

Lymphatic system and axillary nodes

Lymph vessels, like blood vessels, run all through the body. They carry lymph fluid and cells. Lymph nodes are small clumps of immune cells that act as filters for the lymphatic system. They also store white blood cells that help fight illness. The lymph nodes in the underarm are called *axillary* [AK-sil-air-e] *nodes*. The axillary nodes are the first place breast cancer is likely to spread. During breast surgery, some axillary nodes may be removed to see if cancer cells are present. This helps determine breast cancer stage and guide treatment.

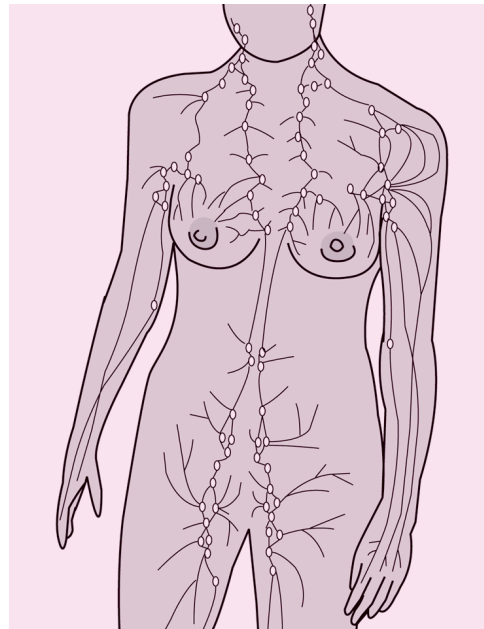
Sentinel node biopsy and axillary dissection

Today, most people have a procedure called *sentinel* [SEN-tih-nel] *node biopsy* to learn if axillary lymph nodes contain cancer. During or before the procedure, a radioactive substance (called a tracer) and/or a blue dye is injected into the breast. These substances help the surgeon find the nodes to remove. The first lymph node(s) to absorb the tracer or dye is called the sentinel node(s). This is also the first lymph node(s) where breast cancer is likely to spread.

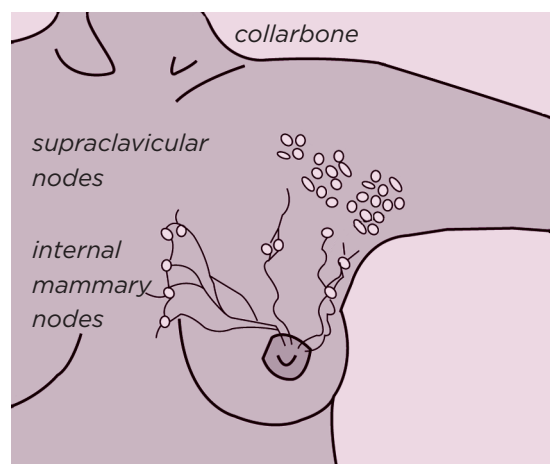
The surgeon removes the sentinel node(s). The node is then sent to the lab so a pathologist can check the node(s) to see if cancer cells are present. If cancer is not found in the sentinel node(s), it is unlikely that other nodes contain cancer. So, more surgery is not needed. If cancer is present, more lymph nodes may be removed with a procedure called axillary dissection.

The goals of axillary dissection are to check how many lymph nodes have cancer and to reduce the chances of cancer returning in the lymph nodes. Axillary dissection removes more nodes and disrupts more of the normal tissue in the underarm area than a sentinel node biopsy.

So, it is more likely to affect arm function and cause lymphedema. For this reason, sentinel node biopsy is the preferred first step to check the axillary lymph nodes.



The lymphatic system runs throughout the body.



Lymph node levels and the internal mammary nodes

Axillary lymph node status

A pathologist uses a microscope to look at the lymph nodes removed during surgery. The results of this exam are reported on your pathology report using the following five categories:

- NX: axillary and other nearby lymph nodes cannot be assessed (for example, they were not removed during surgery)
- N0: axillary and other nearby lymph nodes do not have cancer (when looked at under a microscope), however, very small groups of cancer cells (called micrometastases) may still be found using other tests
- N1: micrometastases OR 1-3 axillary lymph nodes have cancer AND/OR internal mammary nodes have tiny amounts of cancer found on sentinel node biopsy
- N2: 4-9 axillary lymph nodes have cancer OR internal mammary nodes have cancer, but axillary lymph nodes do not have cancer
- N3: 10 or more axillary lymph nodes have cancer OR infraclavicular (under the clavicle) nodes have cancer OR internal mammary nodes have cancer plus 1 or more axillary nodes have cancer OR 4 or more axillary lymph nodes have cancer plus internal mammary nodes have micrometastases found on sentinel node biopsy OR supraclavicular (above the clavicle) nodes have cancer

Lymphedema

Lymphedema [lim-fa-DEE-ma] is a build-up of lymphatic fluid. It causes swelling in the arm or other areas such as the hand, fingers, breast, chest or back. When lymph nodes are removed, some of the lymph vessels can become blocked. This may keep fluid from leaving the arm or hand and cause swelling. Lymphedema can develop weeks, months or years after treatment. It can also vary in its severity. Today, many breast cancer survivors do not get lymphedema. Most women now have a sentinel node biopsy (which removes only a few nodes, unlike axillary dissection). This lowers the risk of lymphedema. So, lymphedema is less common than in the past and, the cases that do occur are less severe. For more information on lymphedema and treatment options, please read *Facts for Life: Lymphedema* or see *Questions to Ask the Doctor* about lymphedema.

Resources

American Cancer Society
1-800-ACS-2345
www.cancer.org

National Cancer Institute
1-800-4-CANCER
www.cancer.gov

National Lymphedema Network
1-800-541-3259
www.lymphnet.org

Related fact sheets in this series:

- Breast Cancer Prognosis
- Breast Cancer Surgery
- Lymphedema