

Breast Cancer

Invasive Ductal Carcinoma

Definitions

Invasive, Infiltrating: Capable of spreading to other parts of the breast or body.

Ductal: Relating to the breast's milk ducts, the parts of the breast through which milk flows.

Carcinoma: A type of cancerous, or malignant, tumor.

Calcification: Calcium deposits in the breast can be associated with ductal carcinoma in situ. Clusters of these deposits may indicate cancer.

Pathologist: A physician who examines tissues and fluids to diagnose disease in order to assist in making treatment decisions.

Lymphatic: Relating to lymph glands, especially those located near the breast.

What is invasive ductal carcinoma?

Invasive ductal carcinoma is the most common invasive breast cancer. It is also known as IDC, infiltrating ductal carcinoma, or carcinoma of no special type (NST) or not otherwise specified (NOS). IDC represents 65 to 85 percent of all cases. IDC starts in the breast's milk ducts and invades surrounding breast tissue. If not treated at an early stage, IDC can move into other parts of the body through your bloodstream or lymphatic system.

Who is most likely to have IDC?

Women have a greater likelihood of having breast cancer after they reach age 45. As a woman ages, breast cancer risk does not decline, with about 50 percent of IDC cases occurring after age 65. Less than 10 percent of women with breast cancer have a family history of the disease. Other factors increasing the risk of breast cancer include having no children or the first child after age 30, early menstruation, and consuming more than three alcoholic drinks a day.

What characterizes IDC?

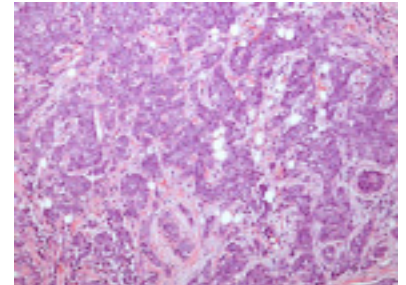
IDC is characterized by a hard lump with irregular borders. The IDC lump will feel harder, firmer, and more anchored than a benign breast lump. The skin over the affected area or the nipple may be retracted (pulled in). On a mammogram, IDC usually looks like a mass with spikes radiating from the edges; sometimes it appears as a smooth-edged lump or as calcifications in the tumor area.

How does the pathologist make a diagnosis?

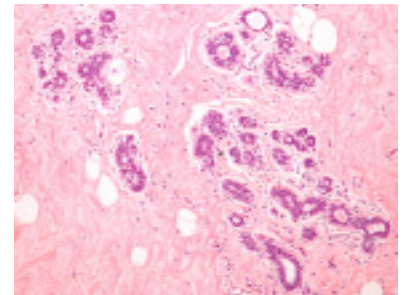
The pathologist examines biopsy specimens, along with other tests if necessary. If mammography shows suspicious findings, a biopsy may be recommended. A biopsy is the most widely used method for making a firm diagnosis of breast cancer. During a biopsy procedure, a primary care doctor removes cells or tissues from the suspicious area for the pathologist to examine more closely in the laboratory. In some cases, a biopsy may be performed with surgery. The surgeon removes all or part of the tumor for the pathologist to examine.

Laboratory testing enables the pathologist to determine the type of cancer and whether it is invasive. The pathologist examines the tissue sample under a microscope and assigns a histologic type and a **histologic tumor grade**. Grade 1 cancers tend to grow the slowest, while Grade 3 tumors spread more aggressively. The pathologist also notes the size of the tumor, how close the cancer is to the edge of the tissue removed by the surgeon, and whether the tumor invaded blood or lymphatic vessels. These factors help pathologists determine the likelihood of the cancer remaining in or returning to the affected area.

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Invasive ductal carcinoma is the most common invasive breast cancer.



Normal breast cells.

What kinds of questions should I ask my doctors?

Ask any question you want. There are no questions you should be reluctant to ask. Here are a few to consider:

- Please describe the type of cancer I have and what treatment options are available.
- What stage is the cancer in?
- What are the chances for full remission?
- What treatment options do you recommend? Why do you believe these are the best treatments?
- What are the pros and cons of these treatment options?
- What are the side effects?
- Is your medical team experienced in treating the type of cancer I have?
- Can you provide me with information about the physicians and others on the medical team?
- Is the laboratory doing the testing for my cancer following the new guidelines for the ER, PgR and HER2 tests?
- If I want a second opinion, will you provide me with the names of physicians or institutions that you recommend?

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What else does the pathologist look for?

The biopsy sample is tested for the presence of **estrogen (ER)** and **progesterone receptors (PgR)** using a method called **immunohistochemistry, or IHC**. Women with cancers containing these receptors are more likely to respond positively to hormonal therapy such as tamoxifen. If breast cancer cells have estrogen receptors, the cancer is called ER-positive breast cancer. If breast cancer cells have progesterone receptors, the cancer is called PgR-positive breast cancer. About 75 to 80 percent of breast cancers are ER- and/or PgR-positive. Low-grade cancers are even more likely to be ER- and/or PgR-positive.

The College of American Pathologists (CAP) and the American Society of Clinical Oncology (ASCO) have issued a joint guideline aimed at improving the accuracy of IHC testing for the presence of ER and PgR in breast cancer. One of the areas addressed in the guideline is the handling of breast tissue specimens.

Pathologists also may check for a protein called **HER2**. There is also a guideline developed by the CAP and ASCO in 2007 that details how this test should be done so that it will be accurate and reproducible. Laboratories doing testing for HER2 should be following these guideline recommendations. Cancers with too much HER2 are very likely to respond to targeted therapy with trastuzumab or lapatinib. Due to continual advances in research, other tests may be used as well.

After reviewing the results of the laboratory tests, your clinician may recommend additional tests to determine to what extent malignant cells may have spread to other parts of the body. Depending on your situation, these tests may include **a chest x-ray; a bone scan;** and imaging tests such as **computed tomography (CT), magnetic resonance imaging (MRI), or PET (positron emission tomography)**. All these tests can detect signs that the cancer may have spread to other parts of the body.

With all necessary tests completed, the pathologist determines the cancer's **stage**. Stage 1 IDC tumors are confined to the breast, and Stage 4 IDC tumors have spread beyond areas near the breast. Stages 2 and 3 describe conditions in between these two extremes.

How do doctors determine what surgery or treatment will be necessary?

The pathologist consults with your primary care physician after reviewing the test results and determining the stage of your cancer. Together, using their combined experience and knowledge, they determine treatment options most appropriate for your condition.

What kinds of treatments are available for IDC?

IDC is treated through one or more of the following: **surgery, chemotherapy, hormonal therapy, and radiation therapy**. It's important to learn as much as you can about your treatment options and to make the decision that's right for you.

Most women choose surgery. Advancements in surgical techniques have enabled about 70 percent of women to choose breast-conserving surgical treatments like **lumpectomy** rather than **mastectomy**, where the entire breast and often some or all lymph nodes near the breast are removed. Mastectomy reduces the chances the cancer will return. Lumpectomy is an option when the cancer is in a relatively small part of one breast. How far your tumor has grown and advanced will determine if breast-conserving treatments are possible. If your breast cannot be conserved, breast reconstruction surgery may be a possibility after you recover from your initial operation to remove the cancer.

Most women with invasive breast cancer will be offered chemotherapy and/or hormonal therapy. Chemotherapy drugs kill rapidly dividing tumor cells that may be spreading through the body reducing the risk of the cancer coming back in another body site. Drugs affecting hormone responsiveness also kill tumor cells, which require hormones to grow, and prevent these cells from spreading or coming back. Drugs targeting HER2 receptor specifically kill cells having large amounts of this protein and prevent these cells from spreading or coming back. Radiation therapy is used to rid the body of any microscopic remnants of the cancer in the area where the original tumor was found and removed.

Clinical trials of new treatments for IDC may be found at www.cancer.gov/clinicaltrials. These treatments are experimental in nature but may be an option for advanced cancers.

For more information, go to www.cancer.org (American Cancer Society), www.y-me.org (Y-ME National Breast Cancer Organization), or www.cancer.net (American Society of Clinical Oncology).