Understanding Your Pathology Report

Non-Invasive vs. Invasive Carcinoma

Non-invasive carcinomas stay within the milk ducts or lobules and do not have the potential to spread. They are sometimes called "carcinoma in situ". Invasive carcinomas grow into the surrounding normal healthy breast tissue and have the potential to spread to nearly lymph nodes or beyond the breast to other organs.

Tumor size

The size of the tumor indicates how wide the tumor is at its largest point. It is generally reported in centimeters (cm). Size is important in determining the stage of the cancer, and also surgical treatment options.

Margins

This is the area of normal tissue that surrounds abnormal cancer cells.
The margin should be free of any abnormal cancer cells when the cancer is removed. If cancer cells are present at the margins, then more tissue must be removed to make sure there are "clear margins," so no abnormal cells are left behind.

Lymph Node Involvement

Evaluating lymph nodes for potential spread of cancer cells is a valuable tool used to predict the risk of systemic involvement. If a lymph node is free or clear of cancer, then it is considered negative. If a lymph node has cancer cells in it, it is considered positive. Your pathology report will indicate how many total lymph nodes were removed, and how many contained cancer cells.

Extracapsular extension

Cancer cells have spread outside the wall of the lymph node into surrounding tissue.

Tumor Grade

A "score" which indicates how abnormal the breast cancer cells look when compared to healthy breast cells. There are three grades: I (low grade or well-differentiated), II (intermediate grade or moderately-differentiated), and III (high grade or poorly-differentiated). Higher grade cancers look the most abnormal and are generally more aggressive than low grade cancers.

Estrogen Receptor (ER), Progesterone Receptor (PR)

Estrogen and Progesterone Receptors are proteins found in and on breast cells which pick up signals telling the cell to grow. Detecting these receptors on a tumor help identify patients who are likely to benefit from hormonal therapy.

HER2/Neu IHC or ISH

The HER2 gene makes HER2 proteins, which are receptors on breast cells which normally control how a breast cell grows and repairs itself. About 20% of breast cancer cells have too many copies of the HER2 gene, resulting in too many HER2 receptors, which results in a breast cancer cell which grows in an uncontrolled way.

- IHC (immunohistochemistry) detects if there are too many HER2 proteins (HER2 overexpression).
- ISH (in situ hybridization) detects if there are too many HER2 gene copies (HER2 amplification).

A breast cancer cell which has HER2 overexpression or amplification is considered HER2 positive. There are medications which specifically target HER2 positive breast cancer cells.

P53, Ki-67

Proliferation markers which measure the rate that breast cancer cells are growing. The test can determine what percentage of the cancer cells are preparing to divide. Higher markers indicate a faster rate of growth.

Lymphovascular Invasion (LVI)

Presence of tumor cells within blood vessels or lymphatic channels. This increases the risk of cancer cells spreading or coming back in the future. It is typically reported as present or absent.

Stage

Determined based on the whether the cancer is non-invasive or invasive. If it is invasive cancer, then the tumor size, presence or absence of lymph node involvement, and whether the cancer has spread beyond the breast to other organs determines the stage.

Learn more about other cancer terms.