

Detection of the sentinel lymph node

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Abstract: In case of breast cancer spread the lymphatic system is the first organ to be infected. This makes this system a good indicator for cancer presence. The spread extension will be decisive in the choice of treatment to be made.

When a breast tumor is detected usually two different techniques are employed: the extraction of the totality of the axilla nodes or the biopsy of the sentinel lymph node. The first case is a highly invasive procedure where 10 to 15 nodes are removed (ALND: Axillary Lymph Node Dissection). A percentage between 5 and 10% of the patients suffer of post-operative chronic problems like arm swelling, pain or residual numbness. In the second case only up to 3 nodes are

removed and in 90% of the patients the sentinel node is identified with success. If not the ALND is performed. If the biopsy result is positive also ALND is made.

For the sentinel node detection in the operating room, the surgeon injects a blue dye, a radioactive liquid, or both into the area around the tumor. The medical doctor then watches to see where the dye travels and seems to concentrate. In the case a radioactive liquid is used a radiation detector is used to spot the node location.

Recently several detectors with image capacity have been proposed to perform this task. In this talk a review of some prototypes and already commercially available detectors will be made.