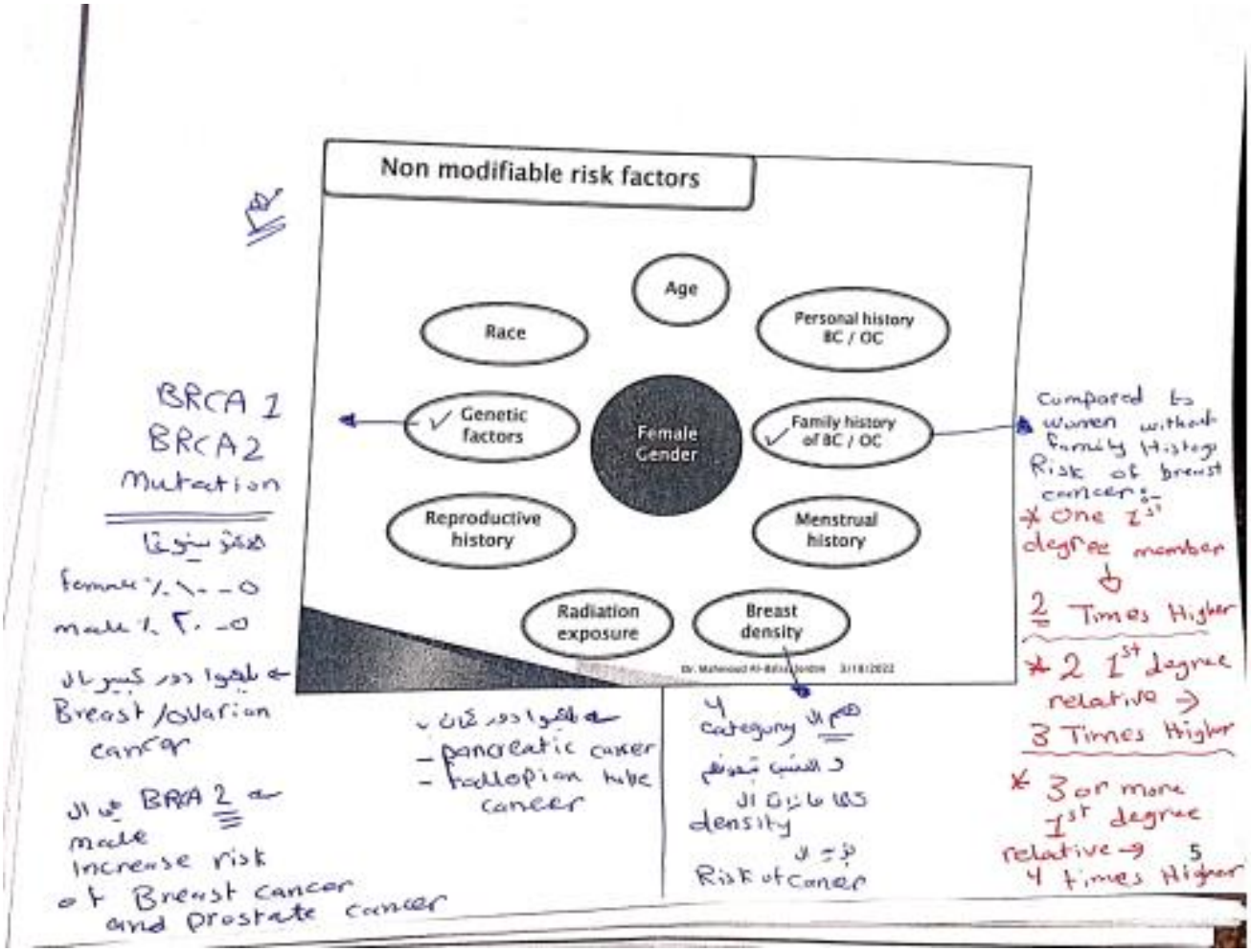
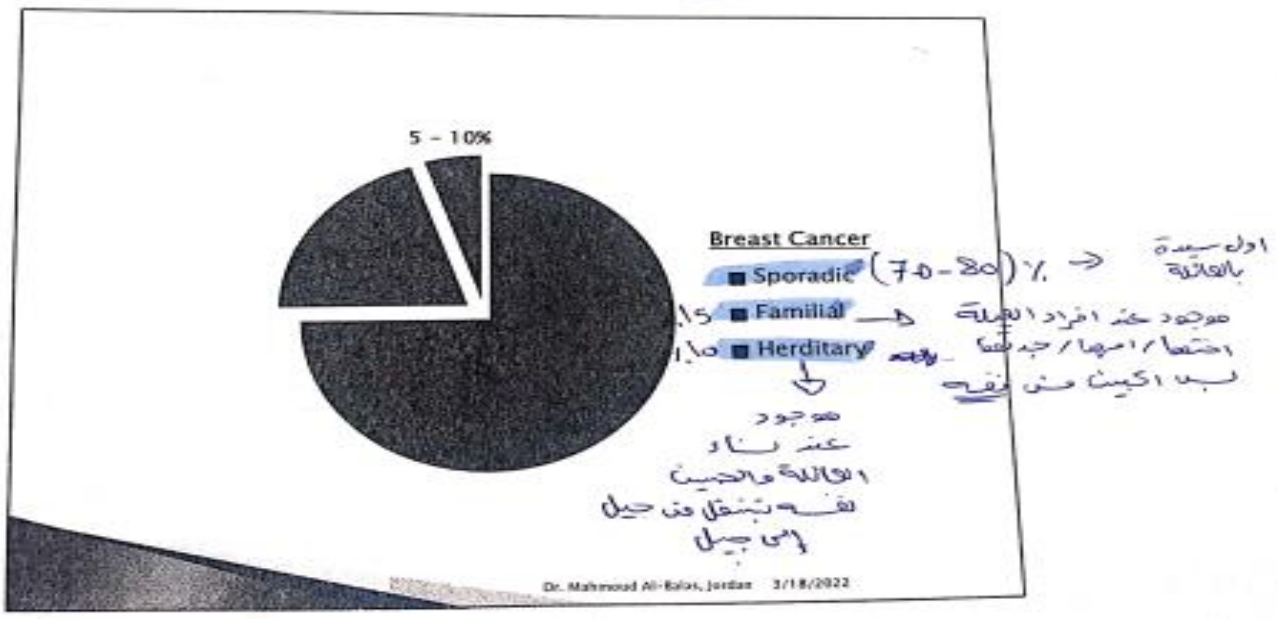
Risk Factors for Breast Cancer:





→ That's why lady with early Menar or delay Menopaus
or not Married or no previous pergnency /full Term Baby
↓
All are Hi Risk of develop Brea carcinoma

Important to know which catogey is High Risk and which is low Risk

Factors that Increase the Relative Risk (RR) for Breast Cancer in Women

RR>4.0	❑ Female ❑ Age (65+) ❑ Inherited genetic mutations associated with breast cancer such as BRCA1/BRCA2 ❑ Two or more first-degree relatives with breast cancer diagnosed at an early age ❑ Personal history of breast cancer ❑ Biopsy-confirmed atypical hyperplasia ❑ DCIS, LCIS
2.1<RR<4.0	❑ One first-degree relative with breast cancer ❑ High-dose radiation to chest ❑ High bone density (post-menopausal) ❑ Breast density > 50%
1.1<RR<2.0	Factors affecting circulating hormones: ❑ Late age at first full-term pregnancy (>30 yrs) ❑ Early menarche(<12 yrs) ❑ Late menopause ❑ No full-term pregnancies ❑ No breastfeeding ❑ Recent oral contraceptive use ❑ Recent and long-term hormone replacement therapy ❑ Obesity ❑ Breast density 26-50% Other factors: ❑ Personal history of endometrium, ovary or colon cancer ❑ Alcohol consumption ❑ Height (tall) ❑ High socioeconomic status ❑ Jewish heritage

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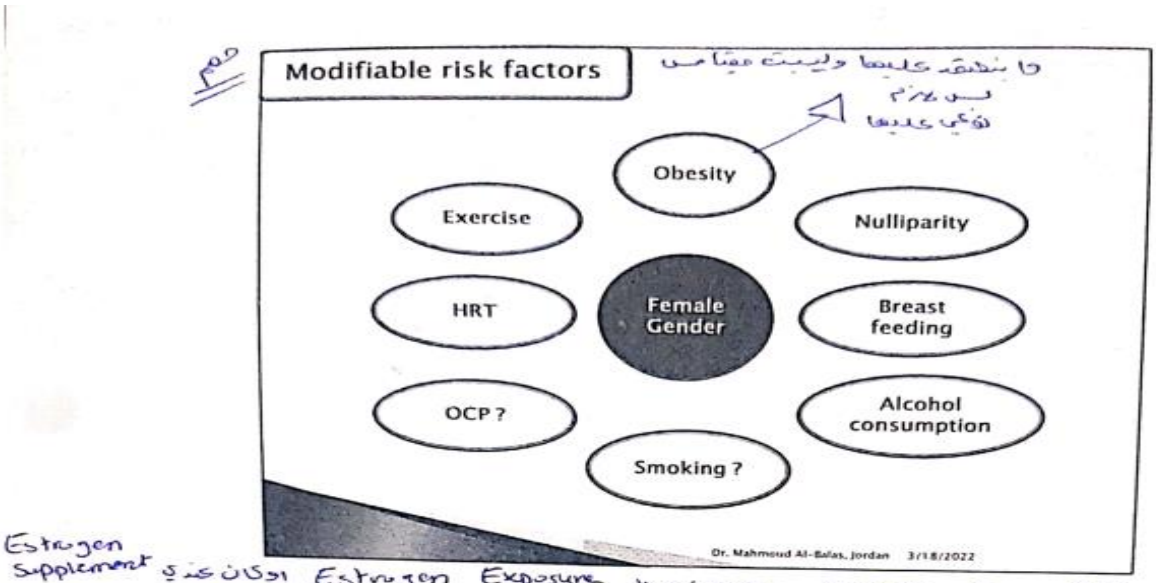
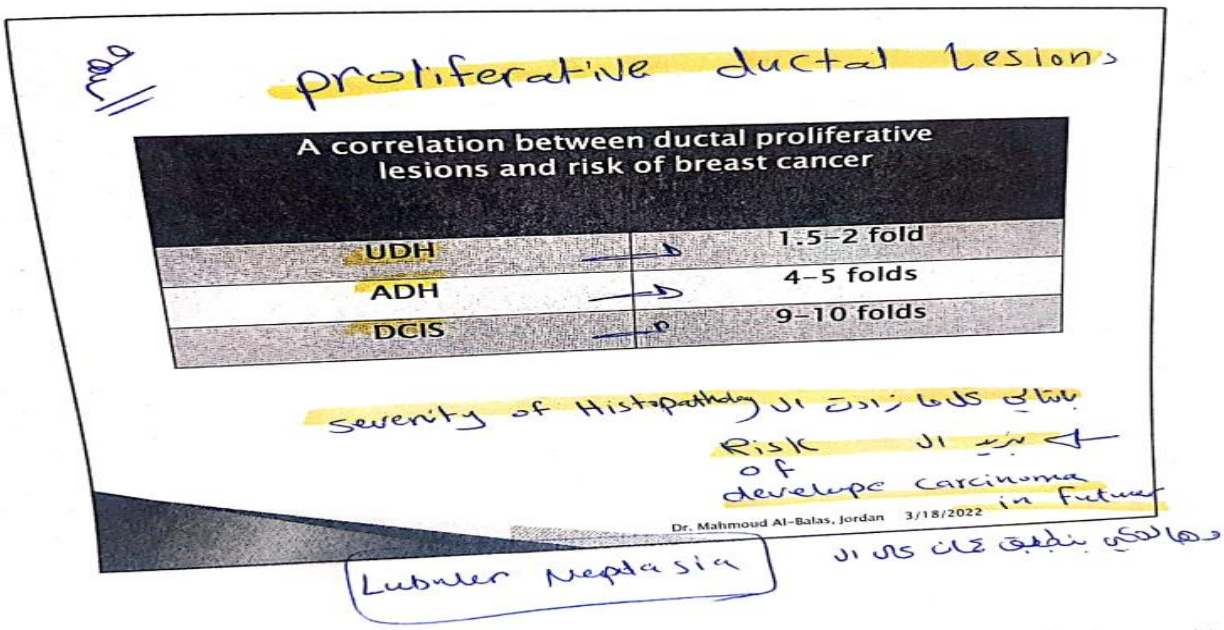


Estrogen Supplement ادوية تعتبر Estrogen Exposure

* في دور كبير للهرمونات بحيث كل ما زاد ال Risk of Breast Cancer ال يزيد

→ That's


proliferative ductal lesions
A correlation between ductal proliferative lesions and risk of breast cancer
UDH
ADH
DCIS
1.5–2 fold
4–5 folds
9–10 folds
severity of Histopathology
Risk of develope carcinoma in future
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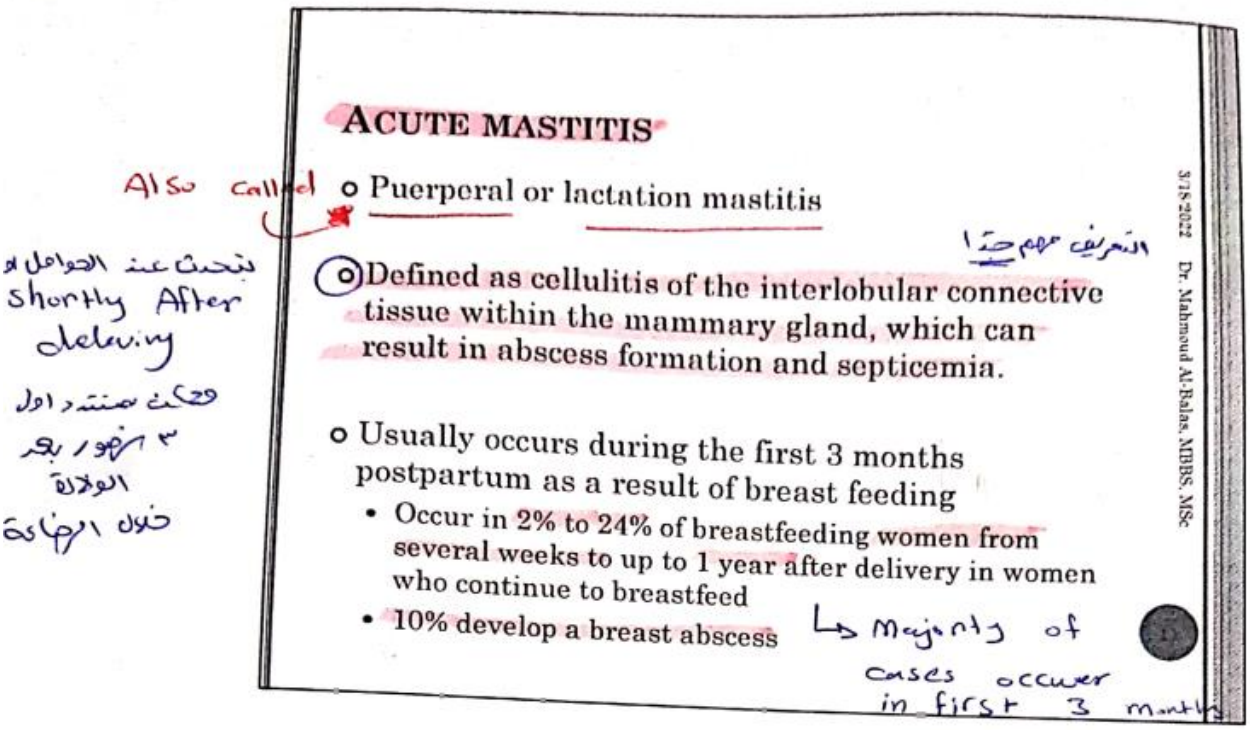
Lubuler Neoplasia

Mastitis


ACUTE MASTITIS
Also called
Puerperal or lactation mastitis
Defined as cellulitis of the interlobular connective tissue within the mammary gland, which can result in abscess formation and septicemia.
Usually occurs during the first 3 months postpartum as a result of breast feeding
Occur in 2% to 24% of breastfeeding women from several weeks to up to 1 year after delivery in women who continue to breastfeed
10% develop a breast abscess
Majority of cases occuer in first 3 months
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Risk factors

عادة في الأسبوع الرضاعة لأول مرة

1. Improper nursing technique
   - Milk stasis and cracks or fissures of the nipple
   - May facilitate entrance of microorganisms through the skin
2. Stress and sleep deprivation
   - Lower the mother's immune status and inhibit milk flow, thus causing engorgement

Immune supression secondry to stress and depression which reduce her immune status

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Causative agents

1. S. aureus → most common pathogen
2. Coagulase-negative staphylococci
3. ß-hemolytic streptococci
4. Other → Streptococcus faecalis, Escherichia coli

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Presentation

Usually, This inflammatory process localized in one sigment of the Breast or in one quadrant or even diffuse progess

- Pain – swelling – induration - redness – hotness – discharge
- Early diagnosis and early management of mastitis is of value
- The duration of symptoms before starting treatment is found to be the only independent risk factor for abscess development

https://www.babycentre.co.uk/a251/mastitis
http://www.mayoclinic.org/diseases-conditions/mastitis/multimedia/mastitis/img-20008120

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Management

- Breast emptying with frequent nursing or manual pumping and
- Empiric antibiotic therapy → To cover S. Aureus
  - Little consensus on the type or duration of antibiotic therapy and when to begin antibiotics
- Abscess drainage
  - I&D (Incision and drainge)
  - US guided aspiration

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- **Breast feeding during mastitis ?**
  - Continue breastfeeding
    - Increasing the frequency of feeds
    - Manually emptying the breast between feeds.
  - Initiate feeds on the unaffected breast and change the infant's position at different feeds.
  - Continued breastfeeding is not harmful to the infant
    - Weaning / decrease feeding have an increased risk of developing a breast abscess.

https://belefelia.com/files/2011/08/mastitis.jpg

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If mother stop Breast feeding this will worse pathology

* In this case dose baby at risk of infection ?

No , Milk contain Immunoglobulin which protect system of the baby

- **Analgesics (e.g. ibuprofen or acetaminophen)**
- **Increased fluid intake and adequate nutrition should be encouraged.**
- **Either cold or warm compresses may be used for comfort**
  - Warm compresses may aid in breast drainage
- **Wear some type of non-constricting breast support**

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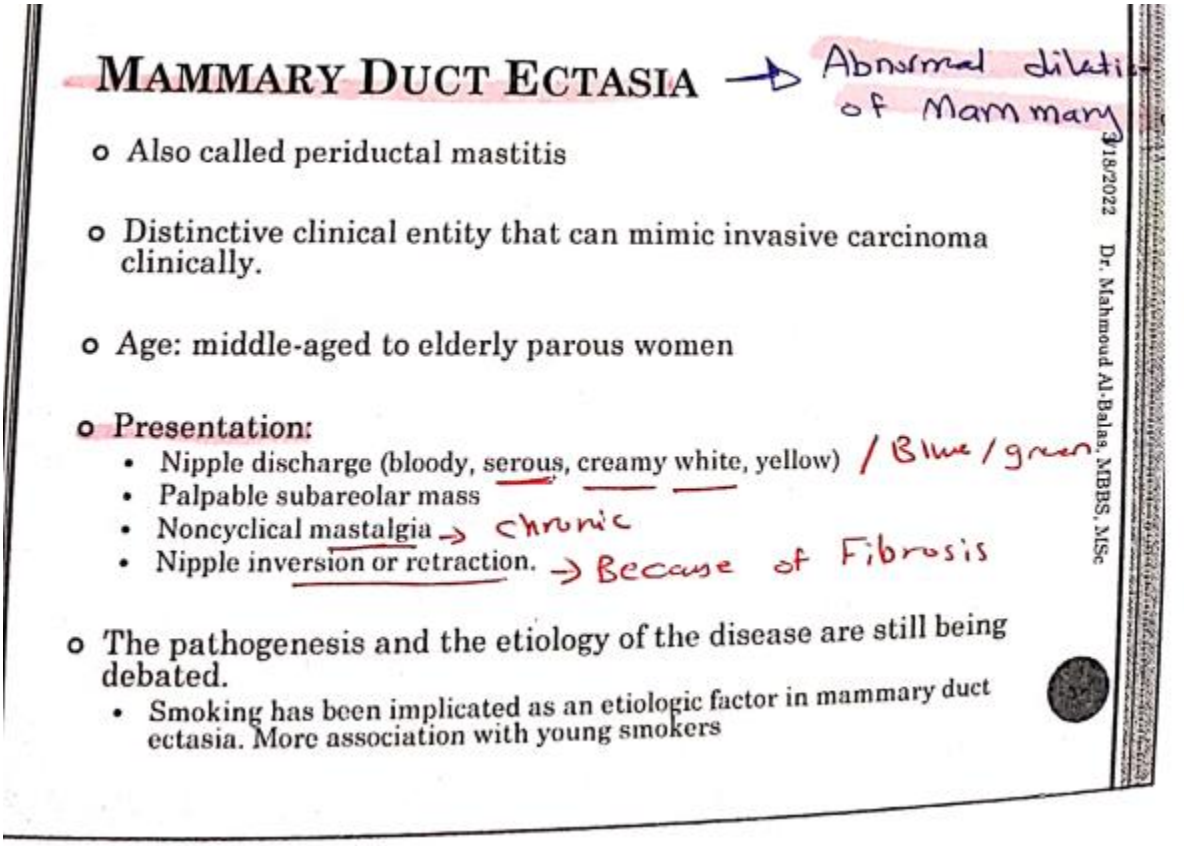
* يقدر حسب وضع المريضة وتشخيص انها اعطى نوع ال Antibiotic وتذا مع بعض

In patient or out patient

- If pt is stable, No Toxic → T+t as out pt
- If pt is Toxic, Septeic, unstable → IV Antibiotic

Periductal Mastitis:



MAMMARY DUCT ECTASIA → Abnormal dilatation of Mammary

- Also called periductal mastitis
- Distinctive clinical entity that can mimic invasive carcinoma clinically.
- Age: middle-aged to elderly parous women
- Presentation:
  - Nipple discharge (bloody, serous, creamy white, yellow) / Blue / green
  - Palpable subareolar mass
  - Noncyclical mastalgia → chronic
  - Nipple inversion or retraction. → Because of Fibrosis
- The pathogenesis and the etiology of the disease are still being debated.
  - Smoking has been implicated as an etiologic factor in mammary duct ectasia. More association with young smokers

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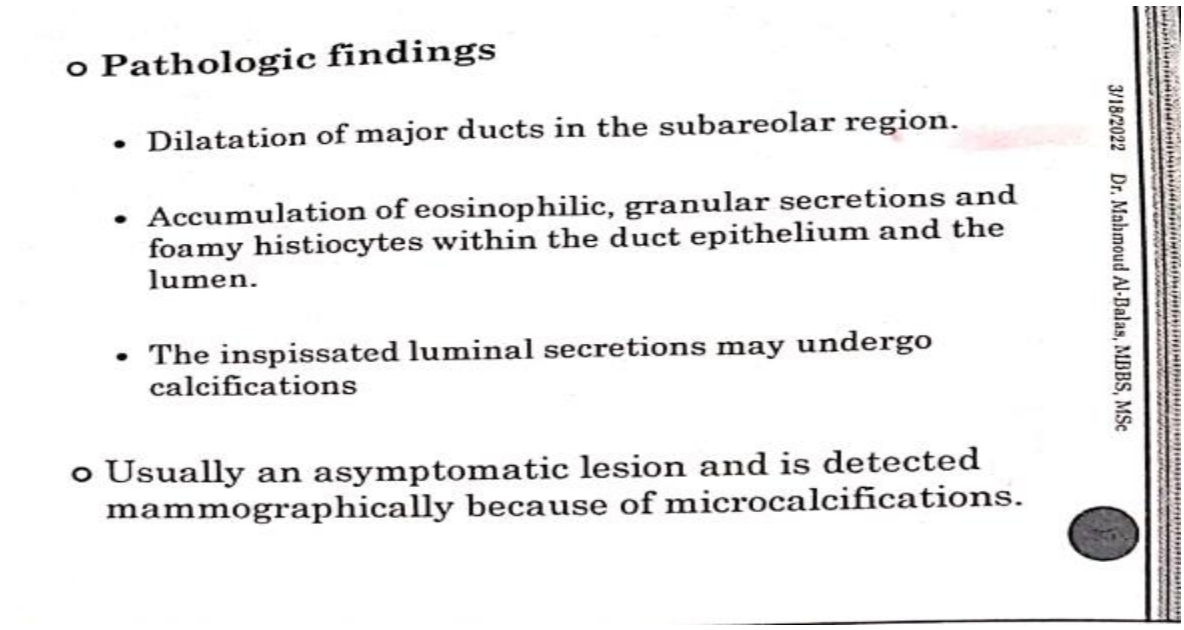

- Pathologic findings
  - Dilatation of major ducts in the subareolar region.
  - Accumulation of eosinophilic, granular secretions and foamy histiocytes within the duct epithelium and the lumen.
  - The inspissated luminal secretions may undergo calcifications
- Usually an asymptomatic lesion and is detected mammographically because of microcalcifications.

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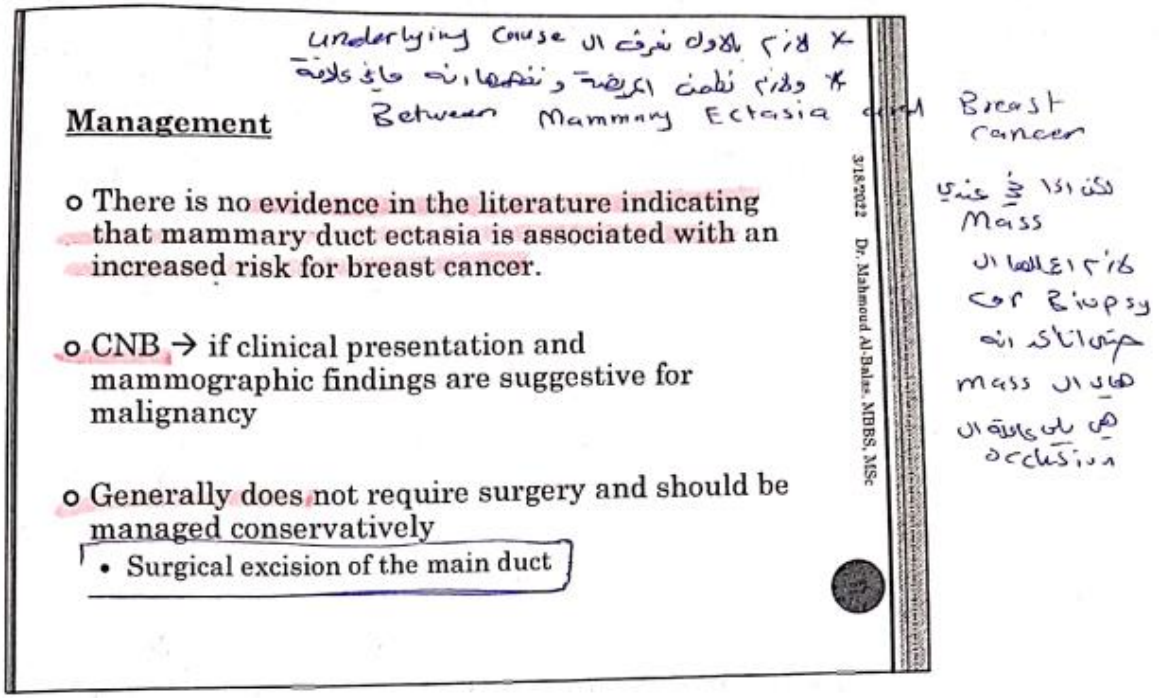
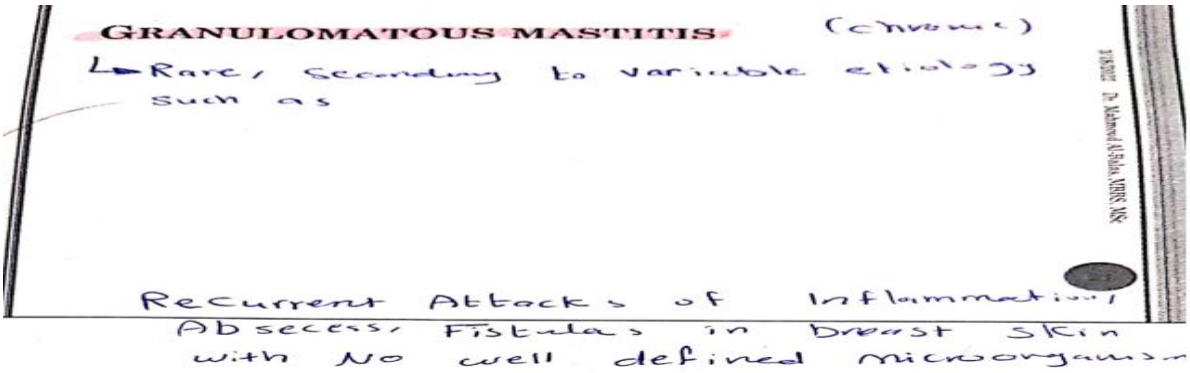
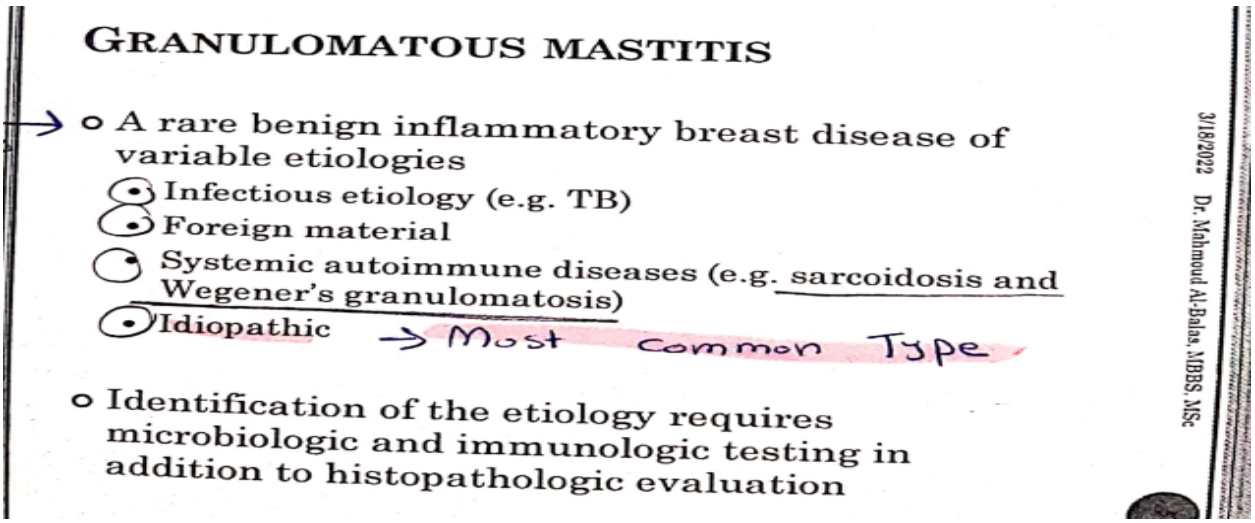


Idiopathic Granulomatous Mastitis:





* pathological stigma of ↓ :-

Idiopathic granulomatous mastitis

1. A non-caseating granulomatous lesions without an identifiable cause.
2. Diagnosis by excluding other possible causes
   - Exclude Sarcoidosis, Malignancy, TB
3. Cause is unknown;
   - may be attributed to a localized autoimmune response to retained and extravasated fat- and protein-rich secretions in the duct
4. Histologically
   - chronic non-caseating granulomatous inflammation typically limited to lobuli.

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Caseating :- TB

Non-caseating with prevalence of Sarcoidosis → Sarcoidosis

Presentation

- ✓ Ill defined painful mass in the breast
  - Can involve any quadrant
  - Bilateral involvement is rare
- ✓ Skin thickness, sinus and abscess formation
- ✓ Axillary lymphadenopathy
- ✓ Nipple retraction
- ✓ May be mistaken with breast carcinoma

Seven case shows :-
1. multiple fistula abnormal communication between space and epithelial surface
2. Multiple scars → secondary to previous Surgery

In clinical practise - لازم نعرف
For every lady present with Acute Mastitis, with Reccurent attacks →
we should take Tissue Biopsy أهم شي in addition to drainage as Ttt in order to reach diagnosis

-pt with :-
1) Abscess :- I+D
2) Inflammation → Antibiotics
3) Mass → Surgery / Excision

بتعتمد على ال presentation يلي بتجي فيه المريضة

- **Treatment**
  1. Complete surgical excision whenever possible plus steroid therapy.
  2. Spontaneous resolution occur
- **Prognosis**
  - * 5-50% of the cases have
    - Persistence
    - Recurrence
    - Complications (e.g. abscess formation, fistulae, and chronic suppuration)
  - long-term follow up is necessary in these patients

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The main line of Ttt for pt with Granulomatous mastitis
∴ Idiopathic وتكون ال
Steroid ± Surgery

Breast Cancer Screening:

Mammography & Ultrasound

- **Mammogram**: (مهم جدا)
  - Microcalcifications → most common mammographic finding
  - Soft tissue density or asymmetry
  - Magnification views more accurately predict the extent of disease.
  - Can underestimate the pathological extent of the disease especially with micropapillary DCIS

* Factors affect Mamo:-
1) Breast Density
2) Breast Implant
3) post Menopausal HRT

* مهم ال Views

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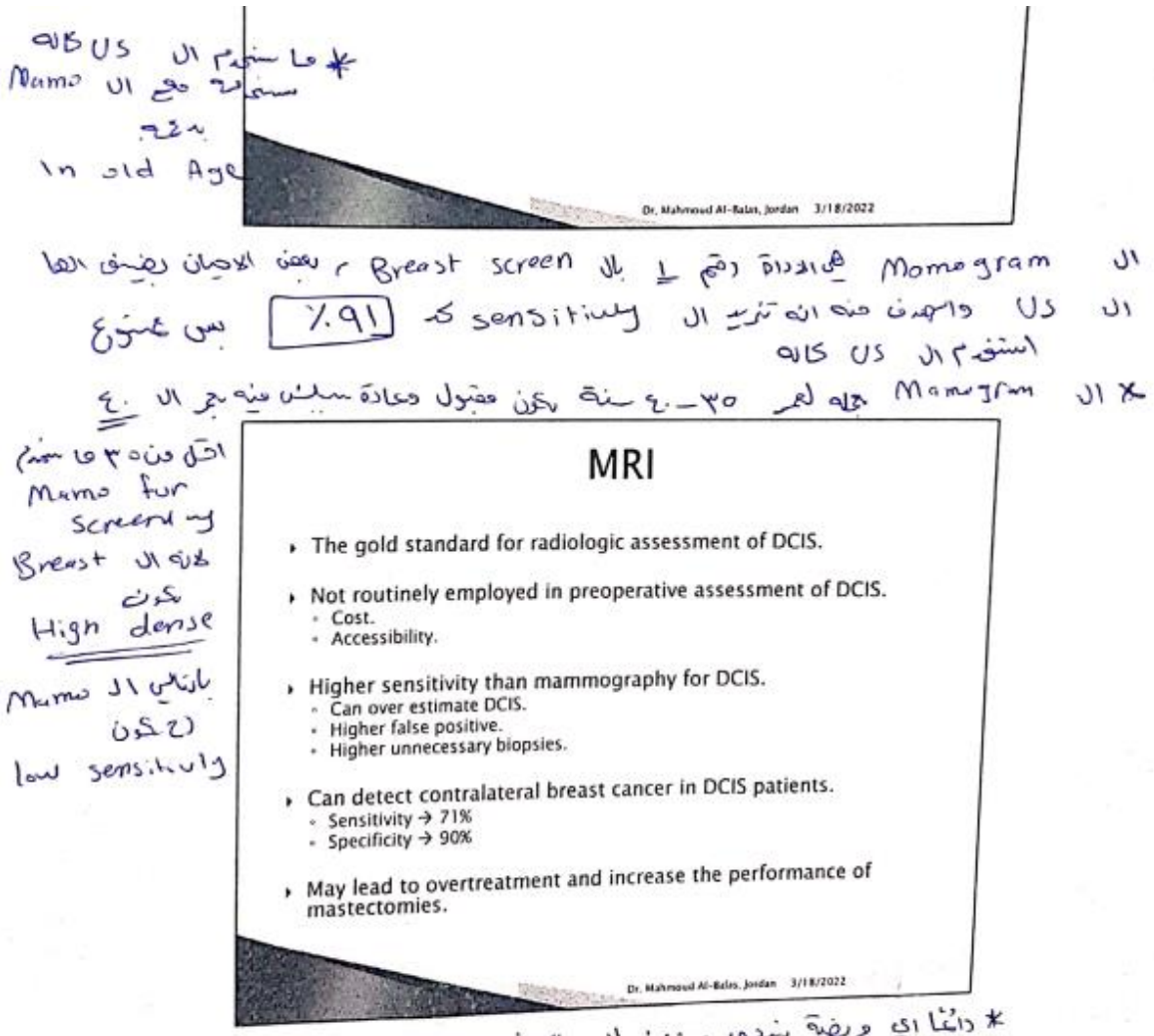
(1) Screening Mammography — بتعمله للسيدة بدون وجود اعراض
Vs
(2) Diagnostic Mammography — بتعمله للسيدة يلي بتشتكي من اعراض
كتلة / افراز من الحلمة / تغير بالجلد



BIRADS FOR BREAST DENSITY

BI-RADS CATEGORY	DESCRIPTION	PERCENTAGE OF POPULATION	SENSITIVITY, %	RELATIVE RISK OF BREAST CANCER
1	Almost entirely fat <25% density	10	88	—
2	Scattered fibroglandular densities 25%-50% density	43	82	—
3	Heterogeneously dense 51%-75% density	39	69	1.2 (compared with average breast density)
4	Extremely dense >75% density	8	62	1.4 (compared with average breast density)

Abbreviation: BI-RADS, Breast Imaging Reporting and Data System.
Adapted with permission from Pisano et al[11] and Carney et al.[7]

Fibroadenoma:

Fibroadenoma

Benign Tumor (Most common Benign / Hard Tumor) → Called the Mouse of Breast

Incidence: 8-10% (1955) BUT recent studies estimate it as high as 25% in Asymptomatic Women.

Any age; mainly 20-30 yrs. Old

Composed of epithelial and stromal elements. → Biphasic tumor means has 2 origins → Stromal element, Epithelial element.

Arise form TDLU

- Might arise from bcl-2 positive mesenchymal cells similar to solitary fibrous tumors.

Fibroadenoma

Pathogenesis

✓ Unknown

✓ Hormonal stimulation (increased estrogen sensitivity, OCP in young age)

✓ EBV in immunosuppressed women

Fibroadenoma

Clinical Presentation:

✓ Most are asymptomatic → Mass painless → usually it's single / unilateral but also can come multiple / Bilateral

✓ If symptomatic:

- Firm, movable mass.
- Painless BUT may be associated with discomfort when large or in pressure area (i.e. wire of female brassiere)
- Multiple, bilateral in 20% of cases

Medical attention ? Pain – Rapid growth – Cosmetic effect – Fear of malignancy

- it's Important to be aware about → once Fibroadenoma grow in size Rapidly, or if it associated with pain, or if has a sign of cosmetic effect, or if there is Ris of Malignancy such as in lady with family History Breast cancer ⇒ it's Needed To be removed

Fibroadenoma

Radiologic Findings:

→ Ultrasound:
- Usually the first radiologic modality of diagnosis.
- Round, oval, or lobular well circumscribed hypoechoic mass.

* well defined Mass

→ Mammogram:
- Female > 35 years old
- Personal or Family history of BC.
- Clinically suspicious lesion

Aqurstic shadow

Fibroadenoma

Pathologic Classification

Size:
- < 5 cm
- > or equal 5 cm (Giant fibroadenoma or Juvenile giant fibroadenoma in young age)

Microscopic architecture of ductal elements:
- Pericanalicular.
- Intracanalicular.
- Simple Vs. Complex (i.e. with hyperplasia, metaplasia or sclerosing adenosis)

Rare types:
- Tubular (pure) adenoma → prominent adenosis with very little stroma
- Lactational adenoma → lactational changes in secretory glands in fibroadenoma of pregnant or

Fibroadenoma

Management:

Follow up if → < 2.5 cm , low growth, no personal or family history of BC

Excision → Based on size/circumstances

- High growth rate
- Fibroepithelial lesion
- Complex lesions (i.e. may have slightly higher risk for BC)
- Patient desire, pain, cosmetics
- Older women
- FH of BC

Surgical excision vs. US-Guided vacuum-assisted biopsy device (i.e. ling term data for recurrence not yet available) → هاي الطريقة ما بتعمل scare

بيجي عادة well define / اذا اجت بال elderly

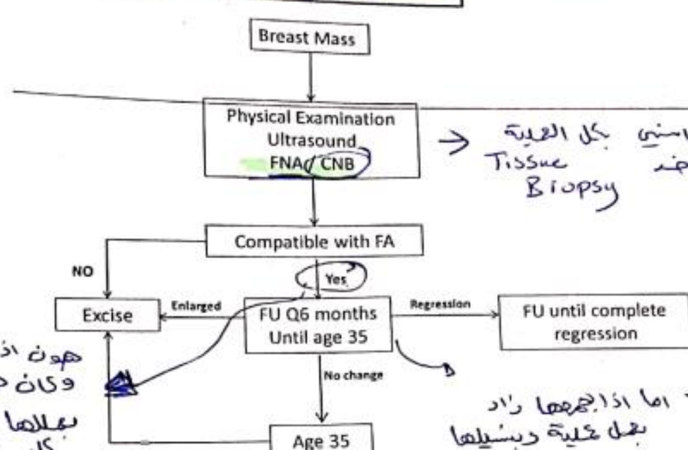
بيجي حواليها calcification ⇐ اسمه popcorn calcification

calcified Fibroadenoma

لاحظ صورة ال Mamogram وعادة اشوفها ال US بيميزها

Acoustic enhancement or shadow

Management of Fibroadenoma in women younger than 35 years old



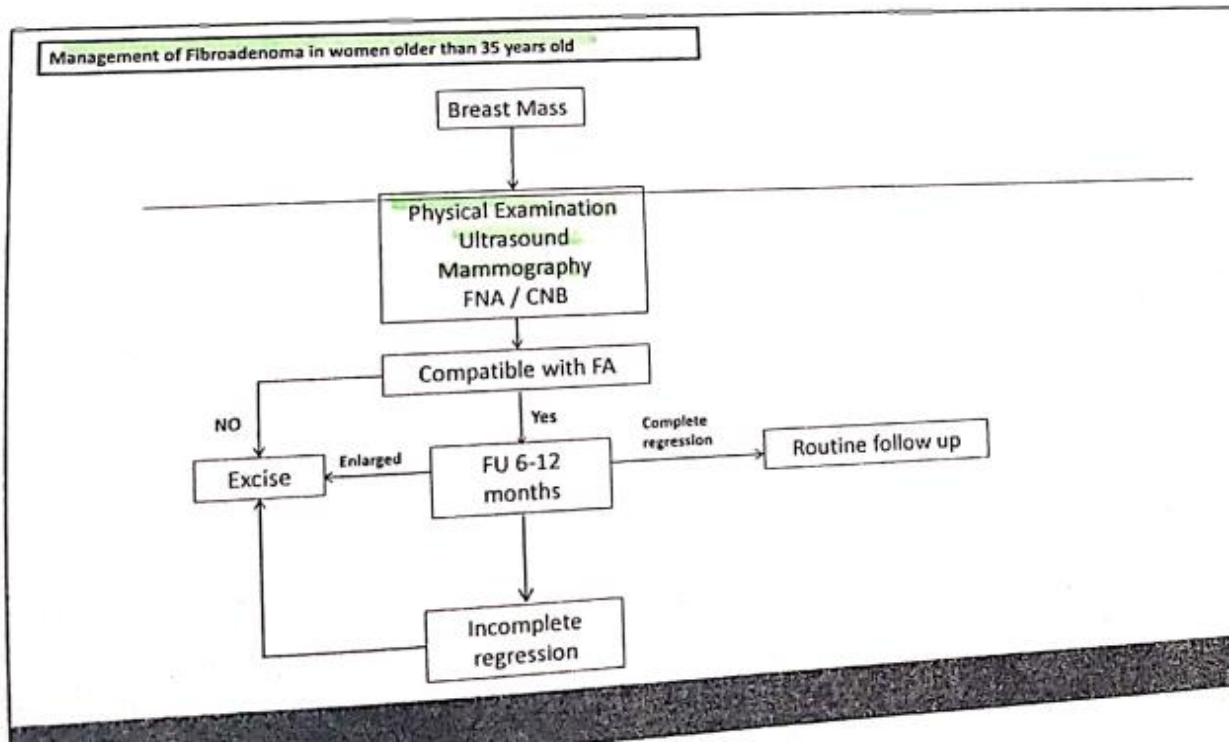
→ الاهم اسئلي بكل العينة انه اخذ Tissue Biopsy

هون اذا طلع معي yes وكان حجمها اقل من 2.5 بعملها Follow up كل 6 شهور بعد 6 شهور اذا كانت مع اعمل متابعة

* اما اذا حجمها زاد بعمل عملية وبشيلها

* اذا ظل ثابت ⇐ Follow up

مهم * All Fibroadenoma → should Take Biopsy before diagnosis



Sentinel LN:

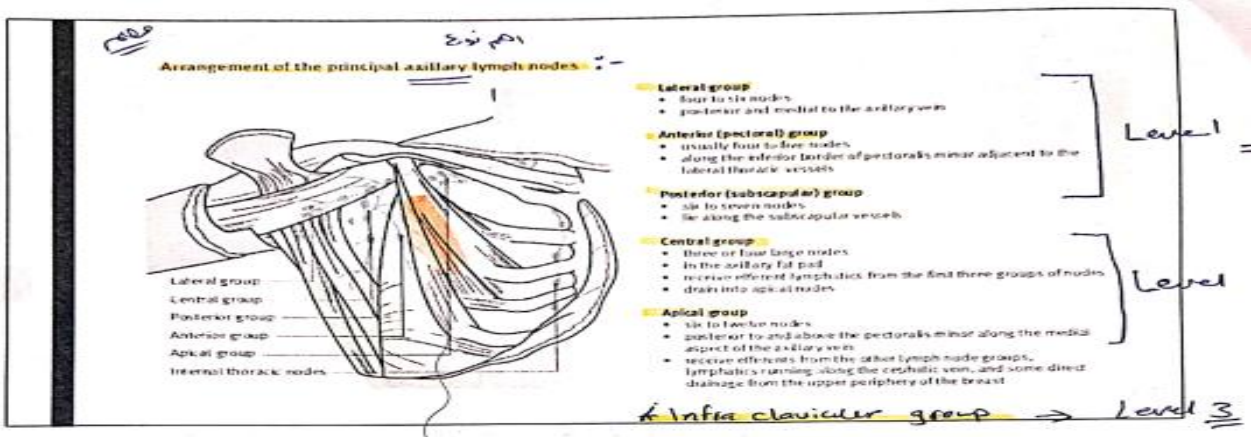
Sentinel Lymph node biopsy – SLNB

- SLN is the first lymph nodes drained by lymphatics from the breast.
- First used in Breast cancer by Armando Giuliano in 1994 (Blue dye)
- At least one SLN is required to assess the status of axillary nodes.
- If SLN is free, other lymph nodes are accepted to be clear.
- The detection rate for SLN range between 95-100%
  - False negative rate for one SLNB around 10%
  - FNR decrease to around 1% if 3 or more SLN are harvested
- No clinical significance for harvesting more than 3 SLN.

Axillary Lymph node:

Lymphatic drainage

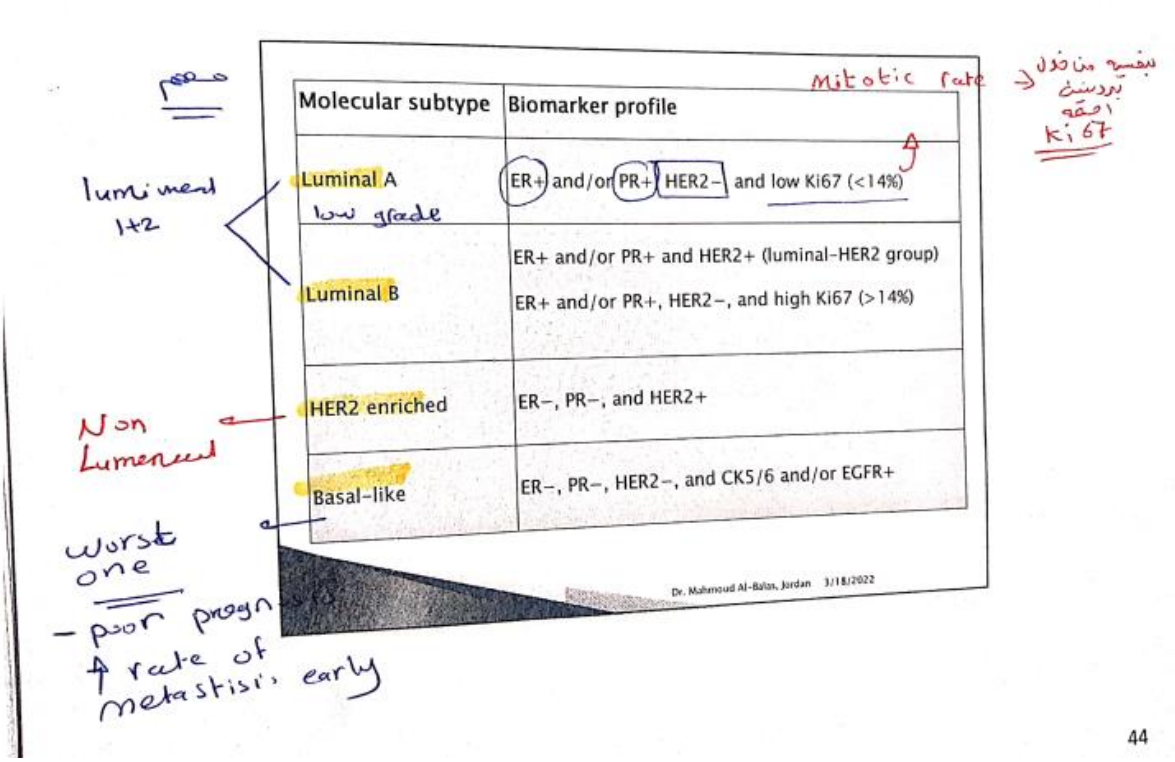
- The axillary lymph nodes vary in number from 20 to 30 and are divided into five not wholly distinctive anatomical groups.
- Clinicians and pathologists often define metastatic axillary node spread simply into 3 levels
- Efferents from the apical nodes unite into the subclavian trunk. On the left side, this trunk usually drains directly into the thoracic duct. On the right side, the subclavian trunk may empty directly into the jugulosubclavian junction or into a common right lymphatic duct.
- About 75% of all lymphatic drainage of the breast passes to the axillary nodes. The remainder principally drains to the internal thoracic nodes.
- Any part of the breast may drain to either group, though there is a greater tendency for tumors situated in the medial part of the breast to disseminate to the internal thoracic nodes than for tumors in the lateral part of the breast to do so.



pectoralis minor muscle which is mainly deviding lymph Nodes into 3 groups:

- First level: ① lateral inferior of pectoralis minor
- second level: ② posterior pectoralis minor
- Third level: ③ Above and medial to pectoralis minor muscle

Luminal Classification:



Molecular subtypes	Luminal	HER2	Basal
Gene expression pattern	❑ High expression of hormone receptors and associated genes (luminal A>luminal B)	❑ High expression of HER2 and other genes in amplicon ❑ Low expression of ER and associated genes	❑ High expression of basal epithelial genes, basal cytokeratins ❑ Low expression of ER and associated genes ❑ Low expression of HER2
Clinical features	❑ ~70% of invasive breast cancers ER/PR positive ❑ Luminal B tend to be higher histological grade than luminal A ❑ Some overexpress HER2 (luminal B)	❑ ~15% of invasive breast cancers ER/PR negative ❑ More likely to be high grade and node positive	❑ ~15% of invasive breast cancers ❑ Most ER/PR/HER2 negative ('triple negative') ❑ BRCA1 dysfunction (germline, sporadic) ❑ Particularly common in African-American women
Treatment response and outcome	❑ Respond to endocrine therapy (but response to tamoxifen and aromatase inhibitors may be different for luminal A and luminal B) ❑ Response to chemotherapy variable (greater in luminal B than in luminal A) ❑ Prognosis better for luminal A than luminal B	❑ Respond to trastuzumab (Herceptin) ❑ Respond to anthracycline-based chemotherapy ❑ Generally poor prognosis	❑ No response to endocrine therapy or trastuzumab (Herceptin) ❑ Appear to be sensitive to platinum-based chemotherapy and PARP inhibitors ❑ Generally poor prognosis (but not uniformly poor)

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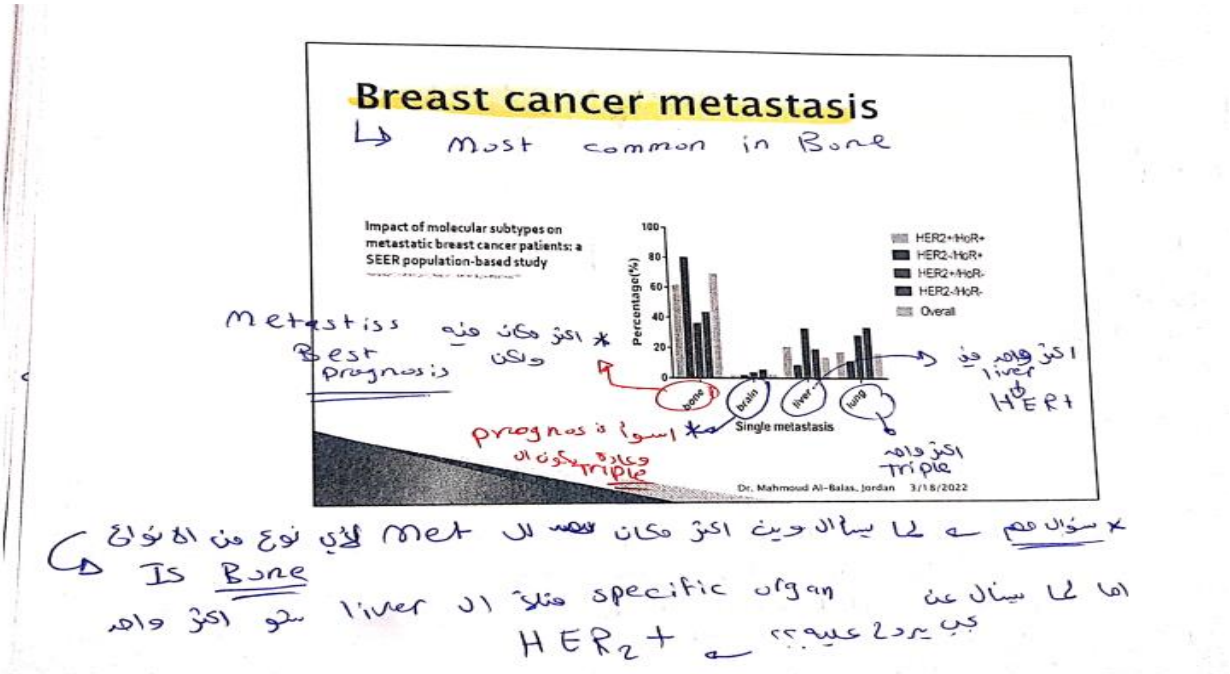
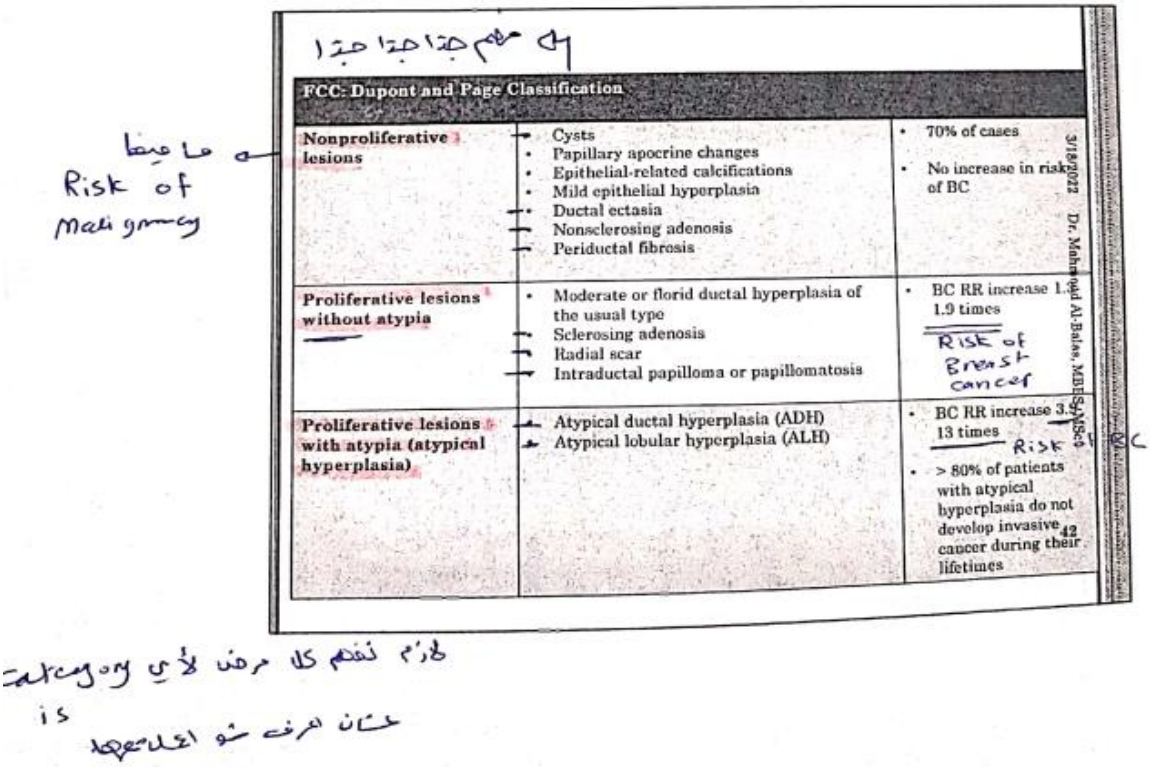
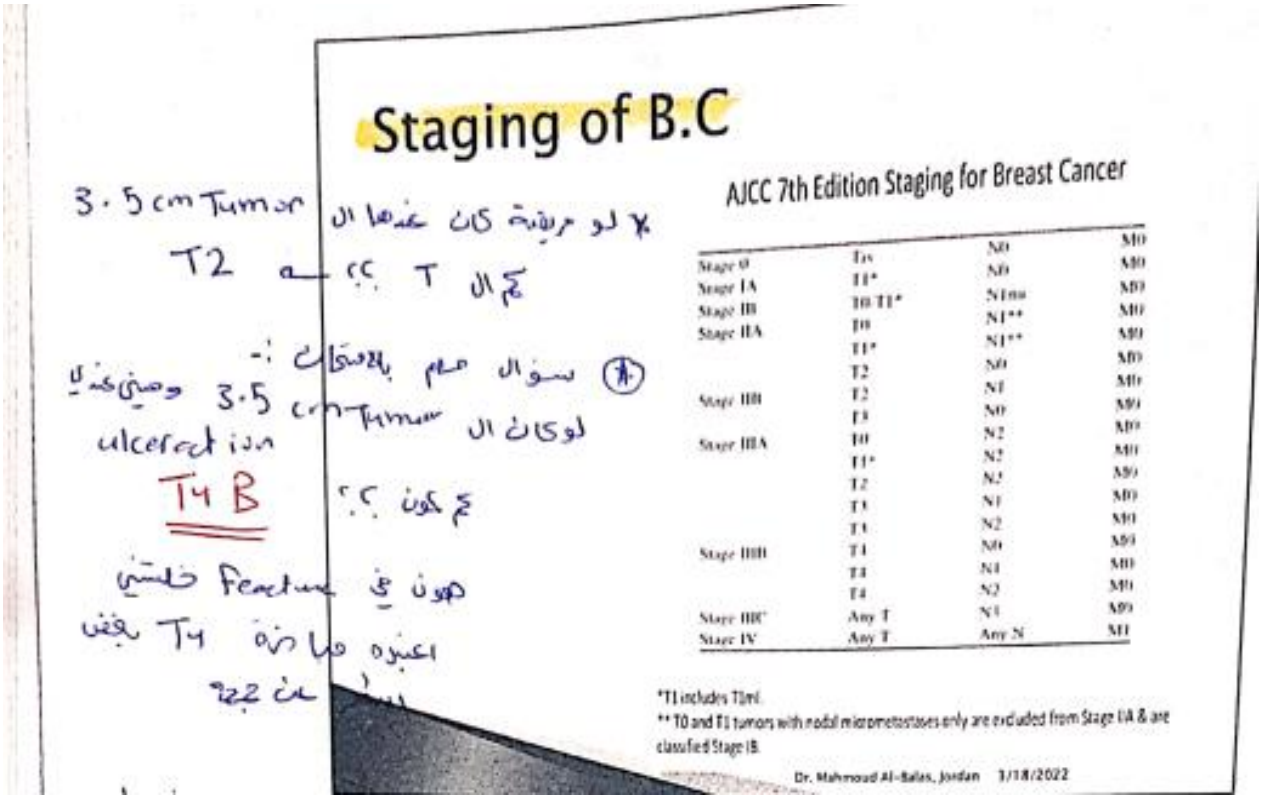
Breast Cancer metastasis:

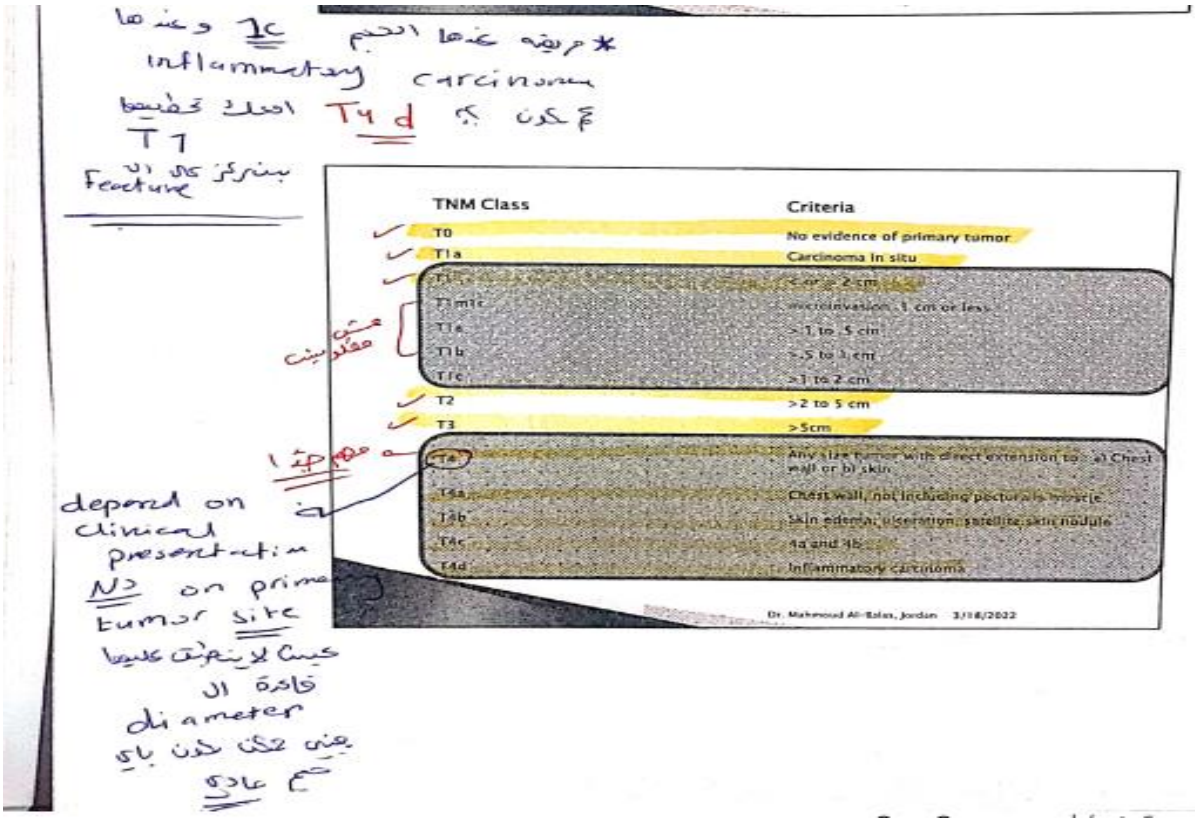


Breast lesions:



Staging of Breast Cancer:





سؤال مهم بالامتحان

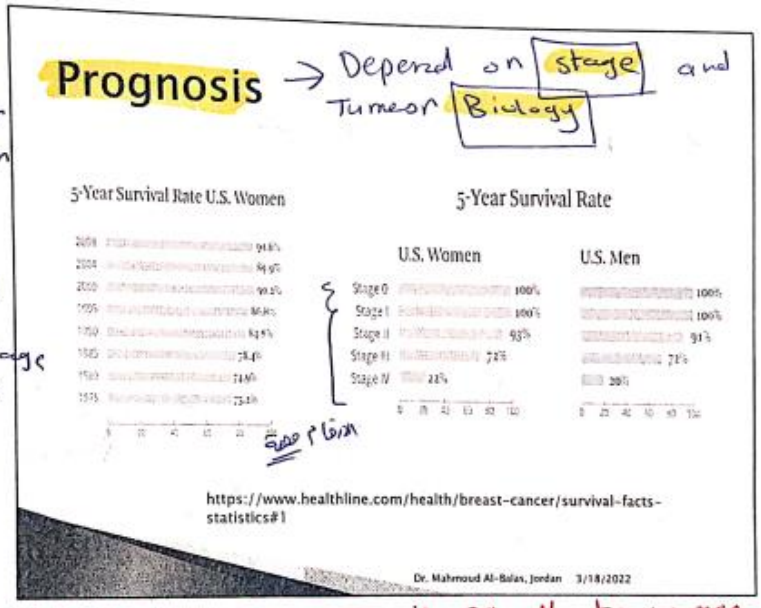
* Best cancer survived in women :

True

إلا اذا كان حافظ بالسؤال stage per stage

False

equall تكون



* prognosis in man is equall to women مقارنة بكل stage بظهروا مريضا

overall survived in man is worser than women ويكون ال

Advanced stage في بيجوا ب screening يتبع men لانه ال