

# BREAST

{ ومن لم يذق مرّ التعلّم ساعةً.. تجرع ذلّ الجهل طوال حياته }



## Lectures Eight & Nine

### Objectives:

At the end of this lecture, the student should be able to:

#### Pathology of benign breast diseases.

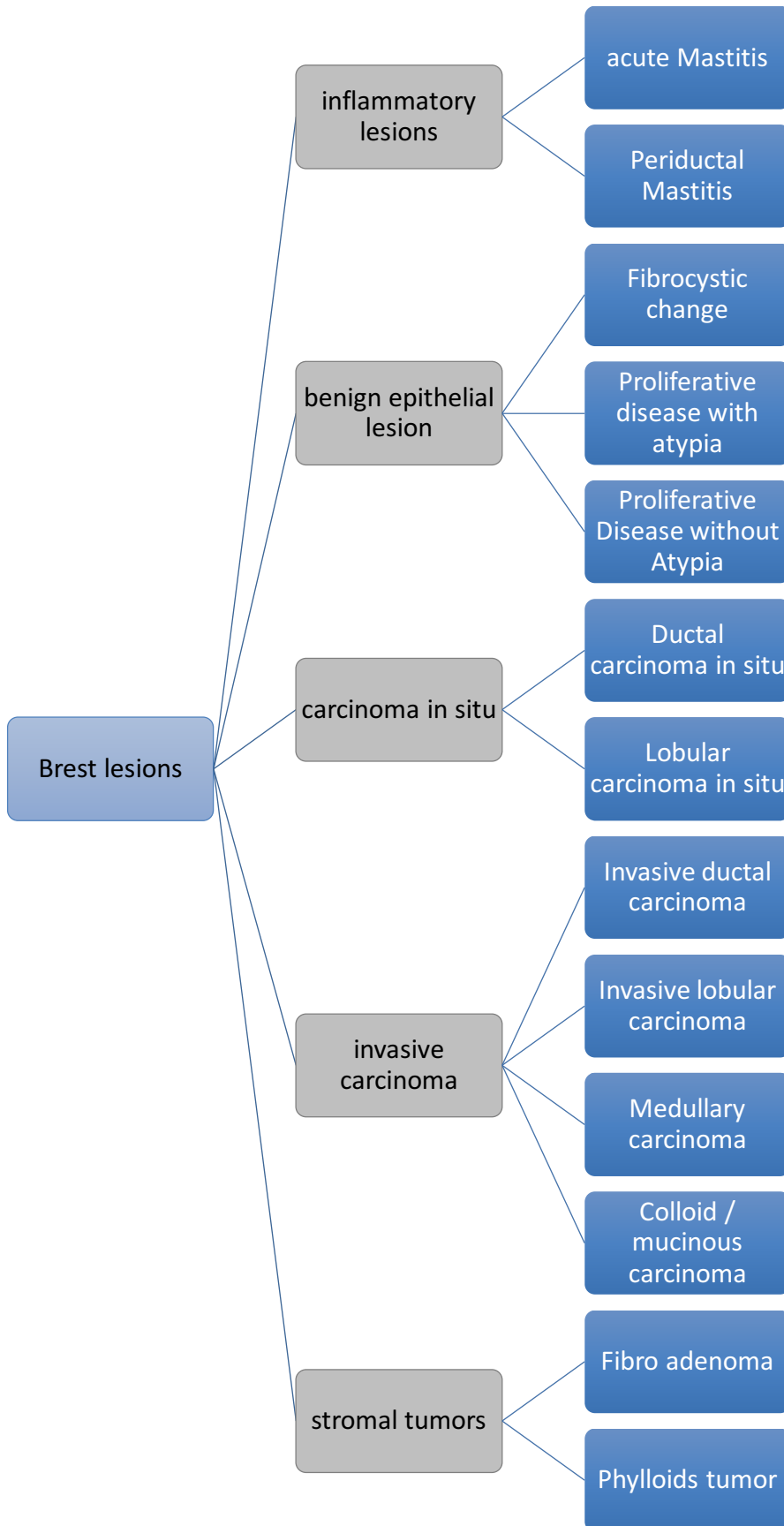
- Know the ways that benign breast conditions can clinically present.
- Know the common inflammatory conditions of breast (mastitis and abscesses).
- Understand the pathology of fibrocystic change.
- Know the common benign breast tumors with special emphasis on fibroadenoma and phyllodes tumour.
- Know the risk of subsequent breast cancer in women with diagnosed benign breast tissue.

#### Breast cancer.

- Know the risk factors for the development of breast cancer.
- Know the classification of breast cancer.
- Understand the behavior and spread of breast cancer.
- Know the prognostic indicators of breast carcinoma.

Revised by

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# Clinical Presentation of Breast Diseases:

- 1) **Pain (mastalgia):** (not a specific finding) is the most common breast symptom. **May be cyclical (with menses) or noncyclical.**
  - Diffuse cyclical pain has **no** pathologic significance.
  - Non-cyclical pain can be caused by ruptured cysts or areas of prior injury or infection, or no specific cause.
  - Although the great majority of painful masses are benign, about 10% of breast cancers present with pain.
- 2) **Palpable mass.** (can be benign, malignant and even do to inflammation)
- 3) **Nipple discharge:**
  - **Milky discharge:** not associated with malignancy.
  - **Bloody or serous discharges:** commonly associated with benign lesions but can rarely be due to a malignancy.

## Mammographic screening:

(to pick up the early stage of CIS that can be treated before progressing to invasive carcinoma “same concept of cervix carcinoma with pap smear”) \* generally recommended to start after age 40. Was introduced in the 1980s to detect small, nonpalpable, asymptomatic breast carcinomas. The value of mammography lies in its ability to identify small, nonpalpable cancers.

## The principal mammographic findings of breast carcinoma are densities/masses and calcifications:

1. **Densities(mass):** (when we find a mass we should do more investigations) Most tumors appear radiologically denser than the normal breast. Fibroadenomas, cysts etc. can also present as densities.
2. **Calcifications:** (seen in **damage cells** ‘necrotic’) Calcium gets deposited in secretions, necrotic debris, or hyalinized stroma. It can be seen in benign and malignant conditions.
  - Calcifications in **malignancy** are usually small, irregular, numerous, and clustered.
  - Ductal carcinoma in situ (DCIS) is **most commonly** detected as mammographic calcifications. Mammographic screening has increased the diagnosis of DCIS. (In malignancy, specially in CIS, we see a collection of **micro**calcifications)

## Breast Lesions: For propose of the exam this part is very important

1. <b>Inflammatory lesions</b>	<ul style="list-style-type: none"> <li>▪ <b>Acute mastitis:</b> staph. infection is the most common.</li> <li>▪ <b>Periductal mastitis.</b></li> <li>▪ Mammary duct ectasia means dilated ducts disease</li> <li>▪ Fat necrosis: usually due to mechanical trauma, surgical or otherwise.</li> <li>▪ Lymphocytic mastopathy (sclerosing lymphocytic lobulitis) seen in diabetics.</li> <li>▪ Granulomatous mastitis sarcoid, TB, etc., but mostly idiopathic.</li> </ul>
2. <b>Benign epithelial lesions</b> (3 types)	<ul style="list-style-type: none"> <li>▪ Non-proliferative breast changes (fibrocystic changes)</li> <li>▪ Proliferative breast disease without atypia</li> <li>▪ Proliferative breast disease with atypia /Atypical hyperplasia</li> </ul>
3. <b>Carcinoma in situ</b>	DCIS & LCIS
4. <b>Invasive carcinoma</b>	Ductal carcinoma & Lobular carcinoma
5. <b>Others</b>	<b>stromal tumors</b> e.g. fibroadenoma, phyllodes tumors, sarcomas etc.

## Inflammatory Lesions:

<b>Mastitis</b>	<b>Acute</b>	Almost all cases of acute mastitis occur during the <b>first month of breastfeeding</b> . <i>Staphylococcus aureus</i> is the most common causative organism. The breast is erythematous and painful, and fever is often present.
	<b>Periductal</b>	This condition is not associated with lactation. There is strong association with <b>cigarette smoking</b> (chronic use).

## Benign Epithelial Lesions

### 1- Non proliferative Breast Changes (Fibrocystic Change/disease)

- **Most common** disorder of the breast. Age: 20-55yrs, decreases progressively after menopause.
- The cause is not known. Thought to be caused by hormonal imbalances.
- Can produce palpable breast mass, mammographic densities, calcifications, or nipple discharge. May also present with cyclical pain.
- **No increased risk for cancer**
- Could be seen in normal breast but here is more invasive

#### Histology

Three patterns are seen:

1. **Cysts formation with apocrine metaplasia (benign)** (apocrine is : a big **secretory** cell with big cytoplasm) : cysts are lined by benign flattened to columnar epithelium with focal apocrine metaplasia. In apocrine metaplasia the cells become large and have abundant eosinophilic cytoplasm. The cysts can rupture and cause inflammation
2. **Fibrosis**: contribute to the palpable firmness of the breast
3. **Adenosis**: Increase in the number of acini per lobule (adenosis can also be seen in pregnancy).

### 2- Proliferative Disease without Atypia

- Rarely form palpable masses
- Detected as small mammographic densities.
- Incidental finding
- **Risk for cancer is 1.5 - 2 times normal**

#### Subtypes

The following entities are included in this category:

- a) Epithelial hyperplasia
- b) Sclerosing adenosis
- c) Complex sclerosing lesions/radial scar
- d) Papillomas
- e) Proliferative variant of fibrocystic disease.

### 3- Proliferative breast disease with atypia (Atypical hyperplasia) (the worst)

- **Risk for cancer is 4-5 times normal**
- Atypical hyperplasia is a cellular proliferation resembling ductal carcinoma in situ (DCIS) or lobular carcinoma in situ (LCIS) but **lacking sufficient qualitative or quantitative features for a diagnosis of carcinoma in situ**.
- Include two entities
  1. Atypical ductal hyperplasia
  2. Atypical lobular hyperplasia

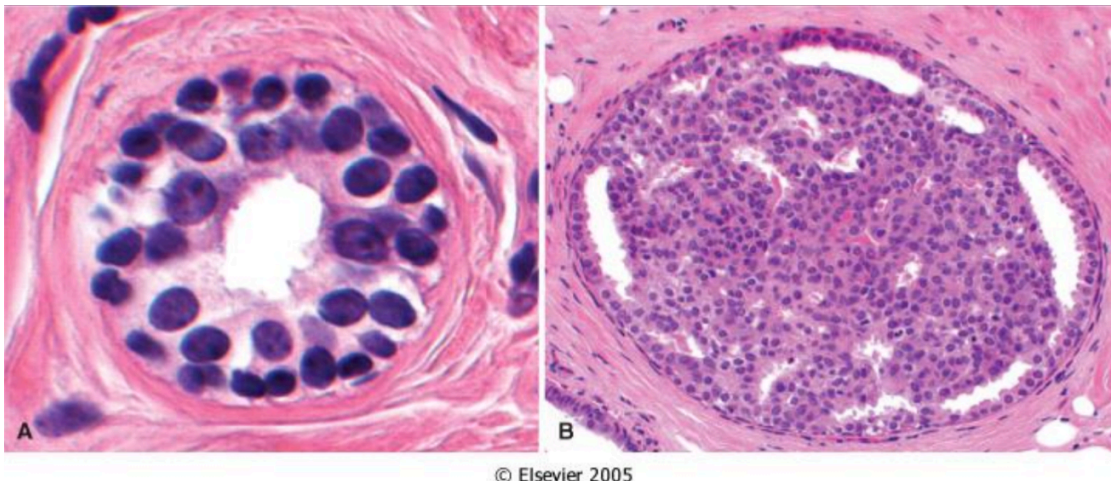
Atypical hyperplasia has some of the architectural and cytologic features of carcinoma in situ but lack the complete criteria for that diagnosis and is categorized as ductal or lobular in type.

The breast is lining by bilayer: epithelial layer from inside + myoepithelial layer from outside.

- **hyperplasia** happens for **both layers** "they still exist"

- but once this bilayer is gone → the breast is considered **malignant**





A, Normal. A normal duct or acinus has a single basally located myoepithelial cell layer (cells with dark, compact nuclei and scant cytoplasm) and a single luminal cell layer (cells with larger open nuclei, small nucleoli, and more abundant cytoplasm). B, Epithelial hyperplasia. The lumen is filled with a heterogeneous population of cells of different morphologies, often including both luminal and myoepithelial cell types. Irregular slitlike fenestrations are prominent at the periphery.

**Now we'll further discuss proliferative disease without atypia's histological entities:**

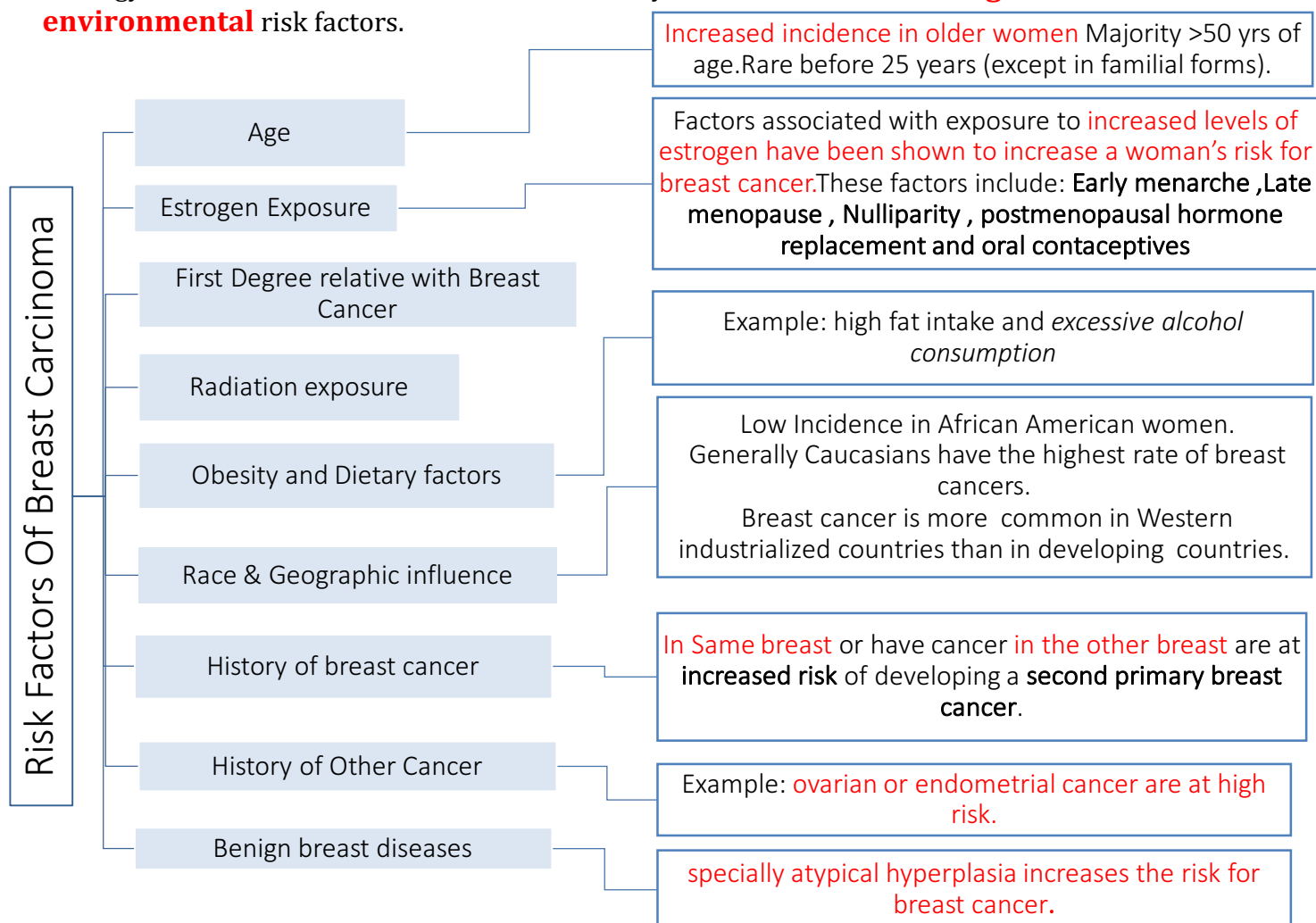
Epithelial hyperplasia	Papilloma	
<ul style="list-style-type: none"> <li>• Normal breast has 2 layers of cells (epithelial and myoepithelial cells).</li> <li>• <b>Defined as the presence of more than 2 layers &amp; can range from mild, moderate to severe/florid.</b></li> <li>• Both epithelial and myoepithelial cells proliferate.</li> <li>• Can be seen in the <b>ducts and the lobules.</b></li> <li>• <b>When it is seen in fibrocystic disease: it is called as proliferative type/variant of fibrocystic disease.</b></li> </ul>	<p>A papillary tumor that arises from the ductal epithelium. It is more common in the <b>large lactiferous ducts</b> (present in the central part of the breast at the nipple) but can also occur in the <b>small ducts in any quadrant</b> of the breast.</p>	
	<p><u>Large duct (central)</u></p> <p>usually solitary and situated in the lactiferous duct at the nipple. <b>Patients present with bloody nipple discharge and sometimes a subareolar palpable mass.</b></p>	<p><u>Small duct (peripheral)</u></p> <p>commonly multiple and located deeper within the ductal system. Small duct papillomas have been shown to <b>increase the risk of subsequent carcinoma.</b></p>
Complex sclerosing lesions/radial scar	Sclerosing adenosis	
<ul style="list-style-type: none"> <li>• Radial scars are stellate lesions characterized by a central nidus of entrapped glands in a hyalinized stroma</li> <li>• They typically present as an irregular mammographic density and closely <b>mimic an invasive carcinoma both mammographically and grossly.</b></li> <li>• The word "scar" refers to the morphologic appearance, and not a prior inflammation, trauma or surgery.</li> </ul>	<ul style="list-style-type: none"> <li>• Commonly seen as an incidental microscopic finding but may occasionally present as a palpable mass that is <b>mistaken clinically for cancer.</b></li> <li>• <b>Calcification is commonly seen in the lesion</b>, so even on mammography it can mimic cancer.</li> <li>• It is almost always associated with other forms of fibrocystic change.</li> <li>• <b>Myoepithelial cells are intact (deference from cancer).</b></li> </ul> <p><b>Microscopically:</b> adenosis and stromal fibrosis in the lobule which leads to compression and distortion of the lobule.</p>	

# Breast Carcinoma:

- Carcinoma of the breast **is one of the most common cancer in women.**
- Women who live to age 90 have a one in eight chance of developing breast cancer
- Mammographic screening has dramatically increased the detection of small invasive cancers.
- DCIS by itself is almost exclusively detected by mammography, so the incidence of DCIS is increased with the use of mammography.
- Therefore a number of women with invasive/advanced cancer is markedly decreased.
- The mortality rate have started to decline. Currently only 20% of the women with breast cancer are expected to die of the disease. (Because you detect it early and treat it early with high cure rate)

## Risk factors:

Etiology in most women is unknown but most likely is due to a combination of **genetic, hormonal** and **environmental** risk factors.



On the other hand, there are some factors that are thought to have a protective mechanism against breast cancer like exercise and **breast feeding** (The longer the women breastfeed, the lower the risk) **Tobacco: Not associated** with breast cancer, but associated with the development of *peri-ductal mastitis*.



## Classification depending on etiology:

- **Hereditary Breast Cancer:** (family history)
  - A family history of breast cancer in a **first-degree relative**.
  - About 25% of familial cancers (or around 3% of all breast cancers) can be attributed to two autosomal-dominant genes: **BRCA1 and BRCA2**.
- **Sporadic Breast Cancer:**

The major risk factors for **sporadic breast cancer** are related to **hormone exposure** most of these cancers occur in postmenopausal women and overexpression of estrogen.

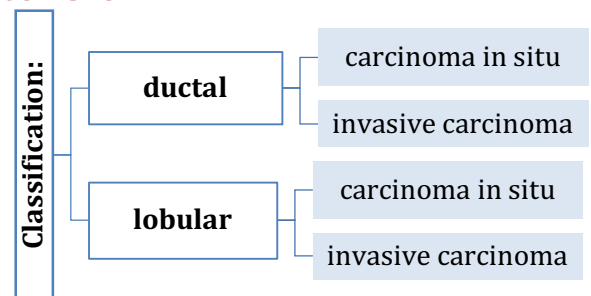
## Classification Depending on the site and extension:

### Carcinoma in situ:

has **not** invaded beyond the **basement membrane** and is therefore **incapable of metastasis**.

### There are two subtypes:

- **Ductal carcinoma in situ (DCIS)** or intraductal carcinoma (80%).
- **Lobular carcinoma in situ** (20%).

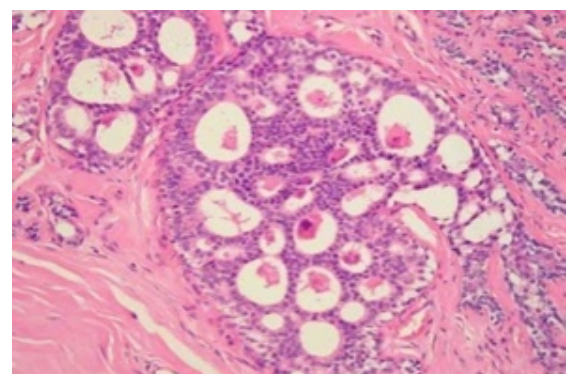
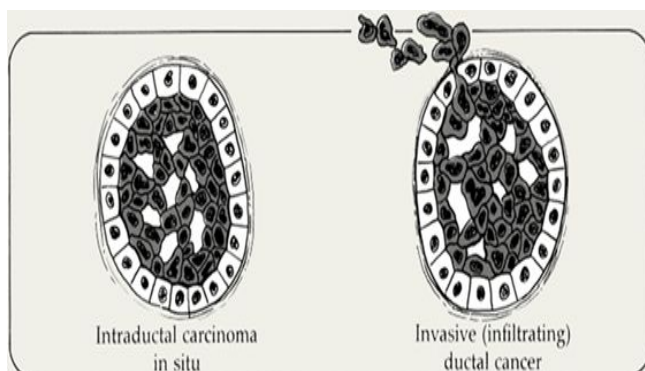


### Ductal Carcinoma in Situ (DCIS):

DCIS is the **non-invasive** proliferation of malignant cells **within the duct system** without breaching the underlying **basement membrane**. (The prognosis with DCIS is excellent, with greater than 97% long-term survival after simple mastectomy)

### Different patterns/subtypes:

- **Comedo (central necrosis)** has essentially a **100% chance of becoming invasive if left untreated**. *It* is characterized by **large central zones of necrosis** with **calcified debris**. Less commonly causes *mammographic density*.
  - **Cribiform** (cells arranged around “punched-out” spaces).
  - **Papillary, Micropapillary**.
  - **Solid** (cells fill spaces).
  - Cribriform DCIS comprises cells forming round, regular (“**cookie cutter**”) spaces. The lumens are often filled with calcifying secretory material (see the right picture below).
- Pure cribriform/micropapillary carries only a 30% chance of becoming invasive carcinoma.**



### Diagnosis:

- On mammography DCIS frequently shows **microcalcifications** and it's the sensitive diagnostic procedure for detecting DCIS → the reason of the increased diagnosis of DCIS in the last two decades.
- majority of DCIS are not palpable → do not spread to basement membrane. Less frequently they can present as a mammographic density or a vaguely palpable mass or nipple discharge.

### Prognosis:

- They have a **high risk** of developing subsequent invasive carcinoma.
- The tumor distends and distorts the ducts.
- Often **multifocal-malignant** cells can spread widely through the ductal system **without breaching the basement membrane** If there is more than one tumor in the breast, the breast cancer is described as multifocal, tend to develop in the same quadrant of the breast
- Women with DCIS are **at risk of recurrent DCIS** following treatment.

**Treatment:** Wide local excision (only the lump) or Mastectomy.

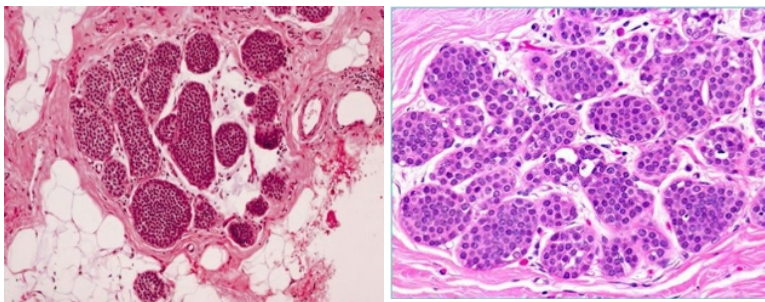
### Lobular Carcinoma in Situ (LCIS):

A malignant proliferation of cell lobules and is always an incidental finding in breast biopsy performed for another reason, **because:**

1. LCIS **does not form a palpable mass** and **cannot be detected clinically on palpation** or on gross pathological examination.
2. **Microcalcifications** in LCIS **are infrequent** and **so mammography is not useful** for detection.  
**Not like the DCIS**
  - LCIS is uncommon and there's **no invasion of basement membrane**.
  - LCIS tends to be **multicentric and bilateral** and therefore **subsequent carcinomas can occur in both breasts**.
  - LCIS is a **marker of increased risk of carcinoma in both breasts** and a direct precursor of some cancers.

### Histology:

**Monomorphic** (uniform appearance) population of **small, rounded cells** fills and expands the acini of lobules. The underlying lobular architecture can still be recognized.



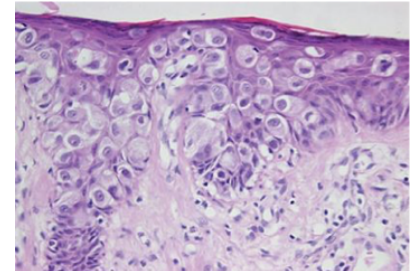
### Prognosis:

If LCIS is left untreated, about **30% of women develop an invasive cancer** within 20 years of diagnosis. The invasive cancer that develops is **usually lobular (but can be ductal too)**. You just keep following up the patient

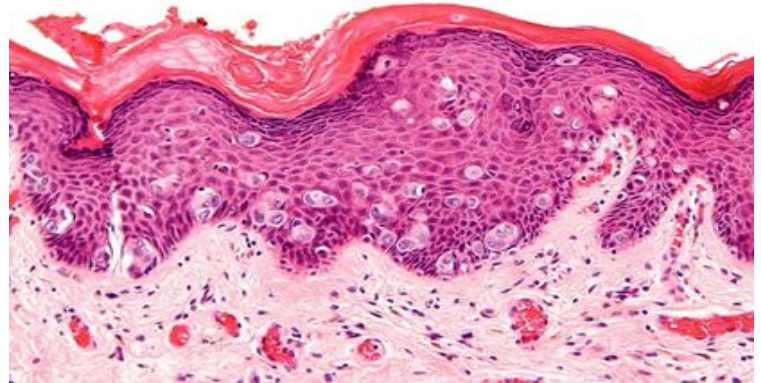
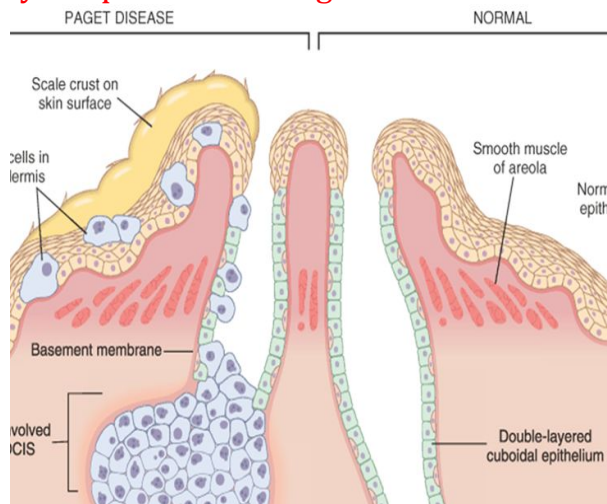


## Paget's Disease:

- Paget's disease of the breast is a rare type of breast cancer that is **characterized by a red, scaly eczematous lesion on the nipple and surrounding areola.**
- **Pruritus** is common and it might be **mistaken for eczema.**
- The **hallmark** is the infiltration of the **epidermis** by malignant cells called **Paget cells** which are large ductal neoplastic cells with abundant cytoplasm, pleomorphic nuclei and prominent nucleoli. The cells usually stain positively for mucin.
- Paget cells extend from DCIS within the ductal system into nipple skin **without crossing the basement membrane.**
- **Palpable mass** can be seen in 50% of women with Paget disease **indicating an underlying invasive carcinoma** nearby.

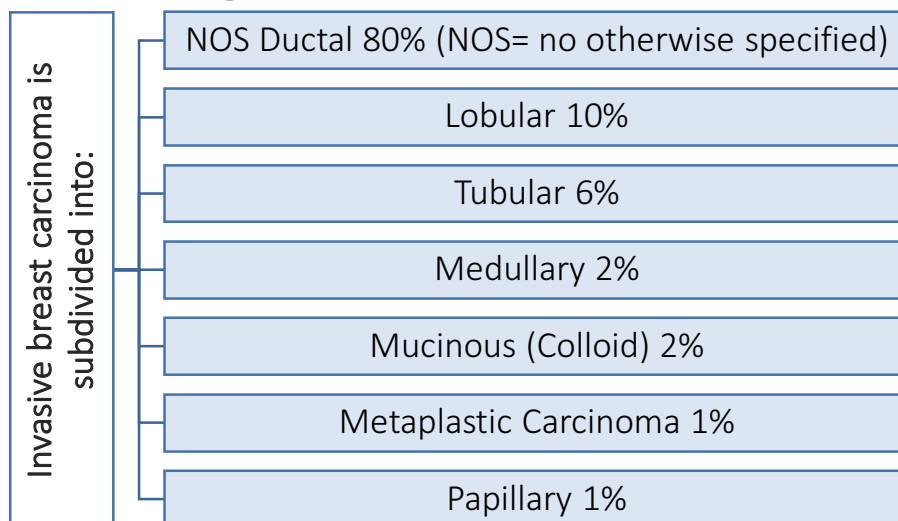


**Prognosis:** based on the underlying carcinoma and is not affected by the presence of Paget disease.



## Invasive Breast Carcinoma:

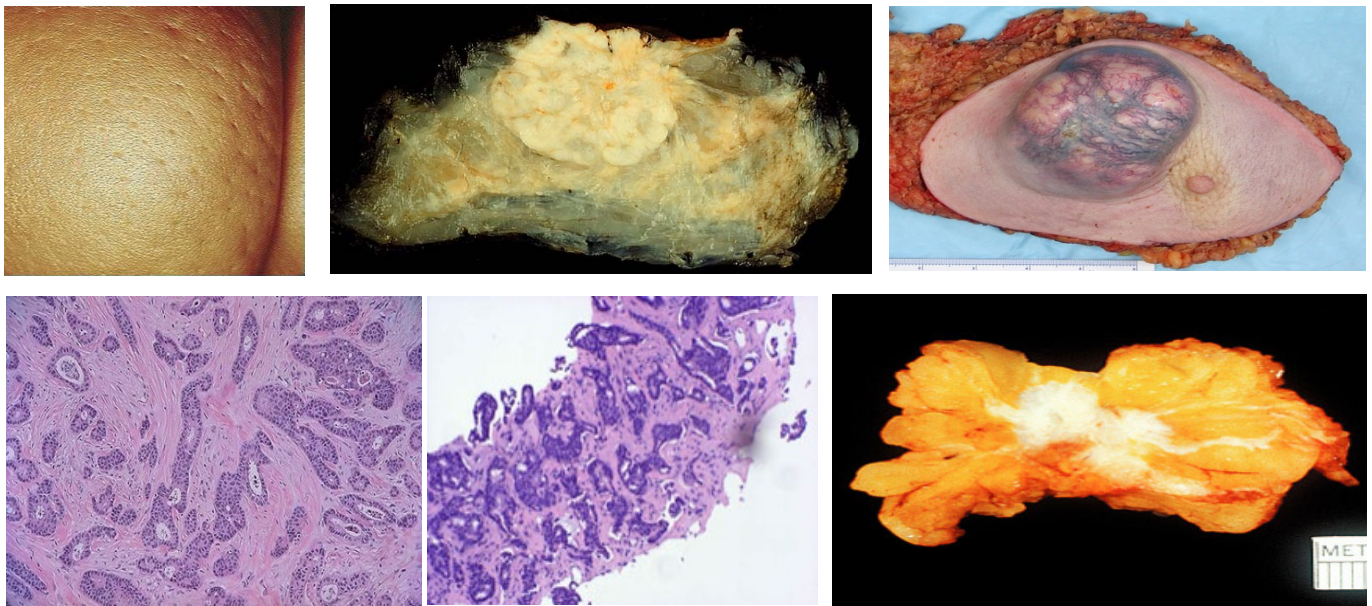
A tumor that has **extended across the basement membrane.** This permits access to lymphatics and vessels and therefore the potential to metastasize.



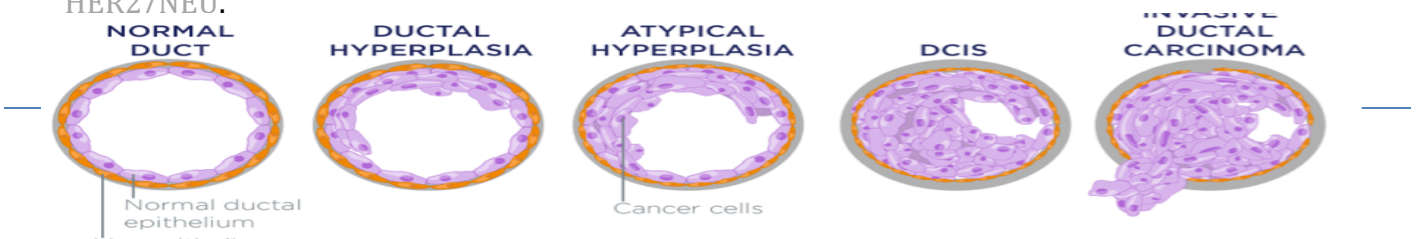
## Clinical features:

- **Palpable mass.** About 1/2 of the patients will have axillary lymph node metastases.
- Larger carcinomas may be fixed to the chest wall or cause **dimpling** of the skin.
- Lymphatics may become involved and the lymphatic drainage of that area and the overlying skin gets blocked causing **lymphedema** and **thickening of the skin**, a change referred to as **peau d'orange**. The lymphatic drainage will accumulate inside the breast and cause edema (peaud' orange)
- When the tumor involves the central portion of the breast, **retraction of the nipple** may develop.
- **On mammography**, invasive carcinomas commonly present as a **density**.
- Invasive carcinomas presenting as **mammographic calcifications** without an associated density, are usually very **small in size**.
- The term "**inflammatory carcinoma**" refers to the clinical presentation of a carcinoma extensively involving dermal lymphatics, resulting in an enlarged erythematous breast. The diagnosis is made on clinical grounds and does not correlate with a specific histologic type of carcinoma.

## Invasive Ductal Carcinoma, NOS:



- Invasive Ductal Carcinoma, NOS is **the commonest type of breast cancer**, forming up to 80% of these cancers. **Most of them are adenocarcinomas**
- Usually is associated with DCIS and, rarely, LCIS.
- Most of these tumors induce a **marked** fibroblastic (desmoplastic) stromal reaction to the invading tumor cells producing a **palpable mass with hard consistency (scirrhous carcinoma)**. And therefore a palpable mass is the most common presentation. **Desmoplastic** means it's fibroblastic and there is a reaction.
- The tumor shows an **infiltrative attachment to the surrounding structures** and may cause dimpling of the skin (due to traction on suspensory ligaments) or **nipple retraction**.
- About two thirds express estrogen or progesterone receptors, and about one third overexpress HER2/NEU.

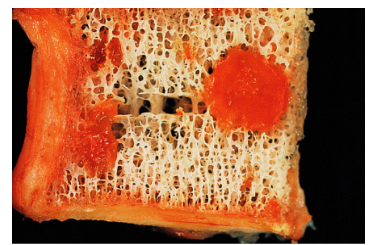
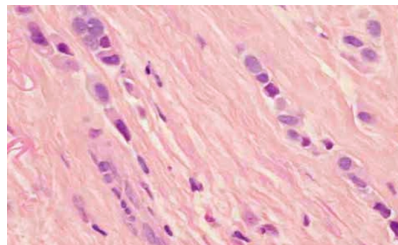
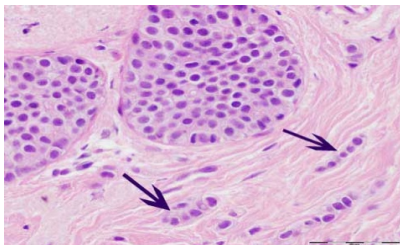




Morphology	Gross	<ul style="list-style-type: none"> <li>Grossly: tumor is firm, hard, with an irregular border.</li> <li>Cut surface: <b>gritty and shows irregular margins with stellate infiltration</b> (sometimes it can be soft and well demarcated) and in the center there are <b>small foci of chalky white stroma</b> and occasionally calcifications.</li> <li>Characteristic grating sound when cut or scraped.</li> <li>Accompanied by varying amounts of DCIS.</li> </ul>
	Microscopically	<ul style="list-style-type: none"> <li>The tumor cells are <b>large</b> and <b>pleomorphic</b> usually within a dense stroma. They are adenocarcinomas and so they <b>show glandular formation</b> but can also be arranged in cords or sheets of cells.</li> <li>The tumors range from well differentiated to moderate or poorly differentiated.</li> <li>Carcinomas associated with a large amount of DCIS require large excisions with wide margins to reduce local recurrences.</li> </ul>

## Invasive Lobular Carcinoma:

- It is the second most common type of invasive breast cancer forming up to 10% of breast cancers.
- Consists of cells morphologically identical to the cells of LCIS. Two thirds of the cases are associated with adjacent LCIS.
- The tumor may occur alone or in combination with ductal carcinoma.
- Most manifest as palpable masses or mammographic densities
- It tends to be **bilateral and multicentric** (in 10% to 20% of cases).
- The **amount of stromal reaction to the tumor varies** from marked fibroblastic (desmoplastic) response to little reaction and **therefore the presentation varies from a discrete mass to a subtle, diffuse indurated area**. Most are firm to hard with irregular margins.
- Lobular carcinomas have a unique pattern of metastases they more frequently spread to cerebrospinal fluid, serosal surfaces, gastrointestinal tract, ovary, uterus, and bone marrow. (last picture on the right shows vertebral metastasis)
- Histology:** Single infiltrating malignant cells, forming a line often one cell width (called as **indian file pattern**) "single-file" strands or chains. **No tubules or papillary formation**.
- This growth pattern correlates with the presence of mutations that abrogate the function of E-cadherin, a surface protein that contributes to the cohesion of normal breast epithelial cells.



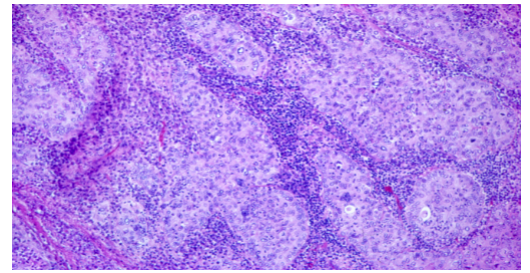
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## Medullary Carcinoma:

- This subtype of breast cancer presents as a **well circumscribed mass**.
- May be mistaken **clinically** and **radiologically** for **fibroadenoma**.
- It does not produce any fibroblastic (desmoplastic) reaction and therefore is **soft and fleshy**.

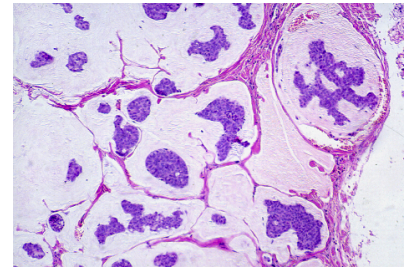


- Medullary carcinomas occur with increased frequency in women with BRCA1 mutations, although most women with medullary carcinoma are not carriers.
- These carcinomas uniformly lack the estrogen and progesterone receptors and do not overexpress HER2/NEU (a combination that often is referred to as triple-negative)
- **Histology:** the tumor is composed of **solid sheets of malignant cells** surrounded by **many lymphocytes and plasma cells**. There is **scant fibrous stroma**.



## Colloid Carcinoma/ Mucinous carcinoma:

- Tends to occur in **older women**.
- The tumor cells produce abundant quantities of extracellular mucin, which dissects into the surrounding stroma
- It is **sharply circumscribed, lacks fibrous stroma** and is **slow growing**.
- Like medullary carcinomas, they often present as well-circumscribed masses and can be mistaken for fibroadenomas
- Is soft and gelatinous and has a **glistening cut surface**.
- It may be in pure mucinous or mixed with another type of invasive breast carcinoma.
- The tumor is composed of **small islands of tumors cells** and single tumor cells floating in pools of extracellular mucin.



**Treatment:** Wide local excision & Radical mastectomy (bigger than 1cm)

**Prognostic Factors:** Both are very important, and they always come in the MCQs!!

### Major Prognostic Factors

#### Invasive or in situ disease

- Invasive has a poorer prognosis as **it can metastasize**.
- In-situ carcinoma is confined to the ductal/lobular system and **cannot metastasize**, so it has better prognosis.

#### Distant metastasis

- Once present, **cure is unlikely**, although long-term remissions and palliation can be achieved.
- Favored sites for dissemination are the lungs, bones, liver, adrenals, brain, and meninges.

#### Lymph node metastasis

- Axillary lymph node status is the **most important prognostic factor for invasive carcinoma**.
- The clinical assessment of nodal involvement is very inaccurate, therefore, biopsy is necessary for accurate assessment.

#### Tumor Size

- **The second most important prognostic factor.**
- The **risk of axillary lymph node metastases increases with the size of the carcinoma**.



## Continue: Major Prognostic Factors

**Note:** all the parameters mentioned in the last page are used to stage the tumor. Stage is a combination of size, lymph node status and distant metastasis. Tumor size less than 2 cm is associated with a favorable prognosis. **The single most important prognostic indicator is the lymph node status. Negative lymph nodes have the best prognosis.** Involvement of 1 to 3 lymph nodes has an intermediate prognosis and 4 or more positive nodes have the worse prognosis.

### Locally advanced disease

- Tumors invading into overlying skin or underlying skeletal muscle are frequently associated with concurrent or subsequent distant disease.
- With increased awareness of breast cancer detection, such cases have fortunately decreased in frequency and are now rare at initial presentation.

### Inflammatory Carcinoma

- Women presenting with the clinical appearance of breast swelling and skin thickening have a poor prognosis.

## Minor Prognostic Factors

### Histologic Subtype

- **Infiltrating ductal and lobular carcinomas have the worst prognosis.** Medullary and mucinous have intermediate prognosis. Tubular and cribriform have the most favorable prognosis.

### Tumor Grade

- It is calculated using a grading system called **modified Scarff-Bloom-Richardson (SBR) grading system**. There are three grades: 1, 2 and 3. Grade 1 has better prognosis and grade 3 has poorer prognosis. **We just need to know that there are 3 grades**
- This SBR grading system is based on the estimation of the **(1) amount of well formed glands, (2) the degree of nuclear pleomorphism, (3) and the mitotic rate**, on microscopic examination. It is calculated by the pathologist.

### Tumor cells with estrogen and progesterone positive receptors

- Majority of breast carcinoma cells **express estrogen and progesterone receptors**. Such **hormone positive cancers have better prognosis**. They respond well to specific hormonal drugs e.g. **Tamoxifen**. Therefore it is mandatory to identify which tumors are **ER/PR positive** as they respond well to hormonal therapy and have **better prognosis** when compared to **ER/PR negative tumors**.

### HER2 (human epidermal growth factor receptor 2)

- A glycoprotein overexpressed in about 30% of breast carcinomas. Many studies have shown that overexpression of HER2 is associated with a poor prognosis. In addition, ongoing studies have shown that **HER2-overexpressing tumors respond very well to a chemotherapy drug named Trastuzumab (Herceptin)**. Therefore, it is mandatory to determine the HER2 status of the tumor when reporting breast cancer in order to help decide the chemotherapy plan.

### Lymphovascular invasion

- Strongly associated with the **presence of lymph node metastases** and is a poor prognostic factor.

### Proliferative rates

- ki67 index. the **faster** it grows the **worse** the result is. (the higher it is the more aggressive the tumor is).





Ki67 is a marker for how fast the cells are metastasizing, for ex; if Ki67 is 70% then it's a bad prognosis, and if it's 10% then it's not a bad sign

## Stromal Tumors:

### 2 basic stromal tumors are

**Fibroadenoma:** Incidence of fibroadenoma decreases after menopause

- **The most common benign tumor of the female breast.**
- It is composed of benign proliferation of both epithelial and stromal elements.
- Any age, most **common before age 30**
- Classic presentation: firm, **mobile lump** (“**breast mouse**”).
- It may **increase in size during pregnancy**. It may stop growing and **regress after menopause**.
- The tumor is usually **solitary** but may be multiple and involve both breasts.
- The tumor is **completely benign**. FA are almost never malignant.
- Grossly: spherical nodules, sharply demarcated and circumscribed from the surrounding breast tissue and so is freely movable and can be shelled out. Size vary (1cm to 10 cm in diameter). Cut surface: **pearl-white and whorled**.
- **Histology:** tumor is composed of a *mixture of ducts* and *fibrous connective* tissue
- **Treatment:** **lumpectomy** (only the lump is removed).

**Phyllodes tumor:** More than 40 years of age and a palpable mass!

- **Can occur at any age**, but most present in the 40s and 50s, that is 10 to 20 years later than the average presentation of a fibroadenoma.
- These tumors are much **less common** than fibroadenomas.
- Most present as large palpable masses (usually 3 to 4 cm in diameter).
- They are **fibro-epithelial tumors** arranged in **leaf like pattern** with cellular stroma.
- They are usually **benign** or low-grade tumors that may **recur locally**. And therefore **are excised with wide margins to avoid the chances of local recurrences**.
- High-grade Phyllodes tumors are **uncommon** and they behave aggressively, with frequent local recurrences and distant metastases.



# Now Check Your Understanding!

## MCQs:

- 1. 30-year-old lady with hemorrhagic nipple discharge, on examination, they saw a retroareolar mass. What's most likely the diagnosis?**
  - A- Large intraductal papilloma
  - B- Epithelial dysplasia
  - C- Intracellular lipid deposition
  - D- Lobular hyperplasia
  - E- Stromal hypertrophy
- 2. A 20-year-old woman breastfeeds her infant. On examination, her breasts are slightly increased in size. Milk can be expressed from both nipples. Which of the following processes that occurred in her breasts during pregnancy enables her to breastfeed the infant?**
  - A- Ductal metaplasia
  - B- Epithelial dysplasia
  - C- Intracellular lipid deposition
  - D- Lobular hyperplasia
  - E- Stromal hypertrophy

Comment: Breast lobules have an increased number of cells under hormonal influence (mainly progesterone) to provide for normal lactation. Ductal metaplasia in the breast is a pathologic process. Epithelial dysplasia denotes disordered growth and maturation of epithelial cells that may progress to cancer.
- 3. Regarding breast carcinoma majority are:**
  - A- Adenocarcinoma
  - B- Squamous cell carcinoma
  - C- Transitional cell carcinoma
- 4. A 21-year-old woman delivered a normal term infant a week ago and is now nursing the infant. She now notes a lump in her right axilla that has increased in size over the past week. On physical examination there is a rubbery, mobile, 1.5-cm mass beneath the skin at the right anterior axillary line. The mass is excised and the microscopic appearance is composed of a mixture of ducts and fibrous connective tissue and the border is sharply delimited, which of the following is most likely diagnosis:**
  - A- Medullary Carcinoma
  - B- Mucinous carcinoma
  - C- Fibroadenoma
  - D- Papilloma
- 5. 4- A 26- year old women present with redness and painful of her breasts and fever history talking reveals she is breastfeeding for her neonate, which of the following is most likely diagnosis:**
  - A- Periductal mastitis
  - B- Lymphocytic mastopathy
  - C- Lobular Carcinoma in Situ
  - D- Acute mastitis



6. A 30-year-old woman sustained a traumatic blow to her right breast. Initially, there was a 3-cm contusion beneath the skin that resolved within 3 weeks, but she then felt a firm, painless lump that persisted below the site of the bruise 1 month later. What is the most likely diagnosis for this lump?
- A- Abscess
  - B- Fat necrosis
  - C- Fibroadenoma
  - D- Inflammatory carcinoma
  - E- Sclerosing adenosis
7. A 27-year-old woman feels a lump in her right breast. She has normal menstrual cycles, and her last child was born 5 years ago. On examination a 2-cm, irregular, firm area is palpated beneath the lateral edge of the areola. This lumpy area is not painful and is movable. There are no lesions of the overlying skin and no axillary lymphadenopathy. A biopsy specimen shows microscopic evidence of an increased number of dilated ducts surrounded by fibrous connective tissue. Fluid-filled ducts with apocrine metaplasia also are present. What is the most likely diagnosis?
- A- Fibroadenoma
  - B- Fibrocystic changes
  - C- Infiltrating ductal carcinoma
  - D- Mammary duct ectasia
8. A 63-year-old woman has a screening mammogram that shows an irregular density with microcalcifications. On physical examination, there are no lesions of the overlying skin, and there is no axillary lymphadenopathy. An excisional biopsy specimen shows no mass on sectioning. Microscopic examination shows the ducts that contain large, atypical cells in a cribriform pattern. What is the most likely diagnosis:
- A- Colloid carcinoma
  - B- Ductal carcinoma in situ
  - C- Infiltrating ductal carcinoma
  - D- Infiltrating lobular carcinoma
9. A 48-year-old woman has noticed a red, scaly area of skin on her left breast that has grown slightly larger over the past 4 months. On physical examination, there is a 1-cm area of eczematous skin adjacent to the areola, the skin biopsy specimen shows The cells stain positively for mucin . What is the most likely diagnosis:
- A- Paget disease of the breast
  - B- Apocrine metaplasia
  - C- Fat necrosis
  - D- Lobular carcinoma in situ
10. the most important prognostic factor for invasive carcinoma is:
- A- Proliferative rate
  - B- Tumor Grade
  - C- Expression of Tumor cells with estrogen and progesterone positive receptors
  - D- Lymph node metastasis
11. 10-Sporadic cases of breast cancers are more than inheritance:
- A- True
  - B- False

Answers:

1: A 2: D 3: A 4: C 5: D 6: B  
7: B 8: B 9: A 10: D 11: A





Thanks for checking our work! Good Luck.

Done by:

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كوثر الموسى

{ قال صلى الله عليه وسلم: من سلك طريقًا يلتمس فيه علمًا سهل الله له به طريقًا إلى الجنة }  
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