Mammography

Patient History and Breast Pathology

MRT Program

Screening Vs Diagnostic Mammography

- The frequency that women should undergo screening mammography depends on age and personal risk of developing cancer
- Current recommendations are all women older than 40 should have annual exams and do so as long as they are healthy
- High risk patients should consider beginning screening at an earlier age
- Screening takes 15 minutes and fairly simple procedure for patients asymptomatic

Screening vs Diagnostic

- Screening has shown early detection is essential for reducing mortality
- Patients with clinical evidence of significant or potentially significant breast disease would undergo a diagnostic mammogram and subsequent work up
- Diagnostic studies are problem solving exams utilizing specific projections obtained to rule out cancer or show a suspicious lesion seen on routine screening.
- Ultrasound may be used as well to make diagnosis

Diagnostic

- Most diagnostic mammograms conclude with probable benign findings, some are asked to return in 3 or 6 months to assess interval changes
- Some may meet with surgeon for fine needle aspiration, core biopsy or excisional biopsy.
- Mammography is excellent test tool for detection but does not permit diagnosis
- Pathologist diagnoses with tissue extracted.
- Radiologist determines whether core biopsy or if surgical intervention is required

Patient History

- Very important to establish an accurate detailed account of patient history
- Enable technologist to establish breast classification which affects technical factors, amount of compression and also if previous findings have been identified.
- Can also identify risk factors associated with this patient
- Important communication tool between referring physician, technologist and radiologist

Patient History Form

Last name: _____ First: _____ MI ____

Street : _____ City: _____ Prov: _____

Postal Code: _____ Birth date: ___ / ___ / _____ Age: _____ PHN: _____

Home Phone: (____) ____ - _____ Office Phone: (____) ____ - _____ x _____

Referring Doctor: _____

Had a mammogram before? Y N

When: ____/____/_____ Where: _____

Reason for today's visit: Regular Check-up

(L=Left, R=Right) Breast Pain L R Breast Lump L R

Nipple Inversion L R Nipple Discharge L R

Skin Changes L R Other _____

Your Personal Cancer History – circle those applicable:

Breast cancer? Gynecological cancer (ovarian/uterine)? Other Cancers?

Patient's History:

Date of Last Period: ____/____/_____ (dd/mm/yyyy)

Pregnant?: Y N Are you post-menopausal?: Y N Age: _____

Hysterectomy?: Y N Age: _____ Ovaries Removed?: Y N Age: _____

Tamoxifen?: Age last used _____ Number of years _____

Hormone Replacement Therapy?: Age last used _____ Number of years _____

DATE PRINTED:

KNOWN PATIENT DATA
Age: 0

KNOWN REFERRING DOCTOR

KNOWN MEDICAL HISTORY

KNOWN RISK FACTORS

PREVIOUS KNOWN BREAST PROCEDURES

Your Personal Cancer History – circle those applicable:

Breast cancer? Gynecological cancer (ovarian/uterine)? Other Cancers?

Patient's History:

Date of Last Period:____/____/_____ (dd/mm/yyyy)

Pregnant?: Y N Are you post-menopausal?: Y N Age:_____

Hysterectomy?: Y N Age:_____ Ovaries Removed?: Y N Age:_____

Tamoxifen?: Age last used_____ Number of years _____

Hormone Replacement Therapy?: Age last used_____ Number of years _____

Breast Procedures- Insert age and Circle L=left, R=right:

Biopsy	____ L R	Cyst aspiration	____ L R	Ultrasound	____ L R
Ductography	____ L R	Lumpectomy	____ L R	Mastectomy	____ L R
Radiation therapy	____ L R	Reduction	____ L R	Chemotherapy	____
Implant	____ L R	Other_____			

Family History of Breast Cancer – pick one:

No family history

Aunt, grandmother or cousin

Mother or sister after age 50

Mother, sister or multiple first-degree relatives before age 50

PREVIOUS KNOWN BREAST PROCEDURES

Diagram Below For Technologist Use Only:



Pathologic and Mammographic Findings

- Numerous radiographic findings benign or malignant can be evident within breast tissue on any mammogram
- Distinguishing characteristics of a finding is the main function of mammography
- Radiologist can determine probability of malignancy
- Biopsy may be required of the lesion
- May be benign
- Or area should be monitored carefully for indications of change.

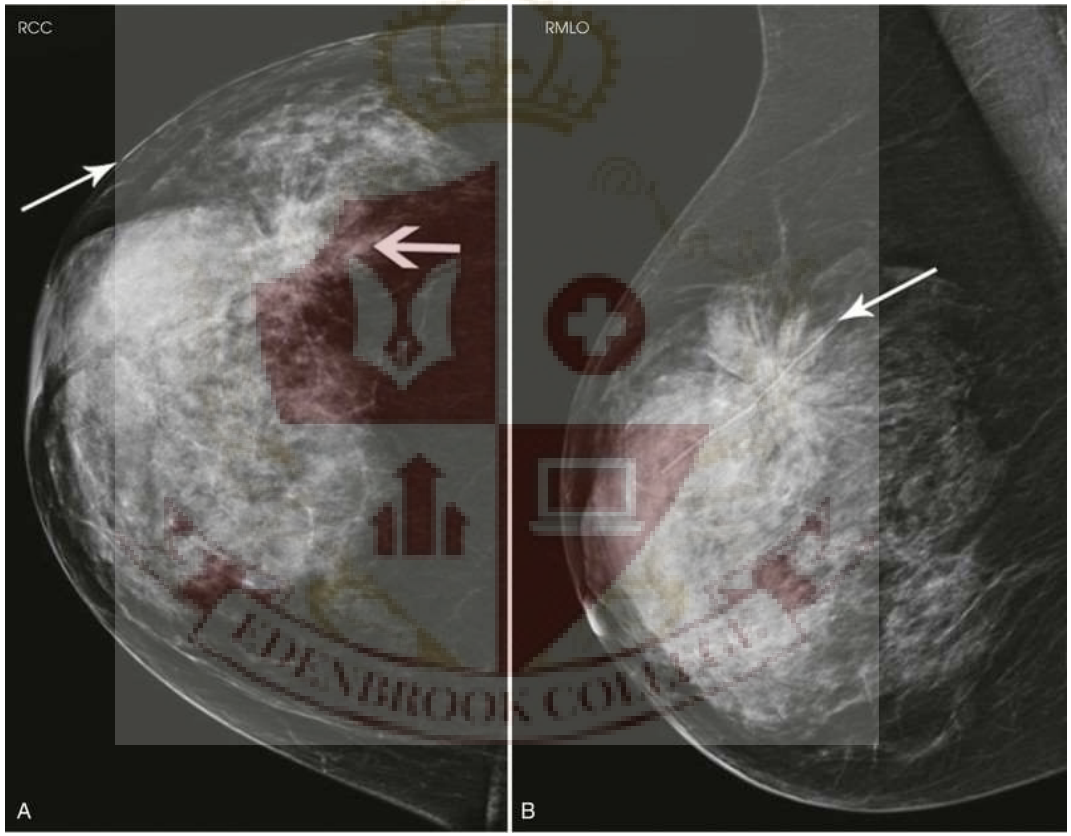
Masses

- Categorized by shape, margins and radiographic density
- Shape descriptors include round, oval, lobular or irregular
- Round or oval indicate benign such as a cyst or a lymph node
- Irregular shaped indicates malignancy or indication of trauma
- Important to do a thorough patient history

Masses

- The margins and borders are described as circumscribed, microlobulated, obscured, indistinct, or spiculated
- Marin characteristic aid clinician to predict malignant versus benign
- If border is well defined likely t be benign
- If obscured, ill defined, indistinct margins are suspicious a spiculated mass is of concern
- Microlobulated masses have 50 % chance of being malignant
- Post biopsy scarring may appear as a mass so again accurate patient history is required

Post Biopsy Scarring



Masses

- Examples of benign or spiculated lesions include radial scar, fat necrosis, breast abscess and sclerosing adenosis
- Examples of benign circumscribed masses include fibroadenoma cysts, intramammary lymph node, and hematoma

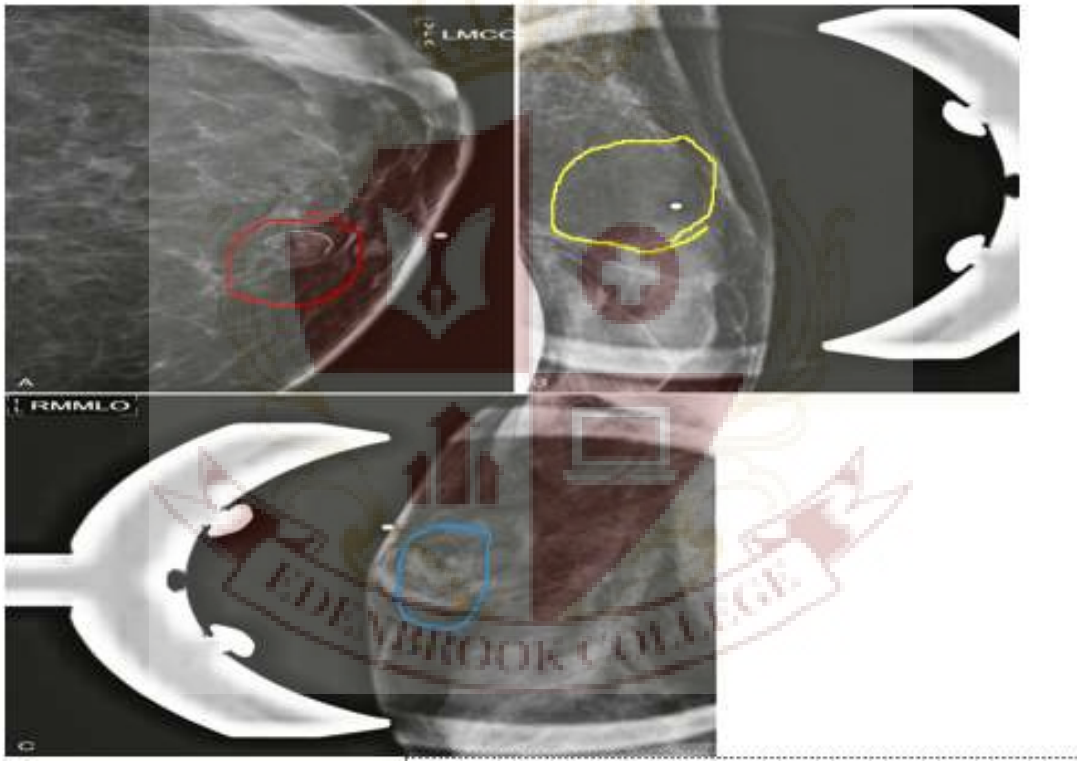
Masses



Density

- May be described as high density, equal or isodense low or radiolucent
- Breast cancer forms a visible mass higher in density than the fibroglandular tissue surrounding it but could be of equal density
- Breast cancers never contain fatty tissue which appear radiolucent and benign appearing
- These include oil cysts, lipomas, as examples

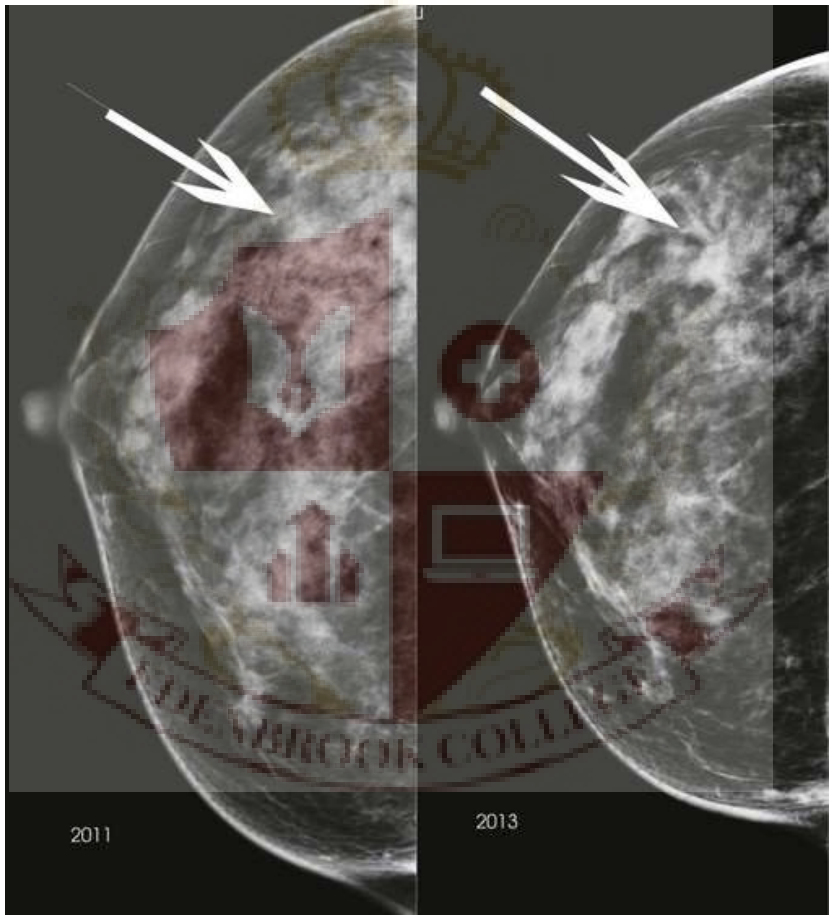
Radiolucent Masses



Masses

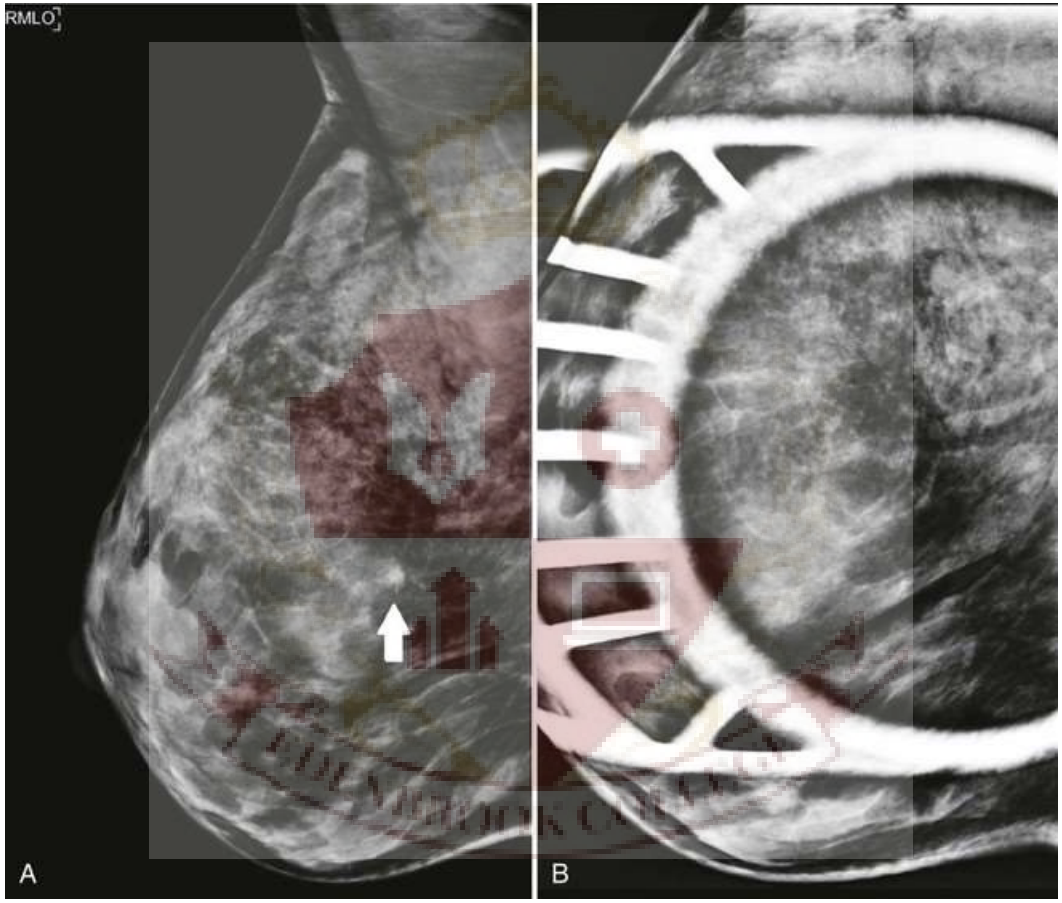
- The malignant or benign nature of a mass cannot be determined by its location
- Most cancers are detected in UOQ but other lesions that may be benign are found here as well
- Important to locate the lesion for additional diagnostic procedures such as core biopsy or open surgical biopsy
- Interval change may increase the suspicion of malignancy
- Comparison of current with precious images and notes indicate if change is present

Interval Changes



Masses

- 98 % of axillary lymph nodes are located in UOQ
- Well circumscribed can be kidney bean shaped
- A density seen on only one projection and appear to have scalloped edges/concave borders
- Radiologist may ask for spot compression or other diagnostic images to rule out presence of real density
- Suspicious density seen on only one projection is often the shadow of superimposed breast parenchyma and disappears when breast tissue is spread apart


RMLO
A
B

Calcifications

- Often normal metabolic occurrences and usually benign
- Approximately 15-25 % pf macrocalcifications found in asymptomatic women are associated with cancer
- These have definitive characteristics
- Most valuable tool is properly performed imaging using magnification technique
- Categorized by shape and distribution
- Benign are larger, coarser, rounder and smoother and easily seen on mammogram
- Malignant very small and require magnification to be seen

Calcifications

- Moderate size, scattered location and usually bilateral occurrence
- Suspicious calcifications are indistinct or coarse heterogenous calcifications
- Coarse heterogeneous calcifications are conspicuous and irregular shaped and generally larger than 0.5 mm can be associated with malignancy
- Fine pleomorphic calcifications (smaller than 0.5 mm) and fine linear branching calcifications indicate higher probability of malignancy

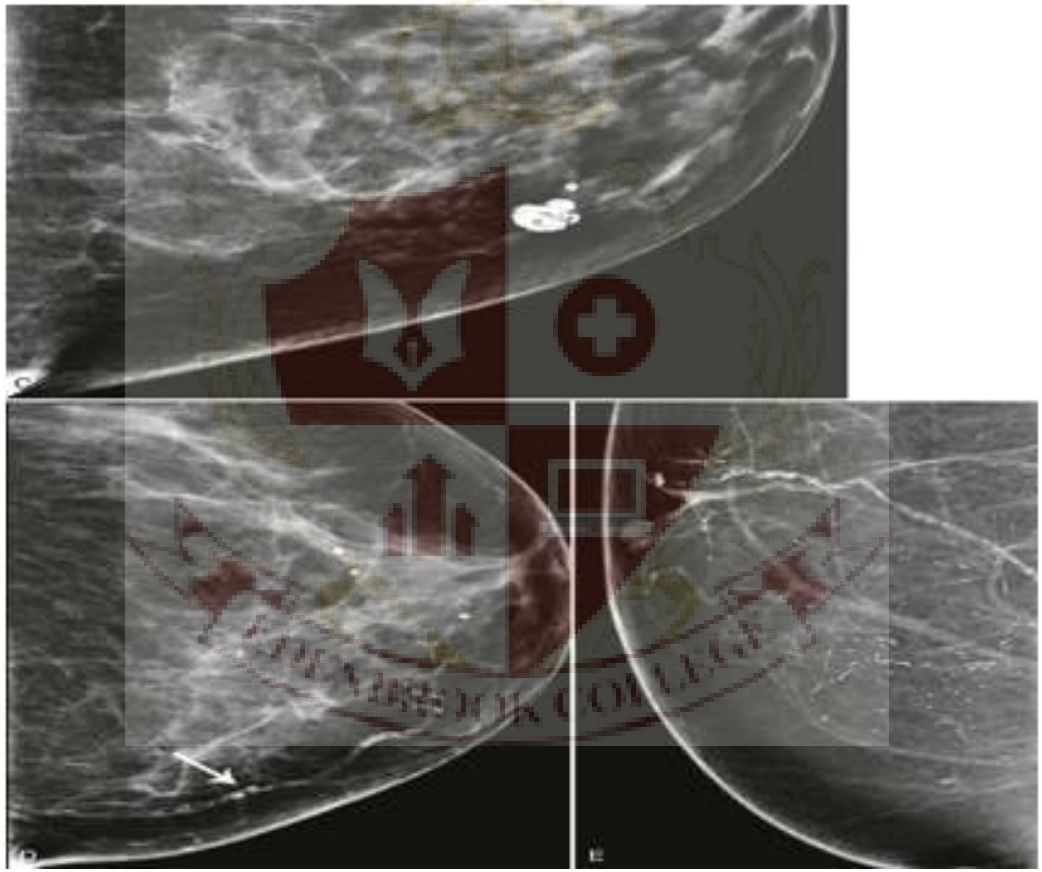
Calcifications

- The distribution of calcifications describes the arrangement of them in the breast
- Diffuse/scattered calcifications are usually benign and bilateral
- Regional distribution indicates large volume of breast tissue contains calcifications
- Group/cluster of calcifications indicates minimum of five calcifications occupying small volume of breast tissue
- Linear distribution are arranged in a line suggesting deposits in a duct
- Segmental distribution suggests deposits in ducts and possibility of extensive or multifocal breast cancer.
- Although benign can be known segmental distribution elevates suspicion of carcinoma

Benign Calcifications



Benign Calcifications



Malignant Calcifications



Malignant Calcifications

