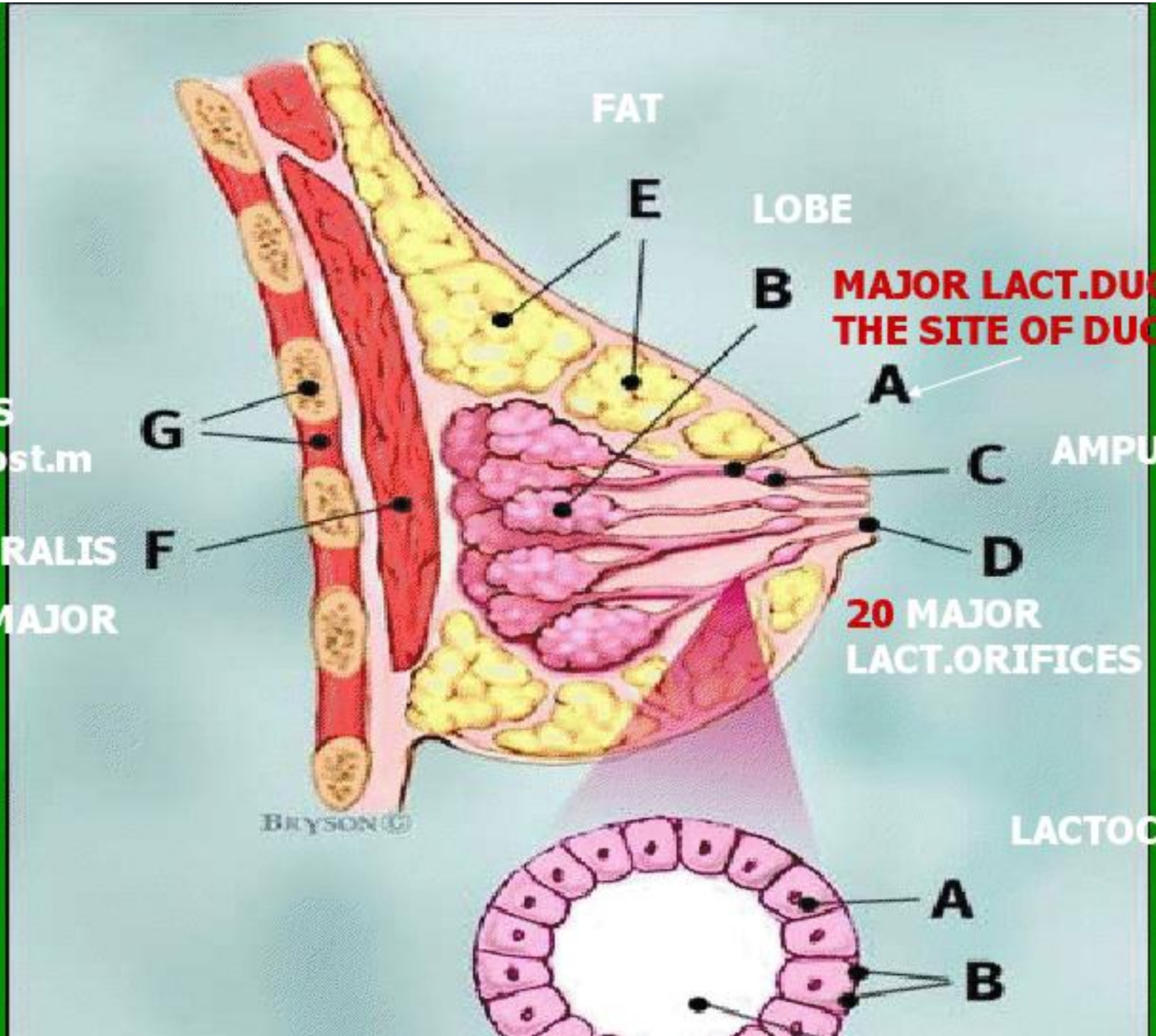


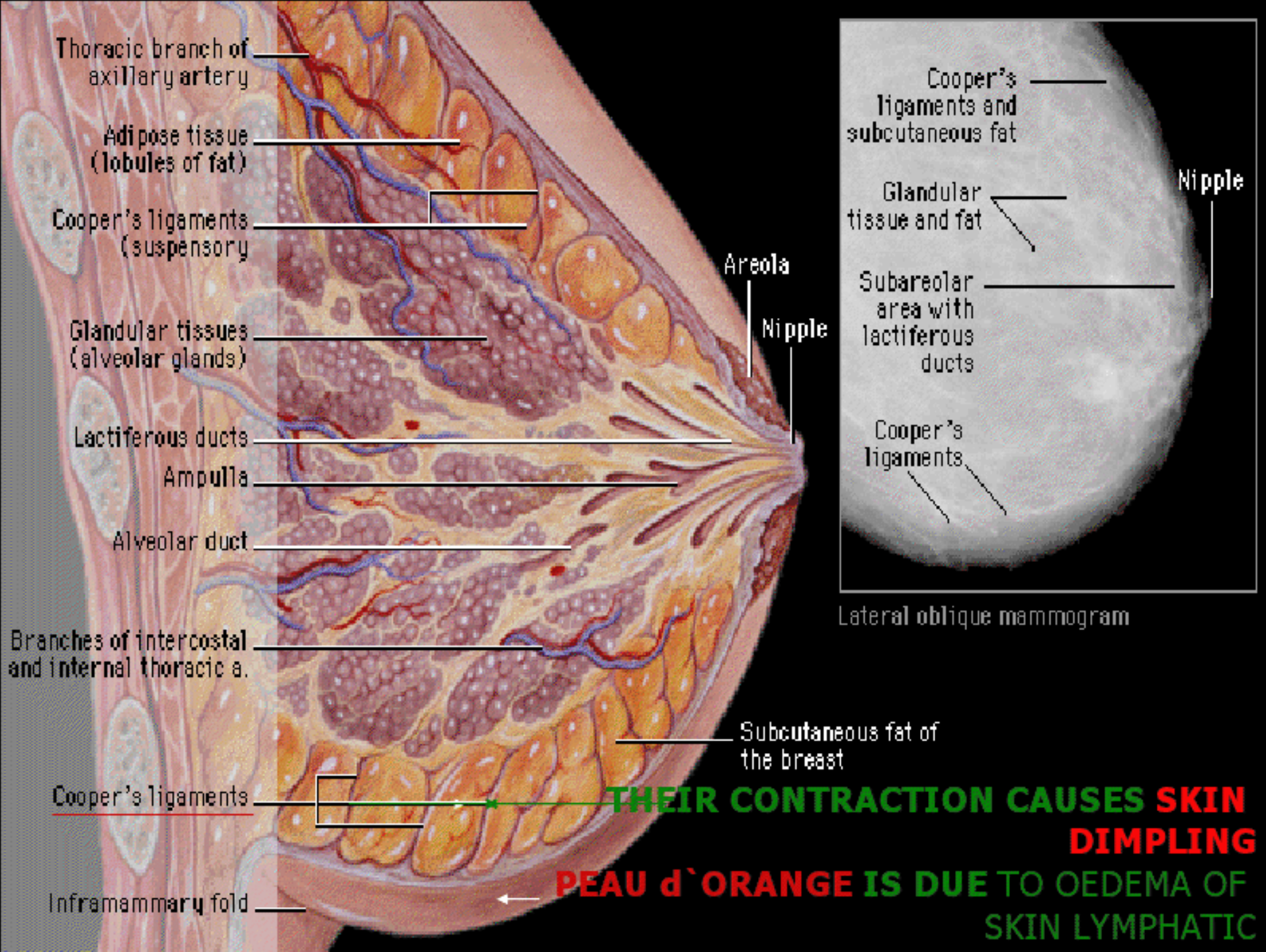
Cooper's Suspensory Ligaments



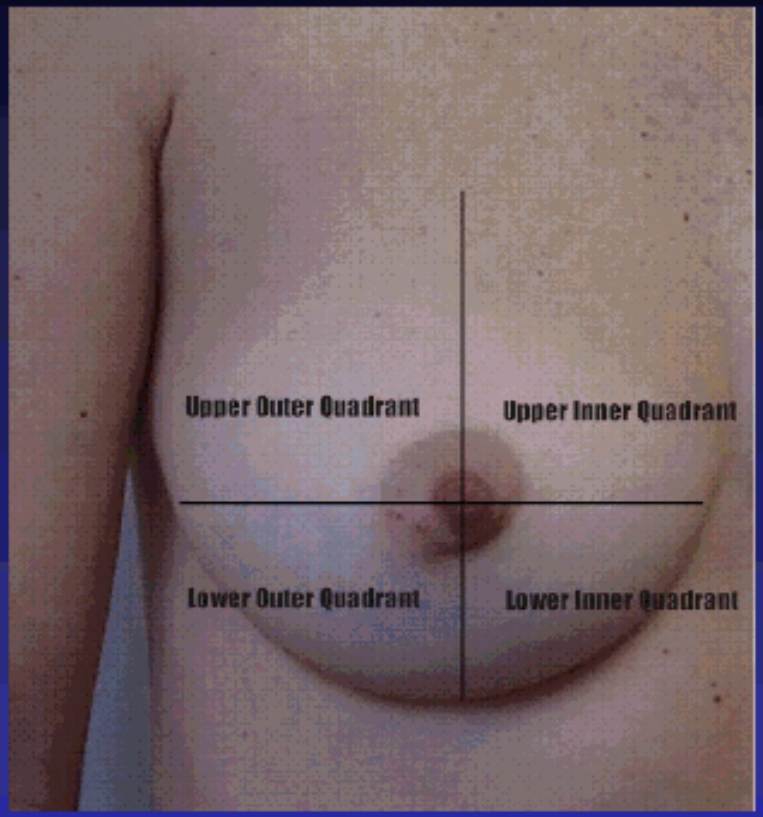
DUCT SYSTEM




FAT
E
LOBE
B
MAJOR LACT.DUCT IS
THE SITE OF DUCTAL CA.
A
RIBS
&intercost.m
G
C
AMPULLA
PECTORALIS
MAJOR
F
D
20 MAJOR
LACT.ORIFICES
BRYSON ©
LACTOCYTE
A
B

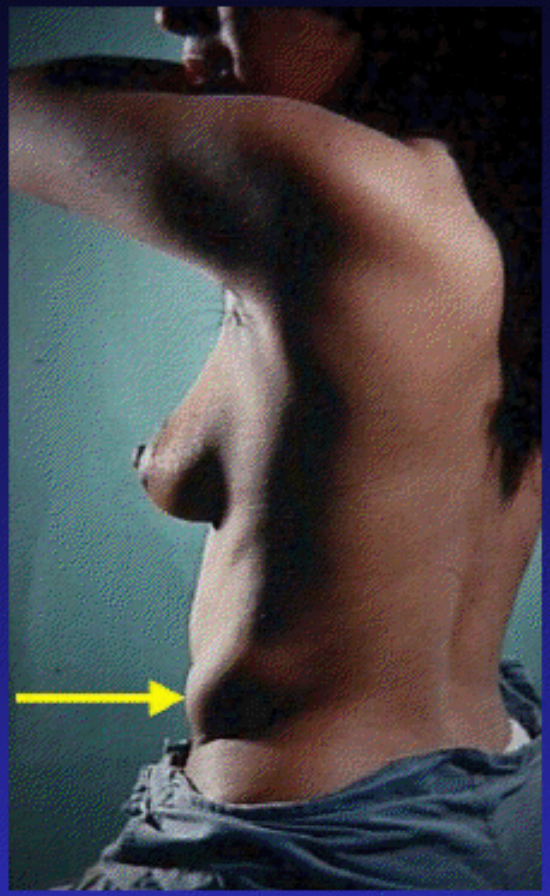

Thoracic branch of axillary artery
Adipose tissue (lobules of fat)
Cooper's ligaments (suspensory
Glandular tissues (alveolar glands)
Lactiferous ducts
Ampulla
Alveolar duct
Branches of intercostal and internal thoracic a.
Areola
Nipple
Subcutaneous fat of the breast
Cooper's ligaments
Inframammary fold
Cooper's ligaments and subcutaneous fat
Glandular tissue and fat
Subareolar area with lactiferous ducts
Cooper's ligaments
Nipple
Lateral oblique mammogram
THEIR CONTRACTION CAUSES SKIN DIMPLING
PEAU d`ORANGE IS DUE TO OEDEMA OF SKIN LYMPHATIC

Quadrants



- Breast is divided into quadrants
- Upper-Outer quadrant has the greatest mass
- UOQ is the site of about half of all breast cancers

Supernumerary Breasts



- Relatively common
- Found along "milk line"
- Most identified during pregnancy/lactation
- Most common in axilla
- Not dangerous

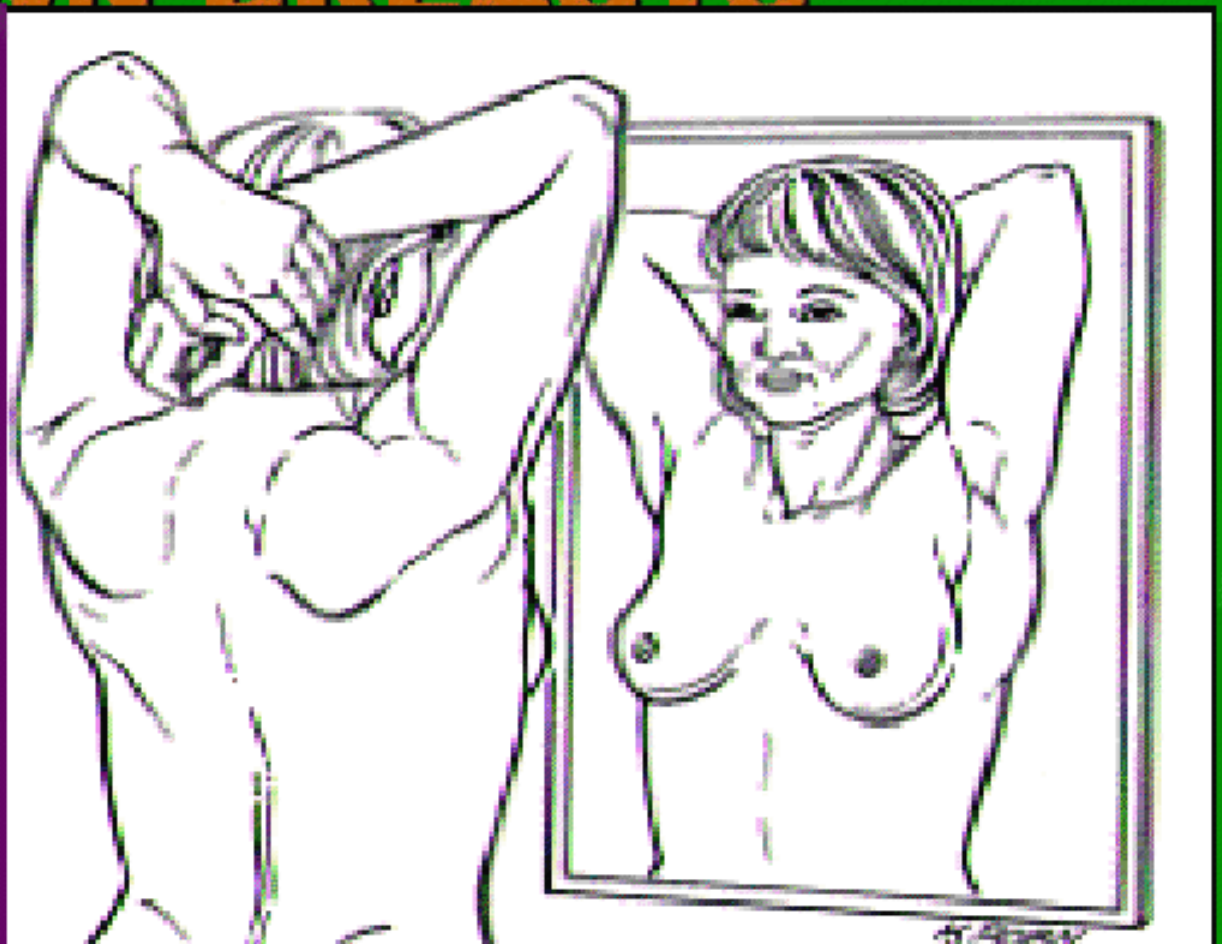
Supernumerary Nipples

- More common than supernumerary breasts
- Found along milk line
- May darken during pregnancy
- Not dangerous

HOW TO EXAMINE YOUR OWN BREASTS

TEACH PATIENT LOOK AT THE MIRROR

NOTE ANY ABNORMALITY IN YOUR BREASTS OR AXILLAE AT EVERY



أمراض الثدي السليمة

- 1 – التهاب الثدي 2 – التهاب حول أقنية الثدي 3 – خراجات الثدي
- 4 – توسع الأقنية 5 – الكيسات السليمة 6 – مفرزات الحلمة
- 7- التثدي 8- آلام الثدي 9- أورام شحمية (نادرة جداً)
- 10- ورم حليمي داخل الأقنية 11- الورم الغدي الليفي
- 12- داء كيسي ليفي 13 – داء موندو

• أولاً- انتان الثدي و خراج الثدي :

- انتان في نسيج الثدي ,و يتبع الحمل الأول , يحدث في الغالب أثناء الإرضاع 2-6 أسابيع بعد الولادة , و لكن يمكن أن يحدث عند النساء بعد سن اليأس .,و الإنتان يكون عادةً في ثدي واحد .
- يحدث التهاب الثدي نتيجة الإصابة بالباكتريا و الغالب من فم الرضيع , حيث تدخل القناة اللبنية من خلال تشقق الحلمة , و يصيب الإنتان القطعة فقيرة التصريف .
- نسبة الحدوث : 2-10 % من النساء المرضعات و تحت 1% عند غير المرضعات , و الغالبية العظمى تشفى ونسبة 10% تتطور إلى تشكل الخراج و النكس .
- - الباكتريا : العنقوديات المذهبة 50% أو أكثر - المكورات – E.coli
- عوامل الخطورة : ركودة الحليب , العمر > 30 سنة , الشدة و التعب , وظيفة عامل كأم .
- -يمكن الإنتان أن يصيب الجلد فوق الثدي مثل كيسة عرقية .
- - **الخراج :** تجمع قيحي حاوي كريات دموية بيضاء حية و ميتة مع باكتريا و نسج متموتة , و انتان الثدي غير المعالج يمكن أن يتطور إلى خراج , و الذي يتطلب تصريف جراحي .

- **الأعراض و العلامات :**
- ألم - احمرار – تورم الثدي و إذا كان عميق يمكن أن لا نشعر به - مضض و قساوة – ثدي دافيء - تعب - ممكن مفرزات قيح من الحلمة
- علامات جهازية انتانية (حرارة – عرواءات - غثيان)
- و إذا تطور إلى خراج نجس كتلة متموجة (بالفحص علامة التموج)
- ضخامة عقد لمفية في الإبط غير دائمة .
- **التشخيص :**
- الإيكو : و يفرق بين الإنتان البسيط و الخراج أو خراج عميق في الثدي .
- **العلاج :**
- اعطاء الصادات في المراحل الباكرة يسيطر على الإنتان و يوقف التطور نحو الخراج .
- لا يتم ايقاف الإرضاع , حيث افراغ الثدي يمنع التورم و انسداد الأقنية و الذي يؤدي الى انتان ثدي اسوأ , و قد نحتاج الى مص الحليب بماصة خاصة .

Breast abscess?

1st review - no improvement - review in 3/7

Breast Abscess

Inflammatory breast cancer

- – الإنتان لن يؤذي الرضيع لأن العضويات التي سببت الألم غالباً ما تكون قادمة من فم الرضيع .
- - كمادات دافئة توضع قبل و بعد الإرضاع , حيث يمكن أن يقدم بعض الراحة , و إذا كانت الحرارة غير فعالة يمكن أن نلجأ إلى الكمادات الباردة (الجليد) , و نتجنب وضعه قبل الإرضاع حيث يمكن أن يؤدي إلى جريان الحليب .
- - شرب ماء على الأقل 10 كاسات يومياً , مع أكل طعام متوازن مع إضافة 500 إضافية من الكالوري أثناء الإرضاع , حيث التجفاف و التغذية الفقيرة يمكن أن ينقص دعم الحليب و يجعلك تشعر بالأسوأ .
- - انتان بسيط دون خراج صادات فموية (Dicloxacillin – cefalexin أو اريترومايسين) ,
- - في حالة الخراج يتطلب تفجير الخراج مع اجراء الزرع و التحسس و التغطية بالصادات الوريدية .
- ملاحظة : انتان الثدي المزمن يحدث عند غير المرضعات بعد سن اليأس , حيث التغيرات الهرمونية في الجسم يمكن أن يسد الأقنية اللبنية بخلايا الجلد الميته و المفرزات , و هذا يؤهب الى نمو الخلايا الباكترية , وهذا النوع من الإنتان يمكن أن يعود بعد العلاج بالصادات .
- - يجب أن ننتبه الى سرطان الثدي الإلتهابي و عدم الخلط به مع انتان و خراج الثدي .

60% OF MASTITIS IN LACTATING WOMEN

Mastitis

- Generalized cellulitis of the breast
- Ascending infection → subareolar ducts
- commonly occurs during lactation
- Staph. aureus
- Erythema, pain, tenderness

- Treatment
  - Abx
  - Continue to breast feed
  - Close follow-up

SWEDISH

Neonatal Mastitis

MASTITIS; PLUGGED DUCT OR CRACKED NIPPLE,[STAPHYLLOCOCCI]

Breast Abscess

Breast abscess with early skin necrosis

الداء الكيسي الليفي

- حالة سليمة شائعة في الثدي.
- تصنف ضمن الآفات غير التكاثرية, حيث يحدث فيه تغيرات ليفية (مطاطية) و كيسية في الثدي.
- **أعراضه:**

- **ألم أو إيلام** منتشر في الثدي, يتغير مع الدورة الطمثية, يترافق مع وجود **كيسات و امتلاء ليفي (عقيدي)**.

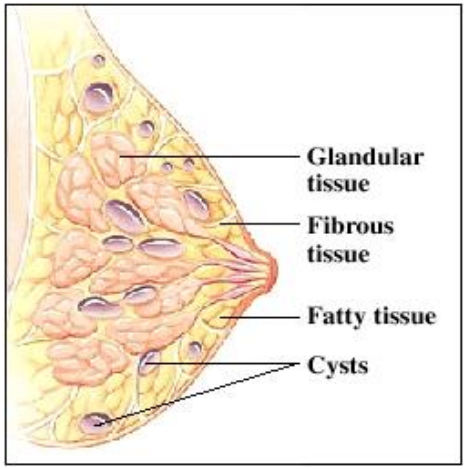
- **تعتبر المفرزات ذات اللون الأخضر أو بلون القش مميزة للداء الكيسي الليفي.**
- علاجه:

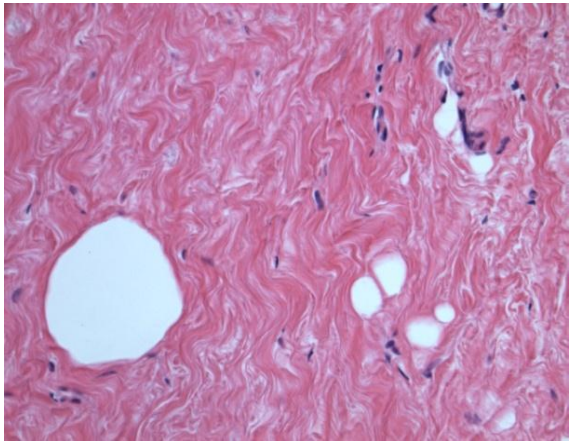
- إيقاف الكافئين
- مسكنات ألم, NSAIDs
- فيتامين E
- زيت زهر الربيع مساء
- دانازول أو OCP كملاذ أخير

- **في حال وجود كيسة** مرافقة يجرى رشف لسائل الكيسة, و إذا كان الرشف مدمى أو بقيت كتلة بعد رشف الكيسة يفضل إجراء خزعة مفتوحة
- إذا كان الرشف أخضر أو لون القش: تتابع المريضة بحذر ثم إذا حدث النكس نجري بزل لمرة ثانية
- تكرار النكس يتطلب إجراء خزعة مفتوحة

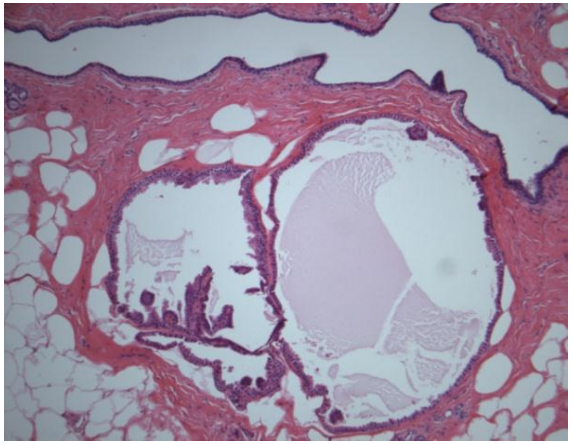
Mastalgia: Fibrocystic Disease

- Fibrocystic disease
  - Premenopausal women
  - Premenstrual breast swelling/tenderness
  - Nodules/masses/lumps related to dense breast tissue or cysts



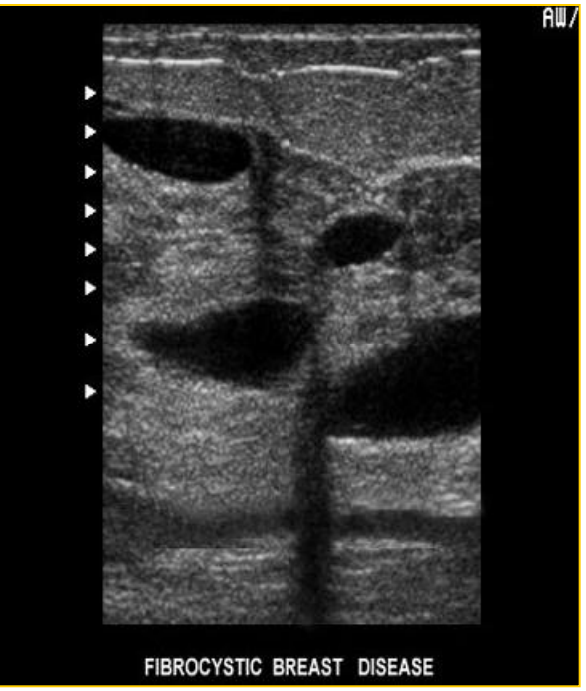


Fibrous tissue



- Cystically dilated ducts
- ± Calcifications
- ± Ductal hyperplasia

FIBROCYSTIC BREAST DISEASE



- Treatment (usually symptomatic) may include:
- Hormones (oral contraceptives, estrogen, progestin, Danazol)
- Vitamins C, E, B complex
- Diuretic agents
- ↓ NaCl, avoid caffeine
- Anti-inflammatory meds (Ibuprofen) as needed
- Wear supportive bra
- Heating pad, ice

- ## ثانياً - الورم الغدي الليفي :

يشاهد عند الشابات بعمر 15-25 سنة , ينشأ أثناء تطور الثدي من زيادة انقسام في فصيص واحد , 10% متعدد , عديم الألم , طري , نمو بطيء , متماسك , ينمو لعدة سنتيمترات في الحجم , و يزداد بالحمل و الدورة الطمثية , و يحاط بمحفظة .

في الأعمار تحت 30 سنة لا يتطلب الإستئصال ما لم يترافق مع خلايا مشبوهة , أو أصبح أكثر حجماً ,أو حسب رغبة المريضة عند زيادة تورم الثدي .

ثالثاً- الكيسات :

سليمة أو مشبوهة : عندما يتم رشفها مع خروج 1- سائل مدمى 2- لم تختفي بشكل كامل بعد الرشف 3- نكس خلال 6 أسابيع . و في هذه الحالات لا بد من إجراء خزعة أو الإستئصال .

و هناك الداء الكيسي الليفي و يحدث عند 20% من النساء قرب سن اليأس و أعراضه كيسات و عدم راحة

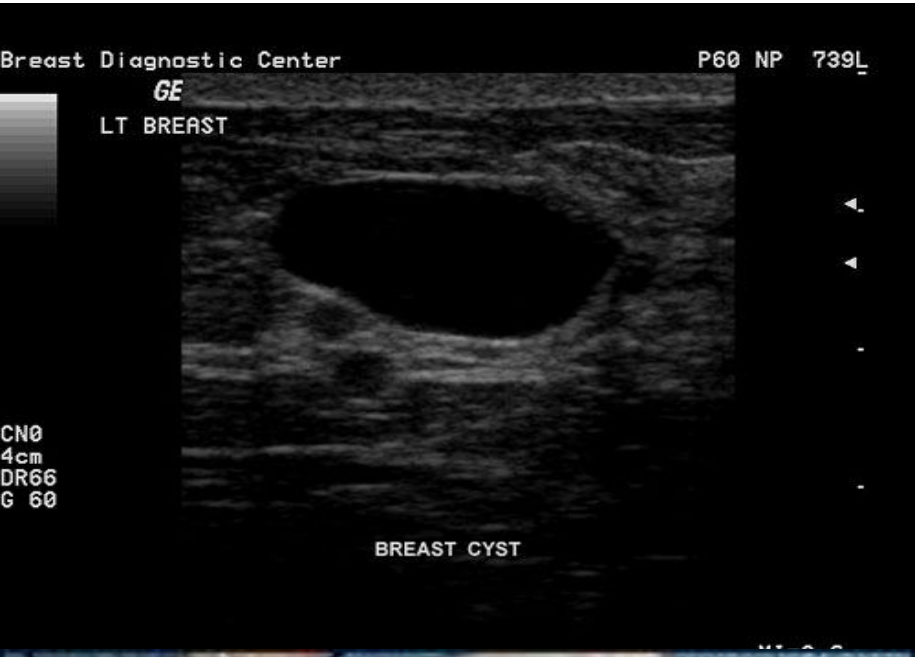
رابعاً – توسع الأقنية و الإلتهاب حول الأقنية :

توسع الأقنية قرب اللعوة مع افرازات كثيفة تقود الى حالة التهابية , حيث يمكن أن تتمزق الأقنية و يؤدي الى التهاب الثدي قرب الأقنية كيميائي , و غالباً قرب اللعوة , يمكن أن يترافق توسع الأقنية مع زيادة افراز البرولاكتين . و من الأعراض ألم غير متعلق بالدورة , غؤور الحلمة مع مفرزات شوكولاتية , و خراجات تحت اللعوة , و صعوبة في الإرضاع .

DUCTAL ECTASIA

- Dilation & thickening of ducts in subareolar area
- Occurs usually in women nearing menopause
- Masses due to inflammatory response, may feel tender, hard, irregular (may be difficult to distinguish from malignancy)
- Redness, edema over mass site
- Greenish-brown nipple discharge
- Enlarged axillary nodes

Breast Cyst



- Aspirate if bloody go for surgical biopsy.

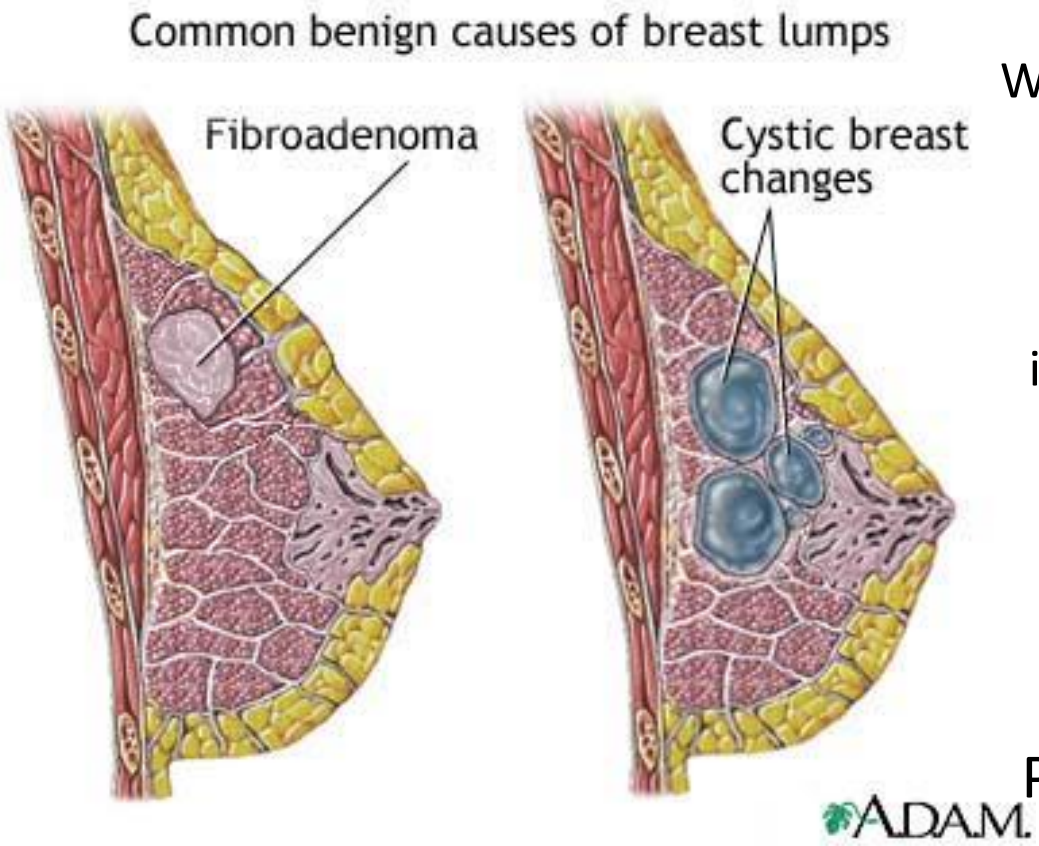
  If non-bloody and disappear completely → observe.

  If non-bloody and doesn't resolve → surgical biopsy.

Benign Lesions of the Breast

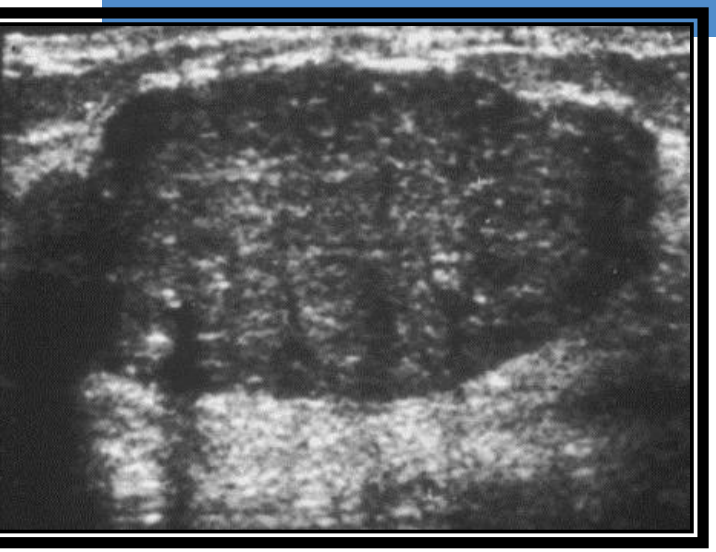
- Cysts
  - Fluid-filled, epithelium-lined cavities
  - Influenced by ovarian hormones
    - Explains sudden appearance during the menstrual cycle, their rapid growth, and their spontaneous regression with completion of the menses.
  - Common after age 35, and rare before 25. Incidence declines after menopause.
  - Three colors by needle aspiration
    - Simple cyst, clear or green fluid and is benign.
    - Milk-filled cyst, called galactocele and is benign.
    - Bloody cyst is a cause of concern for malignancy.
  - Tx depends on whether the cyst completely resolves after aspiration
    - Complete resolution, will follow up to ensure it does not recur.
    - Incomplete resolution, Treat as breast mass and excise.Fluid-filled, epithelium-lined

Fibroadenoma – benign, glandular and fibrous, small, rubbery, nontender

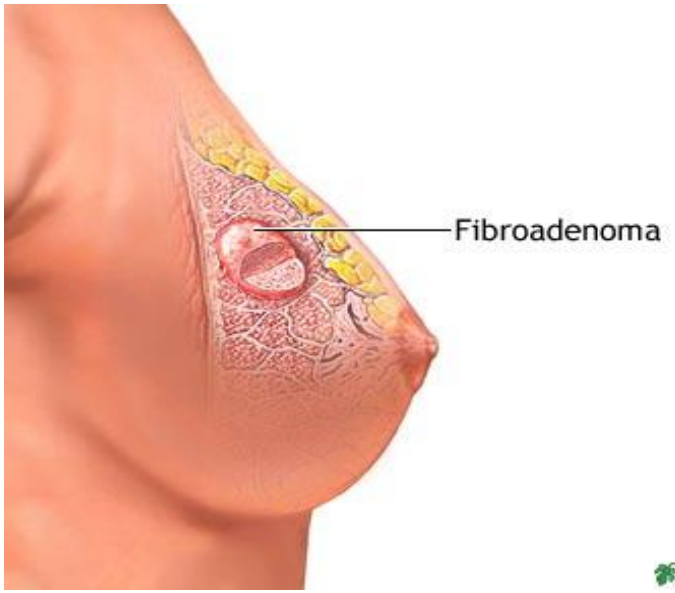


- Fibroadenoma
  - Well-defined, mobile benign tumor of breast
  - Composed of both stromal and epithelial elements in the breast
  - Common in younger women, and is most common tumor in women younger than age 30 years
  - Can be diagnosed by FNA and followed if < 2-3 cm and age < 35
  - Otherwise Dx by excision. At operation are well-encapsulated and detach easily.
- Phyllodes tumors (cystosarcoma phyllodes)
  - Giant fibroadenomas
  - Rarely malignant
  - Treat with wide local excision

Breast Mass: Fibroadenoma



- Fibroadenoma
  - Solitary, firm, rubbery, mobile mass
  - Women < 30 yrs
  - Slow growing (? hormonally mediated)

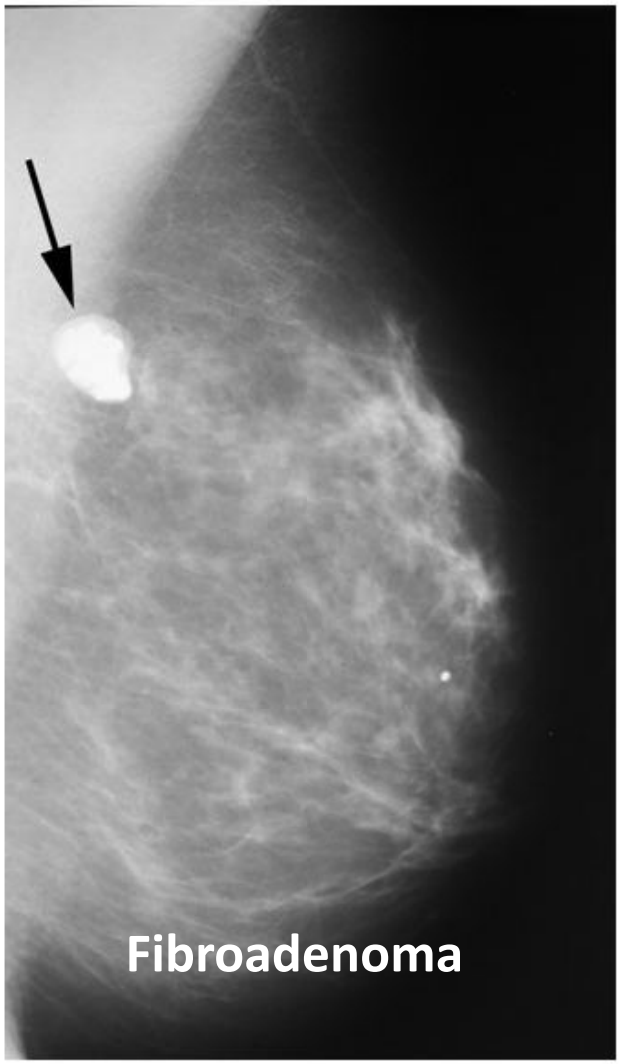


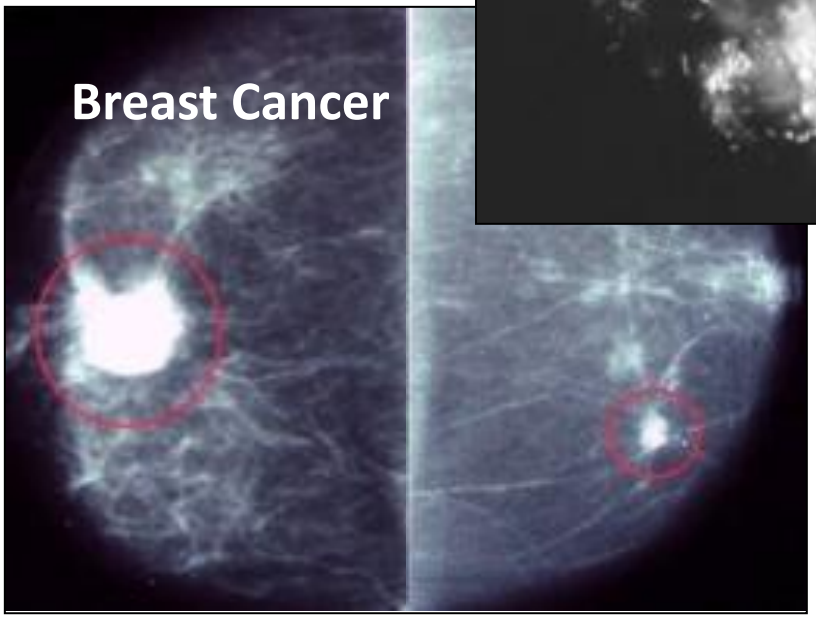
Fibroadenoma gross specimen
- Firm, tan, lobulated
- Well circumscribed mass
- Variable size

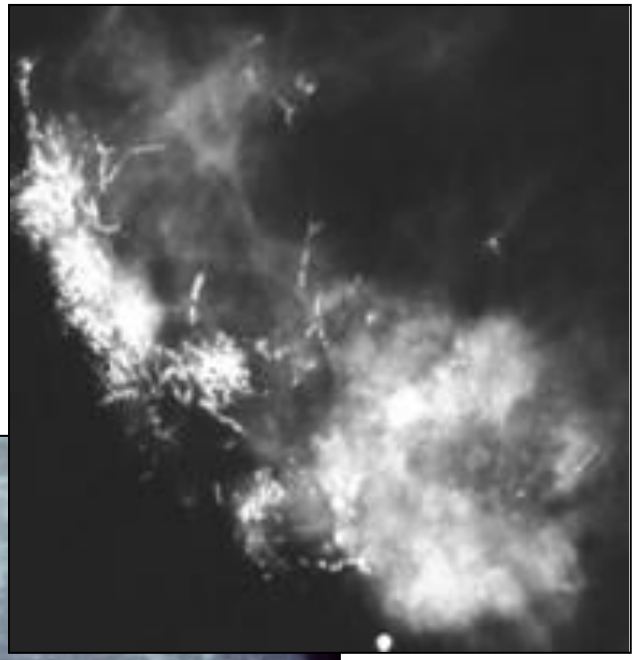
Fibroadenoma

- Most common cause of breast masses, especially in teens & young women (to early 30's)
- Often upper, outer quadrant
- Solid, slowly enlarging, benign mass, unattached to surrounding breast tissue
- Usually round, firm, easily movable, nontender, clearly distinct from surrounding tissue
- Enlarges slowly

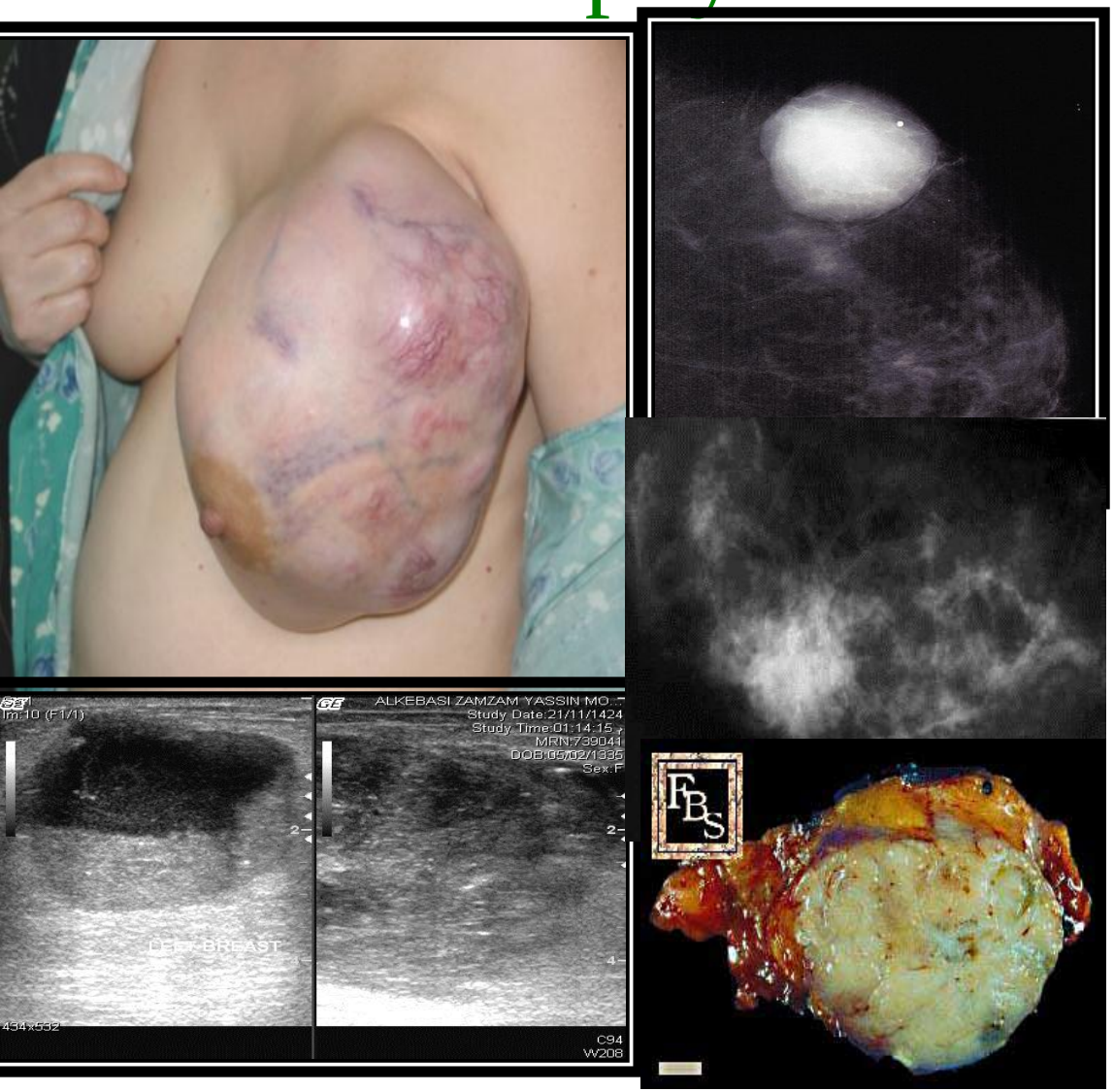
Mammogram







phyliodus



Phyllodes tumor with maliganant characters

Phyllodes tumor. or cystosarcoma is believed to be related to the fibroadenoma. The malignant form of this lesion (about 10%) can metastasize hematogenously most commonly to the lungs and not to the axillary lymph nodes. Most of these tumors are benign, but approximately 25% recur locally if they are incompletely excised. Lesions larger than 3 cm are more likely to be malignant. By both mammography and ultrasound, these lesions present as well-defined masses that are very similar in appearance to a benign fibroadenoma. On sonographic evaluation, the malignant forms are more likely to have cystic spaces [8]. This craniocaudal view demonstrating a large, well-circumscribed, dense, palpable mass within the lateral aspect of the breast. According to the patient's history, this mass had rapidly increased in size. Ultrasound core biopsy revealed phyllodes tumor.

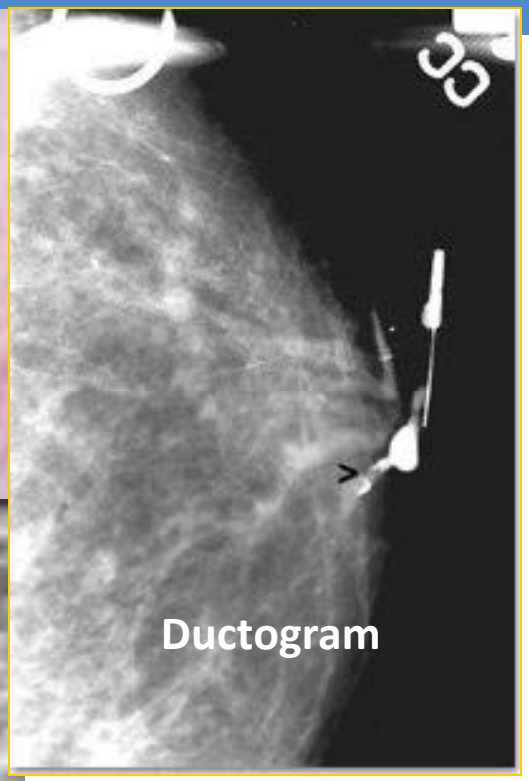
- خامساً – مفرزات الحلمة :
- تشكل 5% من أمراض الثدي , و نز الحلمة من الثدي يمكن أن تكون فيزيولوجية أو مرضية .
- **و الفيزيولوجية** تحدث في الحالات التالية : 1- فترة قرب الولادة 2- الحمل 3- الإرضاع
- 4- بعد الإرضاع 5 – تالية للتحريض الميكانيكي 6- زيادة افراز البرولاكتين .
- او **تكون مرضية** : 1- توسع أقنية 2- ورم حليمي داخل الأقنية 3- سرطان أقنية الثدي
- و مفرزات الحلمة تكون أحادية أو ثنائية , وحيدة القناة أو متعددة , طبيعية أو ملونة أو مصلية أو مدماة , و تكون عفوية أو تالية للعصر ,
- = **مفرزات حليبية :** غير متعلق بالإرضاع , ثنائي , غالباً بغزارة , يكون متعدد الأقنية , يمكن أن يحدث بشكل عفوي .
- أسباب افراز الحليب : - فيزيولوجي : تحريض ميكانيكي , بعد الإرضاع , الشدة
- - أدوية : دوبامين , هاالوبيريدول , متيل دوبا , فينوتيازين , الأستروجين
- - مرضي : آفات نخامية وتحت الوطاء , أورام النخامى , افراز حليبي هاجر , قصور الدرق , فشل كلوي مزمن
- == **مفرزات الحلمة الملونة : شوكولاتية أو أخضر** , عادة ثنائية و من عدة أقنية . تحدث عادة في آخر فترة النشاط التناسلي , و الأعراض يمكن أن تحدث بشكل متقطع .
- السبب الشائع توسع الأقنية

- === مفرزات مدماة أو مصلية مدماة : و تكون مقلقة , و غالباً ناتجة عن آفات فرط تنسج ظهارية , و خطورة الخباثة تزداد مع العمر , حيث 12% من سرطان الثدي يتظاهر بمفرزات الحلمة , و الخباثة تزداد عندما تكون أحادية تنشأ من قناة مفردة , و مترافق مع كتلة مجسوسة و ايجابية الماموغرافي و نتائج ايجابية خلوية , أو أن المريضة أكبر من 50 سنة .
- - عندما تكون الموجودات السريرية و الخلوية و الماموغرافي سلبية فإن نز الحلمة العفوي سيحل في 75% من المرضى خلال 5 سنوات .
- - صورة الأقنية " الحل المختار" : حقن السائل بالطريق الراجع مع أخذ صور لاحقة .
- العلاج : الجراحة مطلوبة عند : المفرزات وفيرة و محرجة , و لا يمكن استبعاد الخباثة
- استئصال القناة كاملاً .

NIPPLE DISCHARGE

- 5% of women coming to clinic.
- 95% of them → benign
- Most important points in history are
  - *Is it spontaneous or on pressure?"*
  - *Is it coming from single or multiple?*
- Colors.
  - *Serous, serosanguinous, bloody, clear, milky, green, blue-black.*
- Investigation.
  - *H&P*
  - *R/O mass by exam and mammogram*
- Identify source of discharge.
- Consider ductography.

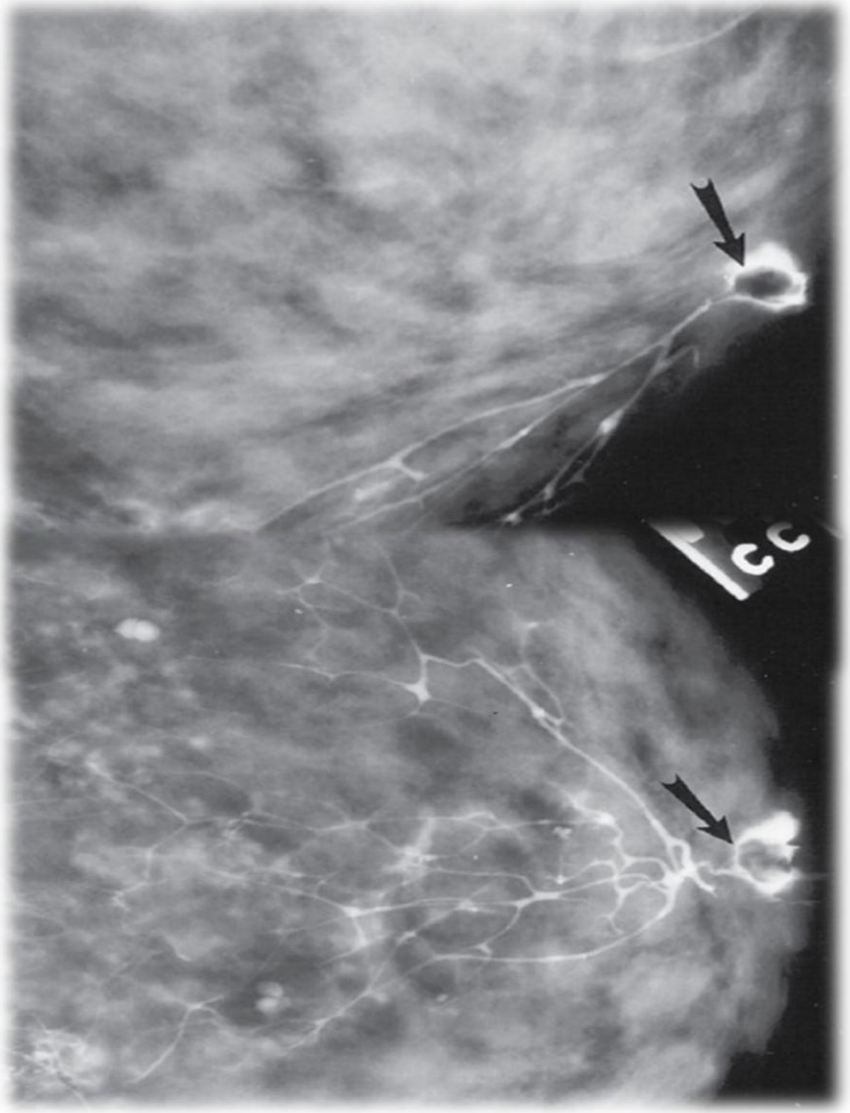
Nipple Discharge: Etiology



- Etiology
  - Lactation
  - Physiologic nipple discharge
    - Hyperprolactinemia
    - Hypothyroidism
    - Medication related
    - Neurogenic stimulation
  - Pathologic
    - Intraductal papilloma
    - Ductal ectasia
    - DCIS

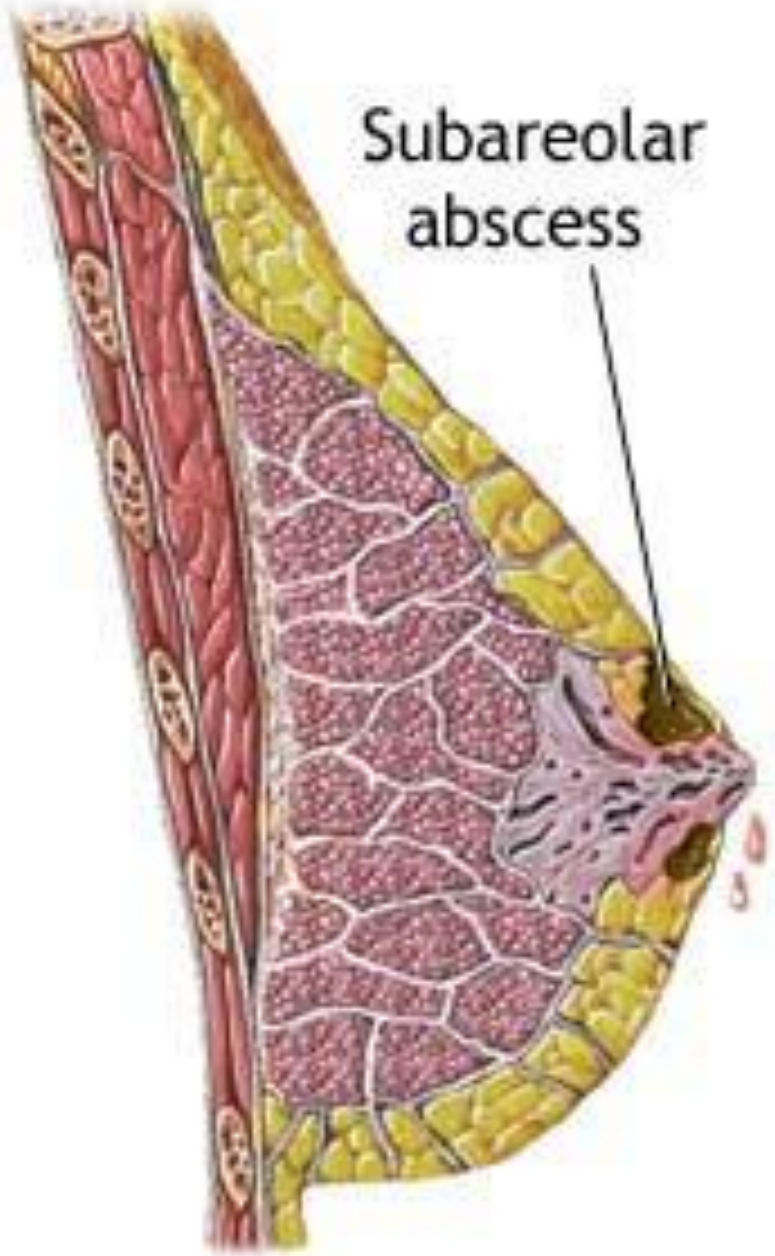
- المفرزات السليمة تكون عادة
  - ثنائية الجانب
  - متعددة الأقنية
  - و قد يكون هناك منابلة سابقة على الثدي
- **على العكس خطر السرطان** يكون أعلى عندما تكون المفرزات
  - عفوية
  - دموية
  - وحيدة الجانب
  - وحيدة القناة
  - مترافقة مع كتلة ثدي
  - تحدث عند نساء بعمر أعلى من 40 سنة.

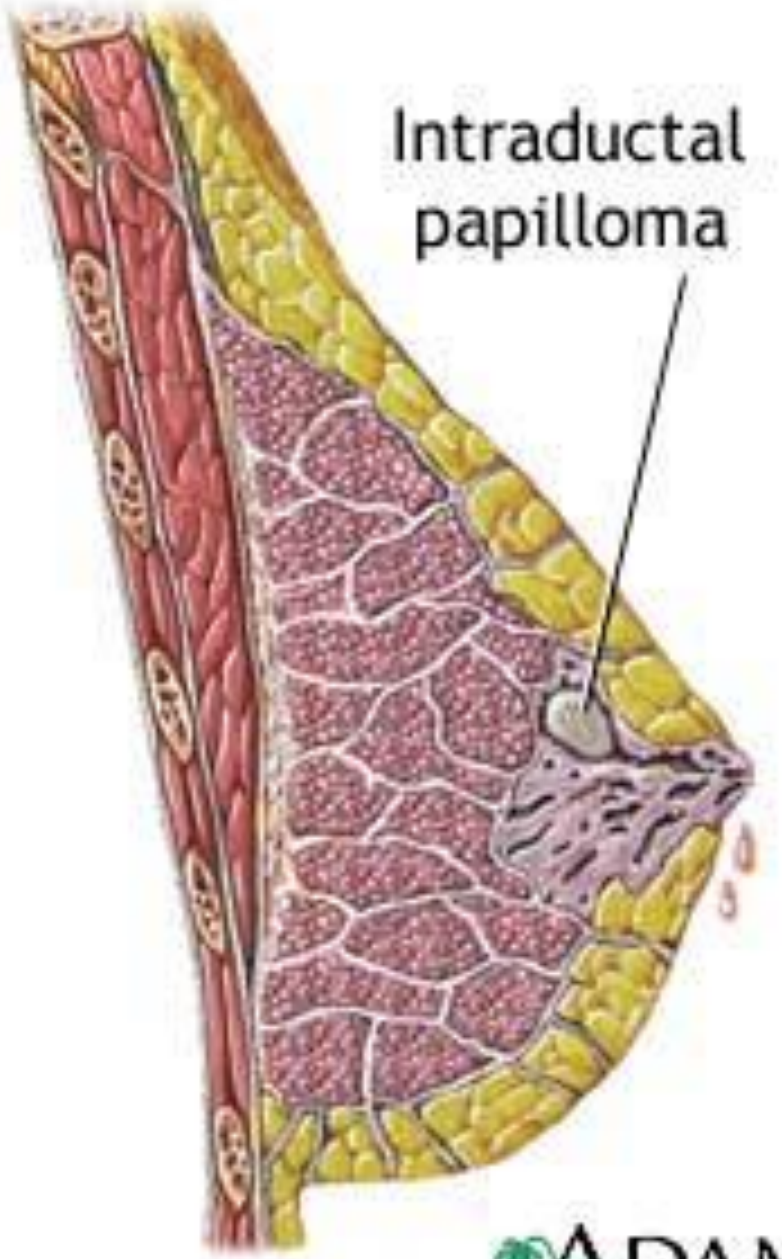
الأورام الحليمية داخل الأقنية Intraductal papilloma



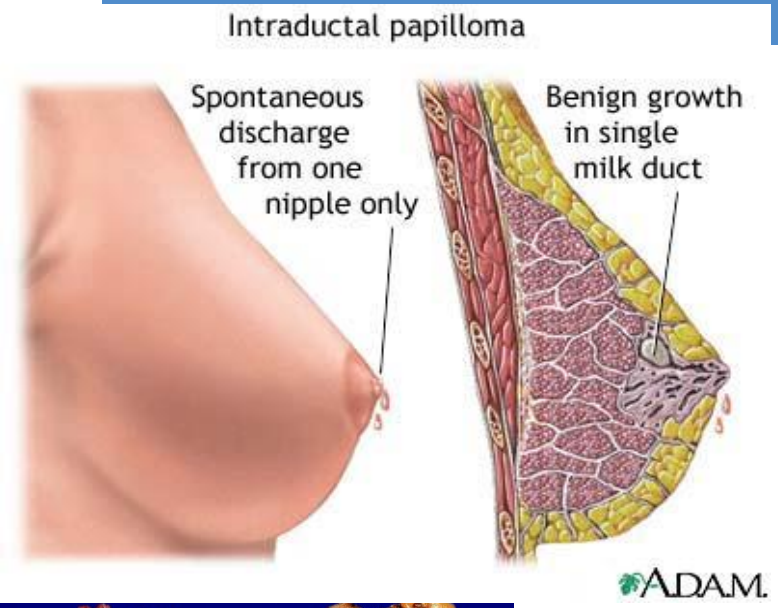
- تنشأ الأورام الحليمية بالأقنية الكبيرة وعادة ماتشاهد عند النساء بعد سن الضهي تكون عادة أقل من 0.5 cm قطرا لكنها قد تصل إلى 5 cm
- يعتبر النز من الحلمة من الأعراض الشائعة التي تراجع بها المريضة والذي يمكن أن يكون مدمى أو مصلي
- من الناحية الشكلية تبدو الأورام الحليمية داخل الأقنية وردية اللون هشة تتصل عادة بجدار القناة المصابة من خلال سويقة
- هذه الأورام نادرا ما تتعرض للاستحالة الخبيثة مع الانتباه إلى **أن الأورام المتعددة داخل الأقنية** التي تحدث بالنساء الأصغر سنا وتترافق بنسبة أقل من النز من الحلمة تكون أكثر عرضة للاستحالة الخبيثة

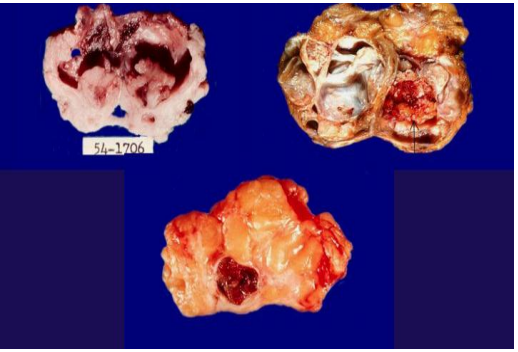
Common causes of abnormal nipple discharge





Breast Mass: Intraductal Papilloma





Intraductal papillary neoplasm with fibrovascular cores lined by benign ductal and myoepithelial cells

- Intraductal papilloma
  - Unilateral bloody nipple discharge
  - Sub-areolar intraductal mass

Single duct
Benign
4% of intraductal ca
Occurs usually in women nearing menopause
Serosanguineous nipple discharge (usually microscopic exam of discharge)
Surgical excision if indicated

- **Mondor's disease**
  - Phlebitis of the thoracoepigastric vein
  - Palpable, visible, tender cord along upper quadrants
  - Ultrasound may be helpful in confirming this diagnosis.
  - Treatment self-limited, can use anti-inflammatories if necessary

Breast Mass: Fat Necrosis

- Fat Necrosis
  - Caused by trauma
  - Tender, firm mass with indistinct borders
  - May appear suspicious on physical exam
  - Benign breast calcification seen on mammography

Fat necrosis manifesting as a spiculated mass

Densely calcified 3-cm area of fat necrosis 2 years after blunt trauma to the breast.

Mastalgia: Etiology

- Differential Diagnosis:
  - Cyclic
    - Fibrocystic disease - Cyclic mastalgia
  - Non-cyclic
    - Mastitis - Diet, lifestyle - Large pendulous breasts
    - Hormone replacement therapy
    - Ductal ectasia
    - Inflammatory breast cancer
  - Extramammary (non-breast) pain
- Treatment:
  - Lifestyle
    - Low fat diet - Eliminate caffeine
  - Symptomatic
    - Compresses - Support garments (well-fitting, supportive bra, sports bra)
  - Medication
    - NSAID's
    - Danazol - Bromocriptine - OCP's, Progestogens - Tamoxifen - IF severe mastalgia

BREAST SELF EXAM

GOAL: Early detection

IN PREPARATION FOR TEACHING:

Assess: knowledge base , motivation

fears and concerns

family history

risk factors

TEACHING: Use show and tell; use finger pads

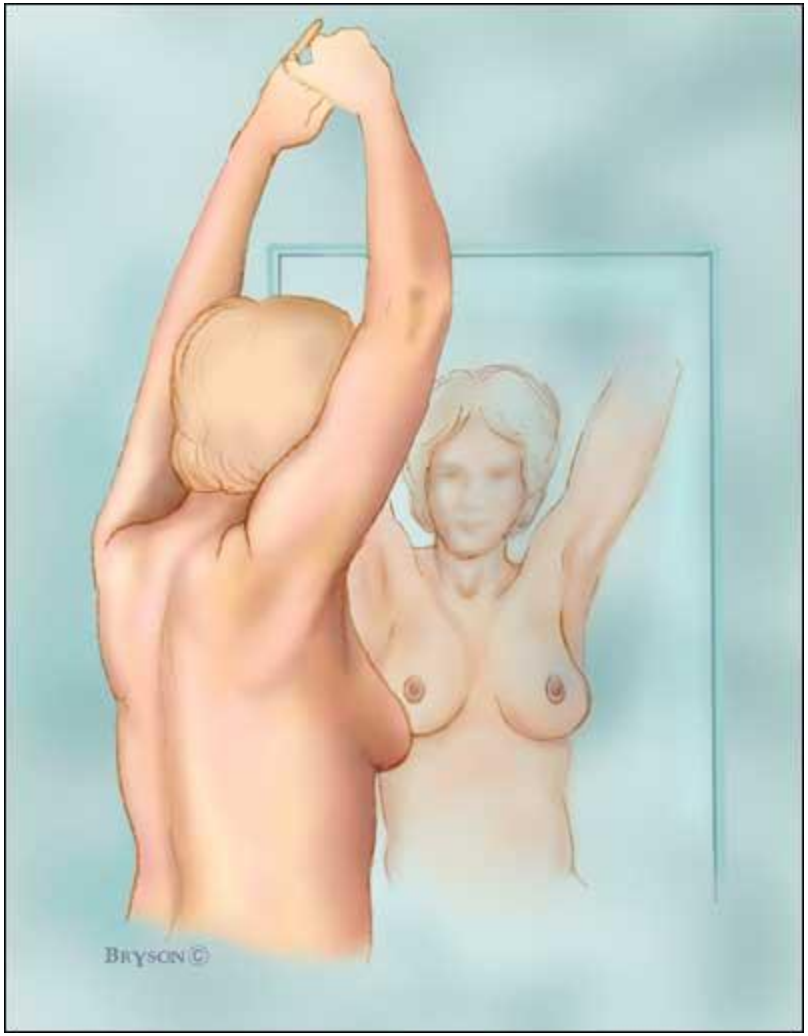
EXAM: monthly, day 5-7 of menstrual cycle; after menopause same day each month

Use in conjunction with mammography & CBE

Breast Self Exam - Step 1

- Begin by looking at your breasts in the mirror with your shoulders straight and your arms on your hips.
- Here's what you should look for:
- Breasts that are their usual size, shape, and color.
- Breasts that are evenly shaped without visible distortion or swelling.
- If you see any of the following changes, bring them to your doctor's attention:
- Dimpling, puckering, or bulging of the skin.
- A nipple that has changed position or become inverted (pushed inward instead of sticking out).
- Redness, soreness, rash, or swelling.

Breast Self Exam - Step 2 and 3



- Raise your arms and look for the same changes.
- While you're at the mirror, gently squeeze each nipple between your finger and thumb and check for nipple discharge (this could be a milky or yellow fluid or blood).
-

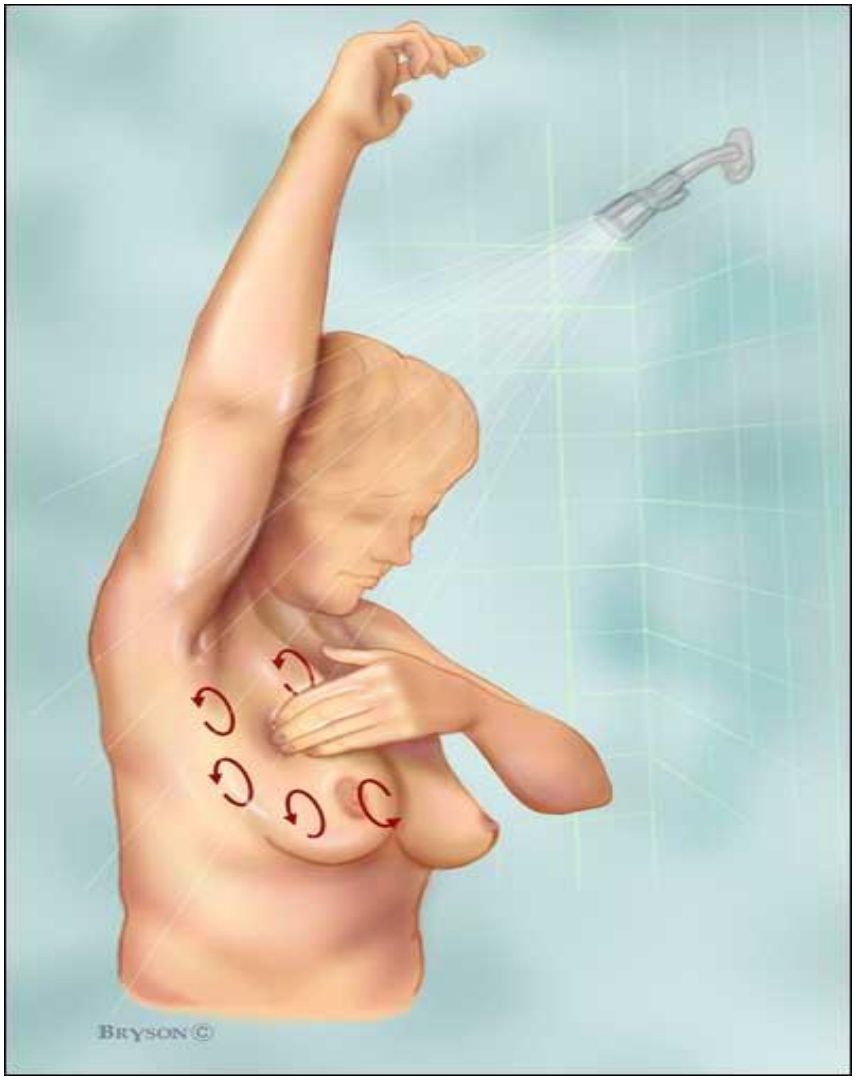
Breast Self Exam - Step 4

- Feel your breasts while lying down, using your right hand to feel your left breast and then your left hand to feel your right breast. Use a firm, smooth touch with the first few fingers of your hand, keeping the fingers flat and together.
- Cover the entire breast from top to bottom, side to side—from your collarbone to the top of your abdomen, and from your armpit to your cleavage.

Breast self-exam:
Manual inspection
(reclining)

With fingertips close together, gently probe each breast in one of these three patterns

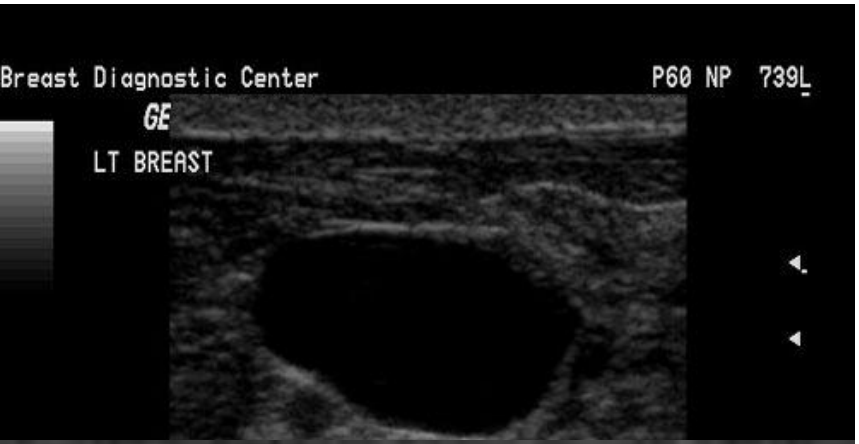
Breast Self Exam - Step 5

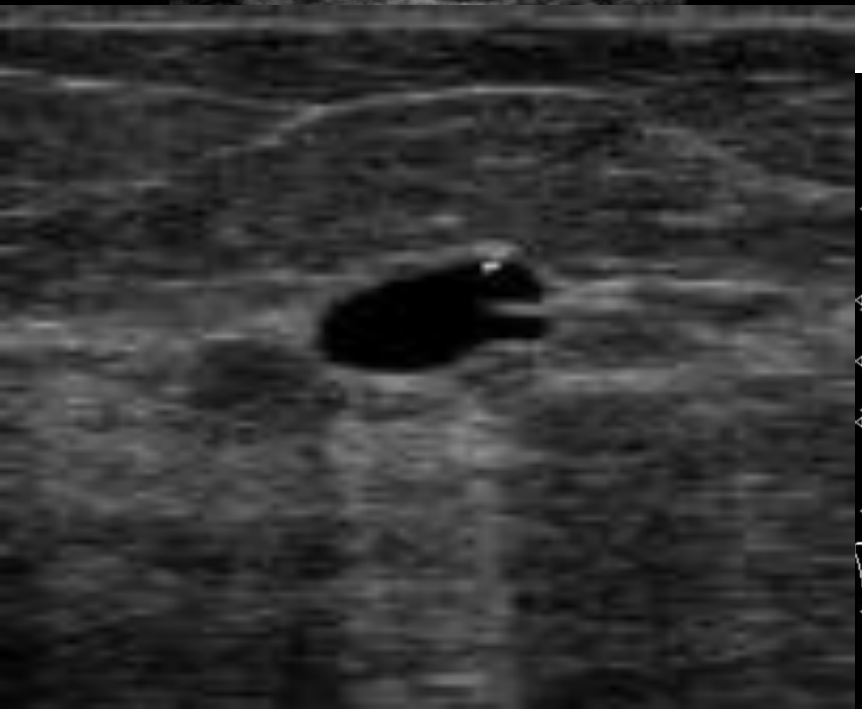


- Finally, feel your breasts while you are standing or sitting. Many women find that the easiest way to feel their breasts is when their skin is wet and slippery, so they like to do this step in the shower. Cover your entire breast, using the same hand movements described in Step 4.

Ultrasound

- Not a screening oolt
- Palpable vs cystic
- Mammographic detected lesion

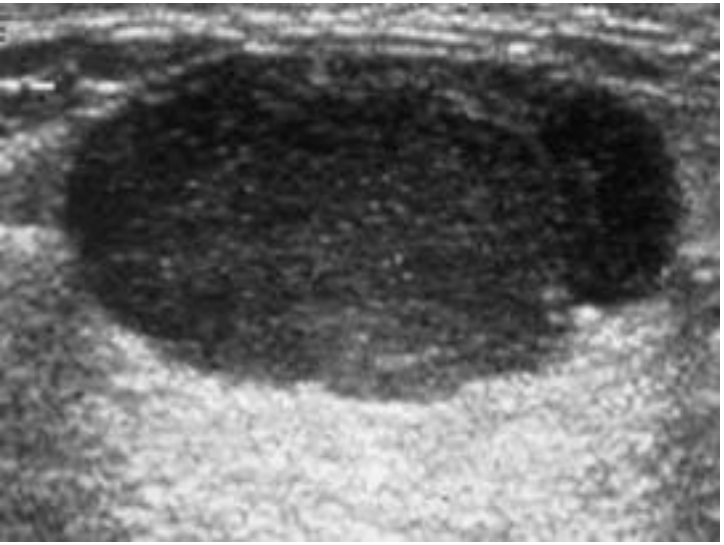


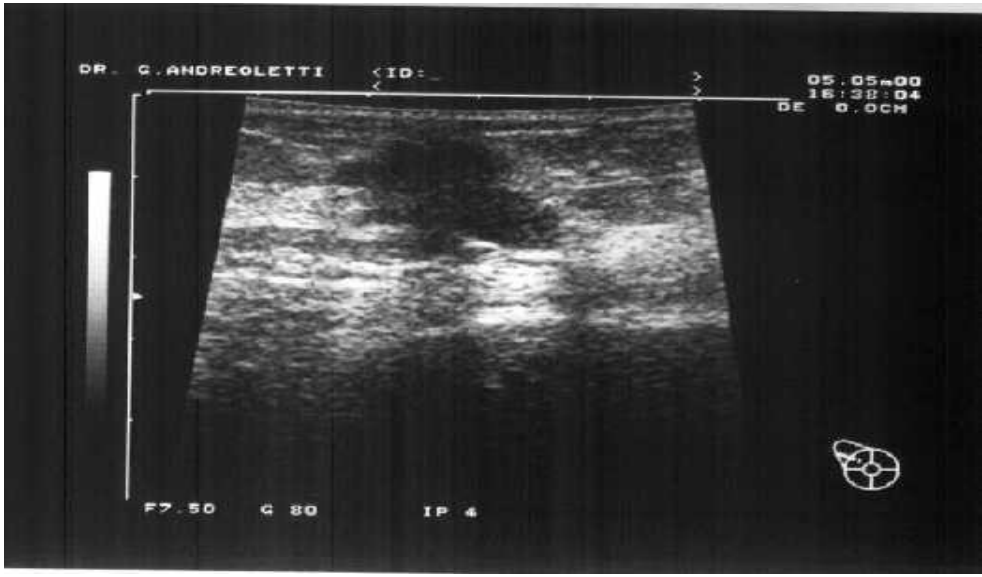


Ultrasound

- Benign
  - Pure and intensely hyperechoic
  - Elliptical shape (wider than tall)
  - Lobulated
  - Complete tine capsule

- Malignant
  - Hypoechoic, spiculated
  - Taller than wide
  - Duct extension
  - microlobulation

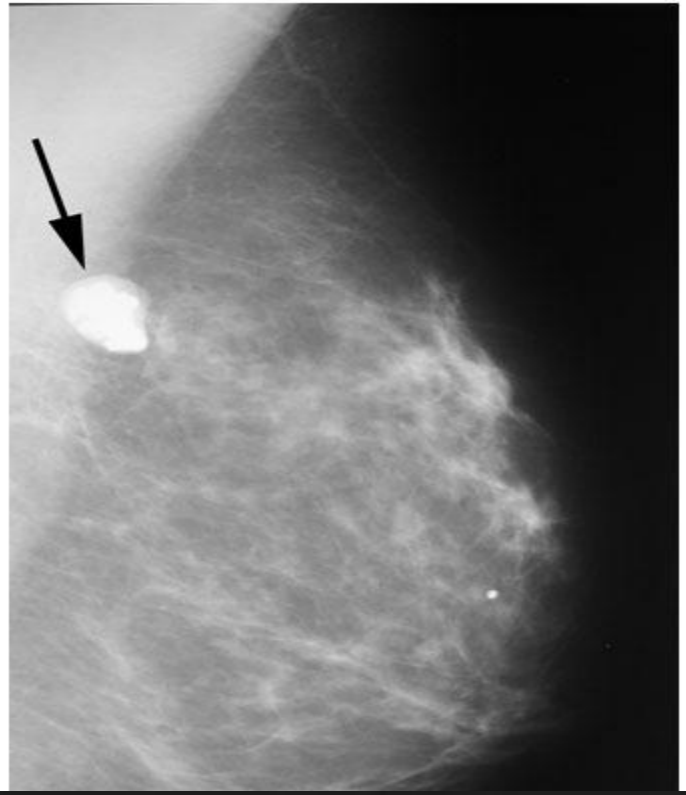




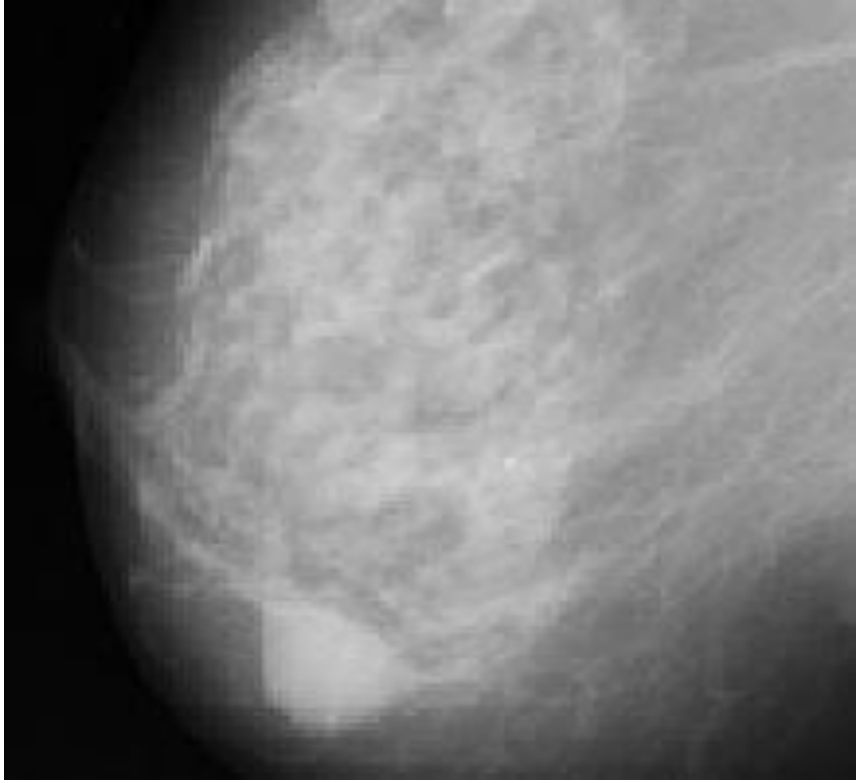
Malignant or Benign

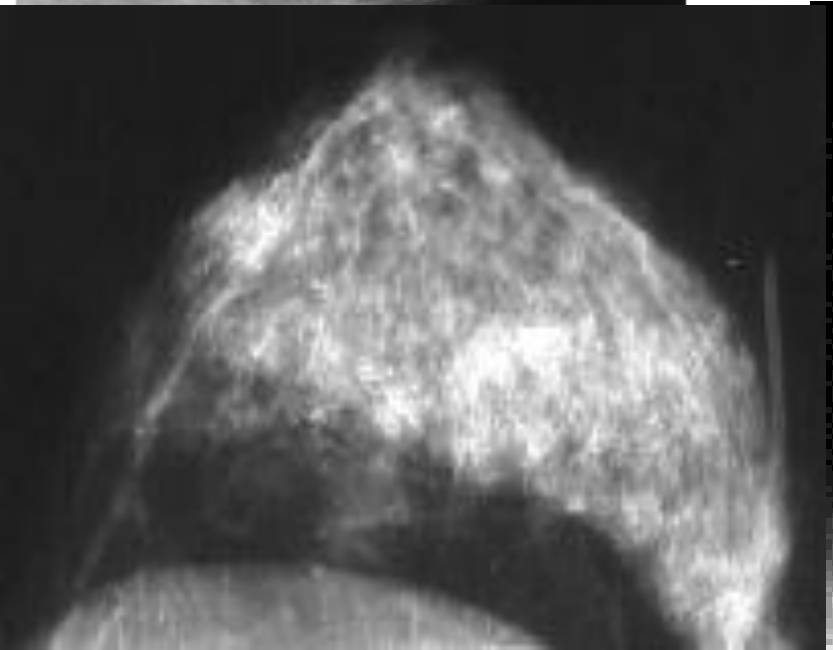
Mammography

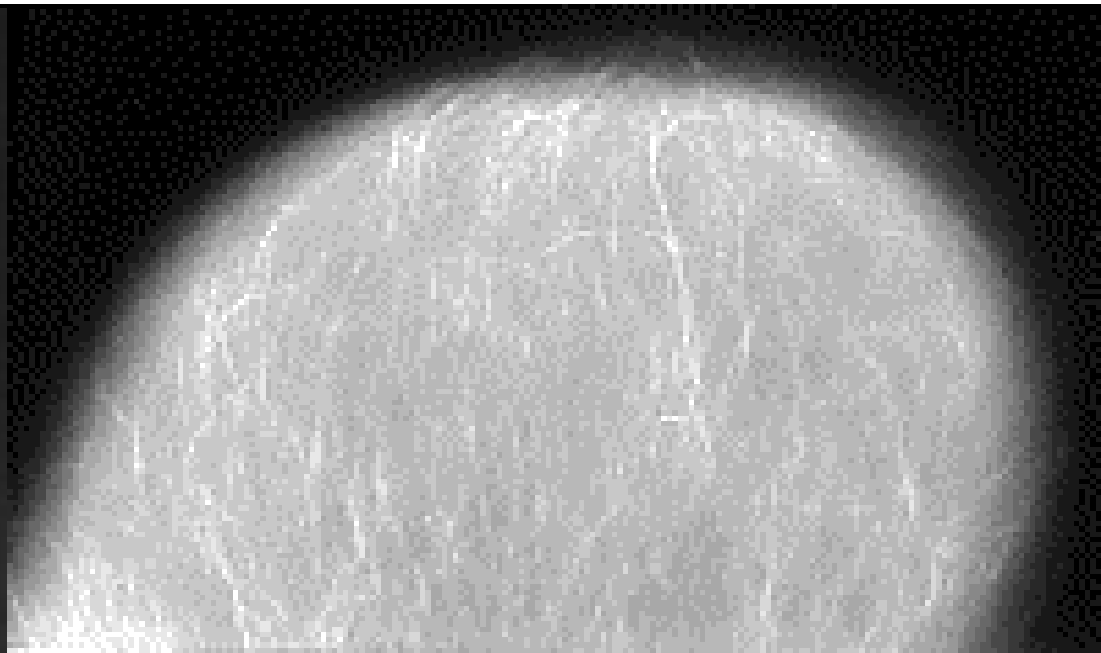
- Screening tool
  - Age of 40 –
- Estimated reduction in mortality 15-25%
- 10% false positive rate
- Densities & calcifications



Mammography



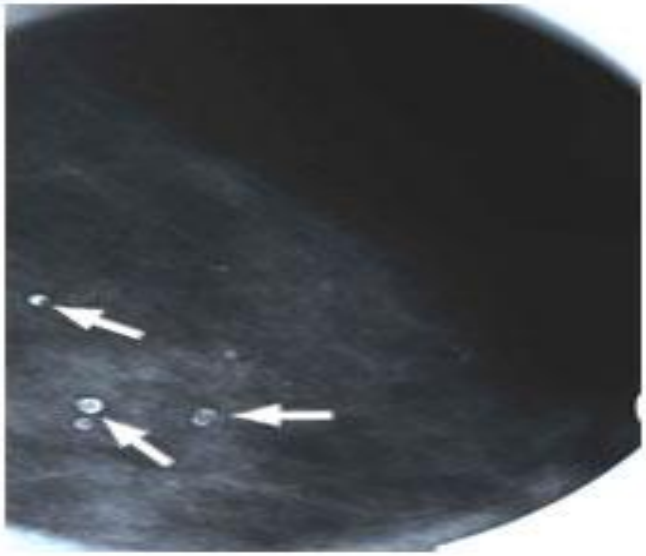


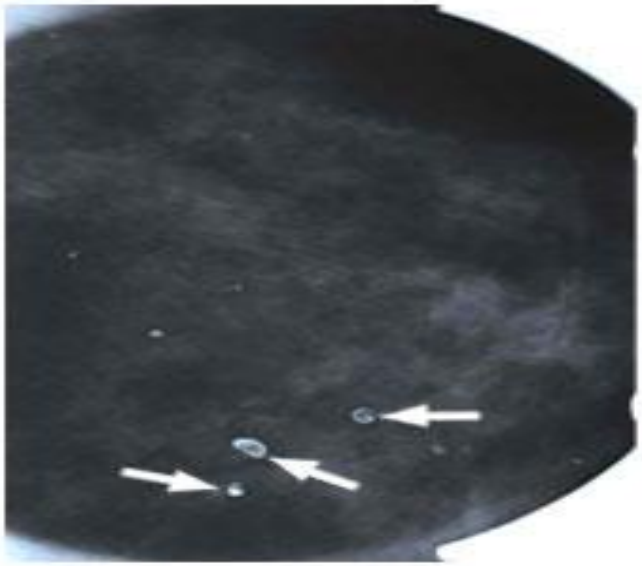


Calcification

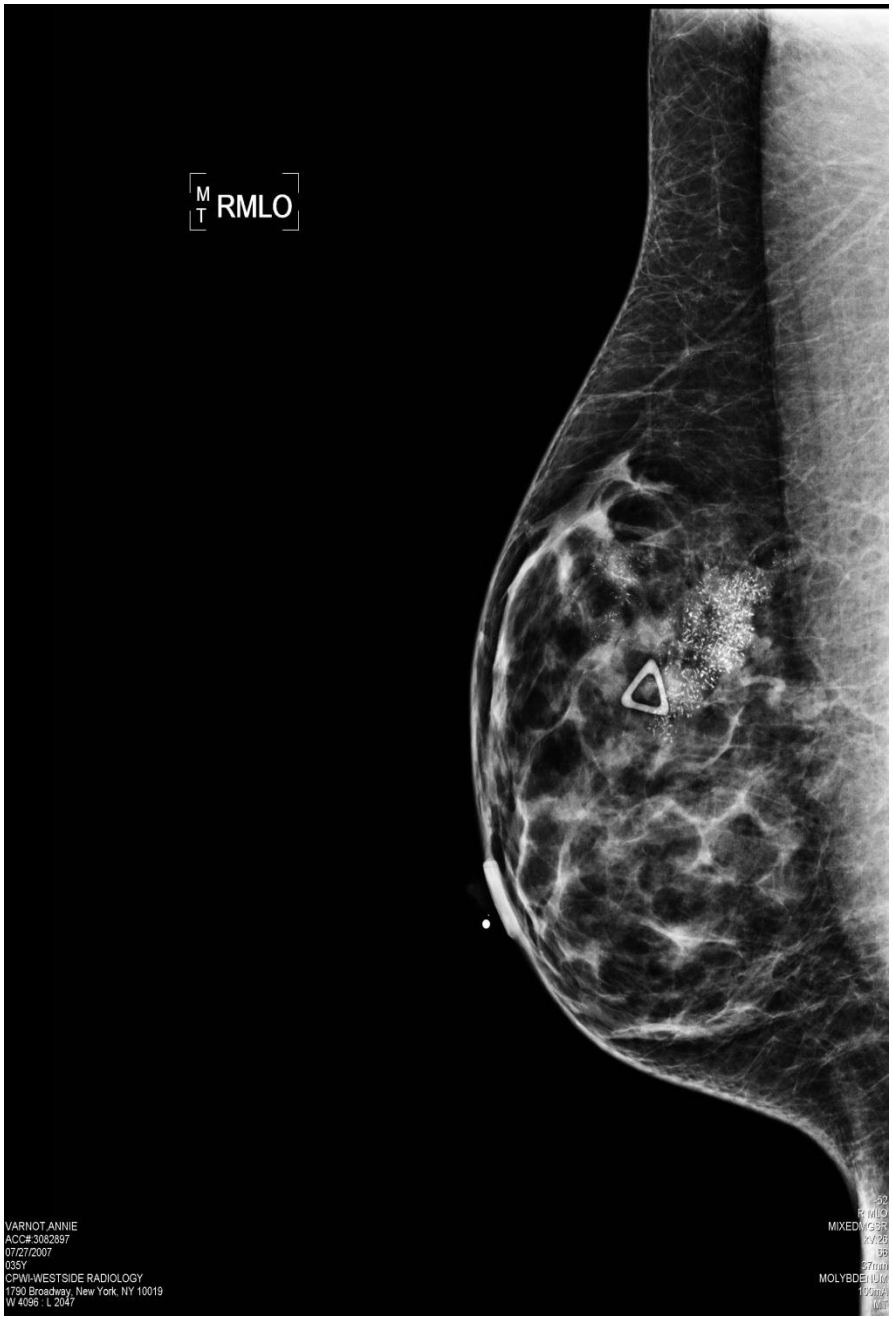
- Macrocalcifications
  - Large white dots
  - Almost always noncancerous and require no further follow-up.
- Microcalcifications
  - Very fine white specks
  - Usually noncancerous but can sometimes be a sign of cancer.
  - Size, shape and pattern

Noncancerous (benign) calcifications





Cancerous (malignant) calcifications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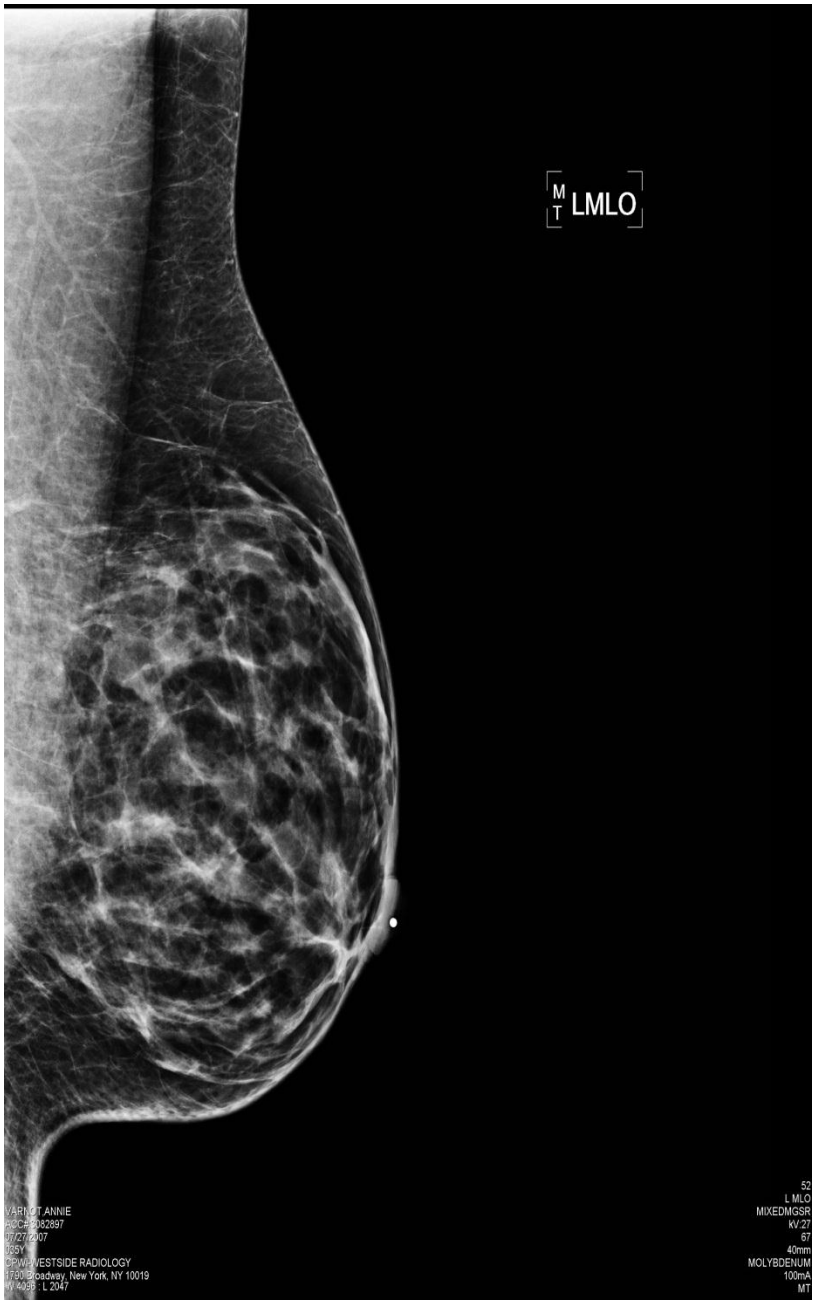
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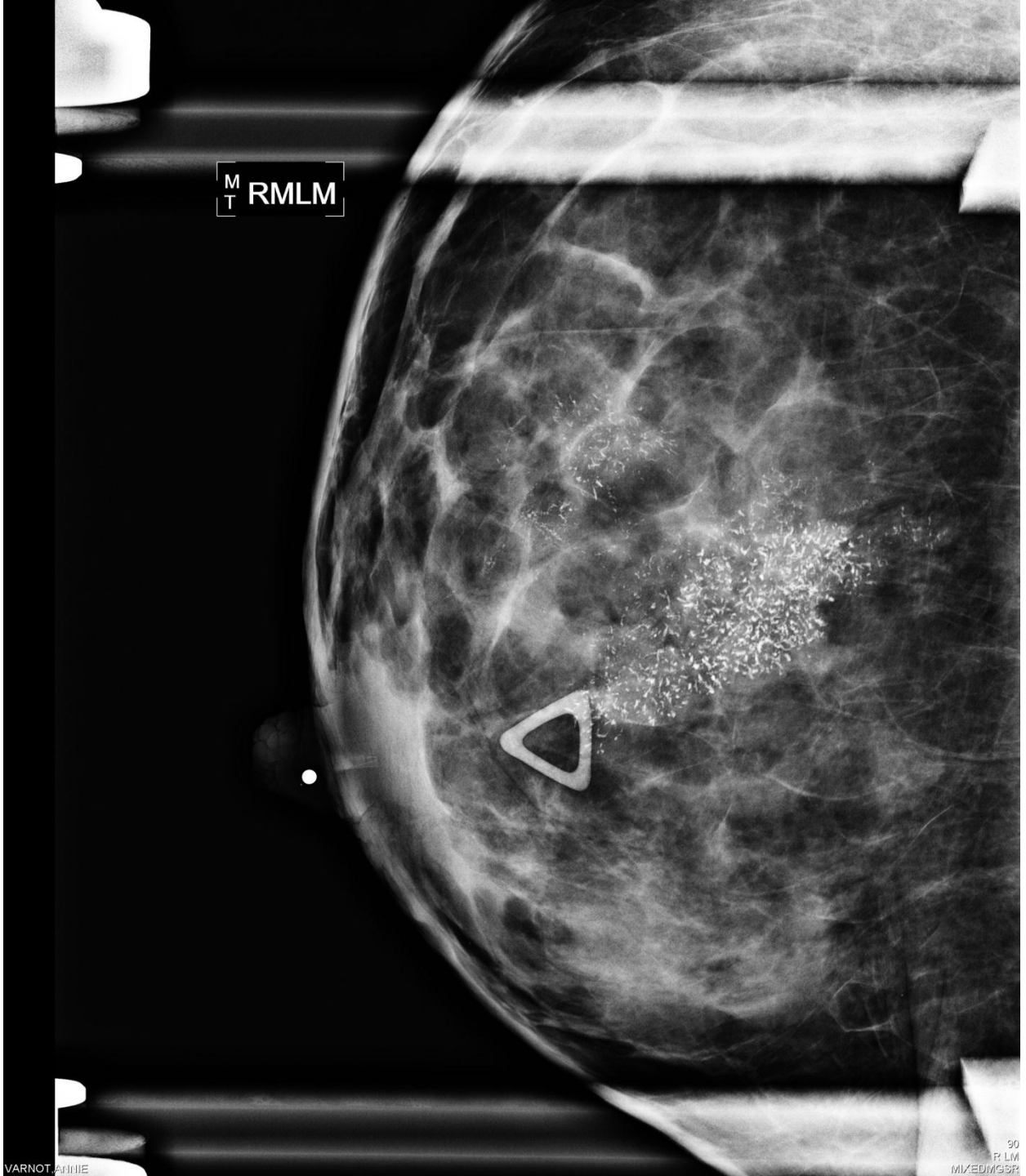
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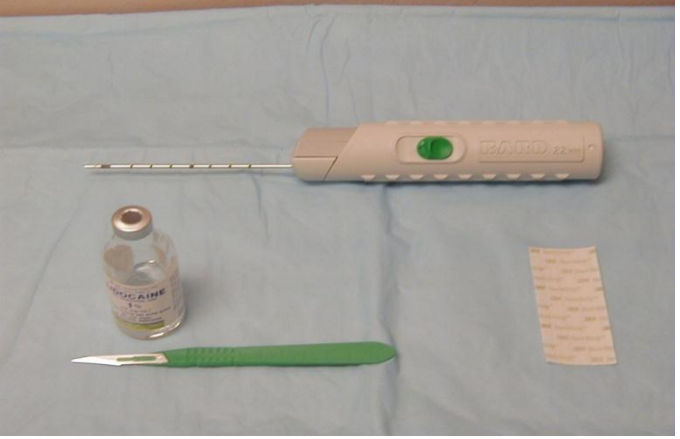
BI-RADS

BI-RADS Classification	Features
0	Need additional imaging
1	Negative – routine in 1 yr
2	Benign finding – routine in 1 yr
3	Probably benign, 6mo follow-up
4	Suspicious abnormality, biopsy recommended
5	Highly suggestive of malignancy; appropriate action should be taken

MRI

- High risk patients
  - Personal history of breast ca –
  - LCIS, atypia –
  - 1st degree relative with breast cancer –
  - Very dense breast –
- High sensitivity (95-100%)
  - 10-20% will have a biopsy –



Diagnosis

- Fine-needle aspiration
  - Sensitivity is 80-98%, specificity 100%
  - False negatives are 2-10%Unable to differentiate b/w in situ vs CA
- Core-needle biopsy
  - More tissue, however still possibility of false “negative” and could represent sampling error
- Incisional biopsy
  - For large (>4 cm) lesions for whom pre-op chemotherapy or radiation will be desirable.
- Excisional biopsy
  - Removal of entire lesion and a margin of normal breast parenchyma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CORE BX
TIS<0.4 MI=1.4 AO=100%

Stereotactic Biopsy

- Suspicious mammographic abnormalities
- Patients lay prone

Breast Cancer

- **Definition of breast cancer**: Cancer that forms in tissues of the breast, usually the **ducts** (tubes that carry milk to the nipple) and lobules (glands that make milk).
- It occurs in both men and women, although male breast cancer is rare.
- The most common form of cancer among women
- The second most common cause of cancer related mortality
- 1 of 8 women (12.2%)
- One third of women with breast cancer die from breast cancer

Risk Factors for Breast Cancer

- Female (1% male)
- Aging(increas with the Age)
- Relative (mother or sister)
- Menstrual history

early (who begin at the age 12 greater – risk than the age of 14)

late menopause (after 50 Y –

- Child birth

After the age of 30 –

Exogenous Estrogen

- Hormonal replacement therapy(HRT)> 15 y
  - 30% increased risk with long term use
- Oral Contraceptives(OC) >10 y
  - risk slight
  - risk returns to normal once the use of OC's has been discontinued

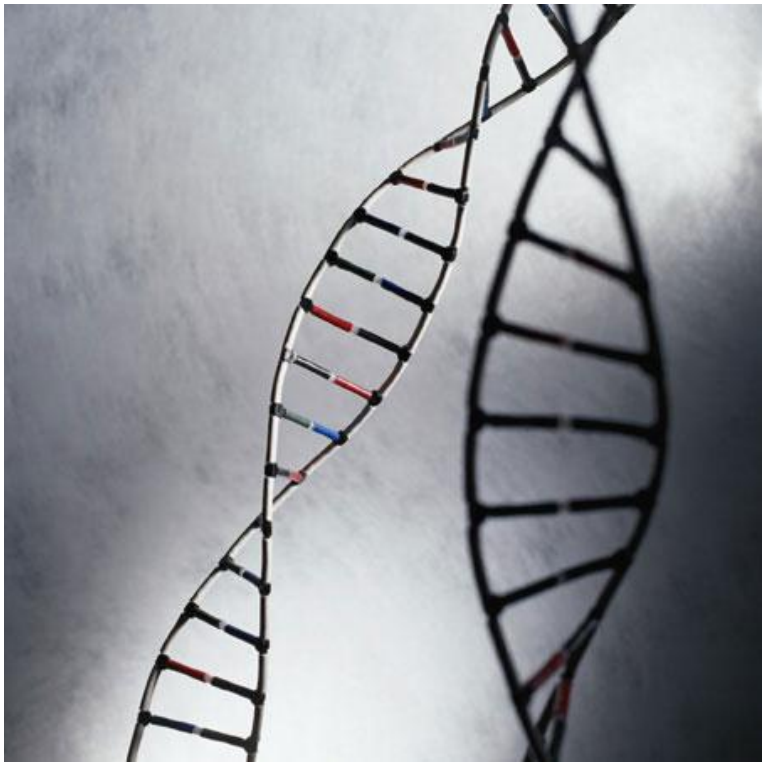
Risk Factors for Breast Cancer

- Radiation exposure
- Breast disease
  - Atpyical Hyperplasia –
  - Intraductal carcinoma in situ –
  - Intralobular carcinoma in situ
  - A history of ovarian cancer
- Obesity
- Diet
  - Fat –
  - Alcohol . lack of exercise –
- Racel :less in jaban H wight women

Genetics : **cause 2-3%of all cancers**

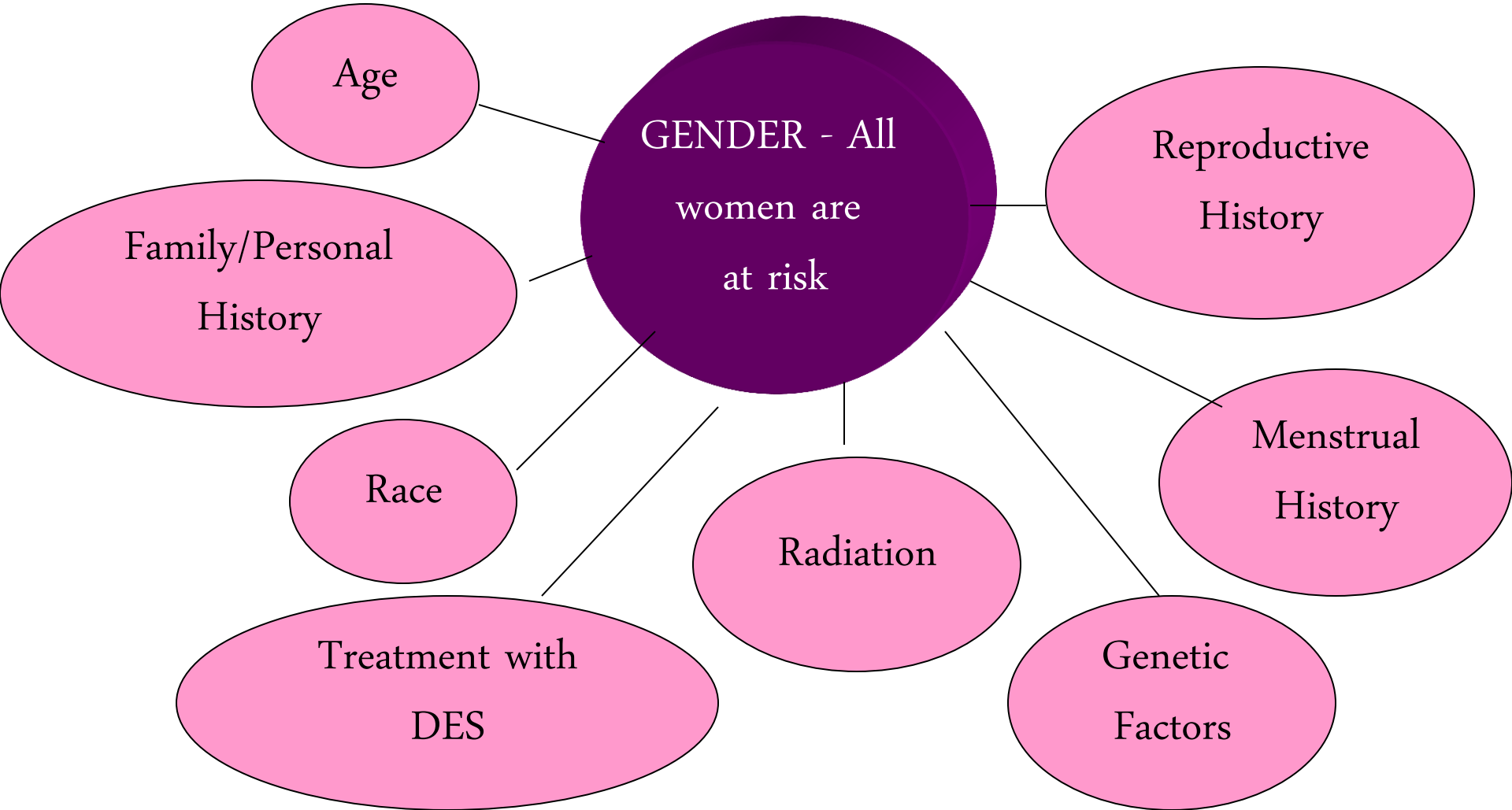
- BRCA-1
- BRCA-2
- P53, Rb-1
- Her-2/neu, c-erB2, c-myc

(Women with mutations in P53 and BRCA-1 have a lifetime risk of breast cancer of 85%.)



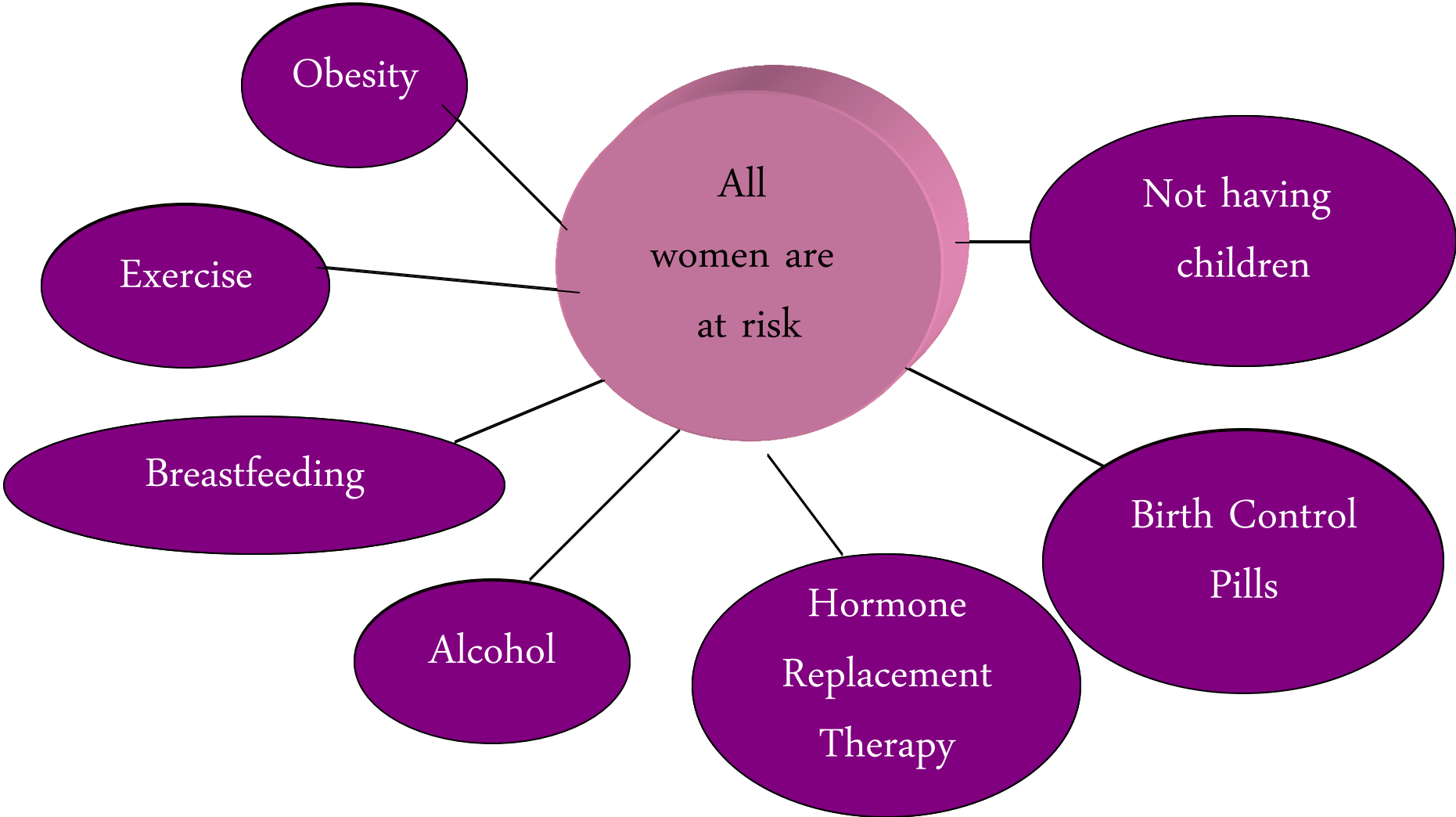
Breast Cancer Risk Factors

that cannot be changed



Breast Cancer Risk Factors

that can be *controlled*



What is Breast Cancer?

- A disease in which normal cells in the breast begin to change, grow without control, and no longer die

In poor countries, more than half of patients have locally advanced or metastatic disease at the time of diagnosis

– Lack of education

– Lack of screening

- Cancer that has not spread is called in situ, meaning “in place”

- Cancer that has spread is called invasive or infiltrating

Hereditary Breast Cancer

- About 15% of breast cancers are inherited
- Approximately 80% of hereditary breast cancer is caused by mutations in the BRCA1 or BRCA2 genes
- Women with especially strong family history may consider preventive surgery to remove breast tissue and/or chemoprevention

Breast Cancer and Early Detection

- Early diagnosis means a better chance of successful treatment
- **Mammography** is the best tool doctors have to screen for breast cancer
- Many organizations recommend that women obtain a mammogram each year, starting at the age of 40
- Regular clinical breast examinations and breast self-examinations are also recommended

Prognostic Factors

lymph node status	negative
tumor size	<1cm
grade	nuclear grade I
flow cytometry	diploid, low S
histology	tubular, papillary
ER/PR	positive
HER-2/neu	negative
Ki67	

Types of breast cancer

- In situ
  - Intraductal (DCIS) –
  - Intralobular (LCIS) –
- Invasive
  - Infiltrating ductal carcinoma (75%) –
  - Tubular carcinoma –
  - Medullary carcinoma –
  - Mucinous carcinoma –

Breast Cancer

Signs and Symptoms at Presentation ;

Although the use of mammography is increasing, more than 80% of all breast cancers are still diagnosed as a result of symptoms, most often a painless mass. However, as many as 10% of patients present with breast pain and no mass. Less common symptoms include nipple discharge, nipple erosion or ulceration, diffuse erythema of the breast, axillary adenopathy, and symptoms associated with distant metastases.

BREAST CANCER
Signs and symptoms at presentation

- Mass or pain in the axilla

- Palpable mass
- Thickening
- Pain

- Nipple discharge
- Nipple retraction

- Edema or erythema of the skin

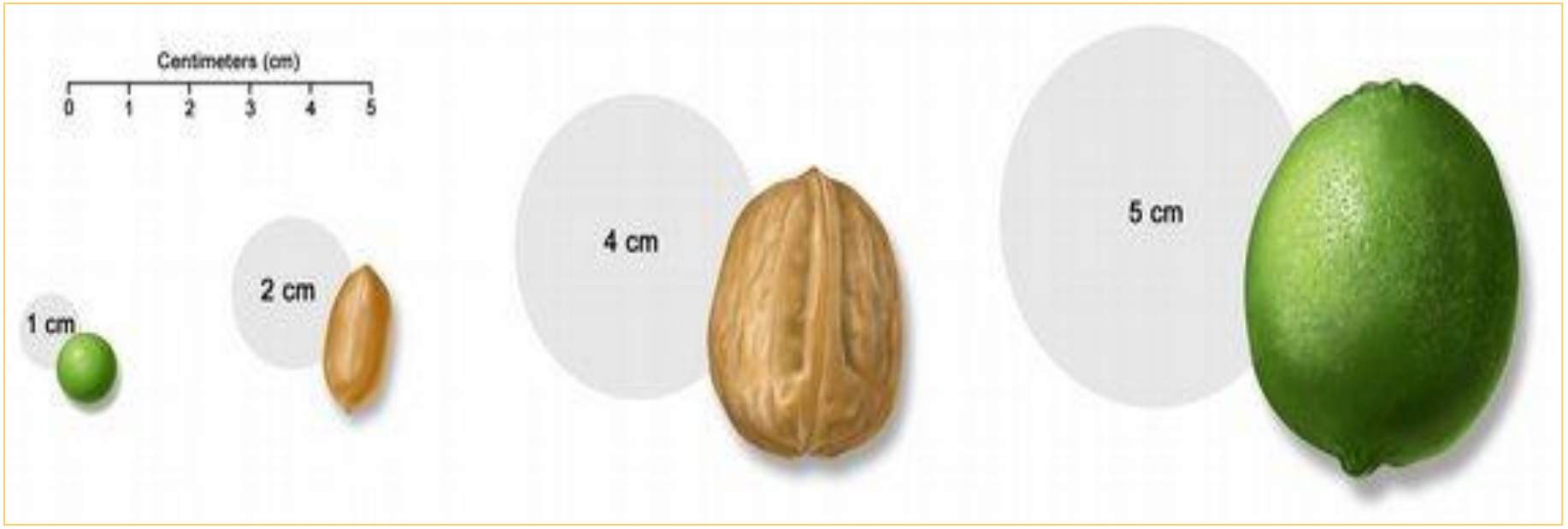
What Are the Symptoms of Breast Cancer?

- New lumps or a thickening in the breast or under the arm
- Nipple tenderness, discharge, or physical changes
- Skin irritation or changes, such as puckers, dimples, scaliness, or new creases
- Warm, red, swollen breasts with a rash resembling the skin of an orange
- Pain in the breast (usually not a symptom of breast cancer, but should be reported to a doctor)
- No visible or obvious symptoms (asymptomatic)

How is Breast Cancer Evaluated?

- Screening and/or diagnostic mammography
- Ultrasound
- Magnetic Resonance imaging (MRI) scan
- Biopsy is necessary to confirm a diagnosis
- Blood tests are often used to determine if the cancer has spread outside the breast

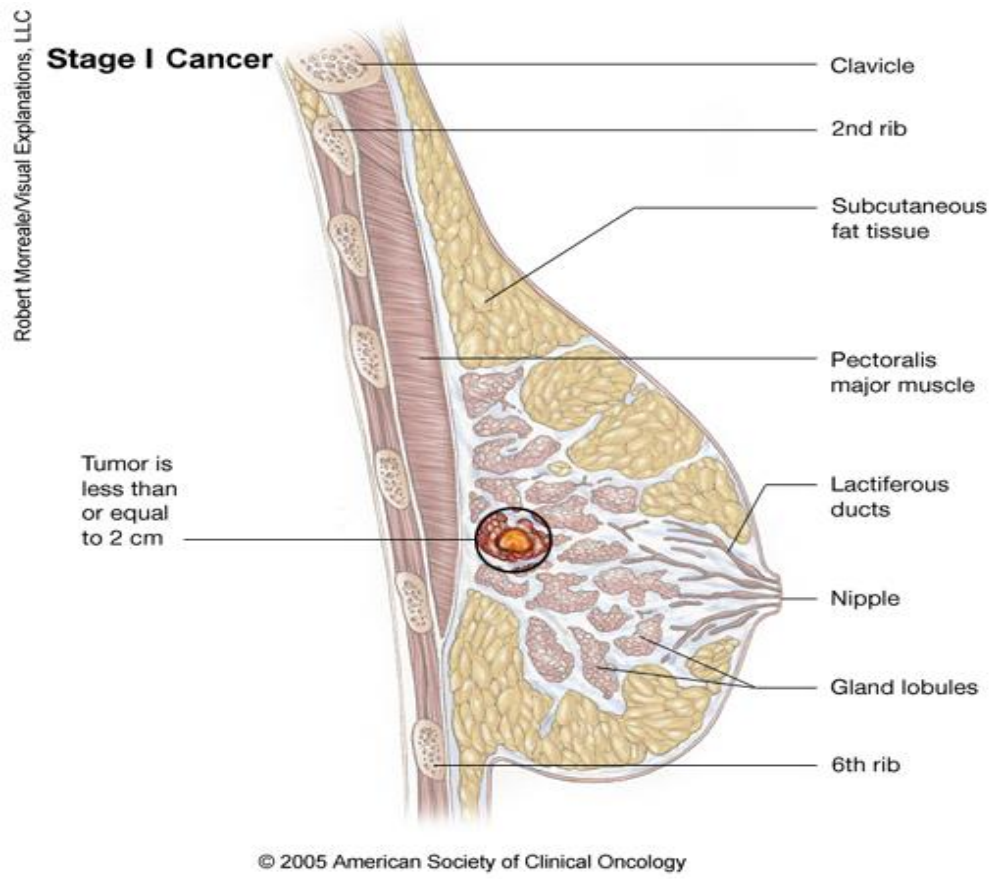
Breast Cancer Staging and Tumor Size



Stage 0 Breast Cancer

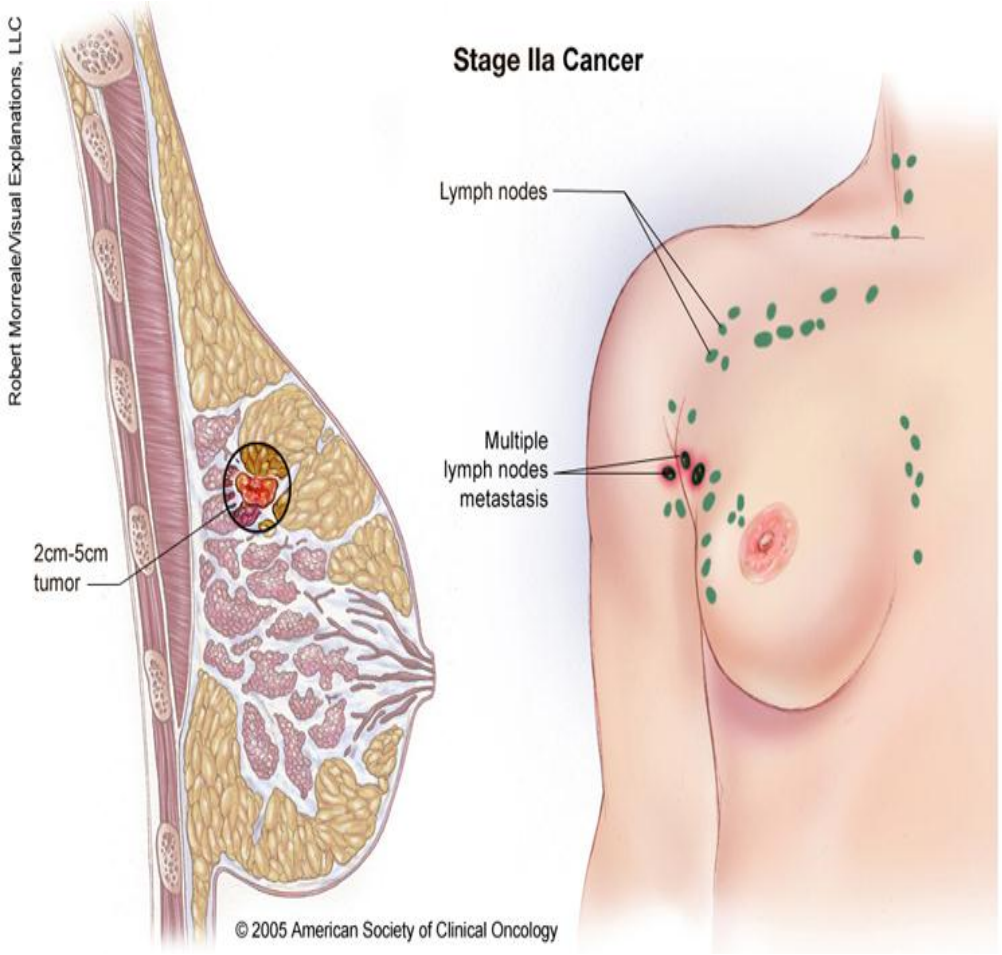
- Known as “cancer in situ,” meaning the cancer has not spread past the ducts or lobules of the breast (the natural boundaries)
- Also called noninvasive cancer
- Ductal carcinoma in situ (DCIS) is the most common in situ breast cancer

Stage I Breast Cancer



The tumor is small and has not spread to the lymph nodes

Stage IIa Breast Cancer

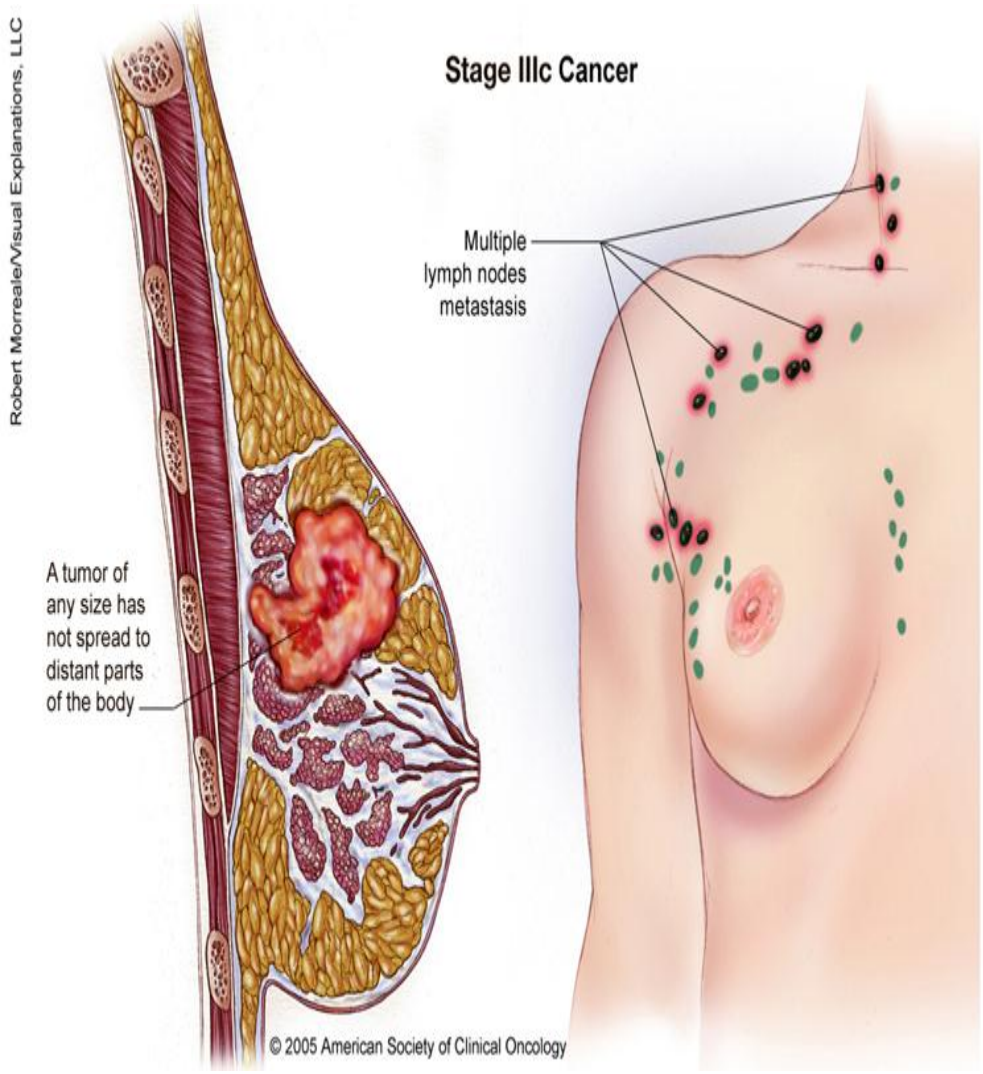


- Stage IIa breast cancer describes a smaller tumor that has spread to the axillary lymph nodes (lymph nodes under the arm), or a medium-sized tumor that has not spread to the axillary lymph nodes
- Stage IIa may also describe cancer in the axillary lymph nodes with no evidence of a tumor in the breast

Stage IIIb Breast Cancer

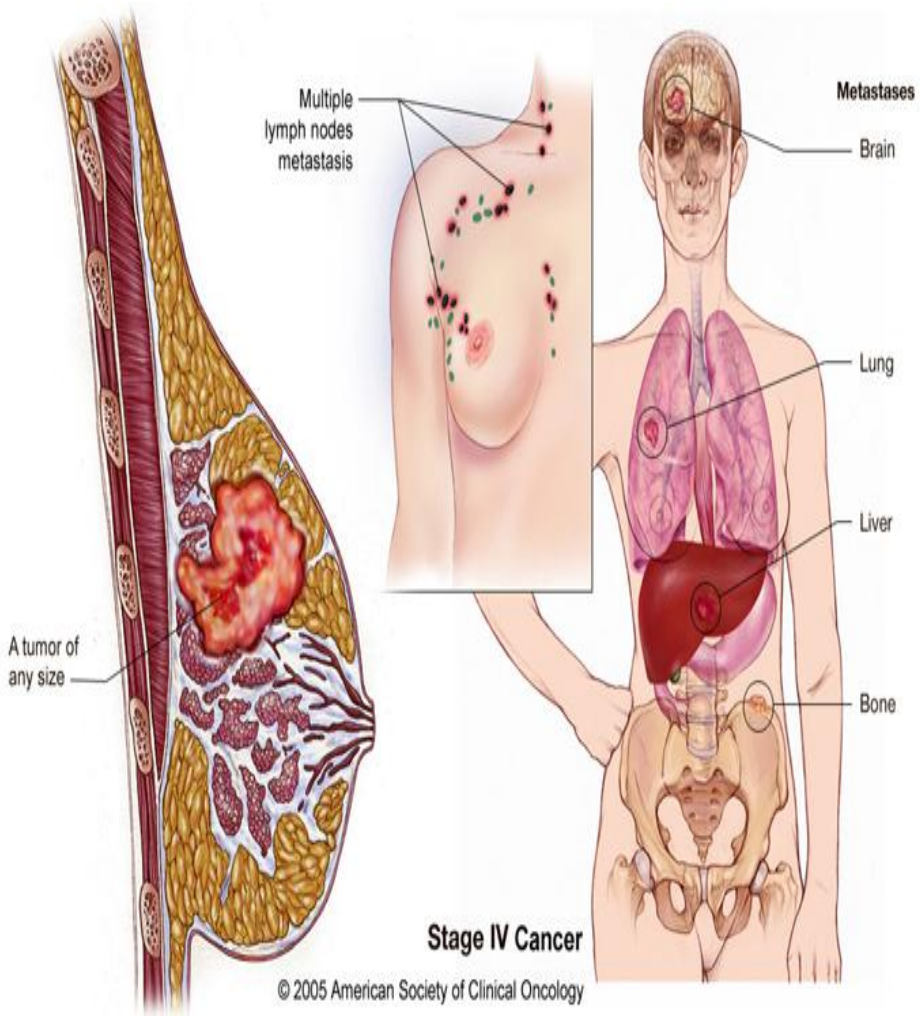
- Stage IIIb breast cancer has spread to the chest wall, or caused swelling or ulceration of the breast, or is diagnosed as inflammatory breast cancer

Stage IIIc Breast Cancer



Stage IIIc breast cancer has spread to distant lymph nodes but has not spread to distant parts of the body

Stage IV Breast Cancer



Stage IV breast cancer can be any size and has spread to distant sites in the body, usually the bones, lungs or liver, or chest wall

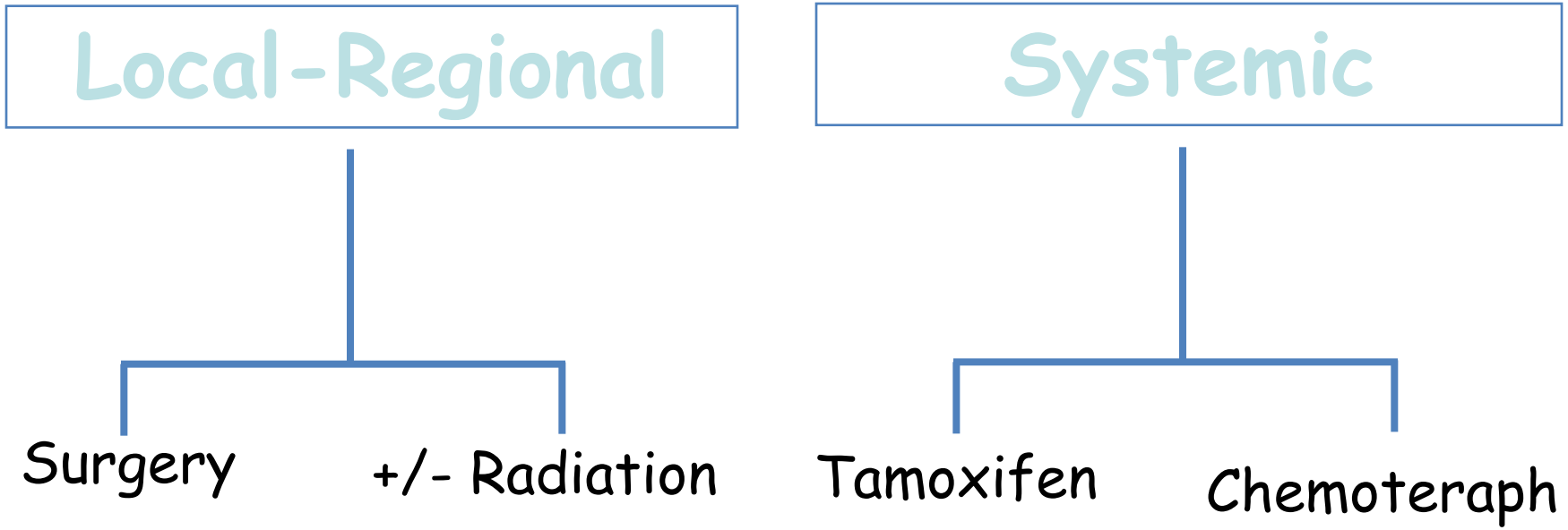
How is Breast Cancer Treated?

- Treatment depends on stage of cancer
- More than one treatment may be used
- Surgery
- Radiation therapy
- Chemotherapy
- Hormone therapy
- Targeted therapy

Factors Considered in Treatment Decisions

- The stage and grade of the tumor
- The tumor's hormone receptor status (ER, PR)
- Factors that may signify an aggressive tumor, such as HER-2/neu amplifications
- The presence of known mutations to breast cancer genes
- The patient's menopausal status
- The patient's age and general health

Treatment



Diet

Exercise

Life quality (stress

Cancer Treatment: Surgery

- Generally, surgery to remove the tumor with or without radiation therapy is initial treatment
- For invasive cancer, lymph nodes are removed and evaluated
- More invasive surgery (such as mastectomy) is not always better; discuss with your doctor
- Breast reconstruction is an option after mastectomy

Adjuvant chemotherapy

Benefits: Decreased risk recurrence 35-50%

Decreased risk mortality 20-40%

- **Chemotherapy is often administered prior to surgery to reduce the size of the tumor to leave clear margins.**

Risks:

Acute, reversible: nausea, vomiting, fatigue, anemia, neutrocitopenia, hair loss, etc.

Long-term: Acute leukemia (<1%), cardiac toxicity (1% anthracyclines),

Cancer Treatment: Hormone Therapy

- Used to manage tumors that test positive for either estrogen or progesterone receptors
- May be used alone or together with chemotherapy
- Tamoxifen (Nolvadex) is a common hormone therapy and is effective in many premenopausal and postmenopausal women
- Aromatase inhibitors are also used alone or following tamoxifen use as treatment for postmenopausal women, including anastrozole (Arimidex), letrozole (Femara), and exemestane (Aromasin)

Antiestrogen therapy : TAMOXIFEN

- Used in Estrogen Receptor + breast cancer
- Approx. 80% of postmenopausal women ER+
- Standard therapy: given for 5 years
- Reduces chance of late recurrence by 40%
- Reduces risk of death

AROMATASE INHIBITORS

- **Decrease estrogen production**
- **New standard of care for ER+ cancer early and metastatic**
- **Arimidex (anastrozole), Aromasin (exemestane) Femara (letrozole)**
- **Taken as a pill once a day for 5 years. Continuously for metastatic disease**

Only given to postmenopausal women

Benefits:

- Reduce risk of cancer coming back or spreading
- Reduce risk of a new cancer starting in the other breast

Side Effects:

Hot flashes, vaginal , artralgias, reduced bone mass, blood cloths

New Therapies: Targeted Therapy

Trastuzumab (Herceptin) for women with a HER-2/neu-positive breast cancer either with or after adjuvant chemotherapy

- Approved for metastatic disease and early as adjuvant therapy
- • Increases survival and time to progression
- • Risk of cardiomyopath y
- **Lapatinib ;** Oral drug
- Useful fro patients resistant to trastuzumab
- May be effective for brain metastasis

Bevacizumab (Avastin) blocks angiogenesis (the formation of new blood vessels) and is under evaluation in clinical trials

Radiation

- **Radiation kills the cancer cells left after surgery.**
- **Radiation is painless when it's delivered, but it will become more painful over time.**
- **Treatments will be given up to 5-7 weeks, 5 days a week.**
- **Treatments only take ½ hour so you can keep your routine.**
- **Your hair won't fall out unless you are also taking chemotherapy.**
- **Your skin in the area may become red and easily irritated.**
- **You may feel tired even after its over.** --
  - Side effects may include fatigue, swelling, and skin changes

- **Radiation after surgery reduces the chances of the cancer reoccurring.**

Life Style Changes First

- Body Weight
- Diet
- Exercise: weights and resistance exercise- bone health and muscle preservation
- Stress management: yoga,, journalism, joyful activities, NO INTERNET
- Complementary therapy
- Supplements
- Spirituality

Complementary and Alternative Therapies

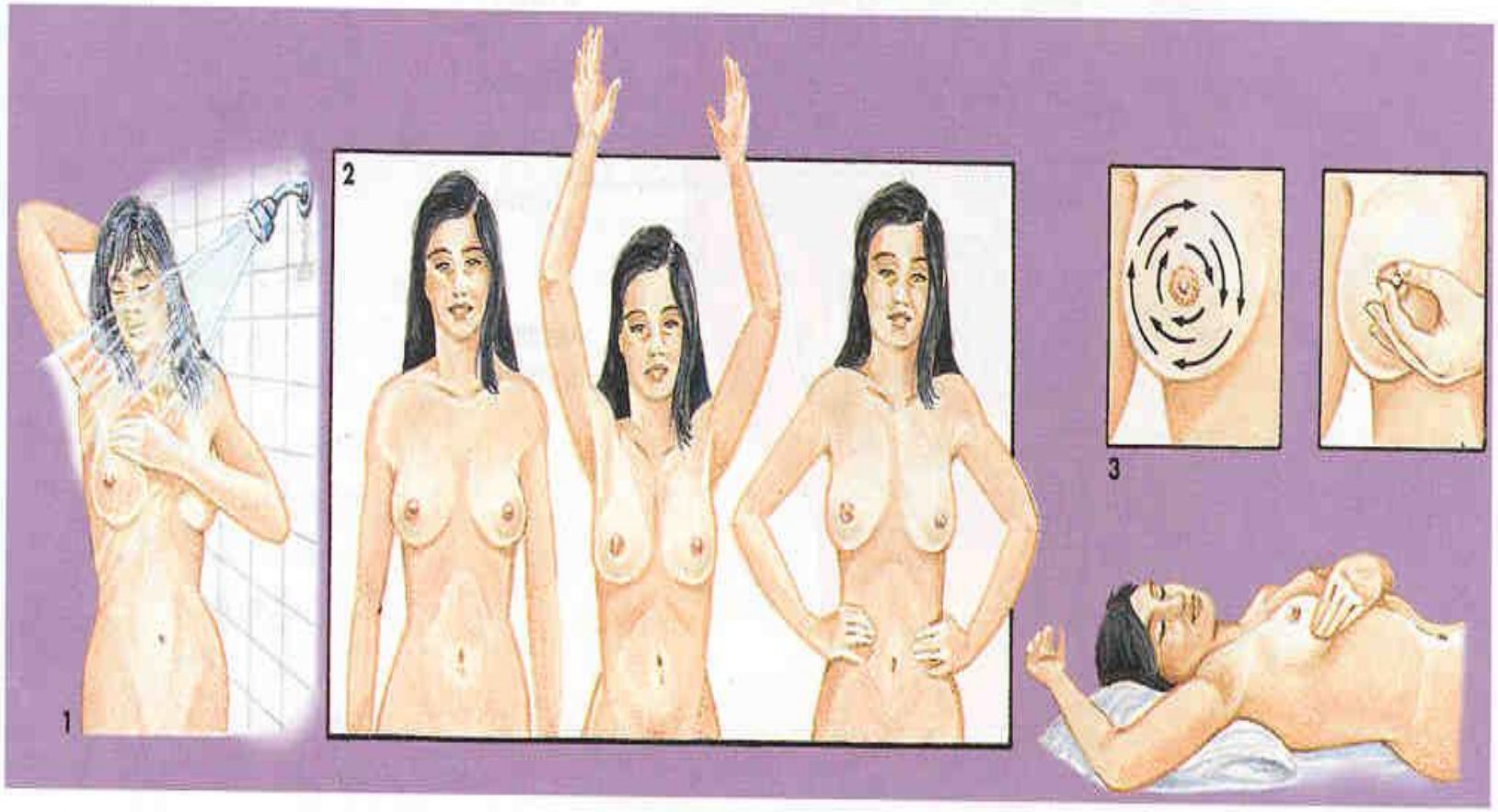
- **Vitamin A, Betacarotine, Vitamin C, and Vitamin E all increase the effect of chemotherapy.**
- **Vitamin D helps inhibits growth in cancer cells**

• 50-70 % of breast cancer patients use some form of complementary therapy:

- Diet: megavitamins, supplements
- Acupuncture, massages
- Spiritual healing

•Most patients do not tell their doctor about alternative therapies they are using

BREAST SELF EXAM



BRCA Mutation

- **BRCA 1 mutation**: A gene on chromosome 17 that normally helps to suppress cell growth. A person who inherits a mutated BRCA1 gene has a higher risk of getting breast cancer

BRCA 2 mutation: A gene on chromosome 13 that normally helps to suppress cell growth. A person who inherits a mutated BRCA2 gene has a higher risk of getting breast cancer

HER2/neu Positive Breast Cance

- Referred to as "HER2-positive."
- These cancers tend to grow and spread more aggressively than other breast cancers.
- Herceptin is a targeted drug for women who are HER 2 positive

Inflammatory Breast Cancer-

- Rare , Aggressive ,First described in 1814
- This uncommon type of invasive breast cancer accounts for about 1% to 3% of all breast cancers.
- Designated Stage IIIB or IV at diagnosis
- Composite entity characterized clinically by diffuse edema (*peau d'orange*) and erythema (redness) of the breast, over the majority of the breast and often without an underlying mass.
- The clinical appearance is due to pathologic plugging of the dermal lymphatics of the breast, but pathologic involvement of the dermal lymphatics alone does not confirm the diagnosis.

Inflammatory Breast Cancer

- Cases among women with IBC compared to all breast cases were more likely to have positive axillary lymph nodes, high tumor grade, and negative hormone receptors.
- Blood type A has been associated more generally with increased cancer risk
- IBC can occur in men, but usually at an older age than in women

Clinical Presentation

- Sudden increase in breast cancer
- Little or no response to antibiotic treatment- sometimes mistaken for Mastitis.
- The possible diagnosis of IBC should be considered more strongly when a woman who is not pregnant or breast-feeding comes in with these symptoms. Breast infection is less common in women who are not pregnant or breast-feeding, and even rarer in women after menopause. When infection occurs it is usually associated with fever or other signs of infection.

Clinical Presentation

- Symptoms may include heaviness, burning, aching, increase in breast size, tenderness, or a nipple that is inverted (facing inward). These symptoms usually develop quickly—over a period of weeks or months.
- Swollen lymph nodes may also be present under the arm, above the collarbone, or in both places.
- It is important to note that these symptoms may also be signs of other conditions such as infection, injury, or other types of cancer.

Locally Advanced Breast Cancer

Clinical Presentation

- "Grave clinical signs"
  - Skin ulceration
  - Skin edema
  - Tumor fixation to the chest wall
  - Axillary nodes larger than 2.5 cm
  - Fixed axillary nodes
- Satellite skin nodules and infraclavicular, internal mammary, and supraclavicular adenopathy

Inflammatory Breast Cancer (IBC)

- Swollen
- Erythema
- Peau d'Orange
- Frequently Mistaken for Mastitis


Breast dermatitis
Mastitis
Paget's disease
Inflammatory breast cancer
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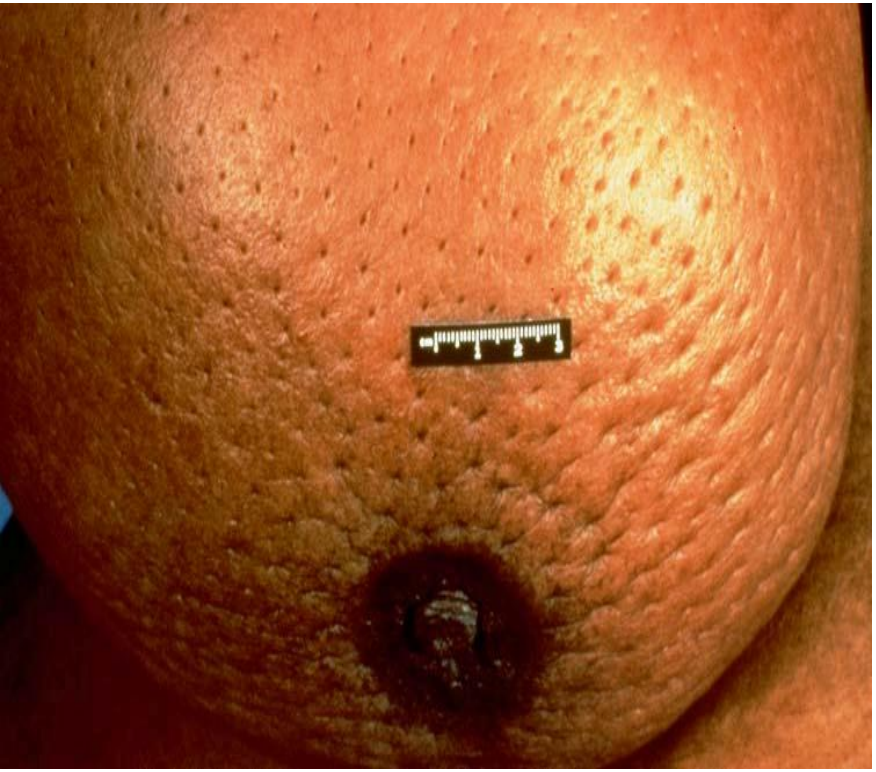
Clinical Presentation of Stage III, Locally Advanced (Inoperable) Disease

Large primary breast cancer

Locally advanced breast cancer

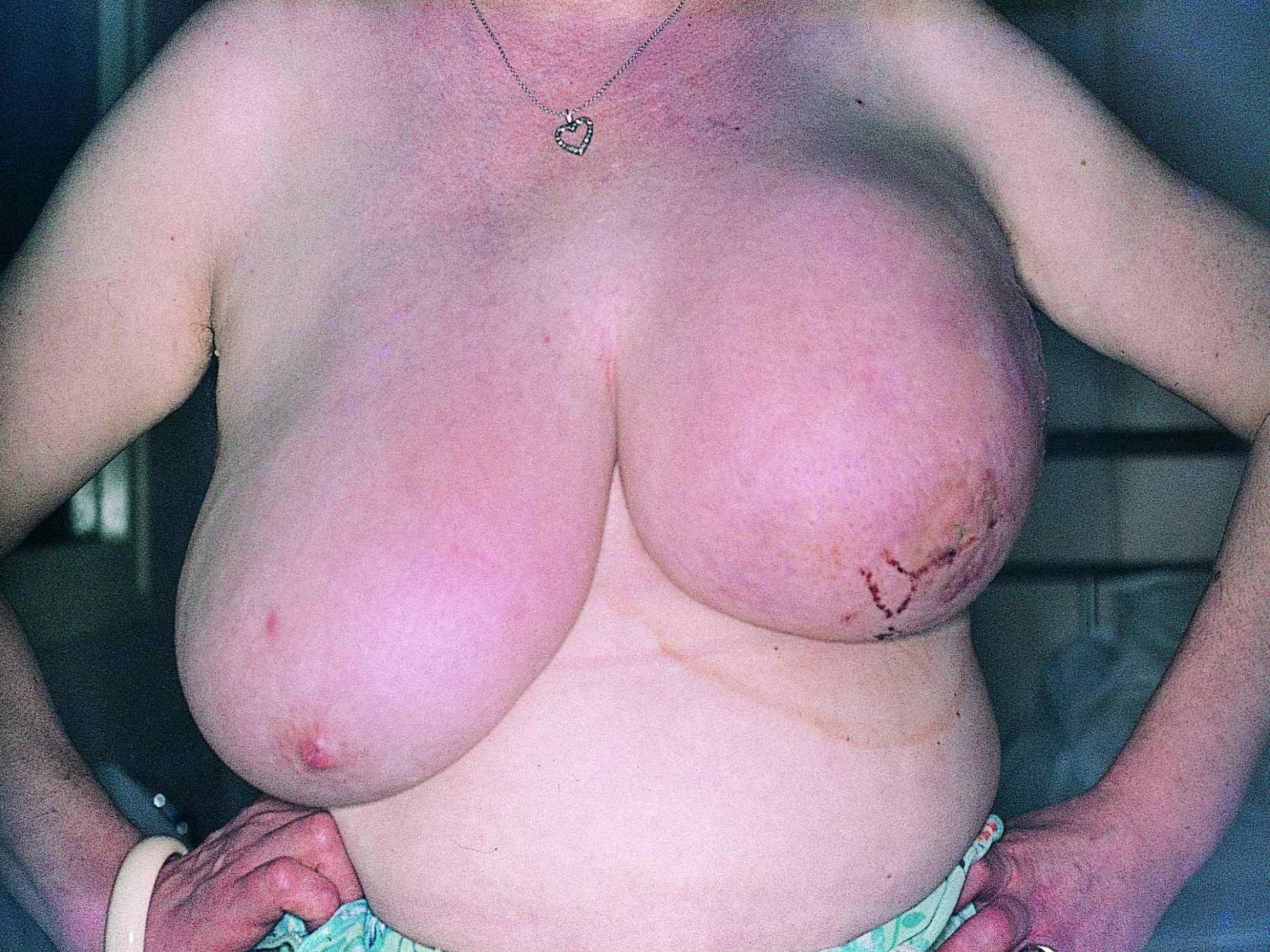
Clinical Presentation of Stage III Breast Cancer



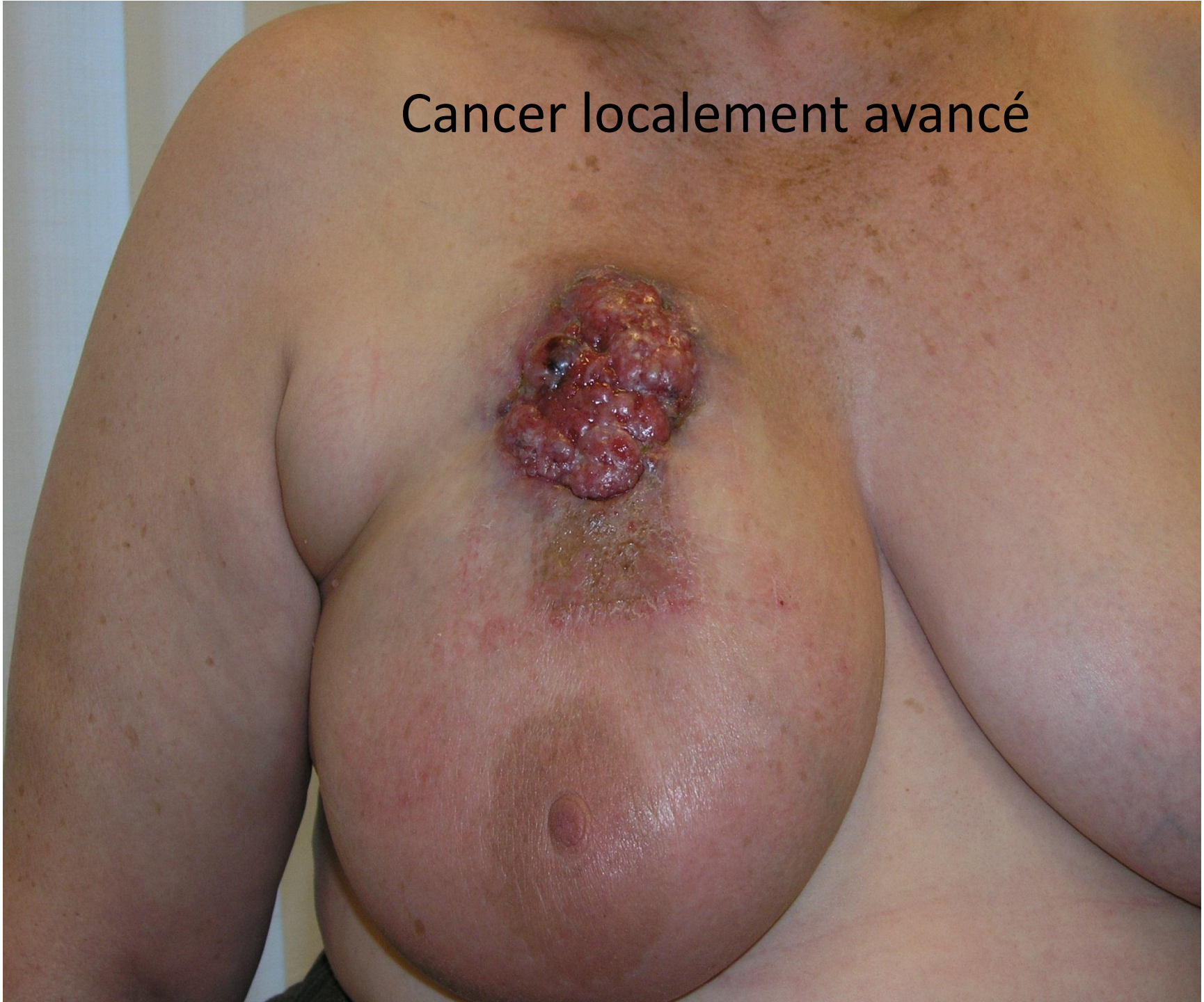
Peau d’orange

Large mass, edema, and erythema

Peau d’orange



Abcès du sein


Cancer localement avancé

TNM Staging System for Advanced Breast Cancer

T3 Tumor >5 cm

T4 Invasion of the chest wall or to the skin (inflammatory breast cancer) Edema, thickening of the skin, or ulceration of the skin or surrounding skin nodules

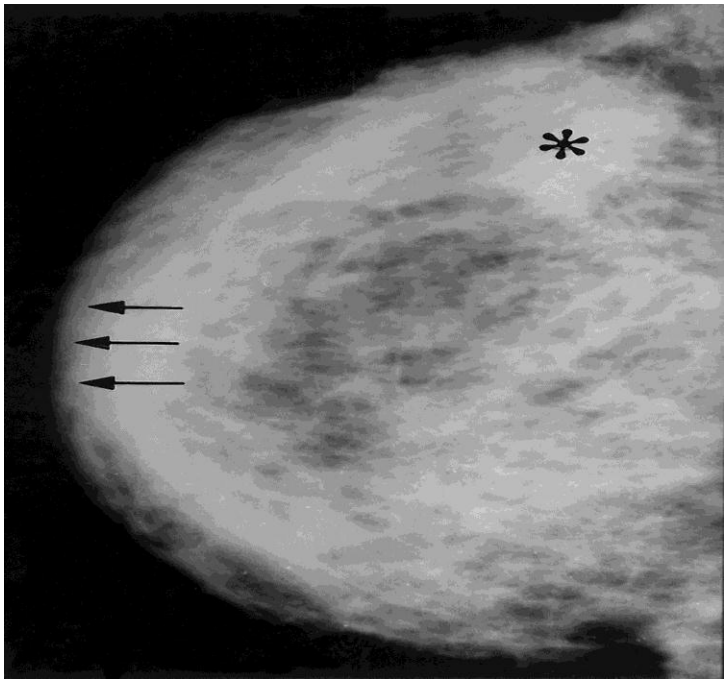
. N2 Involvement of four to nine axillary lymph nodes or of internal mammary lymph nodes without axillary node involvement.

N3 Involvement of 10 or more axillary lymph nodes or of the infraclavicular lymph nodes or of the internal mammary nodes with axillary node involvement

Mammographie

- غالباً خداع و مخيب للآمال
- سوف يظهر الثخانة الجلدية
- كثافة منتشرة تمحو التراكيب الداخلية للثدي
- العلامات الورمية الكلاسيكية (كثافة نجمية – التكلسات المجهرية

Patient 47 ans cancer inflammatoir ثخانة جلدية,وذمة , كثافة شوكية QSE ,




29 3:15PM


31 8:13AM


29 3:16PM


31 8:13AM

Malignant Diseases of the Breast

- A woman has a 1 in 8 chance of developing breast cancer at some point in her life.
- Risk factors
  - Increased age, family history, History of breast, ovary, or endometrial cancer, >30 age at first pregnancy, high socioeconomic status, nulliparity, early menarche, and late menopause
- Symptoms
  - Lumps
    - Presenting symptom in 85% of patients with carcinoma
  - Pain
    - Must completely evaluate to rule out carcinoma
  - Metastatic disease
    - Axillary nodes
    - Distant organ symptoms, such as neurological
  - Asymptomatic
    - Why we advise yearly SBE and yearly mammogram after age 50

Malignant Diseases of the Breast

- Non-invasive breast cancers
  - 10% of all types of breast cancer
  - Good prognosis
  - Ductal carcinoma in situ, lubular carcinoma in situ, and paget's disease
- Invasive breast cancers
  - Favorable histologic types (85% 5-year survival rate)
    - Tubular carcinoma (grade 1 intraductal), colloid or mucinous carcinoma, and papillary carcinoma
  - Less favorable types
    - Medullary cancer, invasive lobular cancer, and invasive ductal cancer
  - Least favorable type
    - Inflammatory breast cancer

Ductal Carcinoma in Situ

- Seen as microcalcifications on mammogram
- Confined to ductal cells.
- No invasion of the underlying basement membrane.
- Chance of recurrence 25-50% in 5 years, of these 50% will be invasive
- Tx
  - Mastectomy an option if there is a substantial risk of local/regional recurrence
  - Wide local excision and radiation reduce local recurrence to 2%
  - Wide excision alone suitable if <25mm, favorable histology, and the margins are clear
  - Node dissection not necessary (nodal disease < 1%)

Lobular Carcinoma in Situ

- Not detectable on mammography
  - Most commonly found incidentally
- Risk of invasive breast cancer in 20 years is 15-20% **bilaterally**
- **Tx**
  - Careful follow-up
  - Bilateral masectomy may be considered if other risk factors are present such as family history or prior breast cancer, and also dependent on patient preference.

Paget's Disease

- Uncommon
- Usually involves the nipple
- Histologically, vacuolated cells are seen in the epidermis of the nipple and result in an eczematous dermatitis of the nipple.
- It is generally associated with an underlying intraductal or invasive carcinoma.
  - Mammography should be performed
- About 30% of patients have axillary node metastasis at diagnosis.
- Mastectomy is the standard of treatment
  - 80% have a 10 year survival rate if there is no mass present and no axillary nodes are involved.

Invasive Breast Cancers

- Favorable histologic types (85% 5-year survival rate)
  - Tubular carcinoma (grade 1 intraductal), colloid or mucinous carcinoma, and papillary carcinoma
- Less favorable types
  - Medullary , invasive lobular, and invasive ductal carcinoma
- Least favorable type
  - Inflammatory breast carcinoma
- Staging, prognosis, and treatment

Favorable histologic types

- Tubular carcinoma
  - 2% of all invasive breast cancers
  - Generally diagnosed by mammography
  - Distinctive under microscope
  - Long-term survival aproaches 100%
- Mucinous (colloid) carcinoma
  - 3% of all invasive breast cancers
  - Generally confined to elderly population
  - Bulky, mucinous tumor with characteristic microscopic features
  - 5 and 10 year survival rates are 73 and 59 percent, respectively
- Papillary carcinoma
  - <2% of all invasive breast cancers
  - Generally presents in seventh decade, and is a slowly progressive disease
  - 5 and 10 year survival rates are 83 and 56 percent, respectively

Less Favorable Histologic Types

- Medullary carcinoma
  - 4% of all invasive breast cancers
  - Soft, hemorrhagic bulky presentation
  - Metastases to axillary nodes in 44%
- Invasive ductal carcinoma
  - Most common and occurs in 78% of all invasive breast cancers.
  - Metastases to axillary nodes in 60%
- Invasive lobular carcinoma
  - 9% of all invasive breast cancers
  - Metastases to axillary nodes in 60%
  - Higher incidence of bilaterality

Inflammatory carcinoma

- 1.5-3% of breast cancers
- Characteristic clinical features of erythema, peau d'orange, and skin ridging with or without a palpable mass.
- Commonly mistaken for cellulitis.
  - Will generally fail antibiotics before being diagnosed –
- Disease progresses rapidly, and more than 75% of patients present with palpable axillary nodes.
- Distant metastatic disease also at much higher frequency than the more common breast cancers.
- 30% 5 year survival rate
- Requires chemotherapy treatment immediately

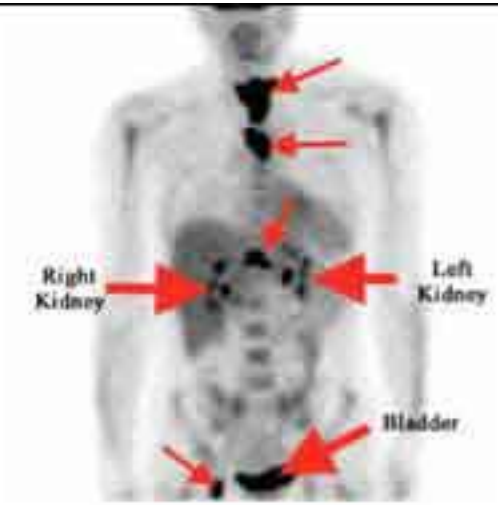
Staging and Prognosis

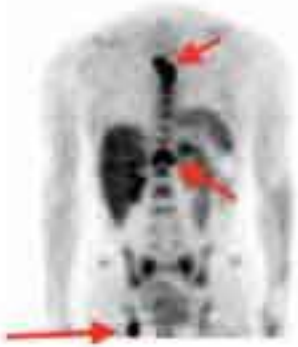
- Primary Tumor
  - T1 = Tumor < 2 cm. in greatest dimension
  - T2 = Tumor > 2 cm. but < 5 cm.
  - T3 = Tumor > 5 cm. in greatest dimension
  - T4 = Tumor of any size with direct extension to chest wall or skin
- Regional Lymph Nodes
  - N0 = No palpable axillary nodes
  - N1 = Metastases to movable axillary nodes
  - N2 = Metastases to fixed, matted axillary nodes
- Distant Metastases
  - M0 = No distant metastases
  - M1 = Distant metastases including ipsilateral supraclavicular nodes
- Clinical Staging and prognosis

Clinical Stage I	T1	N0	M0	Stage	Prognosis (5 year surv. Rate)
Clinical Stage IIA	T1	N1	M0	I	93%
	T2	N0	M0	II	72%
Clinical Stage IIB	T2	N1	M0	III	41%

BREAST CANCER IN MEN

- 1% of all cases of breast cancer
- Average onset 60 years of age
- Risk factors: hx of mumps orchitis, Klinefelter's syndrome
- Symptoms can include:
  - Hard, nonpainful, subareolar lesion
  - Nipple erosion, retraction, or discharge (75% have Ca)
- Treatment: modified radical mastectomy with radiation
  - 5 year survival rates are only 58% in Stage 1

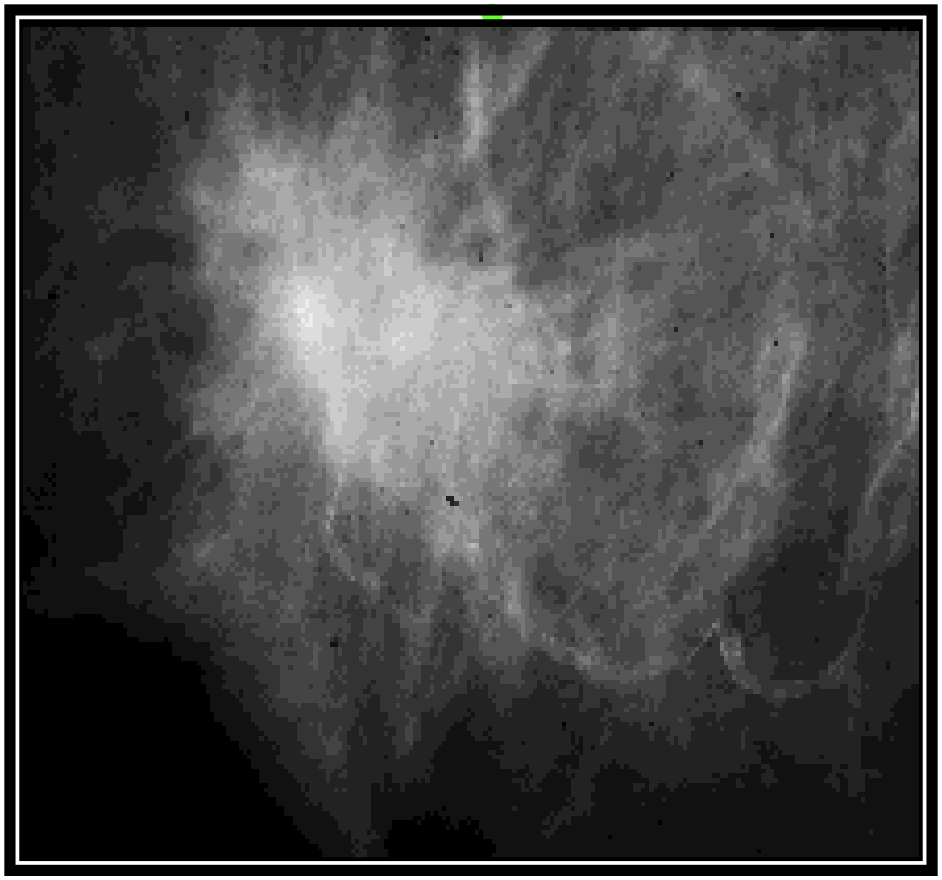




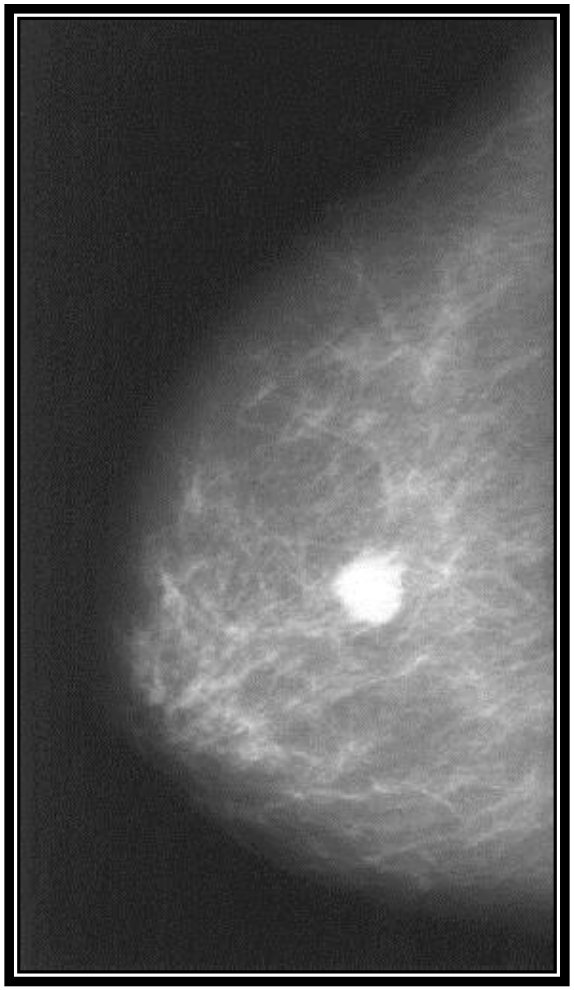
PET Scan in patient with breast cancer that has spread to bones.
Thin arrows show abnormal sites of uptake in spine and lower right pelvis.
Thick arrows show normal PET scan apperance of right & left kidney as well as bladder

Spiculated margins

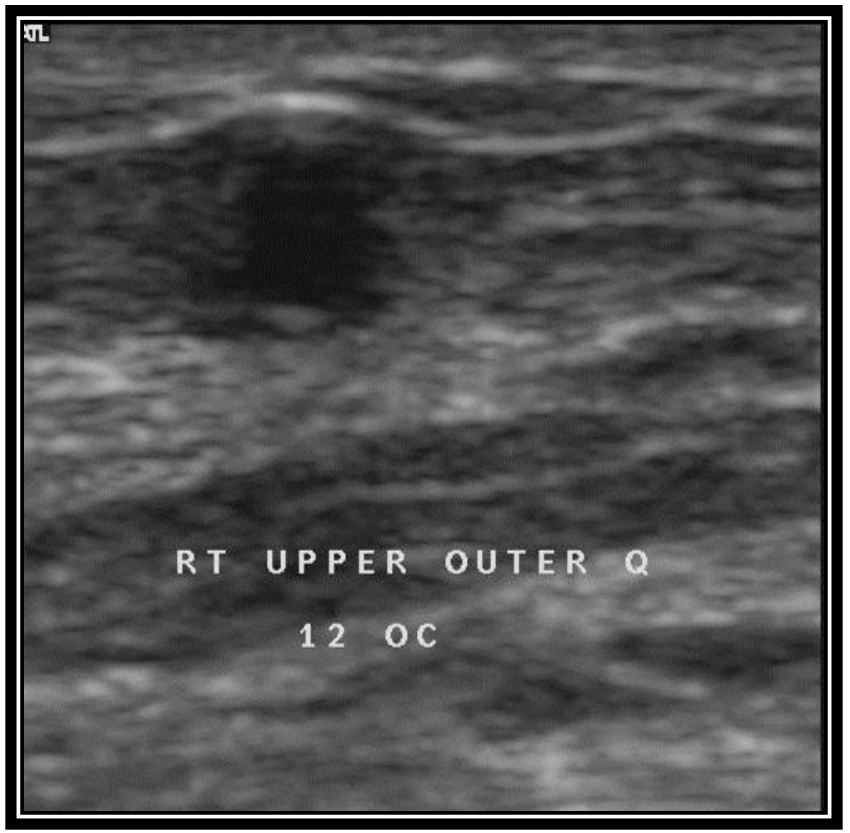
(suggestive of malignancy, biopsy should be considered):



Spiculated Mass



Irregular shape

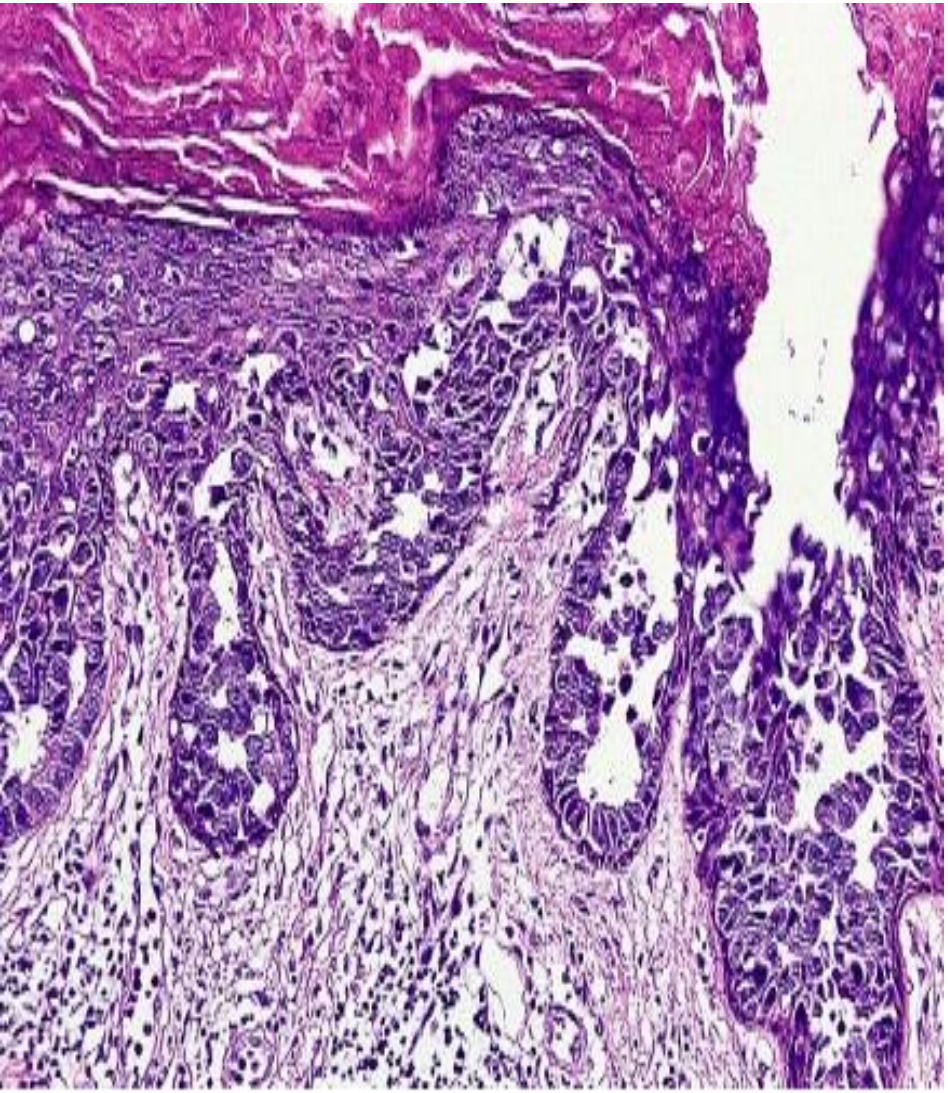


CLASSIFICATION OF BREAST CARCINOMA

Distribution of Histologic Types of Breast Cancer	
Types	Percentages
Carcinoma In-situ	15- 30%
DCIS	80%
LCIS	20%
Invasive carcinoma	70- 85%
IDC- NOS	79%
Lobular carcinoma	10%
Tubular/cribriform carcinoma	6%
Mucinous (colloid) carcinoma	2
Medullary carcinoma	2
Papillary carcinoma	2
Metaplastic carcinoma	< 1

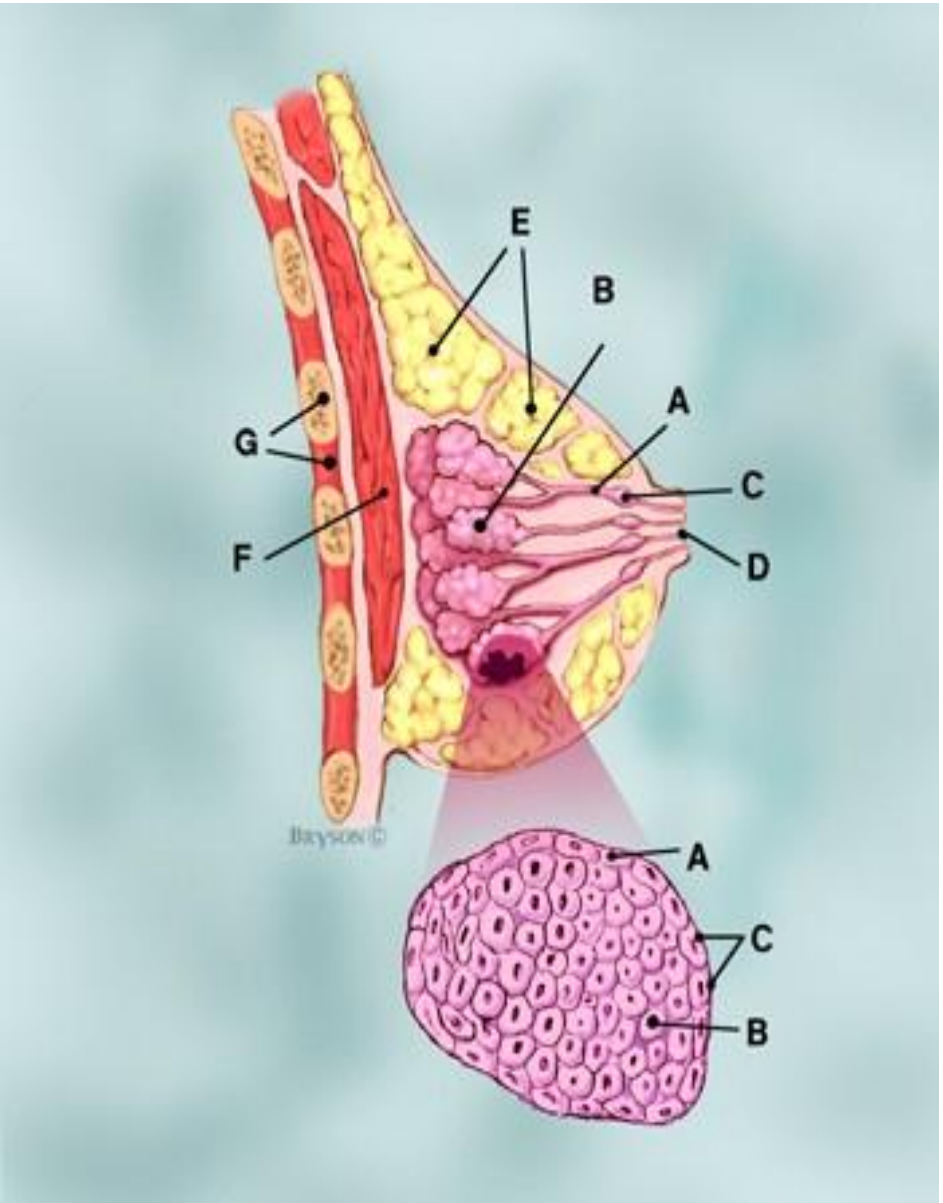
Paget's disease

DCIS-Epidermal



erythematous&scales

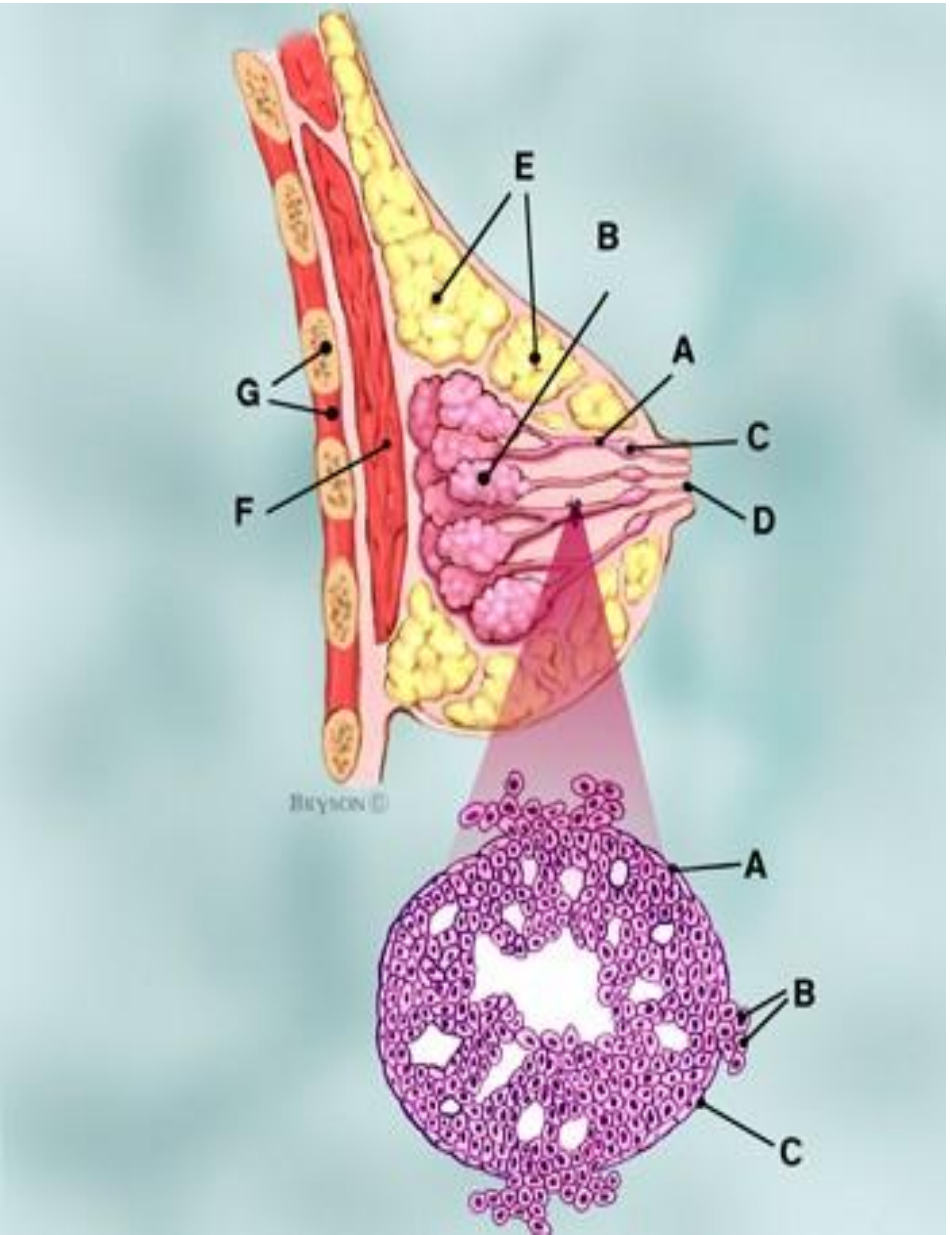
Lobular carcinoma in situ(LCIS)



- Breast Lobular system
- 1 to 6% of all ca.
- Bilateral 20%
- No calcification

- Cancer cells, but all contained within the lobules
- - BM intact
- - ER+PR positive, her2 is negative

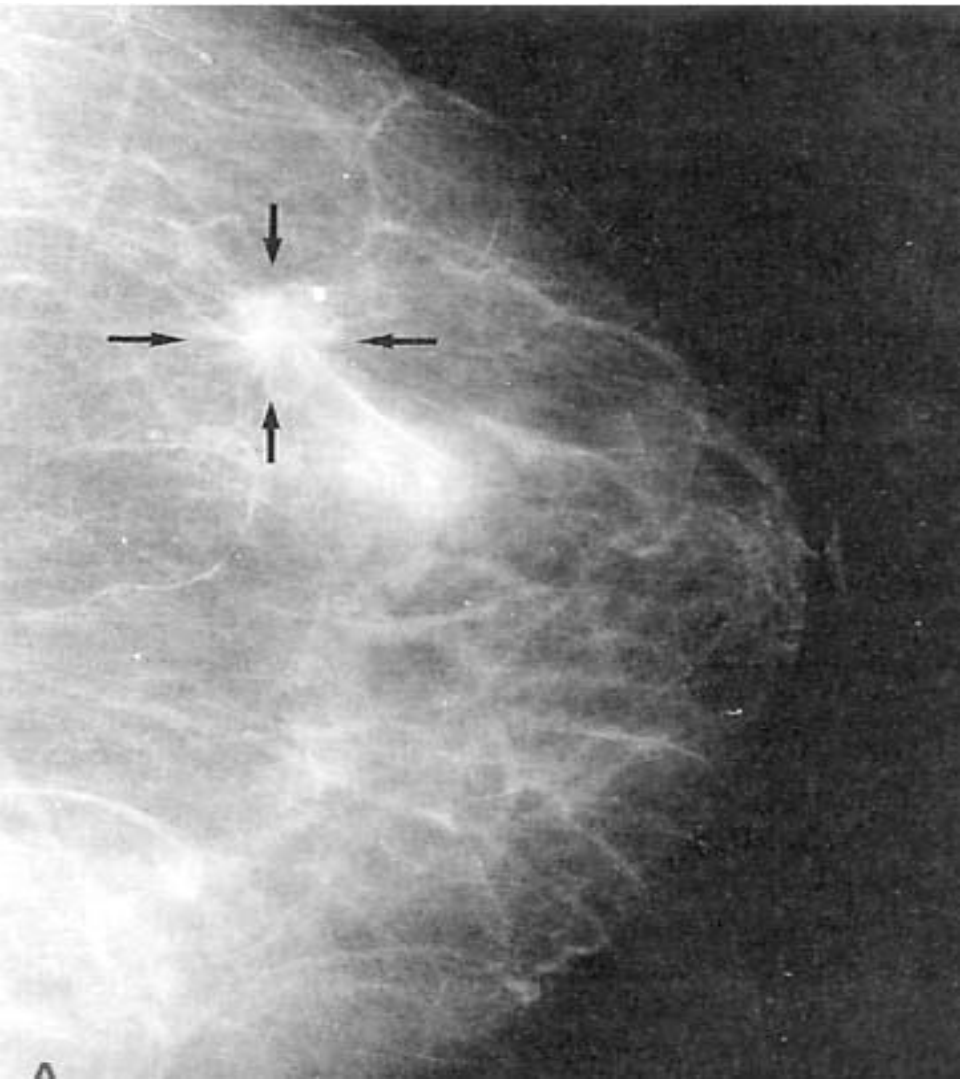
Invasive ductal carcinoma IDC

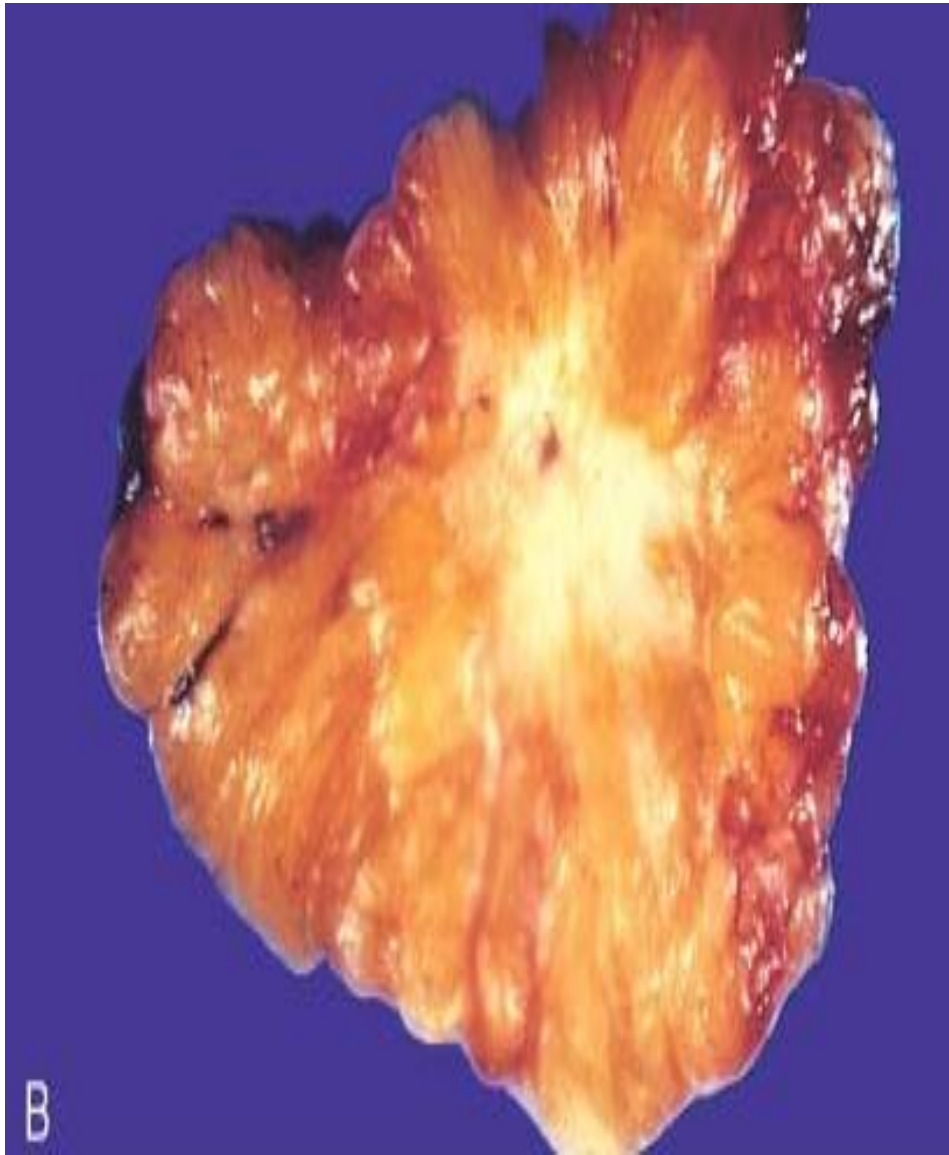


- A. Duct System.
- B. irregular border, firm
- C. ***Peau d'orange app***
- (skin changes-tethering)
- D. +\- % LN metas. +

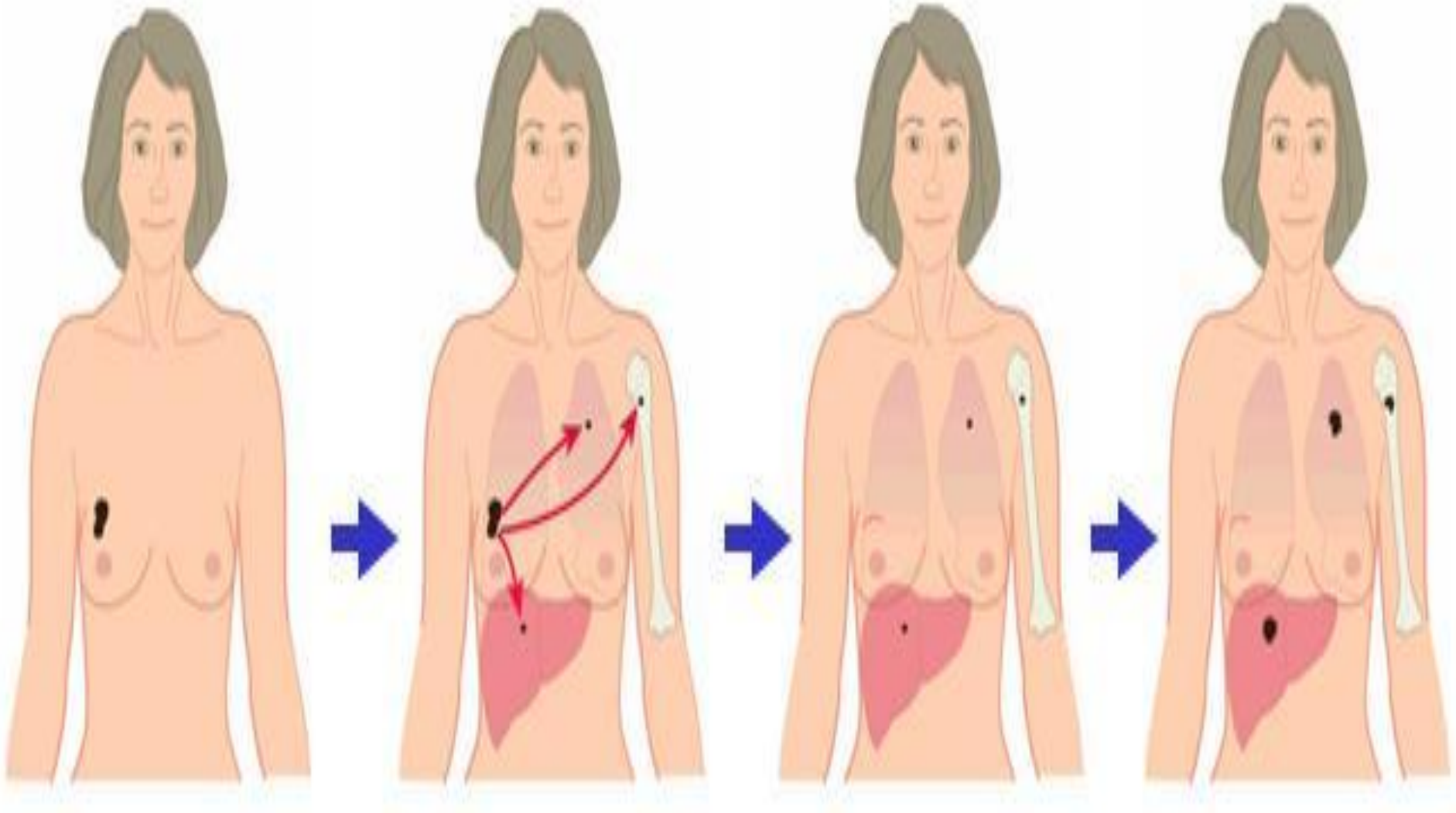
Invasive ductal carcinoma

tumor with irregular border + calcifiacation, margins





Metastatic breast cancer-IDC



Signs and Symptoms

lump or mass
Often painless

Lump in breast or underarm area

nange in size or shape of breast

arge or bleeding from the nipple

Discharg e or bleeding

Nipple nges

Crusting

Inversion

Change in size or contours of breast

Redness or pitting of skin over the breast, like the skin of an orange

Change in color or of areola apperance

BI-RADS (TM) Assessment Categories
BI-RADS 3

Surveillance mammography VS biopsy

Mass:

- sharp and regular margins; focal asymmetry
- multiple opacities

Microcalcifications:

- regular
- diffuse microcalcification

BI-RADS™ Assessment Categories

BI-RADS 0 Need Additional Imaging Evaluation -

BI-RADS 1 Negative-

BI-RADS 2 Benign finding-

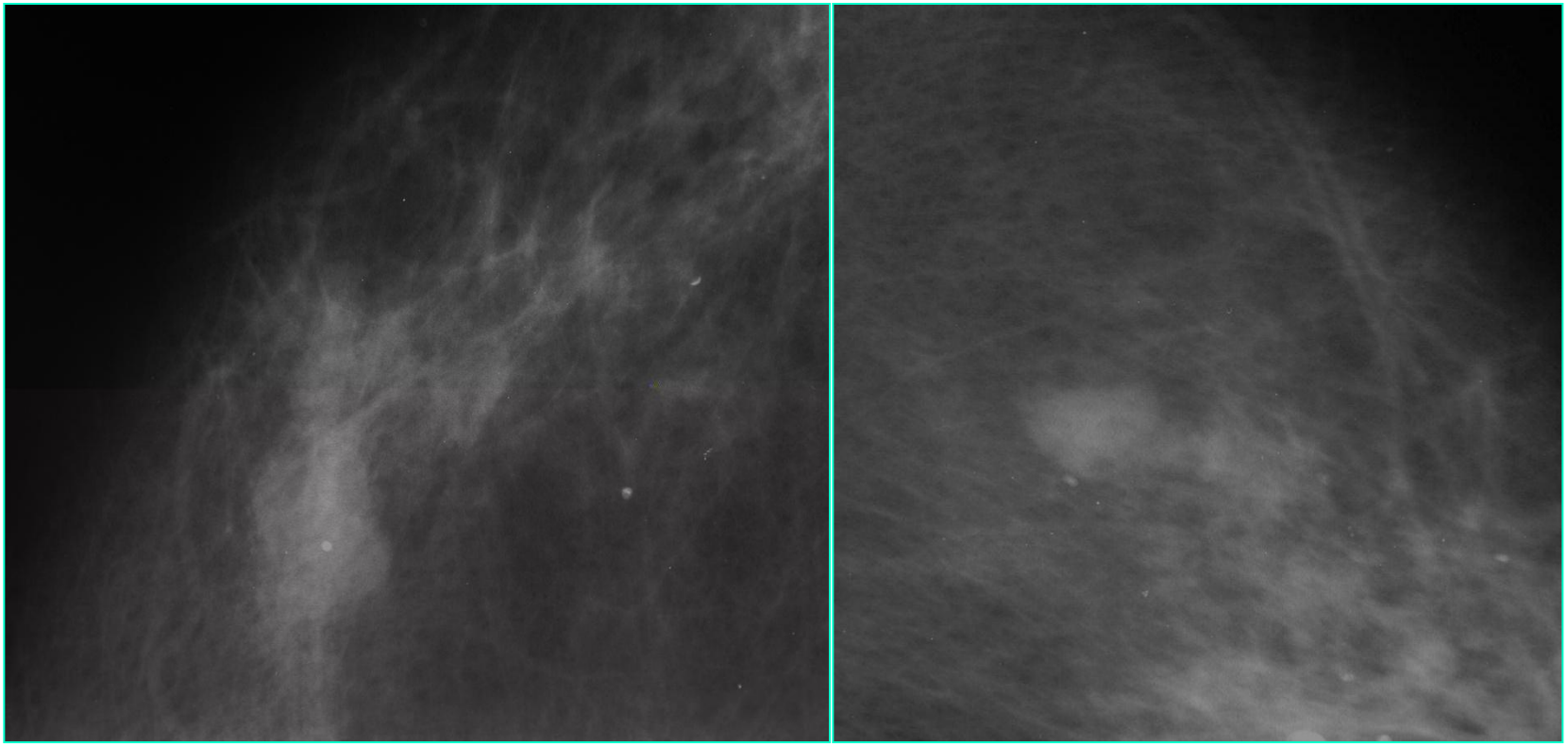
BI-RADS 3 Probably Benign Finding -" Short Interval Follow-Up - Suggested

BI-RADS 4 Suspicious Abnormality -" Biopsy Should Be Considered -

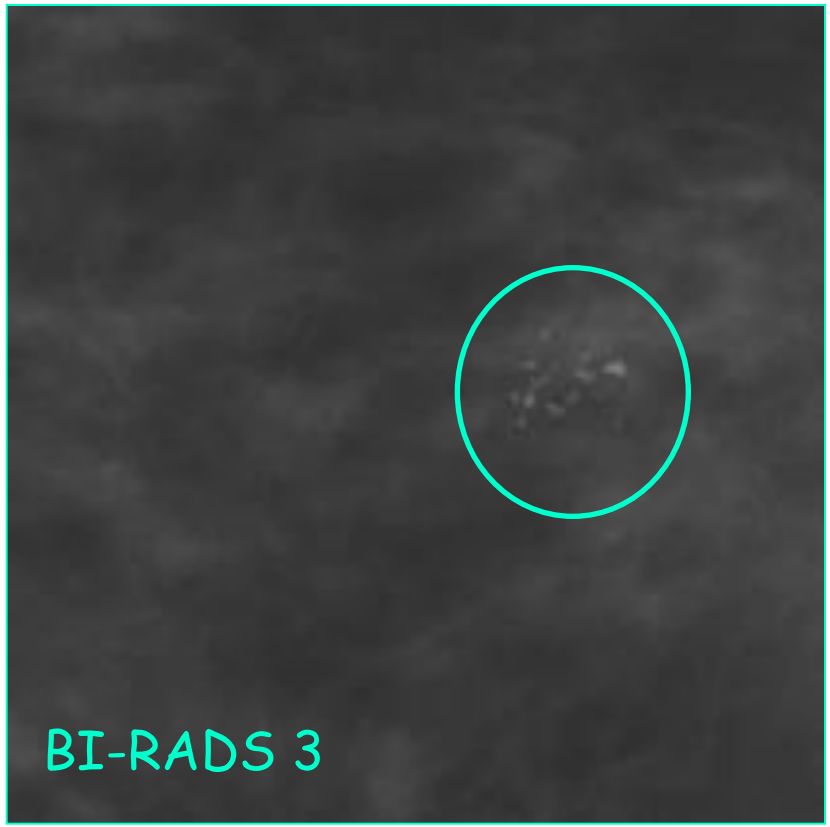
BI-RADS 5 Highly Suggestive of Malignancy -" Appropriate Action - Should Be Taken

BI-RADS 6 Histologically proven malignancy-

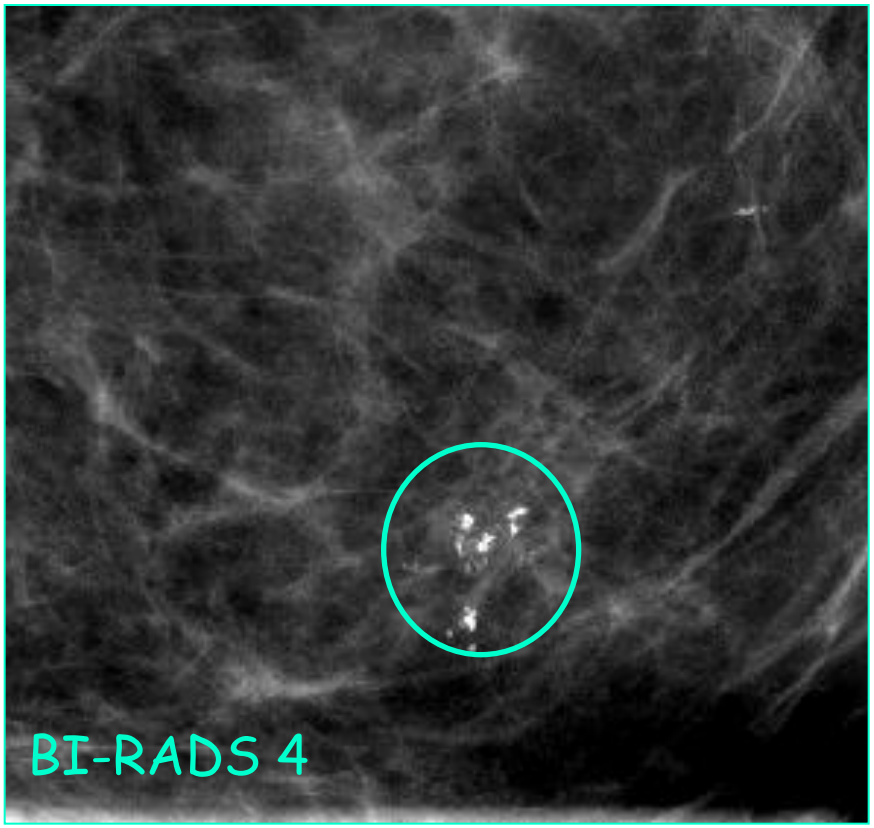
BI-RADS (TM) Assessment Categories
BI-RADS 3



BI-RADS (TM) Assessment Categories
BI-RADS 3

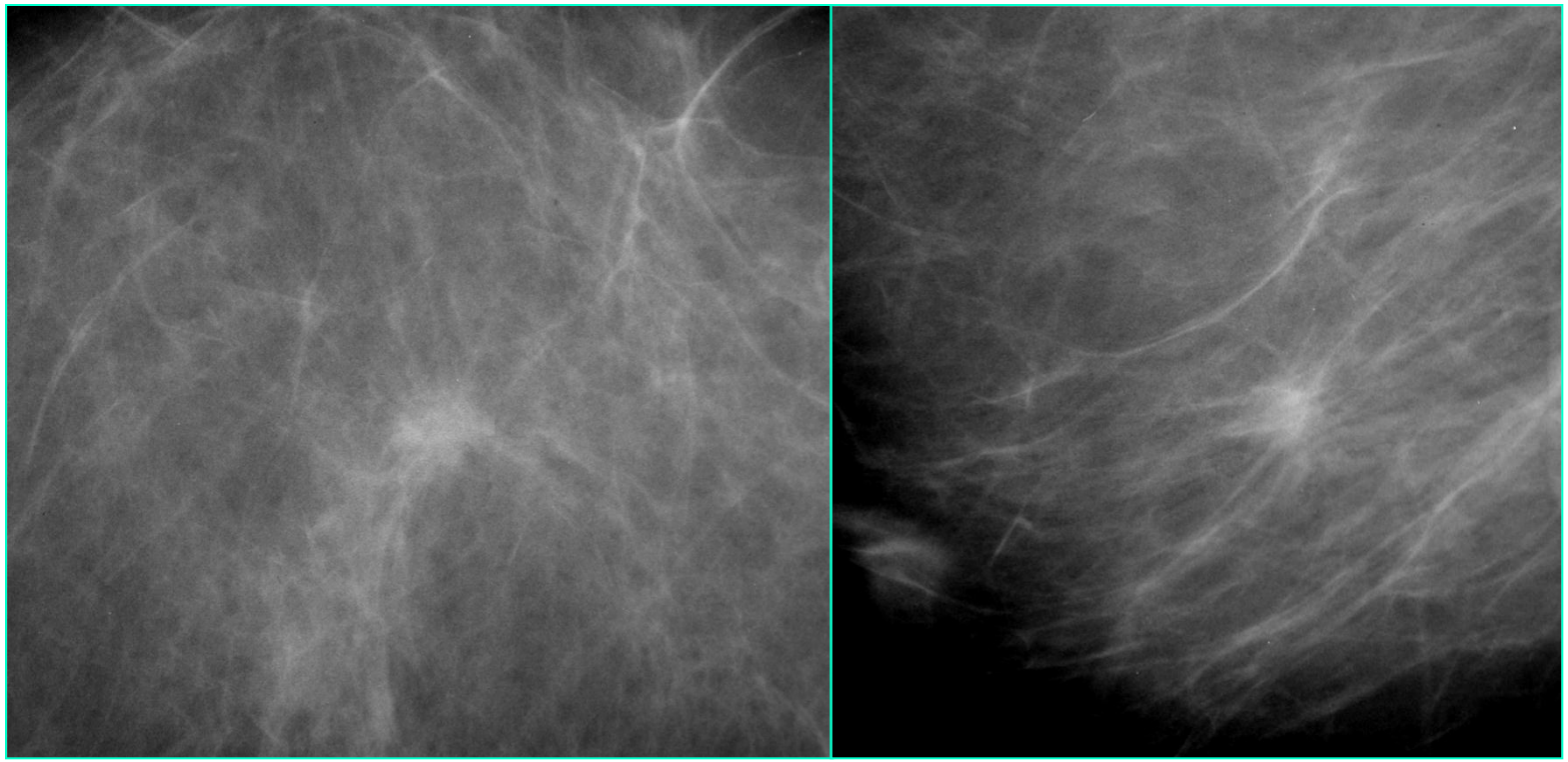


BI-RADS (TM) Assessment Categories
BI-RADS 4



DCIS

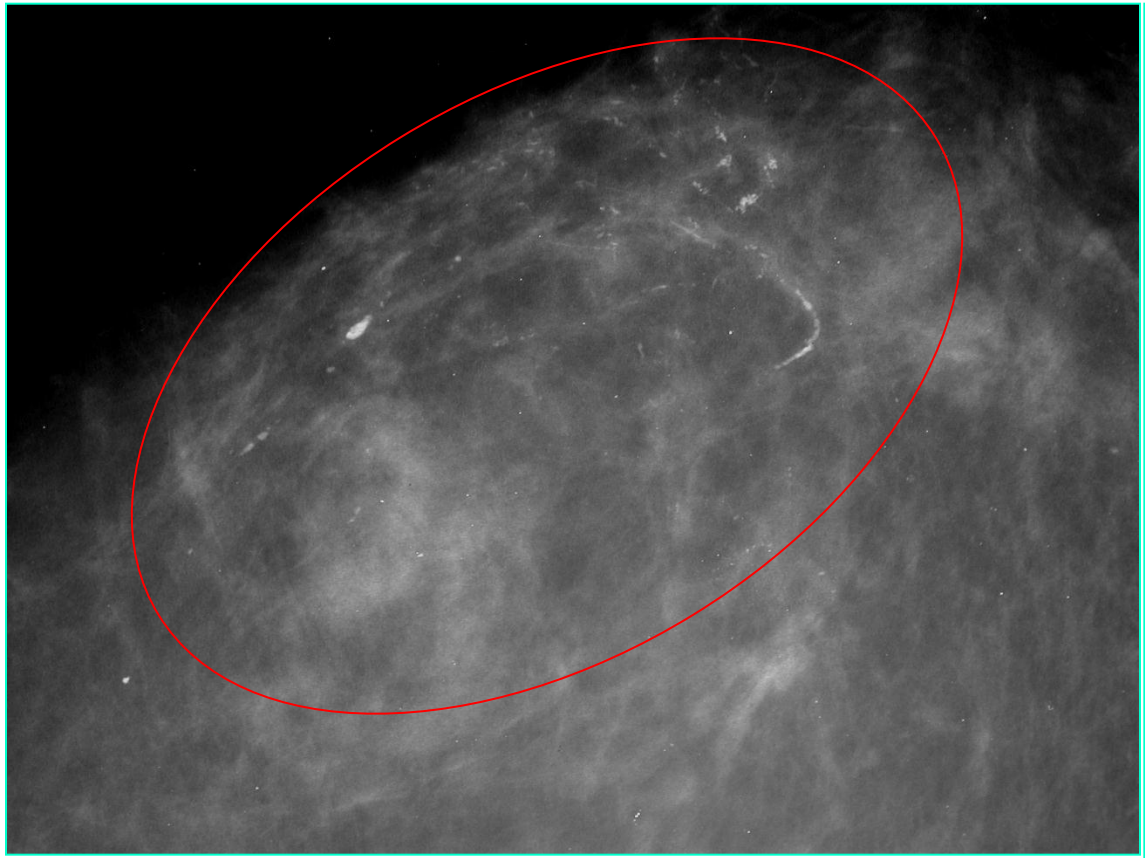
BI-RADS (TM) Assessment Categories
BI-RADS 5

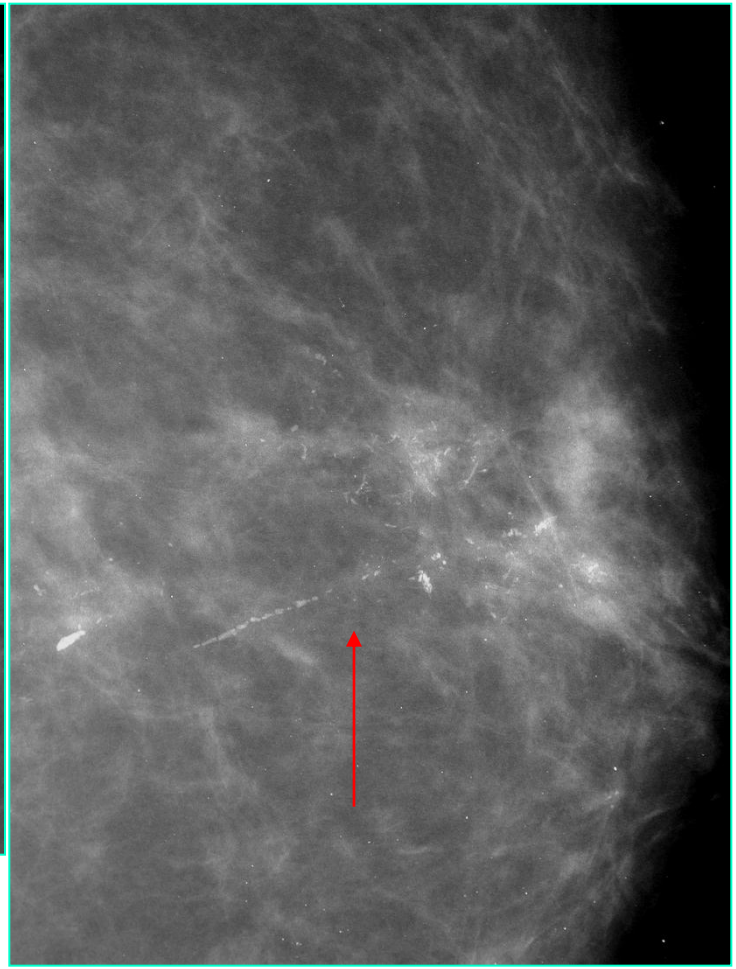


Invasive Ductal Carcinoma pT1b pNo

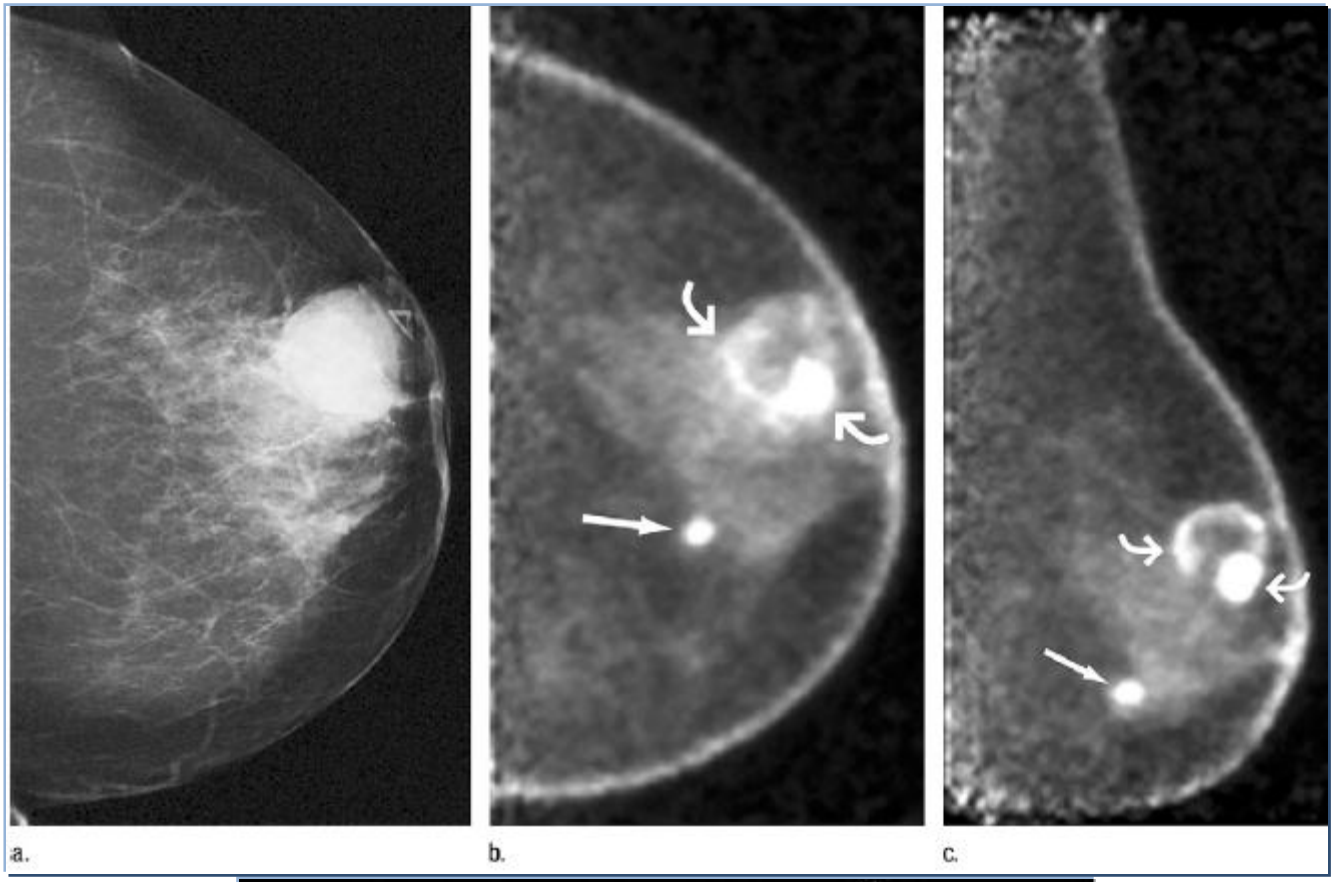
BI-RADS (TM) Assessment Categories

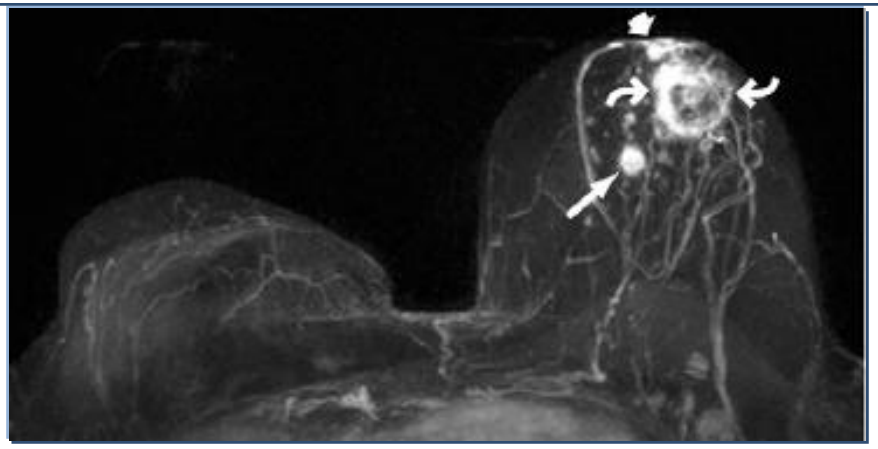
BI-RADS 5





DCIS





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BI-RADS (TM) Assessment Categories
BI-RADS 4-5

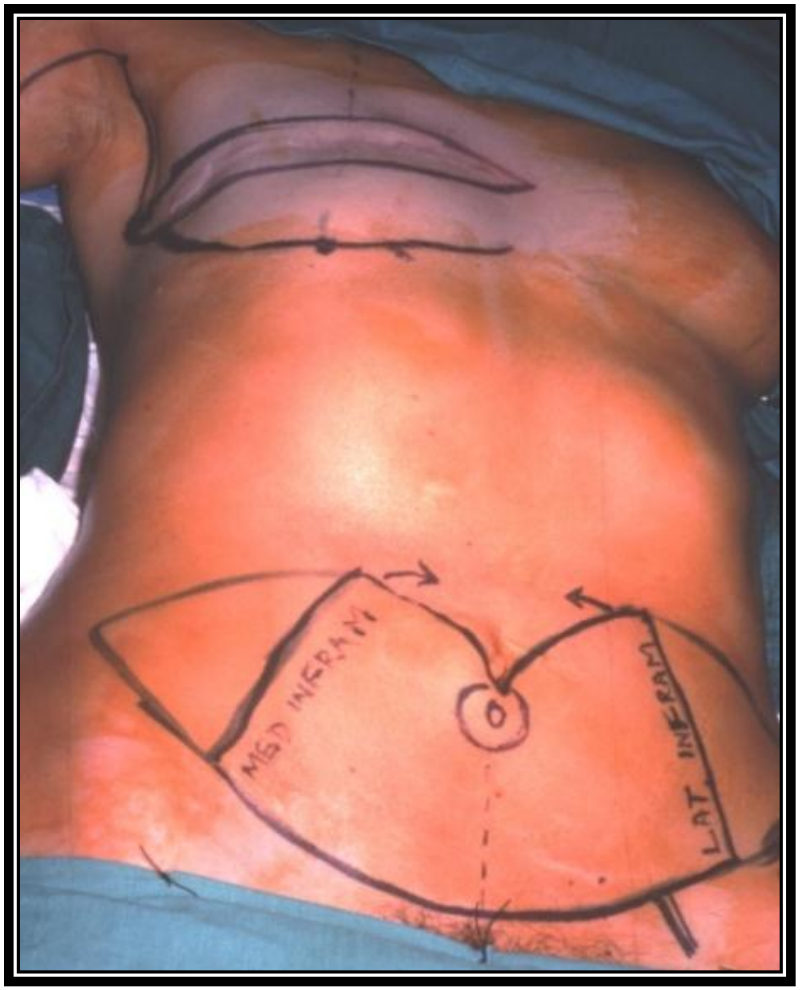
Mass:

- spiculated margins
- ill defined

Microcalcifications:

Fine, linear, branching (casti

segmental or linear distribut


MED INFRA
LAT INFRA

External breast prosthesis - specially designed padding available in different sizes, shapes and colours

A tissue expander is inserted after the mastectomy to prepare for reconstruction

The expander is gradually filled with saline to stretch the skin enough to accept an implant beneath the chest muscle

A patient with a tissue expander following a mastectomy.

Nutrition Guidelines

- Eat a variety of healthful foods, with an emphasis on plant sources.
- Adopt a physically active lifestyle.
- Maintain a healthful weight throughout life.
- If you drink alcoholic beverages, limit consumpti

American Cancer Society®

Types of Breast Cancer

- Estrogen Positive/ Progesterone Positive Breast Cancer
- Triple Negative Breast Cancer
- Here 2 neue Positive Breast Cancer
- Inflammatory Breast Cancer
- Phyllodus Tumor

Triple-Negative Breast Cancer

- "Triple negative" (10-17% breast cancers) because they lack estrogen and progesterone receptors and do not overexpress the HER2 protein. The majority of breast cancers associated with the breast cancer gene known as BRCA1 are triple negative.
- These cancers generally respond well to adjuvant chemotherapy. Overall, however, they have a poorer prognosis than other types of breast cancer. So far, no targeted therapies like tamoxifen or Herceptin have been developed to help prevent recurrence in women with triple-negative breast cancer.
- Triple negative breast cancer is more likely to affect younger people, African Americans, and those with a BRCA1 gene mutation.

Question

22 yo female presents with a new right breast mass. Complains of mild tenderness. No other complaints. On physical exam, there is a 1 cm nodule at the 2:00 position. Your diagnostic test of choice is….

- Mammogram –
- Ultrasound –
- Excisional biopsy –
- Incisional biopsy –

Question

- 34 yo female referred to you for evaluation of breast pain. The pain is burning and sharp in nature. Always present. On physical exam, dense glandular tissue bilaterally. Your working diagnosis is….

  Cyclical breast pain –

  Noncyclical breast pain –

  cancer –

Clinical Classification of Axillary lymph nodes

Question

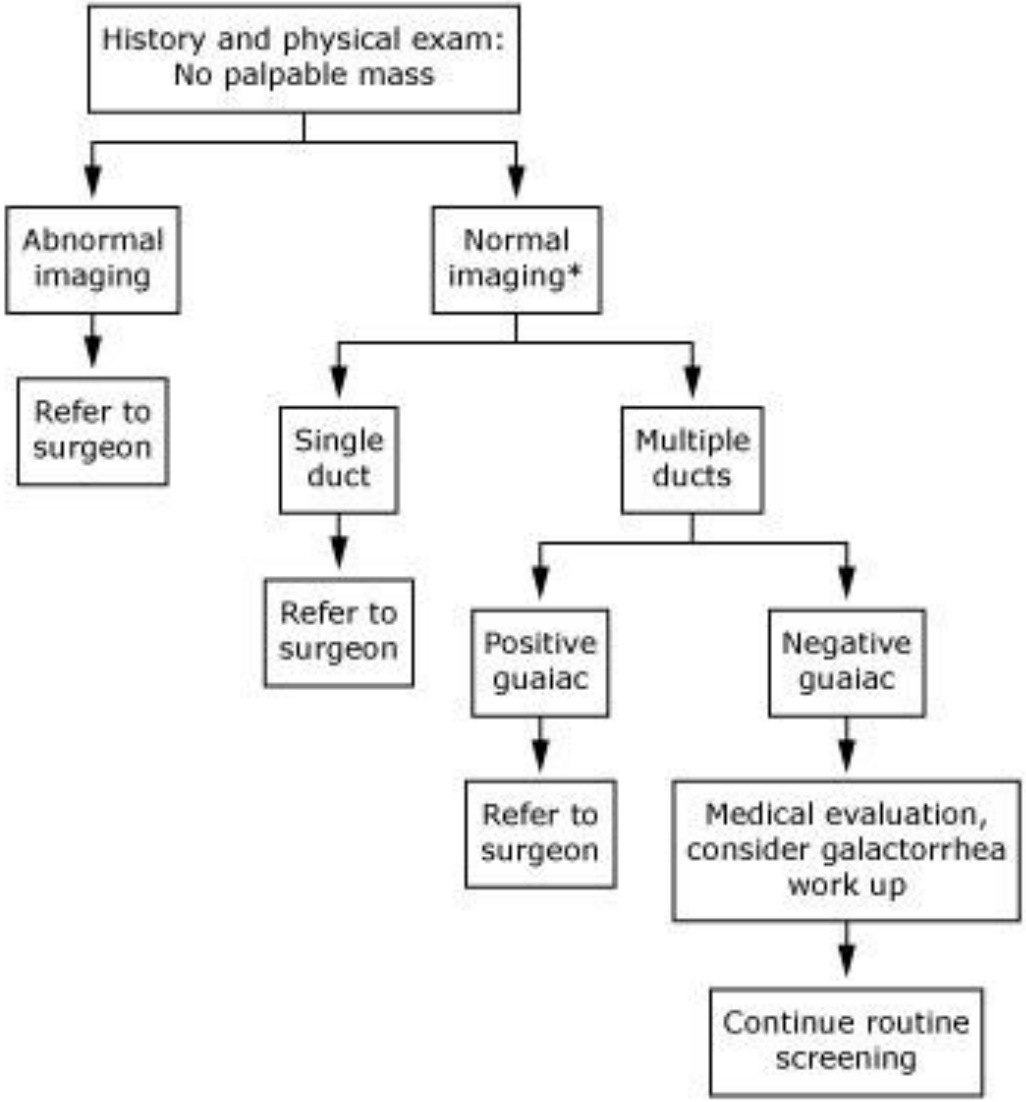
in relation to pec. minor

- Level 1
- Level 2
- Level 3

Axillary lymph nodes are classified accordingly to the relationship with the

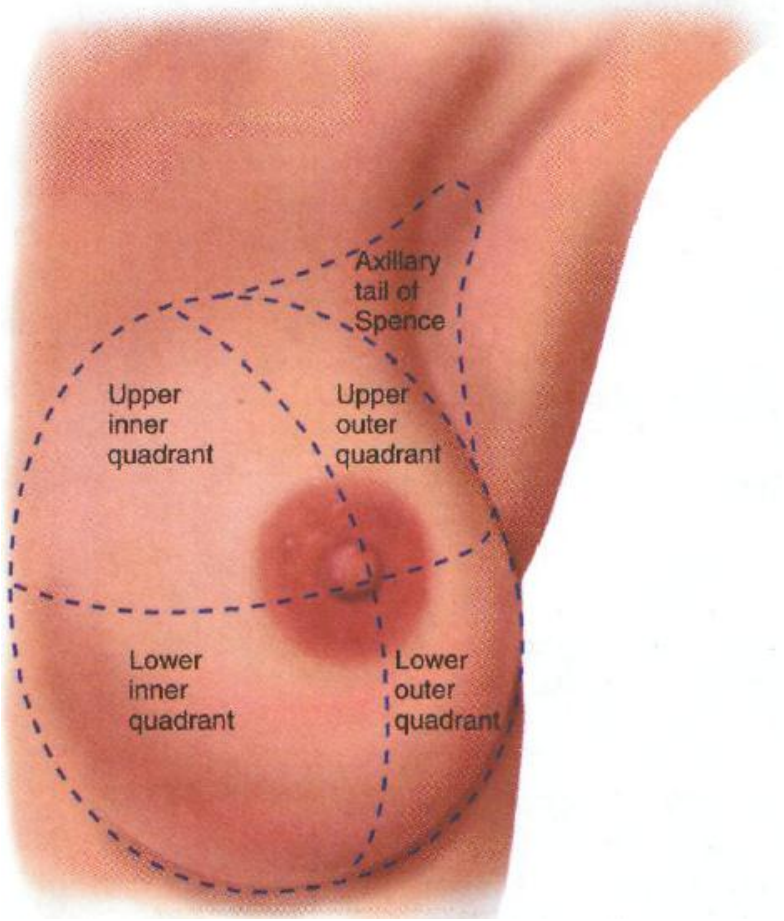
Axillary vein
Pec.major
Pec.minor
Latissimus dorsi
Serratus anterior

Algorithm for management of spontaneous nipple discharge (non-lactating)

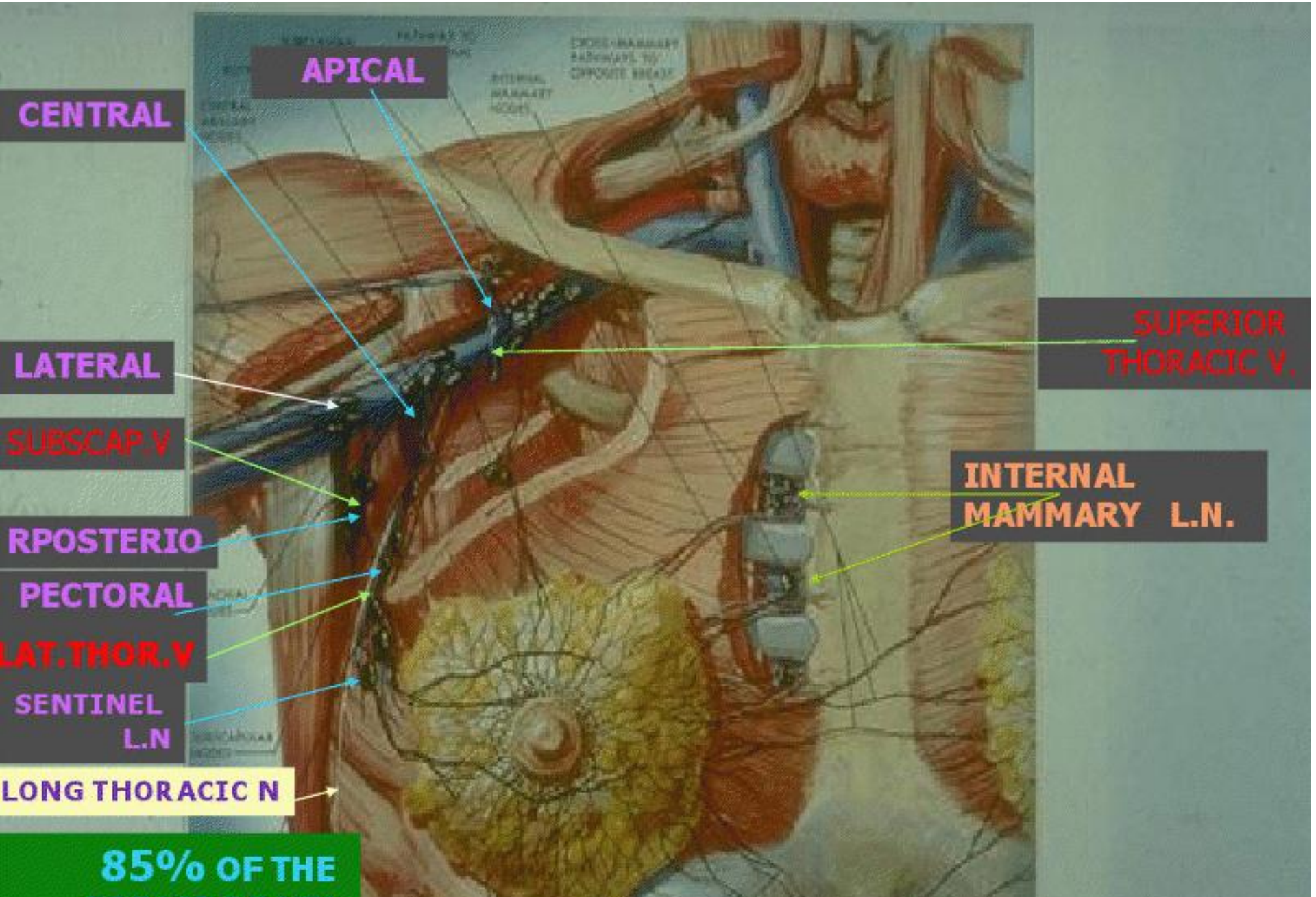


* Breast ultrasound is recommended for imaging all patients with nipple discharge. Mammograms are recommended for women ≥ age 30.

Topography of Breast



- 4 quadrants to describe clinical findings
- The upper outer quadrent is the site of most breast tumors


APICAL
CENTRAL
LATERAL
SUBSCAP.V
RPOSTERIO
PECTORAL
LAT.THOR.V
SENTINEL
L.N
LONG THORACIC N
SUPERIOR
THORACIC V.
INTERNAL
MAMMARY L.N.
85% OF THE

WHEN TO CALL YOUR DOCTOR?

CHANGE IN HOW THE NIPPLE LOOKS, LIKE PULLING IN OF THE NIPPLE

SKIN DIMPLING

CHANGE IN SKIN COLOUR OR TEXTURE

LUMP

CLEAR OR BLOODY FLUID THAT LEAKS OUT OF THE NIPPLE

Mastalgia: Mastitis

- Presentation
  - Usually seen in breastfeeding mothers
  - Unilateral, swollen, wedge-shaped area of breast
  - Pain, redness, induration (hardening)
  - Systemic symptoms (high fever, malaise, chills)

- Treatment
  - Rest, fluids
  - **Dicloxicllin** 500mg QID x 10-14d
  - Continue frequent breast feeding