

BREAST CANCER: AN ALARMING DISEASE IN WOMEN

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Abstract: Breast cancer is a disease characterized by cells in the breast growing out of control. There are different types of breast cancer, depending on which cells turn cancerous. Having a breast lump, bloody nipple discharge, or changes in the shape of your nipple or breasts are typical symptoms for breast cancer. One treatment option for this cancer is chemotherapy. Radiation, hormone therapy, and surgery are also available treatments. This paper reviews about the breast cancer, its causes, its types and situation around the world.

Keywords: Cancer, Breast Cancer, Radiation Therapy

1. INTRODUCTION

Breast cancer is the most common cancer among women. One in every 8 cancers diagnosed in 2020 is breast cancer. There are 684,996 deaths from breast cancer in 2020, but a disproportionate amount of these deaths is in low resource settings. [1]

When breast cancer cells spread to other parts of the body, it is said to have metastasized, and is referred to as metastatic breast cancer. This can often be seen on an x-ray or felt as a lump in the breast. When breast cancer spreads through blood vessels and lymph vessels it becomes advanced breast cancer. [1]

Breast cancer is the uncontrolled proliferation of cells in your breast. These cells can form masses of tissue that we call a tumor. Signs of breast cancer are feeling a lump in your breast, noticing changes in size, and changes to the skin on your breasts. Mammograms can help detect breast cancer at an early stage. [1]

Survival rates for breast cancer are high when the cancer is detected early, but in many lower- and middle-income countries, 50-80% of cases are diagnosed at an advanced stage. [2]

To handle the growing breast cancer burden, it is extremely important that we create more access to early detection, timely treatment and care, and broader data collection at cancer registries. [2]



Fig 1. Breast Cancer

Cancer occurs when mutations take place in our genes that regulate cell growth. These changes allow cells to divide and grow uncontrollably. Breast cancer is a type of cancer that starts in breast cells. There are two versions of breast cancer, lobular and ductal, which form based on what type of cells the cancer begins from. [2]

Breast cancer starts by attacking the lobules, which produces milk. The ducts then bring that milk to the nipple. Cancer can also attack a person's fatty or fibrous tissue. [2]
Cancer is usually localized to the reproductive organs, but can spread straight to the lymph nodes after entering. [2]

2. STAGES OF BREAST CANCER

A person with breast cancer might not have any symptoms to begin with. In these cases, a tumor may be too small to be felt by the doctor, but an abnormality can still be seen in a mammogram. Most breast cancer starts with a new lump, but this is not always the case. Symptoms of breast cancer can vary depending on the complication. [3]

Some can be related to others but have a different sign,

- a breast lump or feeling a little different from the surrounding tissue and is new.
- breast pain
- Breast Swelling
- red or discolored, pitted skin on the breast
- a nipple discharge other than breast milk
- A sudden change in your breast shape or size may indicate a health risk
- arm lumps and bumps

The stages of cancer are classified by the number, which is dependent on how aggressive the cancer is. The more advanced and aggressive the cancer, the higher the number will be. There is more

classification which goes into determining a cancer stage than just looking at the stage number.[3]

- Stage 0: In general, stage 0 breast cancer refers to the cancer that is still contained within the original location. You are less likely to hear this type of breast cancer referred to using its formal name, in situ breast cancer. [4]
- o Stage 1A: The tumor itself is, at this stage, no larger than a shelled peanut, or there may be no tumor at all.
- o Stage 1B cancer cells have been found in the lymph nodes. [4]
- Stage II: Symptoms of cancer:
- o IIA usually means that a tumor is still small, but there may be no cancer in the lymph nodes or it may have spread to up to three. [5]
- o A stage IIB is a larger tumor than stage IIA. This can be the size of a walnut or as big as and lime, but it might not be in any lymph nodes. [5]

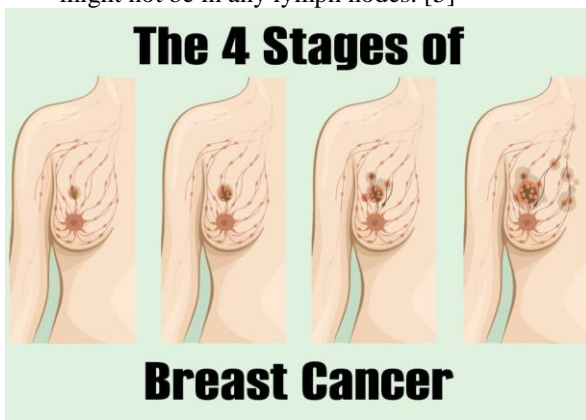


Fig 2. Stages of Breast Cancer

- Stage III: cancer has not spread to the bones or organs, but it is more difficult to fight than stage II cancer. [6]
- o IIIA cancer means it has spread to the nine lymph nodes from the armpit to the collarbone, or it is enlarging lymph nodes in the breast. The cancers can also be without a tumor. [6]
- o A IIIB tumor means the cancer has grown into the chest wall and skin around your breast. This could mean it is spreading to lymph nodes in your breast. [6]
- o IIIC is a stage for cancer, where it has been found in 10 or more lymph nodes, among other symptoms. [7]
- Stage IV: breast cancer is when it has metastasized, or spread outside of the breast and around the lymph nodes. The most common sites are the bones, lungs, liver, and brain. [7]

3. BREAST CANCER TYPES

- Ductal carcinoma: The most common form of non-invasive breast cancer is ductal carcinoma. The disease is caused by cells that line the inside or outside of tissues, such as those in a breast duct. It is called “ductal” because it usually starts in the cells lining the milk ducts. A Latin word, translated to “in place”, this type of cancer develops and remains where it began. The different grades of DCIS are identified by how closely the cells look like normal

breast cells. The lower the grade, the more closely DCIS resembles normal breast cells. [7]

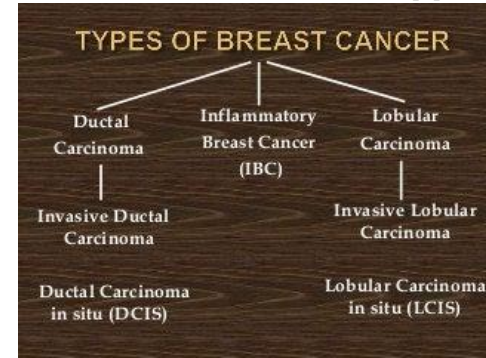


Fig 2. Breast Cancer Types

- Inflammatory breast cancer: IBC is a type of cancer that usually causes your skin to become red and swollen, with symptoms similar to an infection. If you notice any of these warning signs, you should see a doctor right away. [8]
- Lobular carcinoma: LCIS is not cancerous. Women with LCIS or Atypical Lobular Hyperplasia (ALH) typically have a small increased risk for breast cancer in the future. If you have either of these conditions, talk to your doctor about how often you should be screened for breast cancer and whether you should have any additional screening tests. [8]
- Invasive ductal carcinoma: Invasive ductal carcinoma is the most common form of breast cancer in America. Roughly 75% of cases are invasive ductal carcinomas. [9]
- Invasive lobular carcinoma: Invasive lobular carcinoma can lead to thick and full areas that explore the breast. ILC is the second most common form of invasive breast cancer and 10-15% of breast cancer cases. Even though ILC may not always be a lump, it can be detected through fingers or clinical examinations. [9]

4. CAUSES OF BREAST CANCER

- When some breast cells grow abnormally, healthy cells may begin to accumulate. These cancerous cells divide rapidly and can form a lump or mass in your breast. If these cancerous cells have spread to other parts of the body, it means that the disease has metastasized.
- Breast cancer most often begins with cells in the milk-producing ducts. It may also begin in the lobules, or any other area of your breast. [10]
- Scientists are still working to understand why some people who have risk factors never develop cancer, while others with no risk factors do. It's likely that cancer is caused by a complex interaction of genetic makeup and environment. [10]
- Breast cancer that is passed through genetics. It is estimated that about 5-10% of breast cancers are linked to genes passed from one's family. [11]
- Scientists have found a number of genes that can increase one's likelihood of getting breast cancer. The

most popular are BRCA1 and BRCA2, which also increases the risk of ovarian cancer. [11]

- Doctors might recommend getting tested for mutations to help identify what's in your blood and whether or not it can cause cancer. With the counsel of a genetic counselor, you can discuss the risks and limitations of genetic testing as well as how to best use them with your family history. [11]

5. BREAST CANCER STATUS IN WORLD

Every country in the world has cases of breast cancer, and as women age, it becomes more prevalent. Breast cancer is more often diagnosed in women than any other type of cancer, and in 2020 it was the world's most prevalent cancer, with 685 000 deaths globally and 2.3 million women diagnosed with breast cancer worldwide. Early detection and new modes of treatment have significantly increased the survival rates, from one breast cancer diagnosis to death. [11]

Breast cancer cannot be transmitted or caught, unlike other cancers which are caused by infections. There is no evidence that a virus or bacterial infection is linked to breast cancer. The factors that increase the risk of breast cancer include being female, having a family history of breast cancer, being over 40 years old, and being obese. Some hormonal factors can influence the risk of developing breast cancer as well. Factors that can also increase your risk are using alcohol or tobacco, low levels of vitamin D, starting menstruation late or having children at an older age, taking hormone replacement therapy (HRT) after menopause, and radiation exposure. [12]

Breast cancer is not a transmissible or infectious disease. Unlike cancers such as HPV and cervical cancer, breast cancer can't be caused by infection. The leading cause of breast cancer is aging and no other factors have been found in women over 40. Risk factors for breast cancer include age, obesity, harmful use of alcohol, family history of breast cancer, history of radiation exposure, reproductive history, tobacco use, and postmenopausal hormone therapy. [12]

If all of the modifiable risk factors could be controlled, then the risk of developing breast cancer is reduced by up to 30%. The primary risk factor for breast cancer is being female. About 1% of all breast cancers occur in men and they manage their treatment the same way as females.

A family history of breast cancer can increase the risk of developing breast cancer, but only a minority of women are affected. Cancer rates in India are lower than those seen in Western countries, but have been rising because of increased migration from rural to the cities, control of life expectancy, and changes in lifestyles. [12]

6. CONCLUSION

Though breast cancer starts out as an undetectable tumor, if it is not detected early it can spread to other parts of the chest or body. Awareness is key because catching the disease at its early stages can increase a patient's chance of survival. Awareness is one way to combat cancer. Cancer is prominent in many countries worldwide, but awareness of the disease is

poor. This can lead to delayed diagnoses or people avoiding screening efforts.

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