

# Types of *Breast Cancer*



Diagnostic & Preventative Imaging Center



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## *Table of Contents*

<b>Introduction .....</b>	<b>1</b>
<b>Ductal Carcinoma .....</b>	<b>2</b>
<b>Paget's Disease of the Nipple .....</b>	<b>8</b>
<b>Lobular Carcinoma .....</b>	<b>10</b>
<b>Inflammatory Breast Cancer .....</b>	<b>14</b>

## *Introduction*

Many women know that approximately 1 in 8 of us will be diagnosed with breast cancer. Less widely understood, however, is the wide variation in types and characteristics of breast cancers. In this ebook, we will look at some of the main types of breast cancer and discuss their appearance, how they're often detected, common treatments, and typical prognoses.

It's important to keep in mind, however, that every case of breast cancer is different, and your best source of information about your specific case is your own medical team.

# Ductal Carcinoma

Ductal carcinoma is a type of cancer that begins in the milk ducts. It is classified as either in situ, which means that it has not spread beyond this location, or invasive (or infiltrating), meaning that it has spread beyond the milk ducts into the surrounding breast tissue.

## Ductal Carcinoma in Situ (DCIS)

### What is DCIS?

DCIS describes abnormal cells within the milk ducts, which are considered the earliest stage of breast cancer. Also known as stage 0 breast cancer, DCIS is the most common form of non-invasive breast cancer and accounts for about 20% of new breast cancer cases.<sup>1</sup> While not life-threatening in itself, DCIS increases the chances of developing infiltrating breast cancer in the future. Because it's currently not possible to determine which cases will progress and which won't, treatment is commonly recommended.<sup>2</sup>

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1 "DCIS — Ductal Carcinoma In Situ." *Breastcancer.org*, 18 Feb 2017. Accessed 21 Nov 2017.

2 "Treatment for DCIS." *Komen.org*. Susan G Komen, 11 March 2017. Accessed 29 Nov 2017.

## How is DCIS detected and treated?

DCIS typically presents no symptoms, but some patients may notice a small lump or nipple discharge that prompts them to see a doctor. For this reason, mammography is an important tool in the detection of this condition.<sup>3</sup> Breast-conserving surgery (lumpectomy) followed by radiation is the most common treatment for DCIS, but each patient's recommended course of treatment will depend on a variety of factors, including

- Tumor grade (indicating its likelihood of recurrence after surgical removal)
- Tumor size
- Hormone receptor status

These factors will help to shape treatment recommendations, which can include surgery, radiation, and/or hormone therapy. Small, low-grade tumors can sometimes be effectively treated with breast-conserving surgery (lumpectomy) alone, while doctors commonly recommend radiation to prevent higher-grade tumors from returning. Mastectomy may be recommended when abnormal cells have spread within the milk ducts or for patients who cannot undergo or wish to avoid radiation treatment. If the tumor is hormone-receptor positive, meaning that it needs hormones (either estrogen or progesterone) to grow, then hormone therapy is typically recommended after lumpectomy to minimize the odds of recurrence.<sup>4,5</sup>

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3 "Signs and Symptoms of DCIS." *Breastcancer.org*, 18 Feb 2016. Accessed 29 Nov 2017.

4 "Understanding Your Pathology Report: Ductal Carcinoma In Situ (DCIS)." *Cancer.org*. American Cancer Society, 9 March 2017. Accessed 21 Nov 2017.

5 "Treatment for DCIS." *Breastcancer.org*, 22 Feb 2017. Accessed 1 Dec 2017.

### What is the prognosis for patients with DCIS?

According to Susan G Komen, approximately 40–50% of DCIS cases will progress to invasive breast cancer if left untreated.<sup>6</sup> With treatment, however, DCIS patients enjoy nearly a 100% survival rate.<sup>7</sup>

## Invasive Ductal Carcinoma (IDC)

### What is IDC?

Invasive ductal carcinoma is the most common form of breast cancer, accounting for approximately 80% of invasive breast cancers.<sup>8</sup> Like DCIS, IDC begins in the milk ducts; unlike the in situ form of ductal breast cancer, however, IDC describes cancer that has spread beyond the milk ducts into the surrounding tissue. IDC most commonly affects women aged 55 and older, who account for about two thirds of patients.<sup>9</sup>



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6 "Treatment for DCIS." *Komen.org*. Susan G Komen, 11 March 2017. Accessed 29 Nov 2017.

7 "Prognostic factors and Survival Rates for Ductal Carcinoma in Situ (DCIS)." *Moose & Doc Breast Cancer*. Steven Halls, 27 Nov 2017. Accessed 29 Nov 2017.

8 "IDC — Invasive Ductal Carcinoma." *Breastcancer.org*, 18 Feb 2017. Accessed 29 Nov 2017.

9 "IDC – Invasive Ductal Carcinoma." *BreastCancer.org*, 18 Feb 2017. Accessed 1 Dec 2017.

### What are the symptoms of IDC?

While you or your doctor may feel a lump that alerts you to IDC, mammography is important because it sometimes detects IDC that hasn't produced any symptoms. Other possible signs of infiltrating ductal carcinoma include

- Swelling and/or pain in the breast
- Irritation, redness, dimpling, or thickening of breast skin
- Nipple pain or inversion
- Unusual discharge from the nipple
- Lump in the underarm<sup>10</sup>

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10

Ibid.



### What is the prognosis for IDC patients?

Overall, current figures show an average five-year survival rate of 88% for patients diagnosed with IDC.<sup>11</sup> It's important to keep in mind, however, that it takes time to collect and analyze data before statistics are released, and survival rates tend to increase over time as detection and treatment methods progress. In the case of IDC, statistics from 2004 showed a five-year survival rate of 83%, and 1997 statistics reflect a rate of only 63%.<sup>12</sup>

An individual patient's prognosis will be influenced, in part, by the stage of the cancer at the time of detection. Stage refers to how far the cancer has spread from its place of origin—in the case of IDC, the milk duct. Stage I is the earliest stage of invasive cancer, and stage IV describes cancer that has metastasized to other organs or distant parts of the body. To determine stage, the doctor looks at the tumor size and identifies any other locations to which it has spread. The earlier cancer is detected, the better the prognosis. Treatments are more likely to be successful, and less invasive treatments are more likely to be effective against earlier-stage cancers.

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11 Survival rates: "Breast Cancer Survival Rates for All Types of Breast Cancers." *Moose & Doc Breast Cancer*. Steven Halls, MD. 27 Nov 2017. Accessed 28 Nov 2017.

12 "Lobular Breast Cancer: What Are the Prognosis and Survival Rates?" *Healthline.com*. Healthline Media, 10 Oct 2016. Accessed 28 Nov 2017.



## How is IDC treated?

What treatments are recommended will vary depending on the tumor's stage, grade, type, growth rate, and hormone receptor status. Recommendations can range from lumpectomy and radiation to minimize the odds of recurrence to mastectomy and systemic treatments such as chemotherapy and hormone therapy.<sup>13</sup>

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13 Factors affecting treatment "Understanding Your Pathology Report: Breast Cancer." *Cancer.org*. American Cancer Society, 9 March 2017. Accessed 21 Nov 2017.



# *Paget's Disease of the Nipple*

## What is Paget's disease?

Paget's disease of the nipple is a condition in which cells resembling DCIS appear in the skin of the nipple. It's estimated that Paget's disease is a factor in 1–4% of breast cancer cases. Researchers are uncertain how this condition arises: one theory is that cancer cells produced inside the breast travel through the milk ducts and appear on the nipple; another is that these cells become cancerous on their own. While some patients are found to have Paget's disease without detectable underlying cancer, the National Institutes of Health estimates that up to half of patients with the disease also have a palpable mass inside the breast.<sup>14</sup>

## What are the symptoms of Paget's disease?

Initially, symptoms can come and go, but they tend to worsen over time. Symptoms of Paget's disease can sometimes be confused with skin conditions like eczema. Paget's disease can cause changes in the nipple and surrounding area such as

- Red, flaky, or thickened skin
- Pain, itching, burning, tingling, or increased sensitivity
- Flattening or inversion of the nipple
- Bloody or yellowish discharge<sup>15</sup>

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14 "Paget Disease of the Breast." *Cancer.gov*. National Institutes of Health, 10 April 2012. Accessed 1 Dec 2017.

15 "Paget's Disease of the Nipple." *Breastcancer.org*, 12 April 2017. Accessed 1 Dec 2017.

## How is Paget's disease treated?

The treatment for Paget's disease will depend heavily on whether underlying breast cancer is detected and, if so, its characteristics. Although in the past, mastectomy was the standard treatment for Paget's disease, recent studies show that some patients can successfully be treated with breast-conserving surgery, which typically involves removing the nipple and areola as well as any cancer existing within the breast. Even if no underlying cancer is detected, a sentinel node biopsy may be recommended because cancer may still appear in the lymph nodes of Paget's disease patients in such cases. Patients with invasive underlying cancers or other complicating factors, however, may be advised to undergo mastectomy. Individual recommendations will depend on the characteristics of the underlying cancer detected and may also include radiation, chemotherapy, and/or hormone therapy.<sup>16</sup>

## What is the prognosis for patients with Paget's disease of the nipple?

Because of the disease's frequent association with other breast cancers, the prognosis for patients can vary widely. Among those without detectable underlying cancer, survival rates average 92–94% at five years and 82–91% at ten years. Among patients with detected underlying tumors, however, 38–40% survive five years, and 22–33% survive ten years.<sup>17</sup>

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16 Ibid.

17 Schwartz, Robert A. "Mammary Paget Disease." *Medscape.com*. WebMD LLC, 17 July 2017. Accessed 21 Nov 2017.

# Lobular Carcinoma

## Lobular Carcinoma in Situ (LCIS)

### What is LCIS?

Not considered true breast cancer, LCIS is sometimes referred to as lobular neoplasia, indicating abnormal cells located in the milk glands. It's often found in multiple lobules and/or in both breasts. Most common in post-menopausal women, LCIS affects approximately 3.9 in 10,000 women—approximately one-seventh the rate of DCIS.<sup>18</sup>



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18 "Special Section/ Breast Carcinoma in Situ." *Cancer.org*. American Cancer Society, 2015. Accessed 28 Nov 2017.

**How is LCIS detected and treated?**

Lobular carcinoma in situ typically produces no symptoms, and it often does not show up on a mammogram. As a result, it's often detected when a breast biopsy is taken to investigate another issue in the breast, such a lump or irregular mammogram finding.

Surgery is not typically recommended for LCIS, although prophylactic mastectomy may be recommended for individuals in particularly high-risk groups such as those with mutations of the BRCA1 or BRCA2 genes. More commonly, careful observation is advised. Sometimes, hormone therapies are also recommended to reduce the risk of invasive cancer.<sup>19</sup>

**What is the prognosis for patients with LCIS?**

It's estimated that 20–30% of LCIS patients will eventually develop either lobular or ductal invasive breast cancer, making annual mammography particularly important for these individuals.<sup>20</sup> LCIS on its own, however, is not life threatening.

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19 "LCIS—Lobular Carcinoma in Situ." *Breastcancer.org*, 18 Feb 2017. Accessed 1 Dec 2017.

20 "Invasive Lobular Carcinoma and Lobular Carcinoma in Situ." *Moose & Doc Breast Cancer*. Steven Halls, MD, 28 Nov 2017. Accessed 28 Nov 2017.



## Invasive Lobular Carcinoma (ILC)

### What is invasive lobular carcinoma?

As the name indicates, ILC is breast cancer originating in the milk-producing glands that has spread to surrounding tissues. ILC is the second most common form of breast cancer (next to IDC), accounting for 10–15% of invasive breast cancers.<sup>21</sup>

### How is ILC detected?

In the earliest stages, ILC may not produce symptoms. It can be difficult to see on a mammogram because the cancer tends to stream through the breast tissue rather than forming a lump. Typically, a problematic area or suspicious mammogram finding is assessed with biopsy to identify ILC, and patients diagnosed with ILC will often undergo MRI to assess the extent of the cancer.<sup>22</sup> Patients may notice a hardening or thickening of the breast, unusual fullness or swelling, breast or nipple pain, nipple inversion, or skin irritation or dimpling.<sup>23</sup>



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21 "Invasive Lobular Carcinoma (ILC)." *Hopkinsmedicine.org*. The Johns Hopkins University, 14 Feb 2017. Accessed 21 Nov 2017.

22 Ibid.

23 "ILC—Invasive Lobular Carcinoma." *Breastcancer.org*, 18 Feb 2017. Accessed 1 Dec 2017.

### What is the prognosis for ILC patients?

The most recent statistics reflect a 90% five-year survival rate among ILC patients.<sup>24</sup> This represents a significant boost over the past 20 years: in 2004, that rate was reported to be 85%, and in 1997, it was 78%.<sup>25</sup> As with other infiltrating cancers, however, an individual patient's prognosis depends heavily on the characteristics of the cancer found, such as its stage and size.

### What treatments are available for ILC?

Treatments for invasive lobular cancer can vary. Smaller, more localized cancers may be successfully treatable with breast-conserving surgery and radiation. If the tumor is large or has spread to other parts of the body, then hormonal treatments and/or chemotherapy may be prescribed in order to shrink the tumor before surgery (either lumpectomy or mastectomy). Often, one or more lymph nodes are removed during surgery for evaluation to help determine whether and to what extent the cancer has spread to other parts of the body. Chemotherapy, hormonal therapy, and/or other medications may be recommended to attack cancer cells that have spread and to prevent the cancer from returning.<sup>26</sup>

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24 Survival rates: "Breast Cancer Survival Rates for All Types of Breast Cancers." *Moose & Doc Breast Cancer*. Steven Halls, MD. 27 Nov 2017. Accessed 28 Nov 2017.

25 "Lobular Breast Cancer: What Are the Prognosis and Survival Rates?" *Healthline.com*. Healthline Media, 10 Oct 2016. Accessed 28 Nov 2017.

26 "ILC—Invasive Lobular Carcinoma." *Breastcancer.org*, 18 Feb 2017. Accessed 1 Dec 2017.

# Inflammatory Breast Cancer (IBC)

## What is inflammatory breast cancer?

Inflammatory breast cancer is a rare and aggressive variety of cancer that occurs when cancer cells block the lymph vessels in the breast, causing the breast to become red, swollen, and tender.

## What are the symptoms of IBC?

IBC is often confused with breast infection, which commonly afflicts breastfeeding mothers. However, it's important to have symptoms checked by a doctor right away because IBC can advance very rapidly.

Symptoms may include

- Rapid changes in the appearance of one breast
- Heaviness, aching, or pain
- Unusual warmth in the breast
- Redness or a bruised appearance
- Dimpling or ridges that creates an orange-peel appearance to the skin
- Flattening or inversion of the nipple
- Lump under the arm<sup>27</sup>

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27 "Inflammatory Breast Cancer." *MayoClinic.org*. Mayo Foundation for Medical Education and Research, 31 May 2017. Accessed 1 Dec 2017.



## How is IBC treated?

Typically, inflammatory breast cancer treatment begins with chemotherapy and depending on the tumor's characteristics, may include additional medications to shrink the cancer prior to surgery. If the tumor does not shrink in response to these therapies, then radiation may also be used prior to surgery for this purpose.

Mastectomy is most commonly performed to remove inflammatory breast cancer; however, if pre-surgical therapies prove sufficiently effective, a lumpectomy may be a possible alternative. Surgery is followed up with radiation therapy and, possibly, additional chemo and/or other medications to fight any remaining cancer.

## What is the prognosis for patients with IBC?

Because inflammatory breast cancer is extremely aggressive, approximately 30% of women already have metastases when diagnosed, meaning that the cancer has already spread through the body.<sup>28</sup> Metastatic breast cancer is not considered curable, but it is treatable. Approximately 34% of women in the U.S. who have metastatic breast cancer have lived with the condition for at least five years.<sup>29</sup> For women diagnosed with non-metastatic inflammatory breast cancer, older data suggest a 65% five-year survival rate, and a study of women diagnosed with IBC after 2006 found that 82% lived at least 3 years following their diagnosis, compared to just 63% of women diagnosed before 2006.<sup>30</sup>

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28 "Locally Advanced or Inflammatory Breast Cancer." *Komen.org*. Susan G Komen, 8 May 2017. Accessed 1 Dec 2017.

29 "Treatments for Metastatic Breast Cancer." *Komen.org*. Susan G Komen, 10 April 2017. Accessed 1 Dec 2017.

30 "Locally Advanced or Inflammatory Breast Cancer." *Komen.org*. Susan G Komen, 8 May 2017. Accessed 1 Dec 2017.



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