



BREAST CANCER

FLAME LECTURE: 187

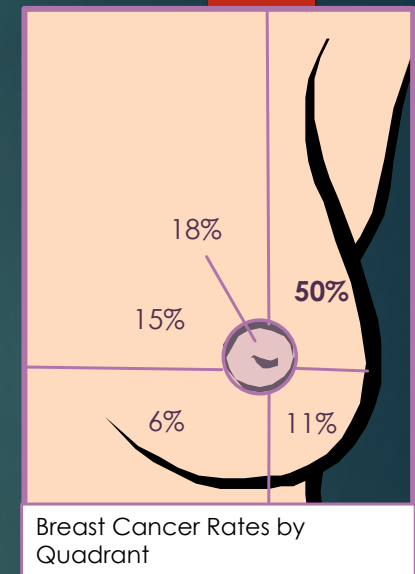
BURNS/BOTELHO 8.13.15

Learning Objectives

- ▶ Describe the symptoms and physical examination findings of benign or malignant conditions of the breast
- ▶ Discuss initial management options for benign and malignant conditions of the breast
- ▶ Assess risk for breast malignancy, gynecologic malignancies
- ▶ Explain prevention guidelines including screening procedures for breast disease
- ▶ Prerequisites:
 - ▶ FLAME LECTURE 7 – The basic OB/GYN Exam - Breast
- ▶ See also – for closely related topics
 - ▶ FLAME LECTURE 184 – Evaluation of Breast Mass
 - ▶ FLAME LECTURE 185 – Evaluation of Nipple Discharge
 - ▶ FLAME LECTURE 186 – Evaluation of Mastalgia

Epidemiology

- ▶ Lifetime risk of breast cancer is 12% (1 in 8) women
 - ▶ Highest incidence (27%) of any cancers in women
 - ▶ Second highest mortality cancer in women
- ▶ Screening has decreased mortality by 19-30%² since 1990
- ▶ Tumors detected at early stage (small unilateral) are more likely to be successfully treated
 - ▶ 98% 5 year survival rate in localized disease
 - ▶ 89% of those <1cm **cured** with primary surgery alone²



Incidence	1. Breast
	2. Lung
	3. Colon/rectum
Mortality	1. Lung
	2. Breast
	3. Colon/rectum

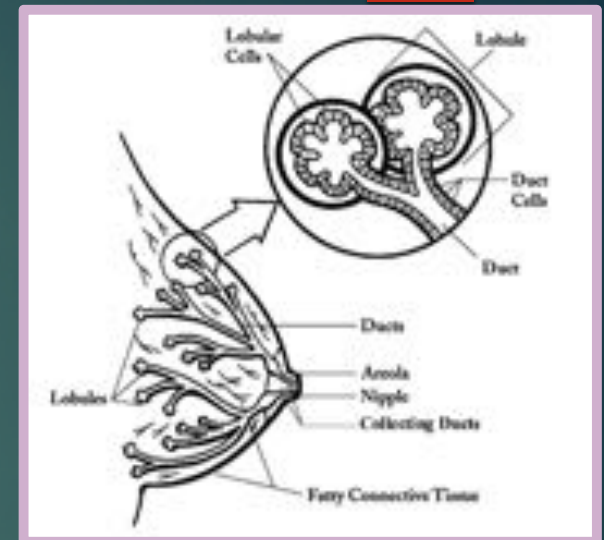
TYPES OF CANCER

▶ Infiltrating Ductal Carcinoma

- ▶ Malignancy of the breast ducts
- ▶ Ductal hyperplasia → Atypical ductal hyperplasia & DCIS (Ductal Carcinoma In Situ) may predispose
- ▶ Most often diagnosed by a cluster of microcalcifications on mammogram
- ▶ Most common invasive breast cancer

▶ Lobular Carcinoma

- ▶ Malignancy of the breast acini
- ▶ Lobular hyperplasia → Atypical lobular hyperplasia → lobular carcinoma
- ▶ LCIS (Lobular Carcinoma In Situ) is NOT considered a predisposing lesion, but present in two thirds of the cases
- ▶ Often bilateral and multifocal
- ▶ Not associated with any specific mammogram/palpable features- incidental diagnosis



TYPES OF CANCER



- ▶ Paget Disease of the Nipple
 - ▶ Malignancy of nipple epidermis
 - ▶ Presents with ulceration, crusting, itching, and irritation of nipple
- ▶ Inflammatory Breast Carcinoma
 - ▶ Infiltrates dermal lymphatics and causes edema
 - ▶ *Peau d'orange*, erythema, warmth that resembles mastitis but does not respond to antibiotics
 - ▶ Often aggressive with a poor prognosis

Common Risk Factors²

High risk:

- ▶ Age (>65 yrs)
- ▶ BRCA1/BRCA2
- ▶ ≥ 2 1st degree relatives w/ Breast CA at an early age
- ▶ High breast tissue density
- ▶ Biopsy-confirmed atypical hyperplasia
- ▶ Combined HRT use

Medium risk:

- ▶ One 1st degree relative with breast cancer at an early age
- ▶ High dose radiation to the chest

Low risk:

- ▶ Nulliparity
- ▶ 1st pregnancy >30 yo
- ▶ Menarche <12 yo
- ▶ Menopause >55 yo
- ▶ No breastfeeding
- ▶ Obesity

Risk Calculators:

- Gail/ NCI Model (>35yo only): <http://www.cancer.gov/bcrisktool/>
- Modified Gail/NSBP
- Patient Friendly/Educational Calculator <http://www.brightpink.org/knowledge-is-power/assess-your-risk/>
- <http://canceraustralia.gov.au/affected-cancer/cancer-types/breast-cancer/your-risk/calculate>

Screening Tools

▶ Self Breast Awareness & Self Breast Exams

▶ Clinical Breast Exam

- ▶ CBE alone if >40 yo has cancer detection rate of 59%³

▶ Mammogram

- ▶ Screening vs. diagnostic
- ▶ Cancer detection rate: Digital 59% vs. Films 38%⁴

▶ Breast Ultrasound

▶ Good for:

- ▶ Younger patients <30 yo / Dense breast tissue / Pregnant patients
- ▶ Cysts vs. solid masses
- ▶ Inconclusive mammogram findings

- ▶ NOT recommend for screening average risk patients

▶ MRI for high risk patients

Screening Guidelines

	Mammography	Clinical Breast Exam	Breast Self-Exam Instruction	Breast Self-Awareness
ACOG	Age 40 yrs & older annually	Age 20-39 every 1-3yrs Age 40 yrs & older annually	Consider for high-risk patients	Recommended
American Cancer Society	Age 40 yrs & older annually	Age 20-39 yrs every 1-3yrs Age 40 yrs & older annually	Optional for 20 yrs & older	Recommended
National Comprehensive Cancer Network	Age 40 yrs & older annually	Age 20-39 yrs every 1-3yrs Age 40 yrs & older annually	Recommended	Recommended
National Cancer Institute	Age 40 yrs & older every 1-2 yrs	Recommended	Not recommended	
U.S. Preventive Services Taskforce	Age 50-74 yrs biennially	Insufficient evidence	Not recommended	

BIRADS Assessment System

Numerical interpretation of imaging results (mammo, US, MRI)

- ▶ **BIRADS 0** – Incomplete exam
 - ▶ Not enough information from views available; Repeat imaging is required
- ▶ **BIRADS 1** – Negative
- ▶ **BIRADS 2** – Benign Findings
 - ▶ Routine follow up
- ▶ **BIRADS 3** – Probably Benign
 - ▶ Likelihood of malignancy <2%
 - ▶ Followed at shorter intervals for stability
 - ▶ usually q6m x 1-2 years unless category is changed to more definitive finding
- ▶ **BIRADS 4** - Suspicious
 - ▶ Likelihood of malignancy 2-94%
 - ▶ 4A (2-9%)
 - ▶ 4B (10-49%)
 - ▶ 4C (50-94%)
- ▶ **BIRADS 5** – Highly Suggestive
 - ▶ Classic malignancy with 95-100% likelihood
- ▶ **BIRADS 6** – Biopsy Proven Malignancy

Screening High Risk Populations

- ▶ Personal history of predisposing lesions
 - ▶ Atypical hyperplasia, carcinoma in situ, high density breast tissue
- ▶ Personal history of ovarian or endometrial cancer
- ▶ Personal history of breast cancer in remission >5yrs
- ▶ Personal history of chest radiation at 10-30 years of age
- ▶ BRCA 1 or 2 carriers
- ▶ Untested family members of BRCA carriers
- ▶ Other genetic syndromes:
 - ▶ Li Fraumeni, Cowden syndrome
- ▶ First degree relatives with early breast cancer
- ▶ Male relatives with breast cancer

WHO??

- Begins at 25 yo or 10 yrs earlier than family members age at diagnosis

HOW??

1. Self Exam Teaching
2. CBE q6months
3. Annual Mammograms (+/- Ultrasound)
4. Consider annual MRIs
5. Discuss Risk Reducing Strategies

Breast Cancer Management



Surgery

Neoadjuvant chemotherapy

Radiation therapy

Adjuvant chemotherapy

Evaluation for metastasis:

Liver, Lung, Bone, Brain

Surgical Options

- ▶ **Lumpectomy** (breast conserving therapy [BCT])
 - ▶ If early stage, may be curative
 - ▶ Though, may require adjunctive radiation therapy
 - ▶ Contraindicated in:
 - ▶ Multi-centric disease with tumors in multiple quadrants
 - ▶ History of previous BCT with radiation therapy
 - ▶ Multiple positive margins after attempted at re-excision
- ▶ **Mastectomy**
 - ▶ **Radical mastectomy**
 - ▶ Removal of breast, skin, and pectoralis muscles + axillary LND
 - ▶ **Modified radical mastectomy**
 - ▶ Removal of breast and fascia of pectoralis without removing muscles + ALND
 - ▶ **Simple mastectomy**
 - ▶ Removal of breast without removing pectoralis muscles or axillary nodes (SLNB only)

Lymph node sampling

▶ Sentinel Lymph Node Biopsy (SLNB)

- ▶ Radioisotope injected subdermally and taken up by breast lymphatics
 - ▶ Gamma probe used to detect lymph node(s) that take up isotope as sentinel lymph node; the first node(s) to pick it up are the sentinel nodes and are removed
- ▶ Dye can also be injected at the site of concern as well

▶ Axillary Lymph Node Dissection

- ▶ Removes all axillary lymph nodes
- ▶ Indications:
 - ▶ positive SLNB
 - ▶ Clinically positive lymph nodes
 - ▶ Inflammatory carcinoma

Non-surgical Options



▶ Radiation therapy

- ▶ Combined with breast conserving therapy or simple mastectomy for lesions with high risk of recurrence

▶ Chemotherapy

- ▶ Neoadjuvant (before surgery): if tumor very large, it can reduce the size of the tumor and improve surgical outcomes
- ▶ Adjuvant (after surgery): as with radiation, can be considered after surgery to reduce recurrence & mortality

Non-surgical Options – Hormonal Therapy

- ▶ **Tamoxifen (*Soltamox*)**: estrogen receptor antagonist in breast
 - ▶ Useful in women with estrogen-sensitive cancer
 - ▶ Adverse effects: ER *agonist* in endometrium, ↑ risk for endometrial CA
 - ▶ Also a ER agonist in bone which can lead to beneficial side effects of preventing osteoporosis
- ▶ **Anastrozole (*Arimidex*)**: aromatase inhibitor (which prevents androgen conversion to estrogen)
 - ▶ Used in postmenopausal women when most estrogen comes from conversion from androgens in peripheral tissues
 - ▶ Adverse effects: bone weakness
- ▶ **Trastuzumab**: monoclonal antibody against HER-2/neu receptor

IMPORTANT LINKS / REFERENCES

▶ [ACOG Practice Bulletin 122 – Breast Cancer Screening](#)

1. UpToDate.com
2. National Breast and Cervical Cancer Early Detection Program
3. Oslo II Study