with surgery plus radiation, while LCIS, which tends to resist radiation, is treated with methods other than radiation.

- **Ductal carcinoma in situ** (DCIS)**.** DCIS means that abnormal cells are found only in the lining of a milk duct of the breast. These abnormal cells have not spread outside the duct. There are several types of DCIS. If not removed, some may change over time and become invasive cancers, while others may not. DCIS is the fourth most common form of cancer in women in the United States (38). Although DCIS is a non-invasive or pre-invasive lesion characterized by cancerous ductal cells confined to the duct lumen, if surgery alone is used to remove cancerous tissue, about 12% of patients experience a recurrence within five years (39). Hence, the preferred treatment is surgery in combination with radiation or chemotherapy.
- **Lobular carcinoma in situ** (LCIS)**.** LCIS means that abnormal cells are found in the lining of a milk lobule. Although LCIS is not considered to be actual breast cancer at this non-invasive stage, it is a warning sign of an increased risk of developing invasive cancer. LCIS sometimes is found in a biopsy for another lump or unusual change detected on a mammogram.

e. Invasive breast cancer

Invasive cancer cells form in the ducts or the milk lobules and spread to the breast tissue around them. Tumors can be found during a breast exam or through screening, such as a mammogram. The size of the tumor, appearance under the microscope, and whether it has spread to the lymph nodes determine the severity of the cancer therapy.

- **Metastatic breast cancer.** Metastatic cancer begins in the breast, but spreads outside the breast through the blood or lymph system to other organs. Women usually develop metastatic disease in the months or years following the diagnosis of breast cancer. This cancer most commonly spreads beyond the breast to the bones, lung, liver, and brain.
- **Locally advanced breast cancer, including inflammatory breast cancer.** Inflammatory breast cancer, which is a subtype of locally advanced breast cancer, is a very aggressive type of breast cancer. The breast looks red and feels warm. The skin is red because of increased vascularization. Inflammatory breast cancer represents about 5% of all breast cancers (40).

f. Definitions for breast cancer

The following text and Table 5.2 provide definitions for the TNM staging scheme, as it applies to breast cancer. Following these definitions are descriptions of each breast cancer stage (Table 5.2).

[38] Kuerer HM, Albarracin CT, Yang WT, et al. Ductal carcinoma in situ: state of the science and roadmap to advance the field. *J Clin Oncol*. 2009;27:279–288.

[39] Wong JS, Kaelin CM, Troyan SL, et al. Prospective study of wide excision alone for ductal carcinoma in situ of the breast. *J Clin Oncol*. 2006;24:1031–1036.

[40] Wedam SB, Low JA, Yang SX, et al. Antiangiogenic and antitumor effects of bevacizumab in patients with inflammatory and locally advanced breast cancer. *J Clin Oncol*. 2006;24:769–777.