

Lymphatic System: Understanding Its Role

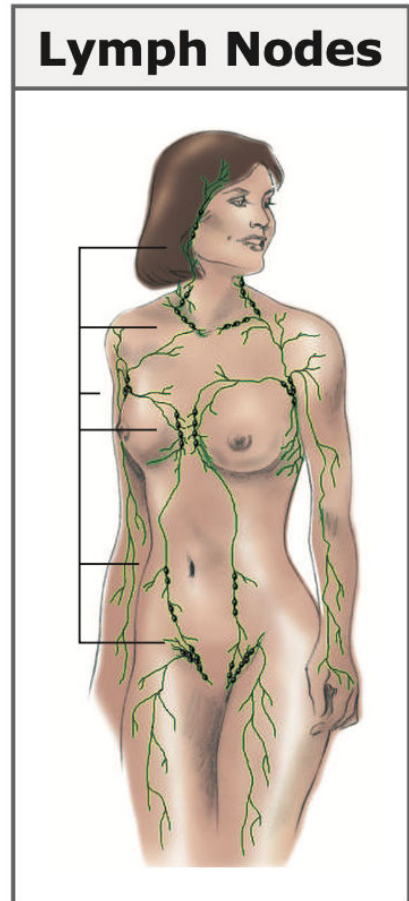
Female Patient

Understanding how the lymphatic system works and how it affects many factors about treatments is an important part of the discussion of your surgery for breast cancer.

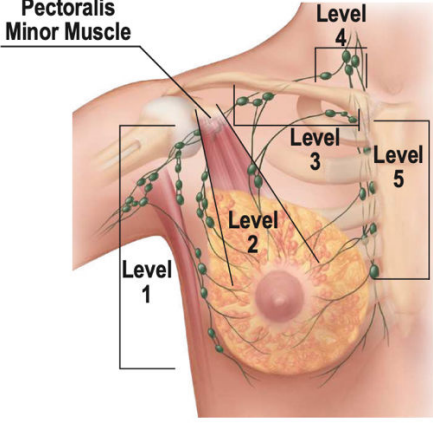
The **lymphatic system** serves as the sewage system for cellular waste in the body. The lymph vessels follow closely beside the blood vessels and receive the cells' waste products. This waste is carried by the vessels and filtered through rounded areas of the lymph system, referred to as the lymph nodes. Nodes appear as small, round capsules and vary from pinhead to olive-size. Specialized cells known as lymphocytes and monocytes are produced in the nodes and act as filters to stop bacteria, cellular waste and cancer cells from entering the bloodstream. Because of their filtration functions, the lymph nodes may also serve as places where cancer cells set up metastatic sites (cancer that spreads from the original site to nodes, referred to as secondary sites).

The majority of lymph fluid drains to the underarm nodes, referred to as the axillary nodes. It is estimated that 10 - 15% of the lymphatic fluid leaving the breast drains to other node chains located in the breast.

There are several levels of lymph nodes near the breast. The first level is located from the breast to the under-arm area; the second level is behind the pectoralis minor (small muscle on chest); and the third level is located higher on the chest, near the collarbone. Other lymph nodes are located above the collarbone and along the breastbone.

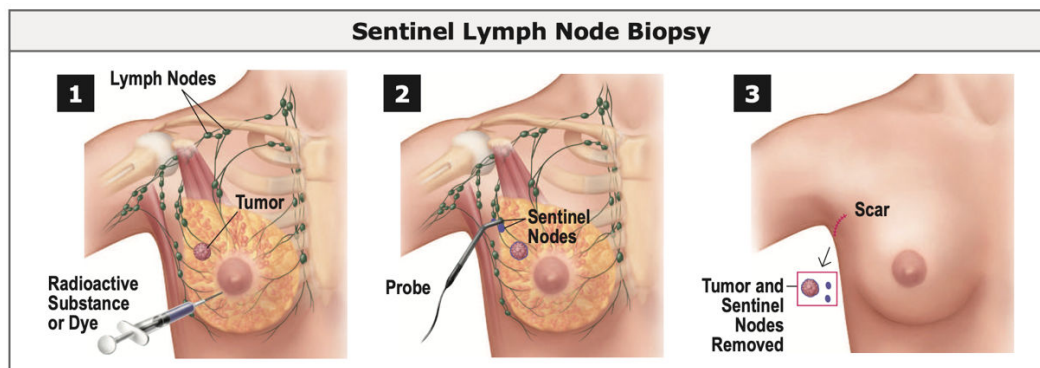


Lymph Nodes

Breast Lymph Nodes	
	Level 1: Axillary <i>(Below the edge of the pectoralis muscle; nodes near armpit)</i>
	Level 2: Mid Axillary <i>(Under Pectoralis Minor Muscle)</i>
	Level 3: Infraclavicular <i>(Below Collarbone)</i>
	Level 4: Supraclavicular <i>(Above Collarbone)</i>
	Level 5: Internal Mammary <i>(Next to the Breastbone)</i>

Lymph Node Evaluation Sentinel Lymph Node Biopsy

If your cancer appears to be invasive, or if you are having a mastectomy for DCIS, your surgeon will determine if cancer is present in the lymph nodes. The most common, least invasive method is sentinel node biopsy. A sentinel node biopsy uses radioactive substance with or without blue dye injected into the breast just prior to surgery to identify the first node or nodes draining from the tumor. The radioactive substance with or without blue dye is carried by the lymphatic fluid to the closest nodes. After the injection, a special instrument will scan the area to see which node(s) has the highest amount of the radioactive substance present. A surgical incision will be made to allow the surgeon access. If blue dye is used, this will help the surgeon visually determine the sentinel node. This node(s) will be removed and evaluated for cancer.



Axillary Lymph Node Dissection (ALND)

An axillary node dissection removes the nodes near your arm pit (axilla). The surgeon removes between 10 ñ 20 clustered nodes that are surrounded by fatty tissues. The cluster of nodes is then sent to pathology for evaluation. ALND is usually recommended when:

- Axillary lymph node(s) has been confirmed positive after a fine needle aspiration or core biopsy and neoadjuvant chemotherapy is not planned before surgery
- Patient is not a suitable candidate for sentinel node biopsy
- Sentinel node procedure failed to identify node for removal
- Node(s) remain positive after neoadjuvant chemotherapy
- Inflammatory, or advanced clinical stage of cancer is diagnosed

Lymph Node Results

Your pathology report will contain the results of your lymph node removal. The term negative nodes means that the lymph nodes did not have any evidence of cancer. Positive nodes indicate that the cancer was found in the lymph nodes. The surgeon will tell you how many nodes were removed during your surgery and how many were found to have cancer cells present. The number of nodes in which cancer cells are found is an important factor in determining treatment.

