



Breast Cancer Treatment Guide

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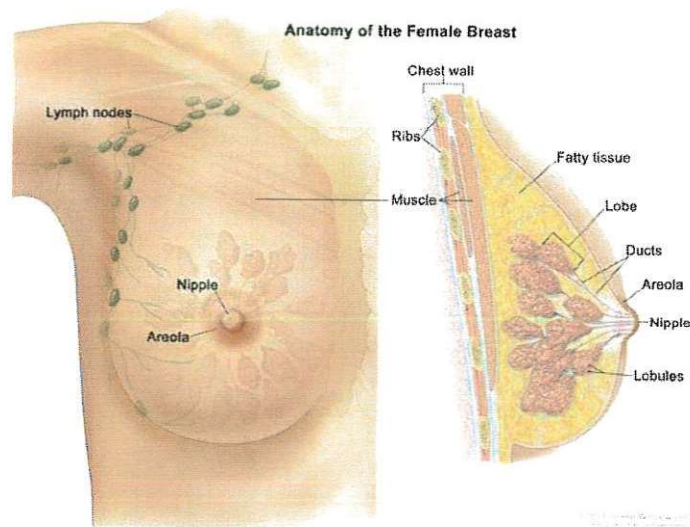
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Anatomy:

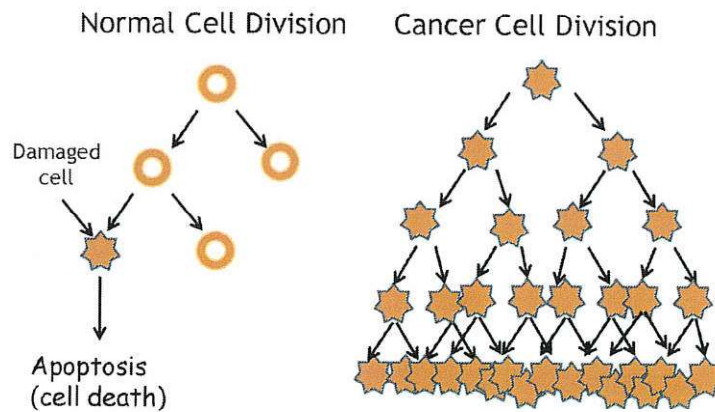
The breast is a modified sweat gland that sits in the tissue just under the skin. It is made of **lobules**, **ducts**, and **stromal tissue**. Lobules are where milk products are made, ducts are the transport system for the milk and the stromal tissue is the support structures (fat, blood vessels, lymphatic tissues, nerves etc.). The only part of the skin that is truly part of the breast is the nipple. There are multiple exits of the ducts within the nipple.

The lymph nodes within the armpit area (**axilla**) drain the normal bodily fluid that circulates outside of blood. Sometimes this can go to lymph nodes just inside the chest wall called the **Internal Mammary Lymph Nodes**.

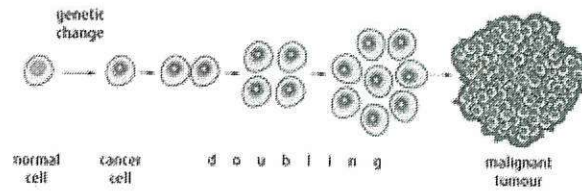


What is Cancer?

Cancer is when cells within the body begin to multiply out of control. These cells also develop the ability to invade tissue around them, migrate to new areas and begin to grow in those areas. Despite a common misconception cancers do not grow rapidly. In one study for breast cancer less than 5% of tumors grew from 1cm to 2cm in about 1 month. The average time for this growth to happen was 1.7 years.

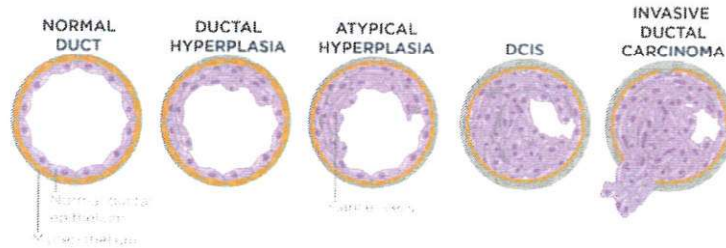


Cancer Development

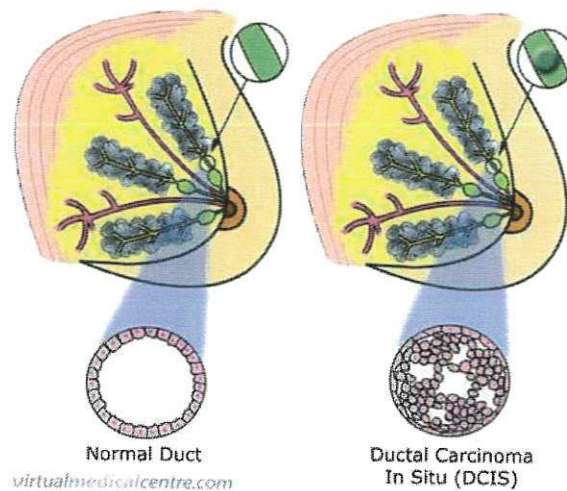


Type of Breast Cancer/Disease:

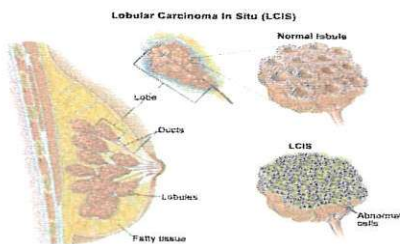
Atypical Ductal Hyperplasia: The growth of some abnormal cells within a duct. These cells are not cancerous but can increase the risk of developing a cancer in that area if not removed.



Ductal Carcinoma In-Situ: Growth of cancerous type cells that are located within a duct. These cells have not yet developed the ability to invade. This is a precancerous lesion that needs to be treated. If left untreated these will turn into an invasive cancer.

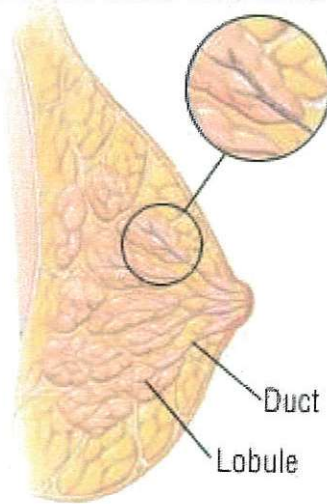


Lobular Carcinoma In-Situ: Growth of cancerous types cells of the lobule. Depending on how these cells were found they may require treatment or close surveillance. The presence of these cells is a generalize risk factor for developing an invasive cancer anywhere in either breast.

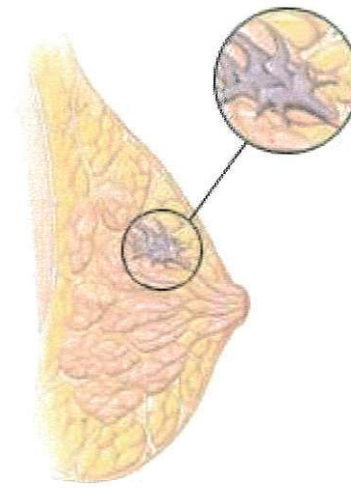


Invasive Cancer (Ductal or Lobular): Growth of cancerous cells that are now able to invade the stromal tissue. These cells have the ability to migrate and grow in other areas of the body.

Invasive ductal carcinoma



Invasive lobular carcinoma



Treatment of Breast Cancer

There are 3 portions of treatment for breast cancer. We need to treat the breast itself. We need to look and potentially treat the lymph nodes that drain the breast. We may need to treat the rest of the body (systemic).

The three basic ways to treat are:

Surgery- cut out the disease

Radiation therapy- Bombard the area with "x-rays" or radiation

Chemotherapy- Use medications to combat the disease

Some people may require only one form of treatment, others may require two or even 3 forms of treatment. There are some guideline recommendations based upon many factors that help us and your other doctors make the appropriate recommendations for you.

Doctors possibly involved in your care:

Surgeon

Hematologist/Oncologist

Radiation Oncologist

Pathologist

Radiologist

Plastic Surgeon

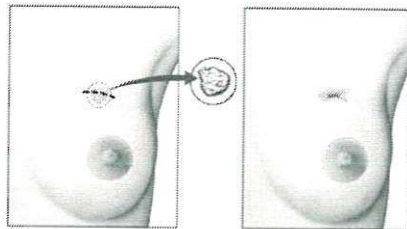
Genetic counselor

Surgical Treatment:

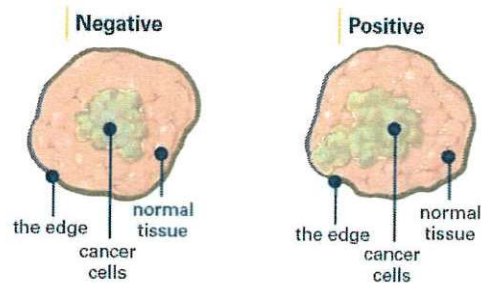
There are 2 parts to this form of treatment. This is usually the mainstay and first portion of treatment although in some cases it may come second. The two parts are to treat the breast itself and to obtain samples of the lymph nodes to determine if there is disease within them. We don't always need to do the second part depending on the disease we are treating.

Breast Surgery:

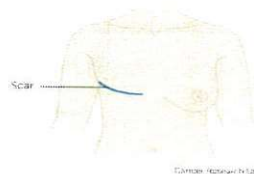
There are 2 forms of breast surgery. The first is called a **Lumpectomy/Partial Mastectomy**. This is where we only remove the area of the breast where the disease is located. We try to get a rim of normal breast tissue around the tissue that we take out (**Margins**).



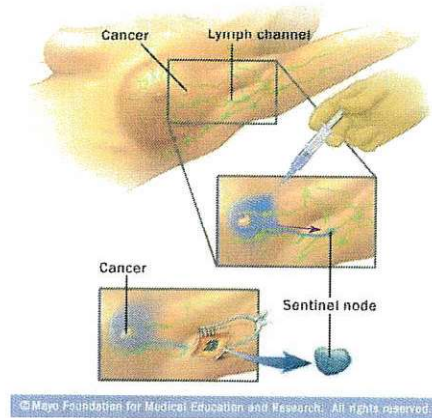
On occasion, because we can't see at a cellular level, you can have a positive margin. This is not known at the time of your surgery but is seen when the **Pathologist** looks at the tissue under a microscope. This will usually require a second operation to take little bit more tissue. Sometimes a clear margin can't be obtained without removing the entire breast.



The second form is called a **Mastectomy**, this is where we remove the entire breast. This could be accompanied by **reconstruction** surgery where a new cosmetic breast is created by a **Plastic Surgeon**.



The second part of the surgery, which is usually done at the same time, is to obtain lymph nodes to look to see if the disease has spread. The main from of this is called a **Sentinel Lymph Node Biopsy**. This requires getting an injection of a material the day before surgery, undergoing a special radiographic test (**Lymphoscintigraphy**) the morning of surgery, injecting a blue dye into the breast area and then removing the highlighted lymph node.



Occasionally we need to remove the majority of the lymph nodes in the armpit. This is call an **Axillary Node Dissection**, or if part of a mastectomy would be called a **Modified Radical Mastectomy**.

Lumpectomy versus Mastectomy- making the choice:

Lumpectomy	Mastectomy
<i>Advantages</i>	<i>Advantages</i>
Less cosmetic deformity	Slightly lower local recurrence rates (<5%)
Potential normal functioning breast	Potentially avoid radiation therapy
LONG TERM SURVIVAL BENEFIT	Easier to reconstruct
	Recommended for those with genetic related cancer
<i>Disadvantages</i>	<i>Disadvantages</i>
Slightly higher local recurrence rates (<10%)	Significant deformity
Strong need for radiation in most patients	Reconstruction risks and complications
Harder to correct or reconstruct a deformity	Slight decrease in long term survival in most women

Chemotherapy:

Using various types of medication, either in pill form or intravenously, to help fight the tumor or prevent its recurrence. These medications are administered and managed by a **Hematologist/Oncologist**.

Indications:

More advanced disease

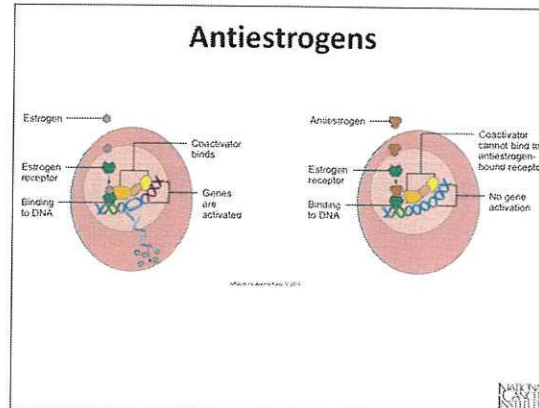
Genetically more aggressive tumors on a cellular level

For prevention of recurrence

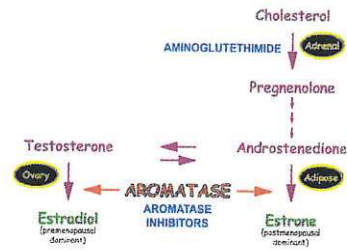
Types:

There are 3 generalized types of chemotherapy. There are multiple medications within those types.

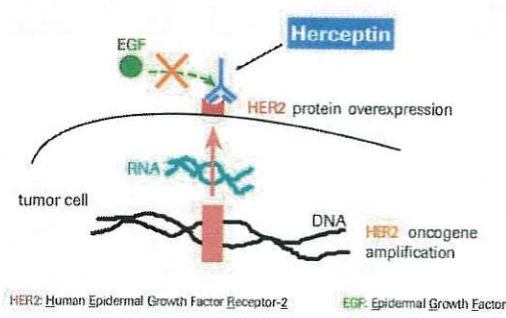
Hormonal therapy- These are medications that block the normal hormones within the body. These medications are pills taken once a day for anywhere between 5 and 10 years if no reason to stop sooner develops. There are two general classes. The first class is **Tamoxifen** and related medications. This medication binds to a spot on the cell where naturally occurring **estrogen** would bind but blocks it. This prevents genes from being activated.



The second form are called **Aromatase Inhibitors**. These medications block the body's ability to make **Estrogen**.



Targeted Therapy- This is a group of medications that target a specific protein that may be over expressed by the tumor. This protein is called **HER2**. This medication, **Herceptin**, blocks this protein from working. When you need this medication, it is often given before surgery but after a biopsy. A second medication, **Pejeta**, may be added to the first that can increase its effectiveness. **Herceptin** is usually given for 1 whole year.



Chemotherapy- This is a variety of drugs that are given that affect different part of the cell and the cell cycle.

There is a test, **Oncotype**, that looks at the genes expressed by your tumor that can help determine if you would benefit or not from standard chemotherapy. This is run on women who have no obvious indications for chemotherapy and help guide the choice rather than dictate it.

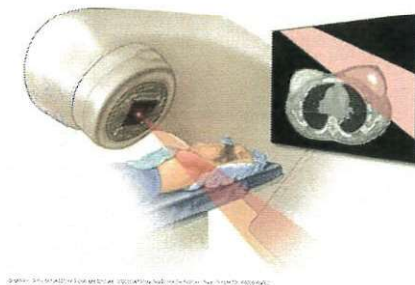
Often time we as surgeons will be asked to place a special IV called a **Port-a-cath**. This allows easier vein access for chemotherapy and other medical tests.



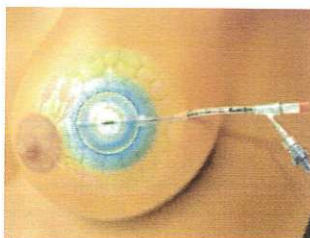
Radiation Therapy:

This is where the area is treated by bombarding it with radioactive particles. This is managed and performed by a **Radiation Oncologist**.

There are multiple forms and durations of radiation therapy. The best form and length is determined by the **Radiation Oncologist**. There is **external beam** radiation which is performed after surgery and chemotherapy. This is when we use radiation beams from outside the body to target the area that needs treatment.



There is **partial breast irradiation** where a catheter is placed within the breast cavity after surgery and the breast is irradiated from the inside for a small distance.



There are some general indications for Radiation which include:

- Lumpectomy/Partial Mastectomy for DCIS or cancer

- Locally advanced disease either within the breast or within the lymph nodes

- Based upon other risk factors.

Radiation can potentially also treat isolated metastatic lesions.

Stage:

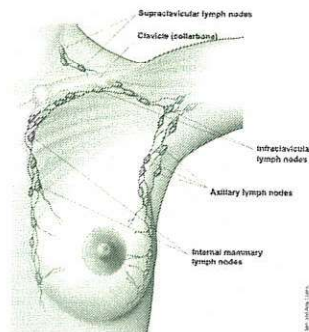
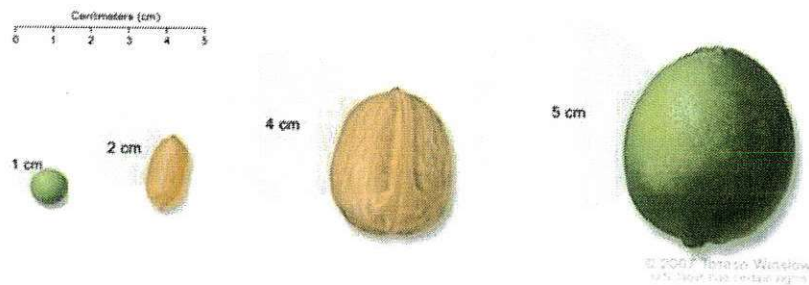
The stage of the breast cancer helps us classify how advanced the disease is and can give a generalized statistic of chance of survival. This is not an absolute number and not predictable for every patient as there are multiple factors that go into a patient's survival. There are 3 parts that are looked at to help determine stage. These parts are:

T: This is based on tumor size and how it is acting locally

N: This is an evaluation of the lymph nodes and is based on if they are positive, number that are positive and location of positive nodes

M: This is based on whether the tumor has spread to other areas of the body or not.

Tumours	T0/Tis	T1	T2	T3	T4
Tumour Size	T0: No primary tumour. Tis: Tumour only in breast ducts or lobules.	0-2 cm	2-5 cm	>5 cm	Tumor of any size with extension to chest wall/skin or ulceration **Inflammatory breast cancer is staged as T4.
Nodes	N0	N1	N1mi	N2	N3
	No lymph node metastases.	Cancer cells present in 1-3 axillary lymph nodes.	Lymph node tumor > 2 mm.	Cancer cells present in 4-9 axillary lymph nodes.	Cancer cells in infra or supraclavicular lymph nodes, or in >10 axillary lymph nodes.
Metastasis	M0	M1			
	No evidence of cancer metastasis.	Cancer found in other areas of body.			



Lymph nodes in relation to the breast

Once we have these numbers, we place them into a chart that will give us a patient's stage. This then can give us survival information.

Overall Stage	T category	N category	M category
Stage 0	Tis	N0	M0
Stage I	T1	N0	M0
Stage IIA	T0 T1 T2	N1 N1 N0	M0 M0 M0
Stage IIB	T2 T3	N1 N0	M0 M0
Stage IIIA	T0 T1 T2 T3 T3	N2 N2 N2 N1 N2	M0 M0 M0 M0 M0
Stage IIIB	T4	Any N	M0
Stage IIIC	Any T	N3	M0
Stage IV	Any T	Any N	M1

MY NEXT STEPS: (Circled items are things I need to have done)

Referrals: Hematology/Oncology Radiation Oncology Plastic Surgery
Genetic Counselor

Tests: Genetic testing/BRCA PET/CT scan Bone scan Oncotype
Breast MRI

Surgery: Lumpectomy Mastectomy Reconstruction Port insertion
Sentinel Lymph Node Biopsy Axillary Node Dissection

Follow-up schedule for years 0-2 after surgery. (Note Mammogram may be different as first mammogram for the treated side is 6 months after the completion of radiation.)

	3 months	6 months	9 months	1 year	15 months	18 months	21 months	2 years
Exam	x	x	x	x	x	x	x	x
Mammo affected breast		x		x		x		x
Mammo Unaffected side				x				x
MRI				?				?

Follow-up years 2-5

	30 months	3 years	42 months	4 years	54 months	5 years
Exam	X	X	X	X	X	x
Mammogram		X		X		x

For >5 years need yearly exam and mammogram.

Keep all records in this binder for easy access for you and your doctors!

Resources:

American Cancer Society, www.cancer.org

Greater Clermont Cancer Foundation, www.gccf.us, (352) 429-9343

Livestrong, www.livestrong.com

Susan G Komen, www.komen.org

100 Questions and Answers about Breast Cancer, Brown and Freeman, can order at Amazon.com