"Breast Cancer"

Reproductive Block, PBL; Case 2

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Color Guide:

- **Red:** <u>Relatively</u> important & <u>mentioned in case tutorials.</u>
- **Black:** Questions.
- **Blue:** Answers (<u>mentioned in case tutorials</u>).
- **Green:** Additional answers/notes.
- **Orange:** Explanation.

Learning Objectives:

1. Understand the anatomy and physiology of female breast.
2. Discuss the pathology and pathogenesis of breast cancer.
3. Understand the risk factors the development of breast cancer.
4. Explain the genetic basis in the role of mutation of BRCA 1 and BRCA 2 genes in the development of breast cancer at an earlier age.
5. Understand the screening guidelines in breast cancer awareness and prevention.
6. Discuss management options and design a management plan for a patient with high-risk of developing breast cancer.

Case Scenario

Signs & Symptoms:
1. Breast mass (lump)
2. Changing in nipple shape
3. Nipple discharge
4. Skin puckering or dimpling

Risk Factors:
1. **Genetics (family history):** BRCA1, BRCA2
2. **Smoking**
3. **Oral contraceptives**
4. **High fat diet**
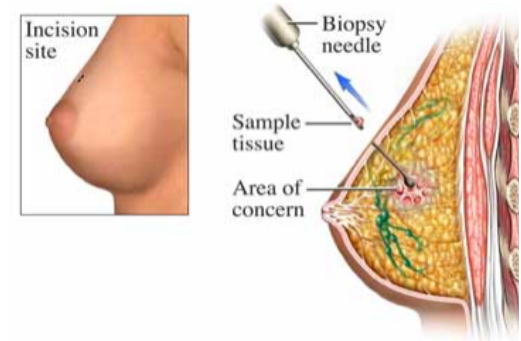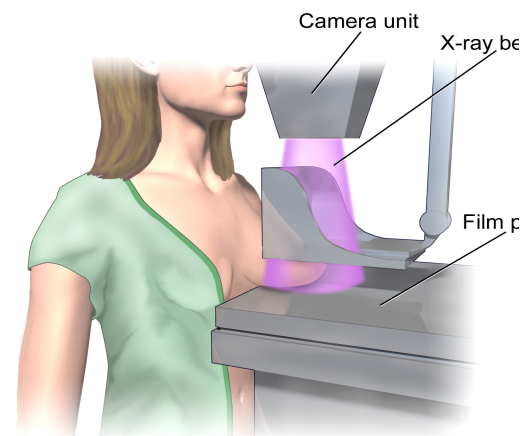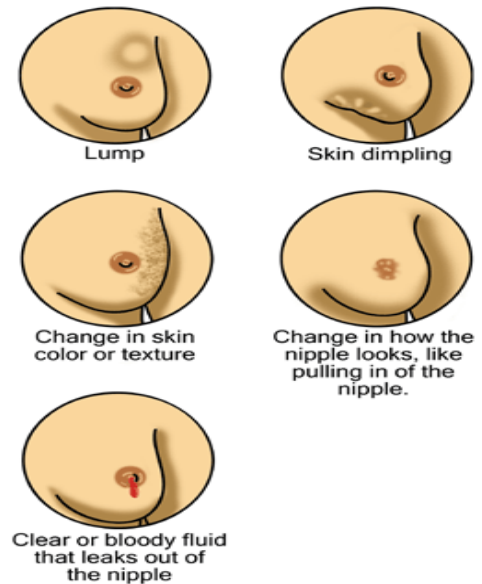5. **Obesity**

Investigations:
1. **Mammography:** using low-energy X-rays to examine the breast
2. **Ultrasound:**
   - To differentiate between cystic and solid mass
   - To guide the needle through biopsy taking
3. **Genetic studies**
4. **Biopsy**

Treatment options:
1. **Option 1:** Annual MRI & mammography to detect any early neoplastic changes.
2. **Option 2:** Bilateral mastectomy and bilateral ooverectomy, reducing the risk of neoplasm
3. **Option 3:** Chemical therapy for cancer prevention.

Notes:
1. **BRCA1 & BRCA2** mutations increase the risk of both breast and ovarian cancers.
2. **Breasts appear heterogeneously dense in mammogram.**
3. **Intraductal carcinoma:** a noninvasive condition in which abnormal cells are found in the lining of a breast duct.

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Questions

1. Mention 3 symptoms for breast cancer.
- Breast mass
- Changing in nipple shape
- Skin dimpling

2. What are the most important risk factors for breast cancer?
- Genetics (family history): BRCA1, BRCA2
- Smoking
- Oral contraceptives
- Obesity

3. What types of investigation usually used for breast cancer?
- Mammography
- Ultrasound
- Genetic studies
- Biopsy

4. What is the uses ultrasound in case of breast cancer?
- To differentiate between cystic and solid mass
- To guide the needle through biopsy taking

5. Write two options for breast cancer management.
- **Option 1:** Annual MRI & mammography to detect any early neoplastic changes
- **Option 2:** Bilateral mastectomy and bilateral Oophorectomy to reduce the risk of neoplasm.

6. What is the effect of BRCA1 & BRCA2 mutation?
- Increase the risk of both breast and ovarian cancers.

7. Describe the appearance of normal breast mammogram in an obese female.
- Heterogeneously dense.

8. Define Intraductal carcinoma.
- Noninvasive abnormal cells, found in the breast ducts.

Useful video about BRCA1 & BRCA2: http://www.youtube.com/watch?v=-GwdZIqJf8g