



USF Breast Health Program

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Sentinel Lymph Node Biopsy—Answers to Your Questions

Q. What is the sentinel lymph node?

A. The sentinel lymph node is the first node(s) in the body to come in contact with cancer cells as they leave the primary tumor in the breast and start to spread into the rest of the body's tissues.

Q. What are the benefits of sentinel lymph node biopsy?

A. By removing only the sentinel node(s), the pathologist who reviews the tissue sample to detect cancer will have a more targeted approach and spend more time looking at the areas most likely having the cancer. Also, if the sentinel node is found to be negative for cancer cells, patients can potentially avoid getting more invasive treatment like an axillary lymph node dissection (ALND), which leads to a higher risk of developing lymphedema. Sentinel lymph node biopsies (SLNB) typically lead to shorter recovery times and less post-operative pain than an ALND.

Q. Who is a candidate for sentinel lymph node biopsy?

A. Women who have undergone a breast biopsy and have been diagnosed with breast cancer should ask their doctor if sentinel lymph node biopsy is an appropriate alternative to axillary lymph node dissection for them.

Q. Who is not a candidate for sentinel lymph node biopsy?

A. Patients with non-invasive breast cancer may not require sentinel lymph node biopsy. Also, patients with known positive nodes may not need SLNB unless other areas are suspected.

Commonly Used Terms

Axillary—Pertaining to the area under the arm, including the lymph nodes.

Benign—Non-cancerous.

False Negative—Test indicates that the area is “normal” even though the cancer is really there.

Invasive Cancer—Cancer that has spread to nearby tissue. Invasive cancer is also called infiltrating cancer or infiltrating carcinoma.

Lymphedema—A condition in which excess fluid collects in tissue and causes swelling. It may occur in the arm after lymph vessels or lymph nodes in the underarm are removed.

Lymph Nodes—Small, bean-shaped structures found in the body that trap and remove cell waste and help fight infections. They are often examined to determine if cancer has spread.

Malignant—Cancerous.

Metastasis—Spread of cancer from one part of the body to another.

Radio-isotope Injection—A radioactive material injected into the body so that a nuclear scanner can make pictures or a detector can trace it.

Sentinel Lymph Node—The first lymph node in the body to come in contact with cancer cells as they leave the primary tumor.

Seroma—Clear fluid that is trapped inside a wound.

Stage—The extent of the cancer. For breast cancer, the stage is determined by the size of the primary tumor, its location and the presence or absence of cancer cells in lymph nodes and the number of positive nodes as well as any spread to other sites.

Understanding the Extent of the Cancer

When a woman is diagnosed with breast cancer, one of the first questions she and her doctor want to answer is, “Has the cancer spread?” Advances in procedural techniques have helped answer this question and improve the physician’s ability to develop a more effective treatment plan for breast cancer. One of these techniques is the sentinel lymph node biopsy, which helps the physician better understand the extent of the cancer, potentially sparing patients from more invasive surgery and/or side effects.

Lymph nodes are small structures located throughout the body that filter out and destroy bacteria and toxic substances. The sentinel lymph node is the first lymph node of the breast. If cancer cells have broken away from the tumor and traveled away from the breast, the sentinel node is more likely than other nodes to contain these cells. By examining the sentinel node, the physician may better determine the status of the entire axilla (underarm area). For example, if the sentinel node is negative for cancer cells, then the remainder of the lymph nodes are more likely to also be cancer free.

Learning About Sentinel Lymph Node Biopsy

Sentinel lymph node biopsy (SLNB) is a minimally invasive technique. For the procedure, the tumor site is injected with a radio-isotope, blue dye, or both. The radio-isotope or blue dye is tracked into the sentinel lymph node. If a radio-isotope is used, a gamma detection device helps the surgeon identify the sentinel lymph node. Once the sentinel node is identified, the surgeon removes the node (or sometimes the first few nodes).

The node(s) are then examined under a microscope. If no cancer is found in the sentinel node, it may not be necessary to remove additional nodes. If cancer is found, more lymph nodes are removed to check for additional areas of cancer.

Studies have shown that SLNB is an accurate way to detect whether or not cancer cells have spread outside of the breast. These studies have found that sentinel lymph node biopsies have accuracy rates greater than 96% for predicting the presence or absence of cancer cells in the axillary lymph nodes.¹


Axillary Lymph Node Dissection

Axillary lymph node dissection is an alternative, as well as a follow-up procedure, to SLNB. If the SLNB shows that the cancer has spread to the lymph nodes, an ALND may be performed to determine how many lymph nodes are affected.

Unlike SLNB, in this procedure, multiple nodes are removed at once. The procedure removes more tissue and requires more work around the blood vessels and nerve bundles. Although both procedures have the following side effects, more patients reported persistence of these side effects following ALND than those having only sentinel lymph node removal:²⁻³

- Arm swelling and numbness
- Limitations in range of motion
- Time until return-to-normal activities
- Seroma
- Axillary pain

Your doctor may also recommend ALND if you have lymph nodes that feel abnormal or are enlarged.

See a sentinel lymph node biopsy performed by Dr. Charles E. Cox on our YouTube channel, [HERE](#). 

¹Veronesi, U. et al. “A Randomized Comparison of Sentinel-Node Biopsy with Routine Axillary Dissection in Breast Cancer.” *New England Journal of Medicine*. 349. 2003; 546-53.

²Swensen, K.K., et al. “Comparison of Side Effects Between Sentinel Lymph Node and Axillary Node Dissection for Breast Cancer.” *Annals of Surgical Oncology*. 9(8). 2002; 745-53.

³Mansej, R.E., et al. “Fewer Side Effects with Sentinel Lymph Node Removal.” San Antonio Breast Cancer Symposium. Dec. 2004. Abstract 15, 18, www.breastcancer.org/research_surgery_022405a.html. Accessed Dec. 20, 2011