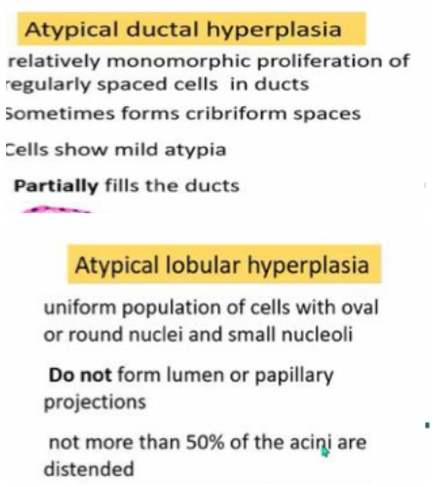
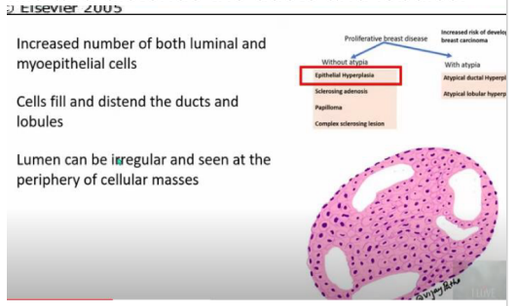
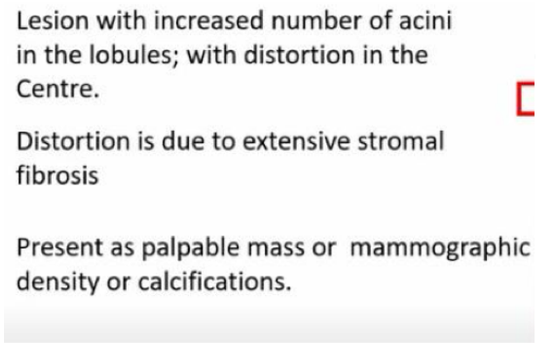
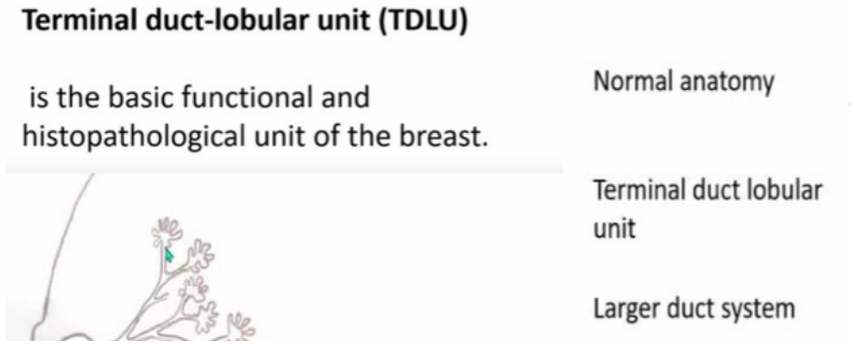
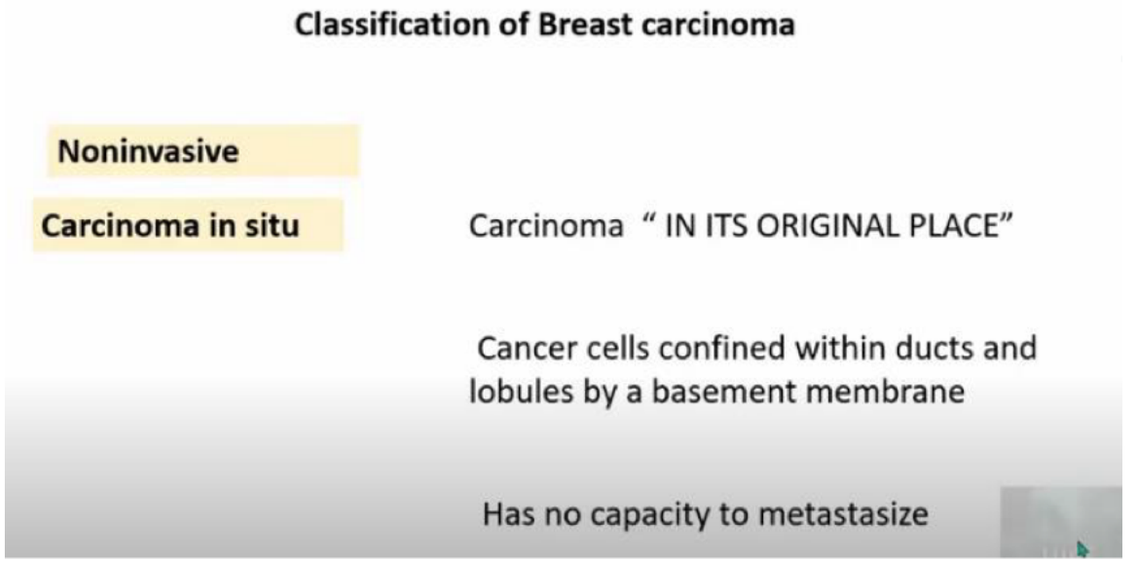
Breast Benign Epithelial Lesions

Non proliferative breast changes	Proliferative breast disease	Atypical hyperplasia
1- No increased risk for cancer 2- Could produce palpable breast mass, mammographic densities, calcifications ,or nipple discharge. 3- Cysts are the most common cause of a palpable mass and they are alarming when they are solitary, firm . 4- Three patterns of morphologic changes : 1 Cyst formation 2 Fibrosis 3 Adenosis	1- Rarely form palpable masses 2- Detected as mammographic densities. 3- Incidental finding 4- Large duct papilloma present in 80% as nipple discharge. 5- Risk for cancer is 1.5 – 2 times normal 6- Many entities included here : 1- Epithelial hyperplasia 2- Sclerosing adenosis 3-complex sclerosing lesions/radial scar 4-Papillomas	1- Risk for cancer is 4-5 times normal 2- Include two entities 1 –Atypical ductal hyperplasia 2 –Atypical lobular hyperplasia
? Cysts : A. small to big in size ,lined by benign epithelium with apocrine metaplasia, B. Semi-translucent or turbid fluid ? Fibrosis : contribute to the palpable firmness of the breast ? Adenosis : A. Increase in the number of acini per lobule. B. Normal adenosis could be seen during pregnancy		

Proliferative breast disease

1- Epithelial hyperplasia:	2- Sclerosing Adenosis.	3- Complex Sclerosing Lesion (Radial Scar).	4- Papillomas
A. The proliferating epithelium, B. often including both luminal and myoepithelial cells, C. fills and distends the ducts and lobules. D. 	— Number of acini per terminal duct is increased. — Normal lobular arrangement is maintained. - The acini are compressed and distorted. Myoepithelial cells are usually prominent. - On occasion histologic pattern mimics the appearance of invasive carcinoma - Calcifications are frequently present within the lumens of them acini. 	A. Radial scars are stellate lesions characterized by a central nidus of entrapped glands in a hyalinized stroma B. can resemble irregular invasive carcinomas mammographicallymor on gross examination. C. "scar" refers to the morphologic appearance, as these lesions,are not associated with prior trauma or surgery.	A. composed of multiple branching fibrovascular cores, each having a connective tissue axis lined by luminal and myoepithelial cells. B. It occurs within a dilated duct. Epithelial hyperplasia and apocrine metaplasia are frequently present.

Normal Breast	Breast Carcinoma
? Specialized epithelium and stroma that gives rise to both benign and malignant lesions ? Six to ten major ductal systems originate at the nipple. ? Branching of the large ducts leads to the terminal duct lobular units. ? The TDU branches into grapelike clusters of small acini to form the lobule. 	? The most common malignancy of breast is carcinoma ? Carcinoma of the breast is the most common cancer in women ? Mammographic screening increased dramatically the detection of small invasive cancers ?Almost all are Adenocarcinoma ?Divided into 1- In situ Carcinoma 2- Invasive carcinoma ? 

Breas t Clinical Presentation	CLINICAL FEATURES OF BREAST CANCER
1) Pain (mastalgia) ? the most common breast symptom and may be cyclical with menses or noncyclical ? Diffuse cyclical pain has no pathologic significance. ? Noncyclical pain is usually associated with a focal site in the breast. ? Although the great majority of painful masses are benign, about 10% of breast cancers present with pain, and all masses need to be investigated.	In young women or in older women not undergoing mammographic screening A. invasive carcinoma almost always presents as a palpable mass. By the time a cancer becomes palpable, over half the patients will have axillary lymph node metastases . B. Larger carcinomas may be fixed to the chest wall or cause dimpling of the skin. C. Lymphatics may become so involved as to block the local area of skin drainage and cause lymphedema and thickening of the skin, a change referred to as peau d'orange . D. When the tumor involves the central portion of the breast, retraction of the nipple may develop.
2) Palpable mass	In older women undergoing mammography, A. invasive carcinomas most commonly present as a density and are, on average, half the size of a palpable cancer. Fewer than 20% will have a nodal metastases. B. Invasive carcinomas presenting as mammographic calcifications without an associated density are very small in size, and metastases are unusual.
3) Nipple discharge: ? Milky discharge has not been associated with malignancy. ? Bloody or serous discharges are most commonly associated with benign lesions but, rarely, can be due to a malignancy.	The term "inflammatory carcinoma" A. refers to themclinical presentation of a carcinoma extensively involving dermal lymphatics B. resulting in an enlarged erythematous breast C. The diagnosis is made on clinical grounds and does not correlate with a specific histologic type of carcinoma

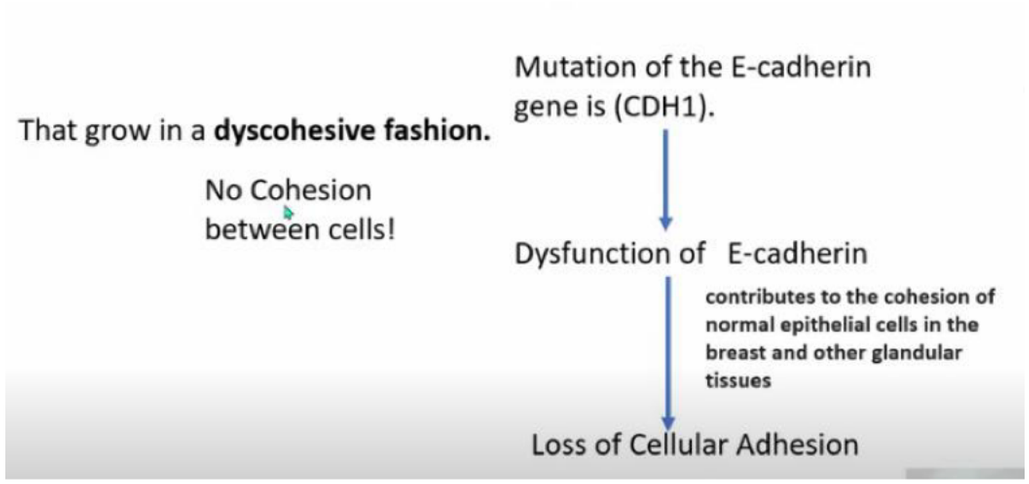
Carcinoma in situ

DCIS In Situ Carcinoma 80%

1- Rapidly increased in the past two decades
2- Half of mammographically detected cancers
3- Most frequently as a calcifications
4- Less frequently as a density or a vaguely palpable mass or nipple discharge

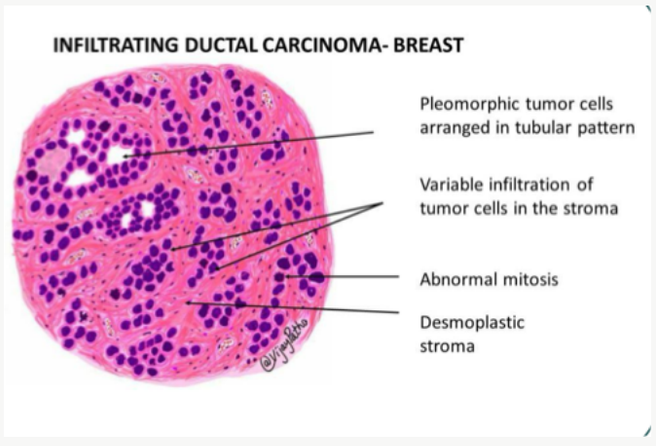
LCIS 20%

1- Always an incidental finding in a biopsy performed for another reason
2- Infrequent (1% to 6%) of all carcinomas
3- Bilateral in 20% to 40% of women when both breasts are biopsied
4- LCIS is frequently multicentric and bilateral and subsequent carcinomas occur at equal frequency in both breasts
5- E-cardherin - lack of E-cadherin results in a rounded shape without attachment to adjacent cells



Invasive carcinoma

Invasive ductal carcinoma



Invasive Lobular Carcinoma

- Most are firm to hard with irregular margins
- Single infiltrating cells ,often one cell width
- No tubules or papillary formation

Paget's Disease

1- Rare manifestation of breast cancer(1 to 2 %)
2- Pruritus is common ,might be mistaken for Eczema, presents as a unilateral erythematous eruption with a scale crust.
3- Malignant cells, referred to as Paget cells and are found scattered ion the epidermis.
4- Paget cells extend from DCIS within the ductal system into nipple skin without crossing the basement membrane
5- Palpable mass is present in 50 to 60% of women with Paget disease indicating an underlying invasive carcinoma.

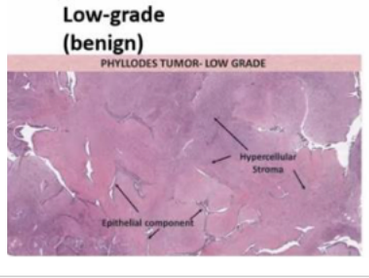
Stromal tumors

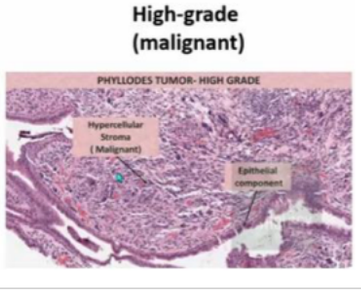
Fibroadenoma

1. The most common benign tumor of the female breast
2. Any age ,most common before age 30
3. Usually present with a palpable mass
4. Regression usually occurs after menopause
5. Spherical nodules
6. Sharply demarcated
7. Freely movable
8. Size vary
9. Proliferation in both glands and stroma
10. Treatment: lumpectomy (only the lump is removed)

Phylloides tumor

1. Phyllodes tumors, like fibroadenomas, arise from intralobular stroma
2. Although they can occur at any age, most present in the sixth decade, 10 to 20 years later than the average presentation of a fibroadenoma
3. Most present as palpable masses
4. Phyllodes tumors must be excised with wide margins to avoid the high risk of local recurrences.
5. The majority are low-grade tumors that may recur locally but only rarely metastasize
6. Rare high-grade lesions behave aggressively, with frequent local recurrences and distant hematogenous metastases in about one third of cases.
7. Low-grade (benign) High-grade (malignant)





Breast Cancer Risk Factors

1. Age
A. breast cancer is rare before 25 yrs, except familial forms ,77% of cases occur in women >50 yrs of age.
B. The average age at diagnosis is 64 years

2. Age at Menarche:
A. Menarche younger than age 11 have a 20% increased risk to that who have their menarch at 14yrs.

3- First Live birth:
A. Full term pregnancy before age 20 years has half the risk of nulliparous ,or women who have first birth after age 35.

4- First Degree relative with Breast Cancer
A. The risk increases with the number of affected first degree relatives
B. The majority of cancers occur in women without such history

5- Breast Biopsy :
A. Atypical hyperplasia increases the risk for breast cancer

6- Race
A. Overall incidence of breast cancer is lower in African American women

7- Estrogen Exposure:
A. postmenopausal hormone replacement slightly increase the risk

8- Radiation exposure:
A. Higher rate of breast cancer

9- Carcinoma of the contralateral breast or Endometrium

10- Geographic influence :
A. Four to seven times in USA and Europe higher than those in other countries

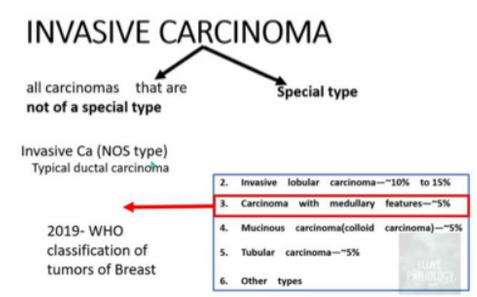
11- Diet
A. Fat might increase the risk

12- Obesity : may play a role

Invasive Breast Carcinoma Classification

- Invasive Carcinoma :

1 NOS Ductal 80%
2 Lobular 10%
3 tubular 6%
4 Mucinous(Colloid) 2%
5 Medullary 2%
6 Papillary 1%
7 Metaplastic Carcinoma 1%



Hereditary Breast Cancer	Sporadic Breast Cancer
1- A family history of breast cancer in a first-degree relative is reported in 13% of women with the disease 2- About 25% of familial cancers (or around 3% of all breast cancers) can be attributed to two highly penetrant autosomal-dominant genes 1. :BRCA1,2	1- The major risk factors for sporadic breast cancer are related to hormone exposure: 2-The majority of these cancers occur in postmenopausal women and overexpress ER.

Breast Carcinoma

Major Prognostic Factors

1- Invasive or In situ disease:
A. in situcarcinoma is confined to the ductal system and cannot metastasize
B. Breast cancer deaths associated with DCIS are due to the subsequent development of invasive carcinoma or areas of invasion undetected at the time of diagnosis
C. The great majority of women with adequately treated DCIS will be cured.
D. at least half of invasive carcinomas will have metastasized locally or distantly at the time of diagnosis.

2- Distant metastasis:
A. Once distant metastases are present, cure is unlikely
B. although long-term remissions and palliation can be achieved
C. Favored sites for dissemination are the lungs, bones, liver, adrenals, brain, and meninges.

3- Lymph node metastasis
A. Axillary lymph node status is the most important prognostic factor for invasive carcinoma in the absence of distant metastases.
B. The clinical assessment of nodal involvement is very inaccurate, therefore, biopsy is necessary for accurate assessment.
C. With no involvement, the 10-year disease-free survival rate is close to 70% to 80%; the rate falls to 35% to 40% with one to three positive nodes and 10% to 15% in the presence of more than 10 positive nodes.
D. Sentinel lymph nodes:
   1. Most breast carcinomas drain to one or two sentinel nodes that can be identified by radiotracer colored dye, or both.
   2. The sentinel node is highly predictive of the status of the remaining nodes.
   3. Sentinel node biopsy can spare women the increased morbidity of a complete axillary dissection.

4- Tumor Size
A. The size of the carcinoma is the second most important prognostic factor
B. The risk of axillary lymph node metastases does increase with the size of the carcinoma.

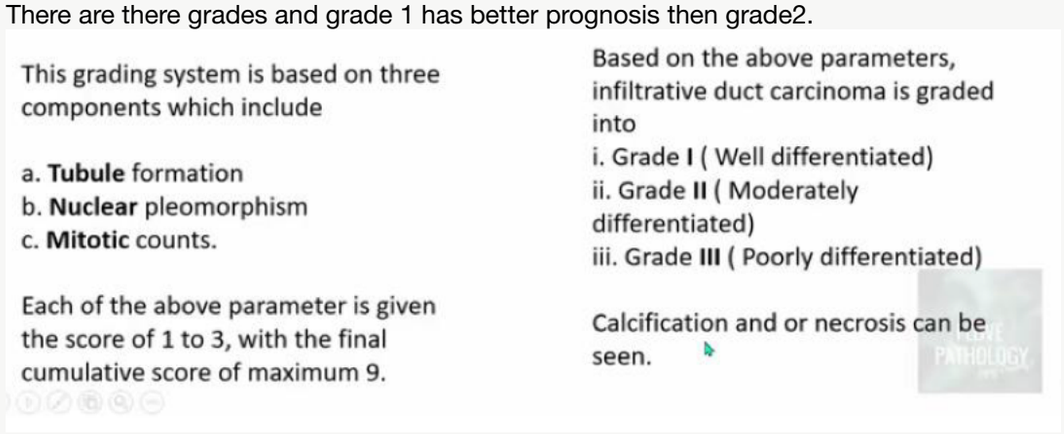
5- Locally advanced disease:
A. Tumors invading into skin or skeletal muscle are frequently associated with concurrent or subsequent distant disease
B. With increased awareness of breast cancer detection, such cases have fortunately decreased in frequency and are now rare at initial presentation.

6- Inflammatory Carcinoma:
A. Women presenting with the clinical appearance of breast swelling and skin thickening have a particularly poor prognosis with a 3-year survival rate of only 3% to 10%.

Minor Prognostic Factors

1- Histologic Subtype:
A,have better prognosis:
A. tubular
B. mucinous
C. medullary
D. lobular
E. papillary

2- Tumor Grade:
A. The most commonly used grading system to assess the degree of tumor differentiation (Bloom Richardson) combines nuclear grade, tubule formation, and mitotic rate
B. There are there grades and grade 1 has better prognosis then grade2.



C.

3- Estrogen and progesterone receptors:
A. 50% to 85% of carcinomas express estrogen receptors, such tumors are more common in postmenopausal women, hormone positive cancers have better prognosis.
B. They respond well to specific drugs eg. Tamoxifen. Therefore reporting of ER/PR positivity is important when reporting breast cancer.

4- HER2/neu.
A. an epidermal growth factor receptor 2 or c-erb B2 or neu) is a glycoprotein overexpressed in 20% to 30% of breast carcinomas.
B. Many studie shave shown that overexpression of HER2 /neu is associated with a poor prognosis.
C. In addition, ongoing studies have shown that HER2 /neu-overexpressing tumors respond very well to hormonal or anthracycline chemotherapy regimens eg.. Trastuzumab (Herceptin)
D. Therfore evaluation of HER2/neu is most important when reporting breast cancer.

4- Lymphovascular invasion:
A. Tumor cells may be seen within vascular spaces (either lymphatics or small capillaries) surrounding tumors
B. This finding is strongly associated with the presence of lymph node metastases and is a poor prognostic factor in women without lymph node metastases.

5- Proliferative rates

اللهم إني أسألك

جدًّا مقرونًا بالتوفيق، وعلمًا بريئًا من الجهل، وعملًا عَرِيًّا من الرياء، وقولًا موشّحًا بالصواب،

وحالًا دائرة مع الحق، وفطنة عقل مضروبة في سلامة صدر، وراحة جسم راجعة إلى روح بال، وسكون نفس موصولا بثبات يقين،

وصحة حجة بعيدة من مرض شبهة،

حتى تكون غايتي في هذه الدار مقصورة بالأمثل فالأمثل،

وعاقبتي عندك محمودة بالأفضل فالأفضل،

مع حياة طيبة أنت الواعد بها ووعدك الحق، ونعيم دائم أنت المبلغ إليه ❤️

- أبو حيان التوحيدي.