

Breast Cancer

The incidence of breast cancer has been increasing steadily for decades. In 1972 when President Nixon declared our national war on cancer, a woman's lifetime risk of developing breast cancer was 1 in 20. Today breast cancer rates have escalated to the point where women's lifetime risk of developing breast cancer is 1 in 8. In the year 2002, the American Cancer Society estimates that nearly 203,500 women will be diagnosed with breast cancer and approximately 39,600 women will die from the disease. This means that approximately every two and a half minutes a woman in the United States is diagnosed with breast cancer and that approximately every thirteen minutes, a woman dies from this disease. Breast cancer has become the second largest cause of cancer death in women, after skin cancer, and the leading cause of death for women between the ages of 35 and 54.

Malignant Breast Tumors

One of the most common ways to classify breast cancer is according to the type of cells where the cancer originates, such as the lobule, duct or connective tissue. Each breast has 15 to 20 sections called lobes and each contains many smaller sections called lobules. The lobes and lobules are connected by a network of thin tubes called ducts. Ductal cancer is the most common type of breast cancer, accounting for 85 to 90% of the cases. (1 𛘼>) Lobular cancer occurs in 10 to 12% of cases. Inflammatory breast cancer is an uncommon form of the disease, in which the breast becomes warm, red, swollen and inflamed.

Tumor Grade

Each type of breast cancer can be examined for its degree of "differentiation," which classifies the cancer according to how different its cells are from normal cells. This varies from well differentiated to poorly differentiated. Well differentiated cells are very similar to the cells of origin. On the other hand, poorly differentiated cells have bizarre appearances, retaining only a few characteristics of the original normal cells. This description of tumor differentiation is referred to as tumor "grade." Low-grade malignancies are well differentiated, while high-grade indicates poor differentiation. Determination of tumor grade is meaningful because this is highly related to the degree of aggressiveness of the cancers and to patient survival, with high-grade cancers usually carrying the worst prognoses.

Carcinoma /In situ/

Ductal breast malignancies are divided into two categories, pre-invasive which have not invaded surrounding tissues yet, and invasive. Pre-invasive ductal cancer is called intraductal carcinoma /in situ/(Latin for "in position"). This is a very early stage of breast cancer, which is so small that it can never be diagnosed on breast examination.

Mammography is the only diagnostic method that can detect this /in situ/stage. In modern mammography centers, ductal carcinoma /in situ/ (DCIS)composes 25% of all breast cancers detected by screening mammography.(2 𚃶>) In DCIS, the ductal cancer cells remain within the ducts, with no sign of outside tissue invasion. If DCIS is not treated surgically, it frequently evolves into invasive ductal carcinoma.(3𚃷>) It is believed that all invasive ductal cancers began as non-invasive forms.

Lobular carcinoma /in situ/

Invasive lobular carcinomas only account for about 10% of all breast cancers and they tend to be somewhat less aggressive than invasive ductal carcinomas. Unlike invasive ductal carcinomas, it is now believed that lobular carcinoma /in situ/ (LCIS) is /not/ a precursor of invasive lobular carcinoma. The confusion exists because LCIS, while it has the word /carcinoma/ in its name, does not behave like a cancerous condition. It does not grow, form masses, transform into invasive cancer, or metastasize. Therefore, it does not represent a true malignancy. Also, LCIS cannot be diagnosed by a breast exam or mammogram. It is only diagnosed by accident when a breast biopsy is performed for another reason. LCIS represents a risk 7 to 12 times that of the general population for subsequent invasive cancer.(4 𜂅>)

Uncommon Breast Malignancies

Other types of breast malignancies occur less frequently. The first category is connective tissue breast cancers, which are referred to as breast /sarcomas/. Next are metastases, which are malignancies that have spread to the breast from a cancer in another part of the body. While spread of a cancer to other sites from the primary site is a common occurrence in many types of cancer, metastatic tumors rarely spread to the breasts from another primary site.

Metastasized Breast Cancer

Breast cancer is able to spread or metastasize to distant sites by two mechanisms; through the blood vessels or via the lymphatic ductal system. If a tumor invades the lymph ducts, it travels to the armpit (axilla) where the migrating tumor cells are caught in the filtering processes of the lymph nodes, which causes the nodes to enlarge. This can make the lymph nodes feel like firm lumps. From these initial nodes, cancer cells can continue to spread

through this duct system to other parts of the body.

Clinical Staging

Clinical staging is another way to rate and compare disease activity. Each stage from 0 through IV represents an incremental worsening of the overall disease prognosis. Clinical staging is determined by considering the size of the tumor (T), the status of the nearby lymph nodes (N), and the existence of distant metastasis (M).⁵

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¹ Feig SA. DUCTAL CARCINOMA IN SITU Implications for Screening Mammography. Radiol Clin North Am. Jul2000;38(4):653-68. [View Abstract](#)
[view-abs.asp?fnid=112188&absid=105368](#)

² McKenna RJ, Sr. The abnormal mammogram radiographic finding, diagnostic options, pathology, and stage of cancer diagnosis. Cancer. 1994;74:244-255.

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³ Holt JT, et al. Histopathology: Old principles and new methods.

Cancer Surveys. 1993;18:115-133.

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⁴ Abeloff MD, Lichter JS, Niederhuber JE, Pierce LJ, Love RR. Breast.

In: Abeloff MD, Armitage JO, Lichter JS, et al, eds. Clinical Oncology.

2nd ed. New York: Churchill Livingstone; 2000:2088.

⁵ American Cancer Society. The Staging of Cancer. Publication 89-12M,

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About the Author

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